South Coast Air Quality Management District

Statement of Basis

Proposed Title V Permit

(Proposed for Public Review: 2/04/09)

Facility Name:	BP West Coast Products LLC, Carson Refinery (Formerly ARCO Products Company)
Facility ID:	131003
SIC Code:	2911
Facility Address:	2350 E. 223rd Street Carson, CA 90749
Application Number:	408243
Application Submittal Date:	10/30/02
AQMD Contact Person:	Bhaskar Chandan, Senior Air Quality Engineer
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1. Introduction and Scope of Permit

Title V is a national operating permit program for air pollution sources. Facilities subject to Title V must obtain a Title V permit and comply with specific Title V procedures to modify the permit. This permit replaces the facility's other existing permits. Title V does not necessarily include any new requirements for reducing emissions. It does, however, include new permitting, noticing, recordkeeping, and reporting requirements.

The South Coast Air Quality Management District (AQMD) implements Title V through Regulation XXX – Title V Permits, adopted by the AQMD Governing Board in order to comply with EPA's requirement that local air permitting authorities develop a Title V program. Regulation XXX was developed with the participation of the public and affected facilities through a series of public workshops, working group meetings, public hearings and other meetings. AQMD also has published a draft of the Technical Guidance Document for Title V (March 2005, Version 4.0) available on the AQMD website at http://www.aqmd.gov/titlev/TGD.html.

The Title V major source threshold for a particular pollutant depends on the attainment status of the pollutant in the South Coast Air Basin. The Basin is in attainment with National Ambient Air Quality Standards (NAAQS) for NO_2, SO_2, CO, and lead. The status for CO was redesignated from nonattainment to attainment in June 2007 (72 FR 26718). The status of PM2.5 is nonattainment. The status for PM-10 is currently serious nonattainment. The status for ozone is currently extreme nonattainment.

The AQMD proposes to issue an initial Title V permit for the refinery operations of BP West Coast Products LLC, Carson Refinery, which are located at 2350 E. 223rd Street., Carson, CA 90749. The refinery is subject to Title V requirements because the company's operations at this location as an aggregate are a major source of pollution as defined in Title V and the facility is subject to certain New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements.

2. Facility Description

This refinery is owned and operated by BP West Coast Products LLC. It produces a variety of products including gasoline, jet fuel, diesel fuel, fuel oil, liquefied petroleum gases (LPG), and coke, from crude oil. Currently, the refinery has a capacity to process approximately 265,000 barrels of crude oil per day on an annual average. The refinery utilizes several processes to separate petroleum components in crude oil and to convert heavy components into lighter hydrocarbon compounds. These hydrocarbon compounds are used as blending components for gasoline, diesel fuel, and other products.

Operations at the refinery include the following major processes:

Crude and Vacuum Distillation Units
These units are the first major processing units in the refinery flow. They rely on atmospheric and/or vacuum distillation to separate the crude oil into fractions according to boiling points. The products from these units are gases (propane, butane, etc.), naphtha, stove oil, diesel fuel, gasoil, and straight-run resid. These fractions – such as naphtha (gasoline range), straight-run kerosene (jet fuel range), straight-run diesel (diesel fuel range), gasoil, and residuum - can sometimes be blended into finished products, but most often require further refining.

Fluid Catalytic Cracking Unit (FCCU)
The FCCU converts gasoil into lighter hydrocarbon compounds. The process is called "cracking process." It involves mixing gasoil feed with fluidized catalyst in a reactor under appropriate temperature and pressure. The FCCU produces a large quantity of gasoline blending components and feed stocks for the alkylation operation.

ISOM/Hydrogen Plant Complex
Isomerization converts straight-chain hydrocarbon molecules into branched-chain hydrocarbons with higher octane rating, while catalytic reforming effectively improves the octane rating of heavy gasoline components but it does so by increasing the aromatic content of the fuel. Through isomerization, the refinery is able to meet CARB specifications for the aromatic content of gasoline. The feed to the unit is composed of benzene-containing naphthas from the SFIA, Coker, and Reformers. The product from the unit, isomerate, is a gasoline blending component and contains very little benzene. Hydrogen is used in these processes.

Butamer Unit
The butamer unit produces isobutene for use in the alkylation process.

Alkylation Unit
This unit produces alkylate, a high octane gasoline component by allowing olefin feed stock, such as butylenes, to react with isobutane in the presence of sulfuric acid.

Hydrogen Production Plant
The hydrogen plant produces hydrogen for use in various hydrotreating processes. Carbon dioxide is generated in the hydrogen plant as a co-product. The carbon dioxide is removed and recovered for sale to a distribution company for various uses.

Hydrocracking
Heavy gas oil is cracked under high pressure in the presence of hydrogen and a catalyst into lighter components which are used as blending stocks for gasoline and other products.

Naphtha Splitter and Light Naphtha Stabilizer
The Naphtha Splitter concentrates naturally occurring benzene in the light naphtha into a heavy naphtha feed to the Reformer. Light hydrocarbon compounds such as ethane, propane, and butane are removed by distillation in the Light Naphtha Stabilizer. The light hydrocarbons are then treated to remove sulfur compounds before being used as fuel in some of the process heaters.

Reformer
The Catalytic Reforming Unit (CRU) utilizes a light cracking process to convert heavy, low-octane naphtha fractions into higher-octane reformates and hydrogen; and to reduce sulfur. Hydrogen sulfide is a byproduct of this process.

Light Ends Fractionation
The naphtha and gases from the crude and other units are further separated by distillation at the super fractionation area, light ends depropanizer, straight run light end depropanizer, de Iso Butanizer unit, C3 Splitter and liquid recovery unit. The products are fuel gas, propane, propylene, butane, isobutane, butylenes, pentanes, and naphtha.

Blending
The various process units create blend stocks for gasoline, jet fuel and diesel fuel. For example, alkylate, reformate, and FCC gasoline are all gasoline blend stocks. The blending process combines these blend stocks to assure that all finished products meet their specifications.

Coking
Heavy residual oil and recovered oil are thermally cracked at a high temperature to produce light hydrocarbons and petroleum coke. Petroleum coke is transferred via conveyors to the coke barn for further processing and distribution.

Hydrotreating
Petroleum products are catalytically stabilized and impurities such as sulfur, nitrogen, and oxygen are removed from products or feedstocks by reacting them with hydrogen

Amine Fuel Gas Treating Unit and Sulfur Recovery Unit (SRU):
Sulfur compounds in the crude oil fractions are removed at the HDS units in the form of hydrogen sulfide (H_2S) gas. H_2S rich streams for the HDS units are treated in amine contactor columns to remove the H_2S. The "rich" amine solution from these columns is regenerated to liberate the H_2S. The H_2S stream is fed to the SRU where it is converted to molten elemental sulfur.

In addition to the above major processes, the facility operates other distillation and separation processes, numerous combustion units such as cogeneration facilities, heaters and boilers that are utilized in many of the above processes, thermal oxidizers, stationary internal combustion engines, sulfur plants, refinery flares, and wastewater treatment systems. Onsite loading/unloading racks, fixed roof storage tanks, internal floating roof storage tanks, external floating roof storage tanks, and pressurized storage tanks are used in the transport and storage of the gasoil, fuel oil, kerosene, diesel fuel, gasoline, naphtha, LPG, and sulfur.

3. Construction and Permitting History

The refinery has been in continuous operation since 1938. Numerous permits to construct and permits to operate have been issued to the refinery since the formation of the Los Angeles County Air Pollution Control District in 1947. The current permit to operate and/or permit to construct for each permit unit located at the refinery is contained in the Title V permit. The refinery was previously owned and operated by ARCO Products Company until January 1, 2002, at which time BP West Coast Products, LLC acquired the facility.

4. Regulatory Applicability Determinations

Applicability determinations (i.e., determinations made by the District with respect to what legal requirements apply to a specific piece of equipment, process, or operation) for this facility have been completed. Applicable legal requirements with which this refinery must comply have been identified in the Title V permit (for example, Sections D, E, and H of the proposed Title V permit). Federal NSPS requirements of 40 CFR Part 60 apply to certain units at the facility and the permit terms and conditions have been added to Sections D and H of the Title V permit. Federal NESHAP requirements of 40 CFR Parts 61 and 63 apply to certain units at the facility and the permit terms and conditions have been added to Sections D, H, and J of the Title V permit.

Standards of Performance for New Stationary Sources (NSPS) (40 CFR 60)

Applicability Determinations
All of the equipment in the Title V Permit have been reviewed to determine whether they are subject to any of the NSPSs. With the exception of the equipment specified in Tables 4.1 to 4.3

below, the refinery is generally subject to the following NSPSs:

- 40 CFR 60 Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units;
- 40 CFR 60 Subpart J – Standards of Performance for Petroleum Refineries;
- 40 CFR 60 Subpart K – Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973 and Prior to May 19, 1978;
- 40 CFR 60 Subpart Ka – Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978 and Prior to July 23, 1984;
- 40 CFR 60 Subpart Kb – Standards of Performance for Volatile Organic Storage Vessels (Including Petroleum Liquids Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced July 23, 1984;
- 40 CFR 60 Subpart GG – Standards of Performance for Stationary Gas Turbines;
- 40 CFR 60 Subpart GGG – Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries;
- 40 CFR 60 Subpart GGGa – Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After November 7, 2006; and
- 40 CFR 60 Subpart QQQ – Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems.

The above regulations specify standards for applicable equipment within the refinery based on construction date or subsequent modifications that resulted in an emission increase as defined by 40 CFR 60.14(a) or reconstruction with a capital cost of the new components exceeding 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility as defined in 40 CFR 60.15(a) and (b). The applicability of the above rules is based on information contained in the permit application files or through the refinery's responses to information requests. Each of the standards listed above, as applicable to the BP refinery, is incorporated into the Title V permit.

Alternative Monitoring Plans (AMPs)

EPA allows facilities to apply for an alternative monitoring plan (AMP) in lieu of meeting the monitoring requirements specified under an individual NSPS. NSPS Subpart A, section 60.13(i) states that "[a]fter receipt and consideration of written application, the administrator may approve alternative procedures to any monitoring procedures or requirements of [Part 60] …" EPA, which retains delegation of the authority to approve these AMPs, approves AMPs that include adequate monitoring to verify compliance with the emission standard(s) of an NSPS.

The BP refinery has received EPA approval on several AMPs for their fuel gas combustion devices (FGCDs). These AMPs are for the monitoring requirements of the fuel gas H_2S as specified at §60.104(a)(1) and 60.105(a)(3)(i-iv) of NSPS Subpart J. Specifically, the following FGCDs have received EPA approved AMPs:

- D532 No. 1 Reformer Heater
- D535 No. 2 Reformer Heater
- D1226 Gas Turbine No. 1
- D1233 Gas Turbine No. 2
- D1236 Gas Turbine No. 3
- D1239 Gas Turbine No. 4
- C1326 FCCU Feed HDS Flare
- D1439 No. 3 Reformer Heater
- D1465 No. 2 Hydrogen Reforming Heater
- C1661 No. 5 Flare

A copy of the EPA approved AMPs for these FGCDs are contained as Attachment 1 to this SOB. Note that some of these plans cover more that one of the subject FGCDs. Each of these FGCDs is tagged with a condition that specifies that BP must comply with the requirements of the approved AMP for the device.

Non-Applicability Determinations

Tables 4.1 to 4.3 below contain tabulated summaries of selected negative determinations regarding NSPS applicability.

Table 4.1 Combustion Sources Not Subject to NSPS Requirements

Device ID	Equipment	Regulation	Summary of Non-Applicability Determination
D1287	Boiler	40 CFR 60, Subparts D/Db/Dc[1]	Capacity is less than the 10 MMBtu/hr applicability threshold of NSPS Subpart Dc, less than the 100 MMBtu/hr applicability threshold of NSPS Subpart Db, and less than the 250 MMBtu/hr applicability threshold of NSPS Subpart D.
D234, D1230, D1235, D1238, D1241, D1262	Boilers	40 CFR 60, Subparts D/Db/Dc[1]	The equipment either does not combust fuel gas or the device is not operational.
D234, D2671, D2672, D2778	Boilers	40 CFR 60, Subpart J	The equipment either does not combust fuel gas or the device is not operational.
D705, D907, D1433, D2412	Heaters	40 CFR 60, Subpart J	The equipment are permitted to combust only commercial natural gas and do not combust fuel gas.
D164	FCC Regenerator	40 CFR 60, Subpart J	The equipment are constructed prior to June 11, 1973, and have not been modified or reconstructed since then.
C1302, C1305, C1308	Flares		

[1]40 CFR 60 Subpart D - Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced after August 17, 1971; 40 CFR 60 Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units; and 40 CFR 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.

Table 4.2 Storage Tanks, Loading Racks and Wastewater Systems Not Subject to NSPS Requirements

Device ID	Equipment	Regulation	Summary of Non-Applicability Determination
D730, D739, D740, D741, D742, D743, D744, D745, D1272, D1274, D1604, D2612	Storage Tanks	40 CFR 60, Subpart K/Ka/Kb	The equipment does not meet the definition for a storage vessel as defined in § 60.111(a), § 60.111a(a), or § 60.111b.
D1277	Storage Tank	40 CFR 60, Subpart K/Ka/Kb	Storage capacity below threshold for the subject NSPSs.
D1986	Storage Tank	40 CFR 60, Subpart K/Ka/Kb	Tank is permitted to store inorganic liquids only.
D1136	Storage Tank	40 CFR 60, Subpart K/Ka/Kb	Vapor pressure of permitted commodities is below the vapor pressure threshold of the subject NSPSs.
D1200, D1201, D1202, D1203, D1204, D1205, D1206, D1207, D1208, D1209, D1210, D1211, D1212, D1213, D1214, D1215, D1216, D1217, D1218, D1219, D1220, D1221, D1222, D1223, D1225, D1650, D1651, D1652, D1653, D1654, D1655, D2115, D2116, D2117, D2118, D2119, D2120, D2353, D2394, D2649, D2789	Storage Tank	40 CFR 60, Subpart K/Ka/Kb	These tanks are pressure vessels designed to operate in excess of 15 psig without emissions to the atmosphere except under emergency conditions.

Device ID	Equipment	Regulation	Summary of Non-Applicability Determination
D1067, D1073, D1074, D1075, D1078, D1079, D1083, D1085, D1087, D1092, D1093, D1098, D1102, D1111, D1115, D1117, D1127, D1130, D1131, D1132, D1134, D1135, D1137, D1138, D1139, D1141, D1196, D2793, D2794	Storage Tank	40 CFR 60, Subpart K/Ka/Kb	Tanks were constructed prior to June 11, 1973, and have not been modified or reconstructed since then.
D1004, D1005, D1006, D1011, D1012, D1021, D1605	Wastewater Treatment System	40 CFR 60, Subpart QQQ	The equipment do not meet the definitions for oil-water separators, individual drain systems, or junction box, as defined in § 60.691.
D1634	Wastewater Treatment System	40 CFR 60, Subpart QQQ	The equipment is not subject to this subpart pursuant to § 60.692-3(d) because it is subject to § 60.112b of Subpart Kb.
D999, D2143	Wastewater Treatment System	40 CFR 60, Subpart QQQ	This equipment is not subject to this subpart pursuant to § 60.692-1(d)(1) because it handles strictly stormwater and not wastewater.
D2747, D2752, D2754, D2755, D2757, D2759, D2761, P15S2, P15S4, P15S5, P15S8, P15S9	Wastewater Treatment System	40 CFR 60, Subpart QQQ	Wastewater treatment systems were constructed prior to May 4, 1987, and have not been modified or reconstructed since then.

Table 4.3 Fugitive Components Not Subject to NSPS Requirements

Device ID	Equipment	Regulation	Summary of Non-Applicability Determination
None	Fugitive Components	40 CFR 60, Subparts GGG	All fugitive components at this refinery are subject to 40 CFR 60 Subparts GGG.

This refinery is not subject to the NSPSs listed below:

- 40 CFR 60 Subpart Cd – Emissions Guidelines and Compliance Times for Sulfuric Acid Production Units. This refinery does not operate any sulfuric acid production units.
- 40 CFR 60 Subpart D - Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced after August 17, 1971. The refinery does not operate equipment that would be subject to this NSPS.
- 40 CFR 60 Subpart Da - Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978. This refinery does not meet the definition of an electric utility.
- 40 CFR 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. The refinery does not operate equipment that would be subject to this NSPS.
- 40 CFR 60 Subpart Ja – Standards of Performance for Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced after May 14, 2007. None of the refinery's equipment triggers applicability under Subpart Ja since none of its fuel gas combustion devices have been constructed, modified, or reconstructed since May 14, 2007.
- 40 CFR 60 Subpart UU - Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture. The refinery does not operate any asphalt roofing processes, asphalt storage tanks, or asphalt blowing stills.
- 40 CFR 60 Subpart XX - Standards of Performance for Bulk Gasoline Terminals. The refinery does not operate a bulk gasoline terminal.
- 40 CFR 60 Subpart III- Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes. This refinery does not conduct any SOCMI operations.
- 40 CFR 60 Subpart NNN - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations. The refinery does not conduct any SOCMI operations.
- 40 CFR 60 Subpart RRR - Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical. This refinery does not conduct any SOCMI operations.

National Emission Standard for Hazardous Air Pollutants (NESHAP) (40 CFR 61 and 63)

Applicability Determinations

All of the equipment in the Title V Permit has been reviewed to determine whether they are subject to any of the NESHAPs. With the exception of the equipment specified in Tables 4.4 to 4.13 below, this refinery is generally subject to the NESHAPs listed below.

- 40 CFR 61 Subpart FF - National Emission Standard for Benzene Waste Operation;
- 40 CFR 63 Subpart CC - National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries;

- 40 CFR 63 Subpart UUU - National Emission Standard for Hazardous Air Pollutants for Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units;
- 40 CFR 63 Subpart EEEE - National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline); and
- 40 CFR 63 Subpart GGGGG – National Emission Standard for Hazardous Air Pollutants for Site Remediation.

Each of these standards, as applicable to the refinery, is incorporated into the Title V permit. Provided below is a brief description of requirements for each of the above NESHAP regulations. Discussed within each section are the non-applicability determinations for each NESHAP as they pertain to this refinery.

40 CFR 61 Subpart FF

40 CFR 61 Subpart FF-National Emission Standard for Benzene Waste Operations (Benzene Waste NESHAP) defines a major source as any chemical manufacturing plant, coke by-product recovery plant, or petroleum refinery with 10 megagram per year (Mg/yr) (11 tons/yr) or more of benzene in the waste streams. This refinery is a major source that is subject to the control requirements of this regulation.

<u>Summary of Requirements</u>

Under this regulation, a major source must control benzene in non-exempt waste streams that contain 10 parts per million by weight (ppmw) or more of benzene. It requires the removal or destruction of the benzene contained in the waste using a treatment process or wastewater treatment system that either a) removes benzene from the waste stream to a level less than 10 ppmw on a flow-weighted annual average basis, b) removes benzene from the waste stream by 99 percent or more on a mass basis, or c) destroys benzene in the waste stream by incinerating the waste in a combustion unit that achieves a destruction efficiency of 99 percent or greater for benzene.

This refinery has chosen to comply with the “2 Mg” compliance option at §61.342(c) of this NESHAP. This option allows the exemption of the following benzene containing wastes from the waste management and control requirements:

- waste streams with a flow-rated annual average benzene concentration of less than 10 ppmw [§61.342(c)(2)]; and
- process wastewater streams with a flow rate less than 0.02 liters per minute or an annual quantity of less than 10 Mg/year [§61.342(c)(3)(i)]; or
- waste streams with a total annual benzene quantity of 2.0 Mg/yr or less if the operator does not exempt process wastewater streams with a flow rate less than 0.02 liters per minute or an annual quantity of less than 10 Mg/year as allowed at §61.342(c)(3)(i)]; [§61.342(c)(3)(ii)].

Please note that the 2.0 Mg/yr benzene quantity exemption at §61.342(c)(3)(ii) was designed to give a facility the flexibility to declare different exempt wastes each year.

For waste management units, which are used to handle or treat waste streams that are treated as specified in §61.348 and/or recycled to a process, the operator must comply with the following standards:

- Tanks standards. *{§61.343 and/or §61.351}*
- Surface impoundments standards. *{§61.344}*
- Containers standards. *{§61.345}*
- Individual drain system standards. *{§61.346}*
- Oil-water separator standards. *{§61.347}*

Equipment that are associated with or contain benzene waste streams that are subject to Subpart FF have been tagged with device condition H23.12. All of these waste streams are subject to the recordkeeping and reporting requirements of 40 CFR61.356 and 61.357, respectively. Waste management units and waste treatment systems that are subject to the individual standards of §61.343 through §61.348 are identified in the permit by the tagging of condition H23.12 in the "Conditions" column of an individual piece of equipment.

Additionally, for all equipment that are subject to the individual standards of this NESHAP, "Benzene: (10) [40CFR 61 Subpart FF_02, 12-4-2003]" is listed in the "Emissions and Requirements" column for that piece of equipment. Footnote 10 at the bottom of the permit page directs the permit reader to see Section J of the permit for the NESHAP/MACT requirements. The pages in Section J that contain the requirements for this NESHAP have "40CFR 61 Subpart FF_02, 12-4-2003" in their headers. As an artifact of the Title V permit software design, "40CFR 61 Subpart FF_02, 12-4-2003" also appears in the table of applicable rules and regulations in Section K of the permit. This listing in Section K does not denote that the facility is subject to any requirements beyond those specified in 40 CFR 61 Subpart FF.

If equipment is subject to the 500 ppmv VOC limit of one of the individual standards, this limit is also specified in the "Emissions and Requirements" column. Each of the subject conditions, references, and emission limits are tagged with "40CFR61, Subpart FF".

<u>Non-Applicability Determinations</u>

Determinations for equipment that are not subject to this NESHAP are discussed in the following subsections.

Storage Tanks
As mentioned above, storage tanks that handle or treat waste streams that are treated as specified in §61.348 and/or recycled to a process are subject to the standards specified at §61.343 and/or §61.351. Waste stream is defined in this NESHAP as the waste generated by a particular process unit, product tank, or waste management unit. Examples include process wastewater, product tanks drawdown, sludge and slop oil removed from waste management units, and landfill leachate. The vast majority of these storage tanks store crude oil, intermediate products, final products, or other materials that are not waste streams as defined in the NESHAP. Therefore, these tanks are not subject to the control requirements of Subpart FF.

Table 4.4 below identifies the tanks that store waste streams but are not subject to Subpart FF because they store waste streams that are exempt from the control requirements of this regulations.

Table 4.4 Benzene Waste NESHAP Non-Applicability Determinations for Storage Tanks

Emission Unit	Summary of Non-Applicability Determination
D1102, D1103, D1131, D1132, D1111	Storage tanks that store benzene wastes that are subject to Subpart FF but exempted from control requirements per §61.342(c)(2) or §61.342(c)(3).

Surface Impoundments
A surface impoundment is defined as a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials, which is designed to hold an accumulation of liquid wastes or waste-containing free liquids. Examples include holding, storage, settling, and aeration pits, ponds, and lagoons. This refinery does not have any surface impoundments.

Containers
Containers are defined as any portable waste management unit in which material is stored, transported, treated, or otherwise handled. Examples include drums, barrels, tank trucks, barges, dumpsters, tank cars, dump trucks, and ships. Mobile sources and marine vessels, such as tank trucks, tank cars, dump trucks, barges, and ships are not covered by the Title V permit. Portable containers, such as drums, barrels, and dumpsters, that only store benzene wastes that are subject to Subpart FF are exempted from control requirements per §61.342(c)(2) or §61.342(c)(3). As such, they are also considered exempt equipment under district Rule 219, and are not listed in the Title V permit.

Individual Drain Systems
An individual drain system is defined as the system used to convey waste from a process unit, product storage tank, or waste management unit to a waste management unit. The drain system includes all process drains and common junction boxes, together with their associated sewer lines and other junction boxes, down to the receiving waste management unit. Due to the large number of drain system components at refineries, drain system components are grouped together in the Title V permit as a single “drain system component” device. The following table contains non-applicability determinations for individual drain systems at the refinery.

Table 4.5 Benzene Waste NESHAP Non-Applicability Determinations for Individual Drain Systems

Emission Unit	Summary of Non-Applicability Determination
D1120	Individual drain systems that collect and transport benzene wastes that are subject to Subpart FF but exempted from control requirements per §61.342(c)(2) or

Emission Unit	Summary of Non-Applicability Determination
	§61.342(c)(3).

Oil-Water Separators
An oil-water separator is defined as a waste management unit, generally a tank or surface impoundment, used to separate oil from water. An oil-water separator consists of the separation unit as well as the forebay and other separator basins, skimmers, weirs, grit chambers, sludge hoppers, and bar screens that are located directly after the individual drain system and prior to additional treatment units such as an air flotation unit, clarifier, or biological treatment unit. Examples include an API separator, parallel-plate interceptor, and corrugated-plate interceptor with associated ancillary equipment.

All of the oil-water separators, as defined in this NESHAP, at the refinery are subject to this NESHAP and are identified in the Title V permit as being subject. The following table contains non-applicability determinations for potentially subject waste stream handling equipment at the refinery.

Table 4.6 Benzene Waste NESHAP Non-Applicability Determinations for Oil-Water Separators

Emission Unit	Summary of Non-Applicability Determination
D1021	Storage tanks that store wastewater or recovered oil but do not meet the definition of an oil-water separator at §61.341.
D1627, D992, D997, D1637, D1007, D1010, D2008, D2009, D2010	Oil-water separators as defined by §61.341 that process waste streams but are exempted from control requirements per §61.342(c)(2) or §61.342(c)(3).

40 CFR 63 Subpart CC

This refinery is also a major source under the definition of 40 CFR 63 Subpart CC (NESHAP from Petroleum Refineries). This regulation, which is commonly referred to as the Refinery MACT, seeks to reduce the emissions of eleven air toxics, including benzene, by requiring controls for emissions of air toxics from storage tanks, equipment leaks, process vents, and wastewater collection and treatment system. The refinery is an existing source under this regulation since it constructed commenced prior to July 14, 1994. The refinery does not contain any equipment that is subject to the new source standards of this regulation.

Summary of Requirements

The Refinery MACT includes requirements for the following emission sources:

- *Miscellaneous process vents. {§63.643 - §63.645}*
- *Storage vessels. {§63.646}*
- *Wastewater management and treatment equipment {§63.647}*
- *Equipment leak (fugitive) components{§63.648 & §63.649}*
- *Gasoline loading racks {§63.650}*
- *Marine tank vessel loading operations{§63.651}*

Equipment that is subject to the Refinery MACT has "HAP" listed in the "Emissions and Requirements" column of the device along with a reference to Section J of the permit. For example, Group 1 storage vessels include "HAP: (10) [40CFR 63 Subpart CC, #3A,5-25-2001]" in the "Emissions and Requirements" column. The pages in Section J that contain the requirements for Group 1 storage vessels have "40CFR 63 Subpart CC, #3A,5-25-2001" in their headers. "40CFR 63 Subpart CC, #3A,5-25-2001" appears in the table of applicable rules and regulations in Section K of the permit but this listing does not denote that the facility is subject to any requirements beyond those specified in 40 CFR 63 Subpart CC.

Non-Applicability Determination

The remainder of this section contains a summary of determinations for equipment that is not subject to this regulation.

Storage Vessels

Group 1 storage vessels are subject to the standards specified at §63.346. Group 1 storage vessels are defined as vessels that have a design capacity greater than or equal to 177 cubic meters (m^3) and store an organic liquid that meets the following specifications:

- maximum true vapor pressure (TVP) greater than or equal to 10.4 kilopascals, and
- annual-average TVP greater than or equal to 8.3 kilopascals, and
- annual-average total organic HAP concentration greater than 4 percent (by weight).

Additional sets of criteria that meet this definition can be found in §63.641.

Under this regulation, any storage vessel with a capacity greater than 40 m^3 that stores an organic liquid that does not exceed the vapor pressure and HAP-content thresholds outlined above are Group 2 storage vessels, which are subject to some recordkeeping requirements. Group 2 storage vessels are identified in the permit by the following notation in the "Emissions and Requirements" column: HAP: (10) [40CFR 63 Subpart CC, #2,5-25-2001]. Storage vessels that are not specified in the permit as Group 1 or Group 2 storage vessels are not subject to any requirements under this regulation. The following storage vessels are exempt from all requirements of this regulation:

- pressure storage vessels designed to operate in excess of 204.9 kPa without emissions to the atmosphere,
- tanks with a design capacity less than 40 m^3,
- tanks not storing an organic liquid,
- storage tanks used to store wastewater, and
- storage tanks used as a bottoms receiver tank.

Table 4.7 below contains non-applicability determinations for storage vessels that are not identified in the Title V permit as Group 1 or Group 2 storage vessels.

Table 4.7 Refinery MACT Non-Applicability Determinations for Storage Vessels

Emission Unit	Summary of Non-Applicability Determination
D1200, D1201, D1202, D1203 D1204, D1205, D1206, D1207, D1208, D1209, D1210, D1211, D1212, D1213, D1214, D1215, D1216, D1217, D1218, D1219, D1220, D1221, D1222, D1223, D1225, D1650, D1651, D1652, D1653, D1654, D1655, D2115, D2116, D2117, D2118, D2119, D2120, D2353, D2394, D2649, D2728, D2789	Storage vessel is a pressure storage vessel designed to operate in excess of 204.9 kPa without emissions to the atmosphere. [*§63.641 – Definition: Storage Vessel*]
D1149 (Tank 10), and Non Permitted Tanks 80, 81, 135, 136, 137, 146, 179, 209, 239, 240, 391-R, 395, 416, 699, 834, 835, 860, 901, 902, 904, 914, 923, 935, RPV100, RPV5380, RPV5381, RPV5834	Storage vessel stores inorganic liquids only. [*§63.641 – Definition: Storage Vessel*]
D525, D527, D528, D800, D844, D873, D874, D1621, D1620, D1136, D908, D909, D847, D848, D2790, D2791, D2792, D1026, D874, D661, D1206, D1207, D1208, D1209, D1210, D1211, D1212, D1213, D1214, D1215, D1216, D1217, D1221, D2652; and Non-permitted tanks: (Tank 135), (Tank 136), (Tank 137), (Tank 596), (Tank 824).	Design storage capacity is less than 40 m^3 (46,758 gallons). [*§63.641 – Definition: Storage Vessel*]
D1000, D1001, D1199, D1021.	Storage vessel is used to store wastewater, as defined in this regulation. [*§63.641 – Definition: Storage Vessel*]

Emission Unit	Summary of Non-Applicability Determination
BP does not have bottoms receiver tanks.	Storage vessel is used as a bottoms receiver tank. [*§63.641 – Definition: Storage Vessel*]
D730, D1081, D1137, D1138, D1149, D1986.	Storage vessel makes no contact with HAPs. [*§63.640(a)(2) – Applicability*]
D1072, D1080, D1089, D1103, D1106, D1120, D1128	Storage vessel is an emission point that is routed to a fuel gas system (vapor recovery system). [*§63.640(d)(5) – Applicability*]

Wastewater Streams
In this regulation, wastewater is defined as "water or wastewater that, during production or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product and is discharged into any individual drain system". The Refinery MACT has requirements for Group 1 and 2 wastewater streams. Group 1 wastewater streams are wastewater streams that have a flow rate of 0.02 liters per minute (lpm) or greater, a benzene concentration of 10 ppmw or greater, and are not exempt from control requirements under the provisions of 40 CFR 61, Subpart FF. Group 2 wastewater streams are all other waste or wastewater streams that meet the definition of wastewater in this regulation.

As specified at §63.647, Group 1 wastewater streams are subject to the requirements of §61.340 through 61.355 of 40 CFR 61, Subpart FF. Group 2 wastewater streams are subject to recordkeeping requirements only. Group 1 and 2 wastewater streams are identified in the Title V permit with the following notations, respectively, in the "Emissions and Requirements" column of any equipment that manages or treats a wastewater stream that is subject to this regulation: HAP: (10) [40CFR 63 Subpart CC, #4,5-25-2001] and HAP: (10) [40CFR 63 Subpart CC, #2,5-25-2001].

Table 4.8 below contains non-applicability determinations for equipment that manages wastewater streams that are not identified in the Title V permits as Group 1 or Group 2 wastewater streams.

Table 4.8 Refinery MACT Non-Applicability Determinations for Equipment that Make Contact with Wastewater Streams

Emission Unit	Summary of Non-Applicability Determination
D1149; and Non Permitted Tanks 80, 81, 395, 699, 725, 860, 901, 902, 904, 914, 935	Manages water or wastewater that does not come into direct contact with or result from the production or use of any raw material, intermediate product, finished product, byproduct or waste product. [*§63.641 – Definition: Wastewater*]
D1000, D1001, D1199, D1021.	Manages water or wastewater that comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct or waste product but is not discharged into an individual drain system. [*§63.641*

Emission Unit	Summary of Non-Applicability Determination
	– Definition: Wastewater]
None	Manages a waste stream that is exempt from control requirements under the provisions of 40 CFR 61, Subpart FF. [*§63.640(o)(2) – Overlap with Subpart CC*]

Equipment Leak (Fugitive) Components
Equipment leak is defined in the Refinery MACT as emissions of organic HAPs from a pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, or instrumentation system "in organic HAP service". Vents from wastewater collection and conveyance systems (including, but not limited to wastewater drains, sewer vents, and sump drains), tank mixers, and sample valves on storage tanks are not equipment leaks. "In organic HAP service" means that the equipment either contains or contacts a fluid (liquid or gas) that is at least 5 percent by weight of total organic HAP's. There is only one category of equipment leak components in this regulation. Unlike storage vessels, wastewater stream, and miscellaneous process vents, equipment leak components are not categorized by Group 1 and 2.

The refinery contains approximately 375,000 individual fugitive components such as valves, connectors, pumps, etc. For this reason, the fugitive components for each permit unit are grouped and identified in the Title V permit by a "fugitive emissions, miscellaneous" device. Grouping the fugitive components into a singular device is a manageable method for identifying regulatory requirements for some or all of the fugitive components in a permit unit. Permit units that contain some fugitive leak components that are subject to Refinery MACT requirements are identified by the notation "HAP: (10) [40CFR 63 Subpart CC, #5,5-25-2001]" in the "Emissions and Requirements" column for the "fugitive emissions, miscellaneous" device for the permit unit.

Table 4.9 below contains non-applicability determinations for equipment leak (fugitive) components at the refinery

Table 4.9 Refinery MACT Non-Applicability Determinations for Equipment Leak (Fugitive) Components

Emission Unit	Summary of Non-Applicability Determination
Permit units for which the "Fugitive Emissions, Miscellaneous" device is not tagged with "HAP: (10) [40CFR 63 Subpart CC, #5,5-25-2001]" in the "Emissions and Requirements" column. Process 1, Systems 4, 6, 8, 9; Process 2, System 8; Process 3, Systems 4, 7; Process 5, System 6; Process 6, System 4;	Permit unit does not contain any fugitive leak components that are in "organic HAP service" as defined at §63.641 of this regulation.

Emission Unit	Summary of Non-Applicability Determination
Process 7, System 3, 4; and Process 8, System 3	

Miscellaneous Process Vents

A fully integrated refinery has thousands of process vents. Due to the large number of process vents, requirements for the venting of the majority of these process vents are specified in the Title V permit at the system level by S15.x conditions. Routine vents to control equipment are specified in the "Connect To" column of the permit.

The Refinery MACT specifies requirements for "miscellaneous process vents", which are defined as gas streams containing greater than 20 ppmv organic HAP that are continuously or periodically discharged during normal operation of a petroleum refining process unit as defined in §63.640(a). Miscellaneous process vents include gas streams that are discharged directly to the atmosphere, gas streams that are routed to a control device prior to discharge to the atmosphere, or gas streams that are diverted through a product recovery device prior to control or discharge to the atmosphere. According to the definition at §63.641, miscellaneous process vents include vent streams from: caustic wash accumulators, distillation tower condensers/accumulators, flash/knockout drums, reactor vessels, scrubber overheads, stripper overheads, vacuum (steam) ejectors, wash tower overheads, water wash accumulators, blowdown condensers/accumulators, and delayed coker vents. This definition also specifies fourteen (14) different vent stream types that are not miscellaneous process vents. There 14 vent stream types, which are shown in Table 4.10 below, make up the vast majority of atmospheric vents at the refinery.

A Group 1 miscellaneous process vent is a miscellaneous process vent for which the total organic HAP concentration is greater than or equal to 20 ppmv, and the total VOC emissions are greater than or equal to 33 kg/day at the outlet of the final recovery device (if any) and prior to any control device and prior to discharge to the atmosphere. A Group 2 miscellaneous process vent has a total organic HAP concentration of greater than or equal to 20 ppmv and total VOC emissions of less than 33 kg/day at the outlet of the final recovery device (if any) and prior to any control device and prior to discharge to the atmosphere.

Group 1 and 2 miscellaneous process vents are identified in the Title V permit with the following notations, respectively, in the "Emissions and Requirements" column of the equipment from which the vent emanates: HAP: (10) [40CFR 63 Subpart CC, #1,5-25-2001] and HAP: (10) [40CFR 63 Subpart CC, #2,5-25-2001]. The following table contains non-applicability determinations for process vents that are not identified in the Title V permit as Group 1 or Group 2 miscellaneous process vents.

Table 4.10 Refinery MACT Non-Applicability Determinations for Miscellaneous Process Vent

Emission Unit	Summary of Non-Applicability Determination
Individual vent streams that vent to the refinery vapor recovery and fuel gas treating systems are too numerous to list individually in the permit. Routine vents are permitted through the following system conditions: S15.10, S15.11, S15.12, S15.13, S15.15, S15.16, S15.17, S15.18, S15.19, S15.20, S15.21, S15.22, S15.23, S15.24, S15.25, S15.28, S15.29, S15.32, S15.40, S15.41, S15.50.	Gaseous stream routed to a fuel gas system. [*§63.641 – Definition: Miscellaneous Process Vents*]
Emergency relief valves are too numerous to list individually in the permit. Emergency vents are permitted through following system conditions: S15.9, S15.10, S15.11, S15.12, S15.13, S15.15, S15.16, S15.17, S15.18, S15.19, S15.20, S15.21, S15.22, S15.25, S15.28, S15.32, S15.41, S15.50.	Relief valve discharge stream. [*§63.641 – Definition: Miscellaneous Process Vents*]
All pumps, compressors, pressure relief devices, sampling connection systems, valves, valves and instrumentation systems in "organic HAP service". Permit units that contain some fugitive components in "organic HAP service" have a "Fugitive Emissions, Miscellaneous" device that contains "HAP: (10) [40CFR 63 Subpart CC, #5,5-25-2001]" in the "Emissions and Requirements" column.	Leak from equipment regulated under §63.648. [*§63.641 – Definition: Miscellaneous Process Vents*]
Vents from pumps; heat exchangers; recycle compressors; vessels; pilot gas headers and fuel gas headers in equipment other than cogen duct burners and fuel gas lines; condensers; and steam lines.	Episodic or nonroutine releases such as those associated with startup, shutdown, malfunction, maintenance, depressuring, and catalyst transfer operations. [*§63.641 – Definition: Miscellaneous Process Vents*]
Onstream analyzers. The equipment are not listed in the permit.	In situ sampling systems (onstream analyzers). [*§63.641 – Definition: Miscellaneous Process*

Emission Unit	Summary of Non-Applicability Determination
	Vents]
D164	Catalytic cracking unit catalyst regeneration vent. [*§63.641 – Definition: Miscellaneous Process Vents*]
D446, D447, D448, D449, D457, D461, D462, D463, D464, D465, D481, D514, D515, D516, D517	Catalytic reforming regeneration vents. [*§63.641 – Definition: Miscellaneous Process Vents*]
C2406, C896, D881, D885, D888, D889, D893, D894, D2645, D2646	Sulfur plant vents. [*§63.641 – Definition: Miscellaneous Process Vents*]
D234, C910, C2413, C235	Vents from control devices such as scrubbers, boilers, incinerators, and electrostatic precipitators applied to catalytic cracking unit, catalyst regeneration vents, catalytic reformer regeneration vents, and sulfur plant vents. [*§63.641 – Definition: Miscellaneous Process Vents*]
D1644, D1645, D1646, D1649, D2541	Vents from any stripping operations applied to comply with the wastewater provisions of this subpart, Subpart G, or Subpart FF of Part 61 [*§63.641 – Definition: Miscellaneous Process Vents*]
D70, D71, D72, D73, D85, and D86	Coking unit vent associated with coke drum depressuring at or below a drum outlet pressure of 15 psig, deheading, draining, decoking (coke cutting, or pressure testing after decoking). [*§63.641 – Definition: Miscellaneous Process Vents*]
All storage vessels	Vents from storage vessel. [*§63.641 – Definition: Miscellaneous Process Vents*]
Drain System Components (DSC) for P15S2, P15S3, P15S4, P15S5, P15S7, P15S8, P15S9, D2601 (DSC for P15S6).	Emissions from wastewater collection and conveyance systems including, but not limited to, wastewater drains, sewer vents, and sump drains. [*§63.641 – Definition: Miscellaneous Process Vents*]
D556, D557, andD1452.	Hydrogen production plant vents through which CO2 is removed from process streams or through which steam condensate produced or treated within the hydrogen plant is degassed or deaerated. [*§63.641 – Definition: Miscellaneous Process Vents*]
Individual miscellaneous process vent streams <20 ppmw HAPs (non	Other process vent streams that have a total organic HAP content of less than 20 ppmv.

Emission Unit	Summary of Non-Applicability Determination
Group 1 and non Group 2) are too numerous to list individually in the permit.	[*§63.641 – Definition: Miscellaneous Process Vents*]

<u>*Gasoline Loading Operations*</u>
Gasoline as defined at §63.641 in this regulation is "any petroleum distillate or petroleum distillate/alcohol blend having a Reid vapor pressure of 27.6 kilopascals or greater that is used as a fuel for internal combustion engines." Table 4.11 below contains non-applicability determinations for loading racks at the refinery

Table 4.11 Refinery MACT Non-Applicability Determinations for Loading Racks

Emission Unit	Summary of Non-Applicability Determination
D913, D917, D960, D2121, and D2131.	Loading rack does not load gasoline as defined in §63.641 of 40 CFR 63 Subpart CC.

40 CFR 63 Subpart UUU
Subpart CC addresses the emissions of air toxics from miscellaneous process vents in petroleum refineries. However, it does not address emissions from process vents on catalytic cracking units, catalytic reforming units, and sulfur recovery units. To address air toxics emissions from these sources, EPA adopted 40 CFR 63 Subpart UUU- National Emission Standard for Hazardous Air Pollutants for Petroleum Refineries: Catalytic Cracking Units (CCUs), Catalytic Reforming Units (CRUs), and Sulfur Recovery Units (SRUs).

For equipment with process vents in CRU, FCCU, and SRUs that are subject Subpart UUU, the regulated pollutant is listed in the "Emissions and Requirements" column. The listing references Section J of the permit, which contains the emission limits and requirements of this Subpart. This regulation is not applicable to any process vents in process units other than those from a CRU, FCCU, or SRU.

40 CFR 63 Subpart EEEE
This NESHAP applies to Organic Liquid (Non-Gasoline) Distribution operations that are located at or are part of a major source of HAPs and that are not subject to another part 63 standard such as 40 CFR 63 Subpart CC. Organic liquids as defined at §63.2406 are non-crude oil liquids or mixtures that contain at least 5 percent organic HAP and have an annual average true vapor greater than 0.1 psia and all crude oils downstream of the first point of transfer. The standard covers storage tanks, transfer racks, equipment leak components and transport vehicles that handle organic liquids. The equipment subject to this Subpart are tagged with system condition S13.13 or device condition H23.30.

Table 4.13 below contains non-applicability determinations for potentially applicable emission units at the refinery.

Table 4.13 Organic Liquid Distribution MACT Non-Applicability Determinations

Emission Unit	Summary of Non-Applicability Determination
D960, D962; Tank Truck Caustic Unloading Rack; Tank Truck Acid Unloading Rack	Transfer operation does not load or unload organic liquid as defined at §63.2406.
All storage tanks and equipment leak components that store or handle organic liquids as defined in §63.2406 or are identified already in the permit to be subject to 40 CFR 63 Subpart CC.	Equipment is subject to 40 CFR 63 Subpart CC.

40 CFR 63 Subpart GGGGG

This NESHAP is applicable to site remediation activities located at facilities that are a major source of HAP emissions and have at least one other source category that is regulated by a part 63 standard. This standard does not cover site remediation activities performed under CERCLA or RCRA. Affected sources include: remediation process vents, remediation material management units (tanks, containers, oil-water separators, transfer systems, etc.), and equipment leak components. Equipment that is subject to this subpart have been tagged with device condition H23.31.

Other NESHAP Non-applicability Determinations

This refinery is not subject to the NESHAPs listed below.

- 40 CFR 61 Subpart J - National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene. This refinery does not operate any equipment in "benzene service."
- 40 CFR 61 Subpart Y - National Emission Standards for Benzene Emissions from Benzene Storage Vessels. This refinery does not store or transfer benzene.
- 40 CFR 61 Subpart BB - National Emission Standards for Benzene Emissions from Benzene Transfer Operations. This refinery does not store or transfer benzene.
- 40 CFR 63 Subpart F - National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry. This refinery does not conduct any SOCMI operations.
- 40 CFR 63 Subpart G - National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater. This refinery does not conduct any SOCMI operations.
- 40 CFR 63 Subpart H - National Emission for Organic Hazardous Air Pollutants for Equipment Leaks. This refinery does not operate any SOCMI operations.

- 40 CFR 63 Subpart Q - National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers. This refinery does not use chromium based water treatment chemicals.
- 40 CFR 63 Subpart R - National Emission Standards for Hazardous Air Pollutants for Gasoline Distribution Facilities. This refinery does not own or operate a bulk gasoline terminal or pipeline breakout station at this location.
- 40 CFR 63 Subpart VV - National Emission Standards for Oil-Water Separators and Organic-Water Separators. This subpart is not applicable because this subpart applies only when another subpart of 40 CFR parts 60, 61, or 63 references the use of Subpart VV for such control. Because no other subparts of 40 CFR Part 60, 61, or 63 that are applicable to this refinery references this subpart, it is not applicable.
- 40 CFR 63 Subpart EEE - National Emission Standards for Hazardous Air Pollutants for Hazardous Waste Incinerators. There are no hazardous waste incinerators, cement kilns, or aggregate kilns located at this refinery.
- 40 CFR 63 Subpart YYYY - National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines. Per subsection § 63.6090(b)(4), this subpart does not apply because the turbines are existing turbines that commenced construction before January 14, 2003.
- 40 CFR 63 Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE). Per subsections § 63.6590(b)(1)(i) and 63.6590(b)(3), this subpart does not apply because the engines are restricted to emergency use only and the engines with site ratings of less than 500 brake horsepower are existing engines.

Compliance Assurance Monitoring (CAM) (40 CFR 64)

This regulation requires facilities of major sources to submit CAM plans to accompany the application for renewal of their respective Title V permits or for initial Title V applications submitted after April 20, 1998. The initial Title V application for this facility was submitted by ARCO Products Company on March 19, 1998, which was deemed complete on March 24, 1998. On October 30, 2002, BP West Coast Products, LLC submitted a change of ownership for this initial Title V application, which is considered as administrative process; thus, no CAM plans are required at this time. While a change of ownership has been made strictly for administrative purposes at the District, the primary and basic operations that existed at the time the initial ARCO application had been deemed complete stayed the same.

5. Periodic Monitoring Requirements

Applicable monitoring and operational requirements with which the facility is required to comply are identified in the Title V permit (for example, Section D, F, and J and Appendix B of the proposed Title V permit).

This refinery is subject to RECLAIM monitoring, source test requirements, and other monitoring provisions that are required by federal, state or AQMD laws and regulations. Section F of the permit contains the monitoring and source test permit conditions imposed by Regulation XX. More specifically, it summarizes the monitoring and testing requirements for Major, Large and

Process units at NOx and SOx RECLAIM facilities. Finally, Compliance Assurance Monitoring (CAM) requirements of 40 CFR Part 64 do not currently apply to any of the permitted emission sources at this facility.

As specified in AQMD Rule 3004(a)(4), the proposed permit includes periodic monitoring conditions for equipment that is subject to SIP-approved, federally enforceable rules, which do not require sufficient monitoring to assure compliance with emission limitations or other requirement of the rule. Permit conditions in Section D and H of the permit that fulfill Title V periodic monitoring requirements are tagged with the following: *Rule 3004(a)(4)-Periodic Monitoring, 12-12-1997*. These periodic monitoring conditions are also tagged with the underlying rule(s) for which the condition is fulfilling the monitoring requirement. In some cases, existing monitoring conditions that were installed under NSR fulfill the periodic monitoring requirements for other rules or regulations. For these cases, the monitoring condition was tagged with Rule 3004(a)(4) and the underlying rule(s) for which the condition is fulfilling the monitoring requirement.

A draft Periodic Monitoring Guidance document was published by the AQMD in August 1997. A public consultation was held to solicit public input. The final Periodic Monitoring Guideline Document was published by the AQMD in November 1997. This guideline was used to establish the periodic monitoring requirements in the Title V permit. In addition, the AQMD used the CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Requirements in SIP (June 24, 1999) for applicable opacity limits, grain loading limits for material handling equipment, and for sulfur content of fuels. Furthermore, the AQMD used the CAPCOA/ARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP for combustion sources (July 2001). These documents are included in Appendix II.

6. Title V Permit Format

The Title V permit consists of eleven sections and two appendices. Each section is devoted to a particular function as summarized below:

Section A **Facility Information**
This section contains operator name, facility location and mailing address. It also lists the name of the responsible official and contact person for the facility. Lastly, this section indicates whether Regulation XXX and RECLAIM apply to the facility.

Section B **RECLAIM Annual Emission Allocation**
This section applies to RECLAIM facilities only and lists NOx and SOx allocations for the facility. This facility is subject to both the NOx and SOx requirements of RECLAIM.

Section C **Facility Plot Plan**
This section is reserved for the development of the facility plot plan in the future.

Section D Facility Description and Equipment Specific Conditions

This section describes equipment at the refinery that has been issued permits to operate. It also includes facility-wide operating conditions, emission limitations, the rules for which the emission limits and permit conditions are derived, and the periodic monitoring requirements as appropriate. The description of the process and equipment is structured in the following manner:

<u>Process</u>

A process is the largest grouping of equipment under the Title V permit, which includes all equipment involved in the making of final product from raw feed. A process can end at an intermediate product if the succeeding process is significantly different.

<u>System</u>

A system is the combination of equipment into a unit which is a logical subsystem of a process. A system can be used to identify individual process lines, or it can separate a long process line into separate functions. The main use of this grouping will be to separate a large process into manageable groups.

<u>Equipment</u>

This column describes equipment contained within a system or a process. It contains information necessary to identify equipment and ensure compliance with rules and regulations such as dimensions of a tank, heat input of a heater, horsepower of an engine, etc. This section also lists the equipment application number (A/N). The A/N is an identification number issued by the AQMD to the application submitted by the applicant for a Permit to Construct or Permit to Operate for a piece of equipment. A facility is required to submit a permit application when it plans to install a new piece of equipment, alter an existing piece of equipment, or modify a permit condition. An A/N in the Title V permit changes each time the AQMD approves a new application.

<u>Device Identification (I.D.) Number</u>

Each piece of equipment is assigned a unique I.D. number. When a piece of equipment is modified it retains its existing I.D. number. However, when it is removed from service, the I.D. number is retired and will not be used to identify another piece of equipment at this facility.

<u>Connected to</u>

This column is used to identify only air pollution control equipment that is connected to a specific piece of equipment at the refinery. This column is not used to show process connections in the refinery.

RECLAIM Source Type/Monitoring Unit

This column is used to identify equipment classification pursuant to the RECLAIM program. The classification of major source, large source and process units are defined in Rule 2012. The equipment classification is assigned to NOx and SOx emission sources subject to RECLAIM. Each classification of equipment is subject to a specific monitoring requirement under RECLAIM.

Emissions and Requirements

This column lists emission limits applicable to each piece of equipment. It also lists the rules for which the limits were derived. If AQMD adopted a rule that has not yet been approved into the State Implementation Plan (SIP), emission limits established by both the SIP-approved and non SIP-approved versions of the rule are included in the permit.

Conditions

This column lists specific permit conditions applicable to the facility, process, system or equipment. A facility level condition applies to the whole facility and is designated by the letter F. The process conditions apply to the entire process and are designated by the letter P. The system conditions apply to the entire system and are designated by the letter S. The equipment (device) level conditions are designated by other letters depending on the category of conditions such as monitoring, recordkeeping, etc. Each permit condition references the law or rule for which the requirements in the condition were derived. If AQMD adopted a rule that has not yet been approved into the SIP, emission limits established by both the SIP-approved and non SIP-approved versions of the rule are included in the permit. One category of the device level condition is the periodic monitoring condition.

Section E Administrative Conditions

This section contains general administrative permit conditions that apply to all facilities. The conditions listed in this section apply to all permitted equipment at the facility unless superseded by other conditions listed elsewhere in the facility permit.

Section F RECLAIM Monitoring & Source Testing Requirements

This section contains monitoring and source testing permit conditions imposed by Regulation XX. It summarizes the monitoring and testing requirements for Major, Large and Process units at RECLAIM facilities.

Section G RECLAIM Recordkeeping & Reporting Requirements

This section contains recordkeeping and reporting requirements specified in Regulation XX. It summarizes the recordkeeping and reporting requirements for RECLAIM sources.

Section H **Permit to Construct and Temporary Permit to Operate**

The permit format in this section is the same as described for Section D above. However, equipment listed in this section has not been issued permits to operate, but were issued a permit to construct and/or a temporary permit to operate.

Section I **Compliance Plans & Schedules**

This section lists active compliance plans specified in the SIP-approved rules.

Section J **Air Toxics**

This section lists permit conditions pertaining to Federal NESHAP/MACT requirements.

Section K **Title V Administration**

This section lists the Title V administrative conditions. They are the same for all Title V facilities, except for the list of applicable rules table at the end of the section. The table at the end of the section lists all applicable rules referenced in Sections D and H (emission limit and conditions) and any rules that are referenced to the facility. This table also indicates which rules are federally enforceable and which are enforceable by AQMD only.

As an artifact of the District's permit software, the names for the NESHAP templates (40 CFR 63 Subpart CC #1, 2, 3A, 4, and 5A; 40 CFR 63 Subpart UUU #1, 2, and 4; and 40 CFR 61 Subpart FF_02) from Section J of the Title V permit also appear in the rules table at the end of this section. Please note these templates which summarize requirements of federal subparts are identified with a pound sign (#) to identify their respective templates in Section J.

Appendix A **NOx and SOx Emitting Equipment Exempt from Written Permit Pursuant to Rule 219**

This section lists classes of NOx- and SOx- emitting Rule 219 exempt equipment present at the facilities that are subject to RECLAIM.

Appendix B **Rule Emission Limits**

Some emission limits that are too complex to be listed in the Emissions and Requirements column of Sections D and H are listed in Appendix B of the Title V permit. Emission limits in this appendix are referenced by an emission type "(9)" in the "Emissions and Requirements" column of the permit.

7. Permit Features

Permit Shield
A permit shield is an optional part of a Title V permit that gives the facility an explicit protection from requirements that do not apply to the facility. A permit shield is a provision in a permit that states that compliance with the conditions of the permit shall be deemed compliance with all identified regulatory requirements. Incorporation of a permit shield into the Title V permit involves submission of applications for change of conditions for each piece of equipment affected by the permit shield. Permit shields are addressed in AQMD Rule 3004 (c). This facility has not applied for a permit shield for any of the equipment at the refinery.

Alternate Operating Scenarios
An alternative operating scenario (AOS) is a set of provisions and conditions in a permit that allow the operator to switch back and forth between alternative modes of operation without submitting an application for a permit revision before each switch. However, each AOS must be evaluated for compliance with AQMD rules and regulations and applicable State and Federal requirements. AOS is addressed in AQMD Rule 3005 (j). This facility has not applied for an AOS for any of the equipment at the refinery.

Emissions Trading
This facility is subject to the NOx and SOx emissions trading requirements under Regulation XX.

Prevention of Significant Deteriorations (PSD) Permits
PSD is a federal program for permitting new and modified sources that emit air pollutants for which the AQMD is classified as in attainment with the National Ambient Air Quality Standards (NAAQS). This facility has not been issued a PSD permit by either the EPA or the AQMD.

EPA New Source Review (NSR) Permits
NSR is a federal program for permitting new and modified sources that emit air pollutants for which the AQMD is classified as in Non-attainment with NAAQS. Before SIP-approval of the AQMD NSR Rule in 1978, EPA issued NSR permits for new construction and/or equipment modifications in the AQMD. A check of the records indicates that there are no NSR permits issued by the EPA to the refinery.

8. Summary of Emissions and Health Risks

Summary of Refinery Criteria Air Pollutant and Toxic Air Contaminant Emissions
This section contains a summary of the Criteria Air Pollutant (CAP) and Toxic Air Contaminant (TAC) emissions for the refinery as reported in the refinery's Annual Emission Report (AER) for fiscal year 2006-2007.

Table 8.1 Criteria Pollutant Emissions (tons/year)
from Annual Reported Emissions for Reporting Fiscal Year 2006 – 2007

Pollutant	Emissions (tons/year)
NOx	641
CO	388
VOC	526
PM	398
SOx	1025

Table 8.2 Toxic Air Contaminants Emissions (TAC)
Annual Reported Emissions for Reporting Year 2006 – 2007

The Following TACs Were Reported	Emissions (lbs/yr)
1,2,3,7,8-Pentachlorodibenzofuran*	0.003
1,2,4-Trimethylbenzene*	1942
1,3-Butadiene*	93
Acetaldehyde*	6610
Acrolein*	1141
Ammonia	380675
Arsenic*	7.12
Asbestos*	4.84
Benzene*	1608
Beryllium*	0.56
Cadmium*	7.09
Carbonyl sulfide*	26.71
Chlorinated fluorocarbon 113	146
Chlorodifluoromethane {Freon 22}	659
Chloroform*	756
Chromium (VI)*	5.05
Copper*	39.45
Dichlorofluoromethane {Freon 12}	3.85
Diesel engine exhaust, particulate matter	1305
Ethylbenzene*	886
Fluroene*	0.024
Formaldehyde*	4207
Glycol ethers (and their acetates)*	1.6
Hexane*	9360
Hydrochloric acid*	7.31
Hydrogen sulfide	5905
Lead (inorganic)*	16.73
m-Xylene*	31.90
Methyl t-Butylether*	16.01
Manganese*	933
Mercury*	15.61
Methanol*	24775

The Following TACs Were Reported	Emissions (lbs/yr)
Methyl ethyl ketone*	51.54
Methyl isobutyl ketone {Hexone}*	8.47
Methylene chloride*	1055
Naphthalene*	1014
Nickel*	77.2
PAHs, total, with components not reported*	42.09
Phenanthrene*	133
Perchloroethylene*	180
Phosphorus*	11.4
Selenium*	19.42
Sulfuric Acid	29318
Toluene*	4547
Xylenes*	4721
o-Xylene*	11.11

*Hazardous Air Pollutants, Section 112, 1990 Clean Air Act Amendments. Total Reported HAPs: 64,362 lbs./yr.
Source: AQMD "Facility Information Detail" (FIND) database, available at http://www.aqmd.gov/webappl/fim/prog/emission.aspx?fac_id=131003, January 7, 2009.

Health Risk from Toxic Air Contaminants

The refinery is subject to review by the Air Toxics Information and Assessment Act (AB2588). The Final Facility Health Risk was approved in 2000 with the following risk factors.

Cancer Risk	7.28 in one million
Acute Hazard Index	0.30
Chronic Hazard Index	0.08

9. Compliance History

The refinery is subject to the terms of a consent decree (Civil Action No. 2:96 CV 095 RL) entered in the Northern District of Indiana in the U.S. District Court on August 29, 2001, and a Hearing Board Order entered for Case No. 5357-36 regarding compliance with District Rule 1118.

Consent Decree (Civil Action No. 2:96 CV 095 RL)

In 2000, the United States Environmental Protection Agency (USEPA) initiated a nationwide, broad-based compliance and enforcement initiative involving the petroleum refining industry. As a result of this initiative, the subject Consent Decree is the product of a settlement between BP and EPA over alleged violations of certain Clean Air Act and CERCLA/EPCRA provisions. This comprehensive settlement covers BP refineries located in Cherry Point, Washington; Carson, California; Mandan, North Dakota; Salt Lake City, Utah; Texas City, Texas; Whiting. Indiana; Yorktown, Virginia; and Toledo, Ohio.

As part of the Consent Decree, BP agreed to install additional air pollution control equipment and implement other enhancements to air pollution management practices at its refineries to reduce air emissions. Specifically for the Carson Refinery, BP agreed to the following:

- Add low-NOx combustion promoters and NOx adsorbing catalyst additives to the FCCU.
- Reduce SO2 emissions from refinery heaters and boilers by expanding applicability of NSPS Subparts A and J as those Subparts apply to fuel gas combustion devices to all heaters and boilers.
- Increase EPA's ability to determine whether additional monitoring or control requirements would be required under NSPS Subparts A and J upon BP's measurements of H2S and SO2 in the waste streams of the SRP's thermal oxidizer.
- Expand applicability of NSPS Subpart J to the refinery's SRP.
- Require sulfur pit emissions of the SRP to be re-routed to be treated and monitored as part of SRP's emissions subject to NSPS Subpart J.
- Require vents gases from the Claus SRU to meet SO2 standards and other requirements as specified in NSPS Subparts A and J.

Paragraphs 26 and 86 of the Consent Decree specify that "BP shall submit applications to incorporate the emission limits and schedules set out" from several enumerated paragraphs of the Consent Decree "into NSR permits or other permits which are federally enforceable and, upon issuance of such permits, shall file any applications necessary to incorporate the requirements of those permits into the Facility's Title V permit." Included in Attachment 2 is a table provided by BP that summarizes the refinery's compliance status with the requirements of the Consent Decree. BP has submitted to the district all applications required under the Consent Decree. Facility Condition F52.3 in the permit indicates that the refinery is subject to the consent decree and the Fourth Amendment to the consent decree.

<u>Variance(s)</u>
Hearing Board Case No. 5357-36: AQMD Rule 1118 was amended in November of 2005. The refinery operates five General Service Flares (C1302, C1305, C1308, C1326, and C1661) that are subject to Rule 1118. Subsection (g)(3) of the amended rule specifies that owners or operators with flares subject to the rule shall install and operate a flare monitoring system (FMS) by July 1, 2007, to perform monitoring and recording of the parameters specified in the second section of Table 1 of the rule. This monitoring includes gas flow, gas higher heating value (HHV), and total sulfur concentration (TSC) of the gas. Subsections (g)(3) and (j)(1)(C) contain performance specifications for the monitors. Rule 1118(j)(1)(C) also requires that the accuracy of the flow meter be verified annually according to manufacturer specifications. Additionally, Rule 1118 contains reporting requirements that are based on these monitoring requirements.

At the time of the rule adoption in 2005, technical challenges and issues related to feasibility, reliability, maintainability, accuracy, and safety of the HHV and TSC analyzers had the potential to delay implementation of the specified monitoring systems. Due to these known issues, the AQMD Governing Board adopted a resolution directing AQMD staff to work with the Western States Petroleum Association and its refiner members to resolve outstanding issues.

Pilot projects for the development of TSC and HHV analyzers were completed in March 2008. Based on a determination that the pilot analyzers demonstrated compliance with the technical requirements of Rule 1118, the AQMD approved the TSC and HHV analyzers on May 20, 2008. After BP and several refineries petitioned for a modification and extension of the variance because AQMD's approval of the analyzer occurred later than anticipated, BP obtained deadlines that varied over a period of 6 months (April 2009 to October 2009) during which BP must complete installations of the required analyzers. Under the increments of progress for the variance, BP is required to install and test the TSC and HHV analyzers on each of the flares according to the following schedule:

- South Area (Coker) Flare (C1302)- July 21, 2009
- Hydrocracker Flare (C1308) – August 18, 2009
- FCC Flare (C1305) – October 15, 2009
- No. 5 (Isom) Flare (C1661) – November 14, 2009
- FFHDS Flare (C1326) – January 13, 2010

Further details can be found in the most recent minute order issued by the Hearing Board on July 15, 2008.

As required by Rule 3004(a)(10)(C), condition I1.1 has been added to the affected equipment in section D and H of the permit requiring the operator to comply with all the conditions of the variance. A copy of the documents related to this regular variance is available on the internet under the AQMD's "Facility INformation Detail" database (FIND, at http://www.aqmd.gov/webappl/fim/prog/hbdisplay.aspx?fac_id=131003).

Order(s) for Abatement

The refinery is not currently subject to any AQMD Orders for Abatement.

Please note that the issuance of a regular Variance and any Stipulated Orders for Abatement (SOAs) by the AQMD Hearing Board does not affect federal or citizen enforceability of the subject requirements.

Notices to Comply and Notices of Violation

As noted, the refinery has been in continuous operation since the 1938. Since the inception of Los Angeles County Air Pollution Control District in 1947, the refinery has been subject to both self-reporting requirements and AQMD inspections. Four Notices-to-Comply and nine Notices-of-Violation have been issued to the refinery since January of 2006. As of January 16, 2009, this facility is in compliance with these notices and all other District rules and regulations.

Further information regarding the facility's compliance status is available on the internet under the AQMD's "Facility INformation Detail" database (FIND, at http://www.aqmd.gov/webappl/fim/prog/novnc.aspx?fac_id=131003).

Likewise, the compliance documentation for Variances and Abatement Orders is also available on the internet under the AQMD's "Facility INformation Detail" database (FIND, at http://www.aqmd.gov/webappl/fim/prog/novnc.aspx?fac_id=131003).

10. Compliance Certification

By virtue of the Title V permit application and issuance of this permit, the reporting frequency for compliance certification for the refinery shall be annual.

11. Appendices

In order to minimize printing, all of the following appendices are available on the AQMD website as shown below. In addition, they will be made available on CDs upon request. Please contact the AQMD contact person identified on the public notice for this facility or call Bhaskar Chandan at (909) 396-3902 for assistance in finding the information on the website or to obtain a copy of the CD.

I. Technical Guidance Document For the Title V Permit Program (March 2005, Version 4.0) (http://www.aqmd.gov/titlev/TGD.html)

II. Periodic Monitoring Guidance Documents
   - A. AQMD Periodic Monitoring Guidelines for Title V Facilities (November 1997) (http://www.aqmd.gov/titlev/pdf/PeriodicMonitoringGuidelines-97.pdf)
   - B. CAPCOA/CARB/EPA Region IX Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP (June 1999) (http://www.arb.ca.gov/fcaa/tv/tvinfo/pmrec624.pdf)
   - C. CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP: Combustion Sources (July 2001) (http://www.arb.ca.gov/fcaa/tv/tvinfo/pmrecoms.pdf)

III. Summary Report of Notice of Violations. Further information regarding the facility's compliance status is available on the internet under the AQMD's "Facility INformation Detail" database (FIND, at http://www.aqmd.gov/webappl/fim/prog/novnc.aspx?fac_id=131003).

IV. Variances and Abatement Orders. Further information regarding the facility's compliance status is available on the internet under the AQMD's "Facility INformation Detail" database (FIND, at http://www.aqmd.gov/webappl/fim/prog/hbdisplay.aspx?fac_id =131003).

Attachment 1

Alternative Monitoring Plan Approval Letters

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

JUN 16 2008

RECEIVED

JUN 23 2008

ENVIRONMENTAL DEPT.
BP CARSON BUSINESS UNIT

Allan C. Seese
Environmental Planning Supervisor
BP West Coast Products LLC
Carson One Campus
2350 E. 223rd Street
P.O. Box 6210
Carson, California 90749-6210

Dear Mr. Seese:

The United States Environmental Protection Agency, Region 9 (EPA) has reviewed BP West Coast Products LLC (BP) February 01, 2008 request and its May 30, 2008 Revision for an approval of five alternative monitoring plans in place of continuous emission monitoring system (CEMS) for the following five groups of fuel gas streams at its Carson Refinery (Refinery):

I. 650# Feed to A & B Compressors
II. Fluid Feed Hydrodesulphurization (FFHDS) Recycle Gas
III. Hydrocracker (HYC) Release to 100# Header
IV. Prism Feed Gas
V. Seal Oil, Filter Backwash, and Skim Oil that are collected in Condensate Drum

Regulatory Background

The Standards of Performance for New Stationary Sources (NSPS) Subpart J (Standards of Performance for Petroleum Refineries) at 40 C.F.R. § 60.104(a)(1) requires the owner or operator of a fuel gas combustion device at a petroleum refinery to burn no refinery fuel gas that contains H_2S in excess of 230 milligrams per dry standard cubic meter (0.10 grain per dry standard cubic foot). This limit is equivalent to 160 parts per million (ppm) H_2S. Pursuant to 40 C.F.R. § 60.105(a)(3), the owner or operator of a fuel gas combustion device subject to 40 C.F.R. § 60.104(a)(1) is required to install, calibrate, maintain, and operate a continuous monitoring system (CMS) to monitor and record the concentration by volume of sulfur dioxide emitted to the atmosphere. Alternatively, a CMS to monitor and record the H_2S in fuel gases before being burned in any fuel gas combustion device may be used. Pursuant to 40 C.F.R. § 60.13(i), after receipt and consideration of written application, the Administrator may approve alternative procedures to any monitoring procedures or requirements of [Part 60].

The EPA issued guidance titled "Alternative Monitoring Plan for NSPS Subpart J Refinery Fuel Gas" (RFG Guidance). The RFG Guidance is divided into four subjects: conditions for approval; data requirements; monitoring schedules for approved alternative plans; and general conditions for

File No. 03G03-19591

approved monitoring plans. BP's request for an AMP included the information required by the RFG Guidance:

- a description of the gas stream to be considered including submission of the appropriate piping diagrams indicating the boundaries of the gas streams/system;
- the affected fuel gas combustion device(s) to be considered;
- an identification of the proposed sampling point for the alternative monitoring;
- an explanation of the conditions that ensures low amounts of sulfur in the gas stream and supporting test results using appropriate H_2S monitoring.
- a statement that there are no crossover or entry points for sour gas (high H_2S content) to be introduced into the gas stream/system

BP proposes to use South Coast Air Quality Management District (SCAQMD) Method 307-914 and H_2S colorimetric tubes to measure the H_2S content for the five groups of fuel gas streams by collecting samples from sample points located upstream of the Flare Collection Header for the FFHDS Flare. The proposed alternative monitoring plan for the five groups of fuel gas streams includes the following steps:

1. As the first step in developing the AMP, BP performed initial sampling of the streams/systems connected to the FFHDS Flare to estimate the H_2S concentration in the fuel gas. Sampling was performed once per day for 14 consecutive days.
2. Based on results of Step 1, BP proposes to monitor H_2S from the five groups of fuel gas streams pursuant to the following schedule: i) Twice per week for the first six months; ii) Once per quarter for six quarters; and iii) Twice per year thereafter.
3. If at any time during the previous step, a single verified sample value is greater than or equal to 81 ppm H_2S, the samples will be collected on a daily basis for 7 days. If the average plus 3 standard deviations for those seven samples is less than 81 ppm H_2S, the sampling results will be included in the next scheduled report, and sampling shall resume monitoring in accordance with the schedule in Step 2. If the average plus 3 standard deviations is equal to or greater than 81 ppm H_2S, sampling will follow the requirements of Step 4.
4. If the average plus 3 standard deviations for those 7 samples is equal to or greater than 81 ppm H_2S, BP will notify EPA the next business day after receiving the analytical results. BP will then conduct sampling daily for a two-week period (14 samples). Afterwards, BP will sample once per week until EPA approves a revised sampling schedule or makes a determination to withdraw approval of the AMP.

Based on the information that BP submitted on February 01, 2008 and on May 30, 2008, EPA approves the AMP as proposed by BP for the 650# Feed to A & B Compressors, FFHDS Recycle gas, HYC Release and Prism Feed Gas. EPA does not approve the AMP for the refinery fuel gases collected in the Condensate Drum. The determinations for BP's request for alternative monitoring plans are made as follows:

I. 650# Feed to A & B Compressors

<u>Process Description</u>

The 650# Feed to A & B Compressors is a flare connection located on an unpurified hydrogen line that contains mainly hydrogen at about 650 psi. The impurities in the hydrogen line are primary from the #1 and #2 desulphurizer makeup gas, which is low in H_2S because H_2S has been cleaned up by the methyldiethanolamine (MDEA) contactors. Since the makeup gas come from the #1 and #2 reformer units, it is low in sulfur to prevent fouling of the reformer catalysts. The hydrogen gas in the 650# line is generated at the desulphurizer and reformer units and normally goes to A & B compressors where the hydrogen is further compressed. Alternatively, the hydrogen gas can be sent to the FFHDS flare through the flare connection.

Basis for Low H_2S Content

The 650# Feed to A & B Compressors has low sulfur because it is from the #1 and #2 Reformer units where the feed target for sulfur is less than 1 ppm to protect the reforming catalysts. This low sulfur of the reformer units is achieved due to the removal of sulfur at the reformer desulphurizer units where the sulfur is converted to H_2S then removed at the MDEA contactors. BP collected fourteen daily samples from December 19, 2007 through January 01, 2008. The samples were analyzed with SCAQMD Method 307-914 that has a range of 0 to 100 ppm. These results indicated a maximum H_2S content of 35 ppm; an average H_2S content of 2.6 ppm; and the average plus 3 standard deviations of 30.6 ppm.

Conditions of Approval

- BP shall monitor the H_2S content of the 650# Feed to A & B Compressors in accordance with the proposed alternative monitoring plan.
- Upon EPA requests, BP shall conduct a test audit for any fuel gas stream with an approved AMP.
- Records of the sampling data shall be maintained and kept for at least five years.
- If the fuel gas stream composition changes or the fuel gas stream will no longer be required to meet product specifications, then the gas stream must be resubmitted for approval under AMP.

II. FFHDS Recycle Gas

Process Description

The FFHDS Recycle Gas is the gas generated from the FFHDS hot and cold flash drums that separate the gas from the products. The gas is then treated at the MDEA contactor where H_2S is removed. After the MDEA contactor, the FFHDS Recycle Gas is sent back to the FFHDS unit for reuse through a compressor. Alternatively, the FFHDS Recycle Gas can be sent to the FFHDS flare through the two valve connections.

Basis for Low H_2S Content

The FFHDS Recycle Gas has low H_2S because of the H_2S removal that occurs at the MDEA contactor, which is located upstream of the FFHDS recycle gas and is an efficient remover of H_2S. BP collected fourteen daily samples from December 19, 2007 through January 01, 2008. The samples were analyzed with SCAQMD Method 307-914 that has a range of 0 to 100 ppm. These results indicated a maximum H_2S content of 0.3 ppm; an average H_2S content of 0.16 ppm; and the average plus 3 standard deviations of 0.42 ppm.

Conditions of Approval

- BP shall monitor the H_2S content of the FFHDS Recycle Gas in accordance with the proposed alternative monitoring plan.

- Upon EPA requests, BP shall conduct a test audit for any fuel gas stream with an approved AMP.
- Records of the H_2S sampling data shall be maintained and kept for at least five years.
- If the fuel gas stream composition changes or the fuel gas stream will no longer be required to meet product specifications, then the gas stream must be resubmitted for approval under AMP.

III. HYC Release to 100# Header

Process Description

The HYC Release to 100# Header is through two flare connections located on an unpurified hydrogen line that contains mainly hydrogen at about 100 psi. The impurities in the hydrogen line are primarily from the hydrocracker makeup gas which is low in H_2S because H_2S has been cleaned up by a high pressure MDEA contactor. The hydrogen gas in the line normally feeds into the C Compressor where it is further compressed prior to being used. Alternatively, it can be released to the FFHDS flare through the two valve connections.

Basis for Low H_2S Content

The HYC Release to 100# Header is a hydrogen header line which is targeted to contain low H_2S. The low H_2S at the 100# Header is ensured due to the removal of H_2S at the MDEA contactor. The MDEA contactor is located upstream of the HYC Release to 100# Header and is an efficient remover of H_2S. BP collected fourteen daily samples from December 19, 2007 through January 01, 2008. These samples were analyzed with SCAQMD Method 307-914 that has a range of 0 to 100 ppm. These results indicated a maximum H_2S content of 2.9 ppm; an average H_2S content of 0.74 ppm; and the average plus 3 standard deviations of 3.51 ppm.

Conditions of Approval

- BP shall monitor the H_2S content of the HYC Release in accordance with the proposed alternative monitoring plan.
- Upon EPA requests, BP shall conduct a test audit for any gas stream with an approved AMP.
- Records of the H_2S sampling data shall be maintained and kept for at least five years.
- If the fuel gas stream composition changes or the fuel gas stream will no longer be required to meet product specifications, then the gas stream must be resubmitted for approval under AMP.

IV. Prism Feed Gas

Process Description

The Prism Feed Gas is gas from both the unpurified 100# hydrogen line and potentially a 200# hydrogen line that has been further compressed by the C Compressor and the FFHDS makeup gas which is low in H_2S because H_2S has been cleaned up by the MDEA contactor. The Prism Feed Gas normally goes to the Prism unit where the hydrogen is used in the process. Alternatively, it can be released to the FFHDS flare through the flare connection.

Basis for Low H_2S Content

The Prism Feed Gas is a composite of the 100# hydrogen header after further compression and the FFHDS recycle gas. There are MDEA contactors on both upstream sources before reaching the Prism

Feed Gas. Therefore, the Prism Feed Gas has low H_2S because of the H_2S removal that occurs at the MDEA contactors, which are efficient removers of H_2S. BP collected fourteen daily samples from December 19, 2007 through January 01, 2008. These samples were analyzed with SCAQMD Method 307-914 that has a range of 0 to 100 ppm. These results indicated a maximum H_2S content of 2.4 ppm; an average H_2S content of 0.30 ppm; and the average plus 3 standard deviations of 2.16 ppm.

Conditions of Approval

- BP shall monitor the H_2S content of the Prism Feed Gas in accordance with the proposed alternative monitoring plan.
- Upon EPA requests, BP shall conduct a test audit for any fuel gas stream with an approved AMP.
- Records of the H_2S sampling data shall be maintained and kept for at least five years.
- If the fuel gas stream composition changes or the fuel gas stream will no longer be required to meet product specifications, then the gas stream must be resubmitted for approval under AMP.

V. Seal Oil, Filter Backwash, and Skim Oil that are collected in Condensate Drum

Process Description

The Condensate Drum collects seal oil, filter backwash, and skim oil from a total of nine flare connections. Six of the flare connections are for seal oil from compressors located in the FFHDS and reformer units. The seal oil has low H_2S because it only comes in contact with streams where the H_2S is already cleaned up by the MDEA contactors. Another flare connection is the filter backwash water from the FFHDS unit's feed filters. The Filter backwash is low in H_2S because the oil entering the feed filter is first steam stripped of H_2S. The remaining two connections to the Condensate Drum are skim oil from a MDEA contactor and a stripper contactor in the FFHDS unit. BP states that that skim oil is infrequently discharged to the Condensate Drum as normal operations typically do not generate skim oil and when skim oil is discharged to the Condensate Drum, it is generally low in volume and is insignificant when compared to the total volume in the Condensate Drum.

Basis for Low H_2S Content

The Condensate Drum is where seal oil, filter backwash fluid, and skim oil from several streams are collected. The steaming process at the Condensate Drum flashes off the gas which is sent to the FFHDS flare. The flashed off gas is expected to be low in H_2S due to H_2S removal at the MDEA contactor and steam stripper upstream of the seal oil and filter backwash, respectively. BP states that the skim oil discharge to the Condensate Drum is infrequent and low in quantity, and thus not expected to impact the overall H_2S content in the Condensate Drum. BP collected fourteen daily samples from December 28, 2007 through January 10, 2008. These samples were analyzed by H_2S colorimetric tubes and indicated a maximum H_2S content of 40 ppm; an average H_2S content of 13.6 ppm; and the average plus 3 standard deviations of 49.2 ppm.

Disapproval of the Condensate Drum AMP

Although BP states that the seal oil, skim oil discharges and the backwash fluid are low in H_2S content, the fourteen daily sample results from the mixture of the fuel gas streams collected in the Condensate Drum indicated frequent fluctuation and an average H_2S concentration greater than 5 ppm, which does not meet the definition of inherently low in sulfur as discussed in the NSPS Subpart Ja proposed rule. Therefore, EPA disapproves BP's request for alternative monitoring for the RFG streams that are collected in the Condensate Drum.

All the determinations are made based on the information submitted to EPA on February 01, 2008 and on May 30, 2008, and apply only to the five groups of fuel gas streams as described by BP. For any AMP approval in this letter, BP shall comply with the conditions of approval. Furthermore, the AMP approval does not alter any of the other requirements of NSPS, Subpart A and J that may apply to the Facility. As requested by BP, any AMP approval in this letter is only effective until BP submits and EPA approves a different AMP for the use of a total sulfur analyzer on the FFHDS Flare. BP also expects to install a flare gas recovery system on the FFHDS Flare to minimize start-up, shut-down and eliminate non-emergency flaring by July 2009.

If you have any questions about this letter, you may contact Yenhung Ho, Air Enforcement Office, at (415) 972-3262 or Charles Aldred at (415) 972-3986.

Sincerely,

Douglas K. McDaniel,
Chief, Enforcement Office
Air Division

cc: Dr. Barry R. Wallerstein, SCAQMD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

OCT 0 8 2002

Mr. Michael Van Leeuwen
BP west Coast Products LLC
BP Carson Refinery
1801 E. Sepulveda Blvd.
Carson, CA 90749

Re: Request for Alternative Monitoring for PSA NSPS Subpart J Refinery Fuel Gas

Dear Mr. Van Leeuwen:

The U.S. EPA Region IX has reviewed your request for approval of an alternative monitoring plan for BP Carson Refinery's PSA fuel gas burning devices. EPA has found previously that the PSA gas stream is a refinery fuel gas subject to the requirements under 40 CFR Part 60 Subpart J. Subpart J includes a requirement for continuously monitoring the H2S content of refinery fuel gas streams or the SO2 concentration of the fuel gas combustion device exhaust.

The NSPS at 40 CFR Part 60.13(i) provides authority for the Administrator to approve alternative monitoring for facilities subject to monitoring requirements of Part 60. That authority for approval of alternative plans is delegated to the Air Division Director in Region IX. My staff has reviewed your request for an alternative monitoring plan for your PSA gas. I am approving your plan dated February 6, 1995, which is included as an attachment to this letter.

The basis of this approval is that the fuel gas produced from the PSA needs to be extremely low in sulfur to avoid deactivation of the reforming catalyst. BP has a strong economic incentive to avoid allowing any sulfur to reach this catalyst and typically operates such that the gas is two orders of magnitude below the NSPS H2S limit. This is accomplished by using redundant sulfur removal reactors. The proposed sampling of the gas stream between the two sulfur removal reactors on a once-per-shift basis, will identify any potential for breakthrough of the H2S. Your proposal to take immediate action based on these samples to assure that excess H2S does not enter the reformer, should also assure that the PSA fuel gas will stay well below the NSPS limit.

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ALTERNATIVE EMISSIONS MONITORING PLAN
PSA Fuel Gas Burning Device
ARCO Products Company
Los Angeles Refinery

February 6, 1995

Two sulfur guard reactors will be constructed to remove trace sulfur constituents as well as other feed contaminants. The catalyst of choice will be zinc-oxide. The sulfur guard reactors will be constructed such that either one can be the lead reactor (that is, interchangeable in series feed fashion). This is a redundant design specifically for the purpose of always having available a lead reactor that has adequate catalyst activity to prevent any trace sulfur compounds from deactivating the downstream methane reforming catalyst. The design is such that **less than 0.1 ppmv sulfur** will be present in the effluent from the sulfur guard reactors. Design and operation of the sulfur guard reactors in this manner eliminates variability of the essentially non existent effluent sulfur constituent.

This Alternative Emissions Monitoring Plan as provided for under 40 CFR 60.13.(i) requires monitoring of the effluent of the first sulfur guard reactor every shift by three (3) separate Drager, MSA or equivalent samplings demonstrating less than two hundred thirty (230) mg/dscm hydrogen sulfide in the gases for combustion. If any breakthrough of sulfur occurs, the lead reactor will be isolated and reactivated while the second sulfur guard reactor will maintain the stringent removal of any sulfur. The new lead guard reactor effluent will continue to be monitored every shift by three (3) separate Drager, MSA or equivalent samplings. Records of the samplings will be maintained and available on-site at the Los Angeles Refinery, ARCO Products Company, for a period of two years.

It is expected that sulfur in the PSA Tail Gas will always be **less than 0.1 ppmv** and, therefore, undetectable. Any trace H_2S present will be significantly below the requirements of 160 ppm H_2S as specified in 40 CFR Part 60, Subpart J - Standards of Performance for Petroleum Refineries, 40 CFR 60.104(a)(1), Standards for Sulfur Oxides.

Effluent from the sulfur guard reactors at **less than 0.1 ppmv sulfur** is combined with steam for processing through the hydrogen reforming step. The effluent is then processed through the PSA Adsorbers prior to the final step of combustion. The combustion of **less than 0.1 ppmv sulfur** PSA Tail Gas will result in such low concentrations of sulfur oxides as to be below the calibration and monitoring capabilities of any analyzer. Current expert opinion is that certification of a continuous emissions monitor for sulfur oxides at the undetectable emission levels described would be impossible as required by the provisions of 40 CFR 60.105(a)(3).

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

NOV 04 2008

Alan C. Seese
Environmental Planning Supervisor
BP West Coast Products LLC
Carson One Campus
2350 E. 223rd Street
P.O. Box 6210
Carson, California 90749-6210

Dear Mr. Seese:

This letter is in response to your revised alternative monitoring plan (AMP) for a condensate drum refinery fuel gas (RFG) stream as submitted to EPA on July 31, 2008. Based on the additional daily sampling results that BP submitted through emails on September 15, 23, 29, October 16, and 27, 2008 (see Table 1), EPA conditionally approves BP's request to use the colorimetric tubes to monitor the hydrogen sulfide (H_2S) content of the RFG stream for the seal oil, filter backwash, and skim oil that are collected in the Condensate Drum at your Carson facility. This conditional AMP approval replaces the requirement to continuously monitor the RFG streams for H_2S content at 60.105(a)(4) and is approved pursuant to 40 C.F.R. § 60.13(i).

1. BP sampled the RFG streams collected in the Condensate Drum and connected to the FFHDS Flare once per day for 14 consecutive days to estimate the H_2S concentration in the fuel gas.
2. BP proposes to monitor H_2S content on a daily basis until such time as an AMP for a Total Sulfur Analyzer is approved or EPA approves a revised sampling schedule.
3. If at any time, the average plus 3 standard deviations of the collective sample results is equal to or greater than 81 ppm H_2S, BP will notify EPA by the next business day after receiving the analytical results, and
4. BP will continue to sample daily until EPA approves a revised sampling schedule or makes a determination to withdraw approval of the AMP.

Conditions of Approval

- BP shall use the H_2S colorimetric tubes to monitor the H_2S content of the condensate drum on a daily basis.
- Detector tube ranges shall be 0-200 ppm, unless the H_2S level is above 200 ppm then a 0-500 ppm range shall be used.
- Samples shall be collected from the sample point located upstream of the FFHDS flare collection header as indicated in Figure 1 of the proposed AMP.
- Upon EPA request, BP shall conduct a test audit for any fuel gas stream with an approved AMP.
- Records of the sampling data shall be maintained and kept on site for at least two years.
- If any fuel gas stream composition changes or any fuel gas stream is no longer required to meet

product specifications, then an AMP for that gas stream must be resubmitted for approval.

- BP shall submit the H_2S sample results to EPA on a monthly basis.

Table 1 – Summary of H_2S Sampling Data

#	Date	Condesate Drum (H2S ppm)	#	Date	Condesate Drum (H2S ppm)
1	8/19/2008	ND	37	9/22/2008	ND
2	8/20/2008	20	38	9/23/2008	ND
3	8/21/2008	ND	39	9/23/2008	ND
4	8/22/2008	ND	40	9/25/2008	ND
5	8/23/2008	ND	41	9/26/2008	ND
6	8/24/2008	ND	42	9/27/2008	ND
7	8/25/2008	ND	43	9/28/2008	ND
8	8/26/2008	ND	44	9/29/2008	ND
9	8/27/2008	ND	45	9/30/2008	ND
10	8/28/2008	5	46	10/1/2008	ND
11	8/29/2008	ND	47	10/3/2008	ND
12	8/30/2008	ND	48	10/4/2008	ND
13	8/31/2008	ND	49	10/5/2008	ND
14	9/1/2008	ND	50	10/6/2008	ND
15	9/2/2008	ND	51	10/7/2008	ND
16	9/3/2008	ND	52	10/8/2008	ND
17	9/4/2008	ND	53	10/9/2008	ND
18	9/5/2008	ND	54	10/9/2008	ND
19	9/6/2008	ND	55	10/10/2008	ND
20	9/7/2008	ND	56	10/11/2008	ND
21	9/8/2008	1	57	10/12/2008	ND
22	9/8/2008	1	58	10/12/2008	ND
23	9/9/2008	ND	59	10/13/2008	ND
24	9/10/2008	ND	60	10/14/2008	ND
25	9/11/2008	ND	61	10/15/2008	ND
26	9/12/2008	1	62	10/16/2008	ND
27	9/13/2008	ND	63	10/17/2008	ND
28	9/15/2008	ND	64	10/18/2008	ND
29	9/16/2008	ND	65	10/19/2008	ND
30	9/17/2008	ND	66	10/20/2008	ND
31	9/18/2008	ND	67	10/21/2008	ND
32	9/19/2008	ND	68	10/22/2008	ND
33	9/20/2008	ND	69	10/23/2008	ND
34	9/21/2008	ND	70	10/24/2008	ND
35	9/22/2008	1	71	10/25/2008	ND
36	9/22/2008	ND	72	10/26/2008	ND

	Avg.	0.4
	Avg.+3 std. dev.	7.7

ND= non-detect (detection limit is 1ppm)
Sample collected using colormetric tube with range of 1ppm to 200ppm H2S.

BP submitted seventy-two additional samples from August 19 through October 26, 2008. The results in Table 1 indicated a maximum H_2S *content of 20 ppm; an average* H_2S *content of 0.4 ppm; and the average plus 3 standard deviations of 7.7 ppm.*

This AMP approval does not alter any of the other requirements of the Standards of Performance for New Stationary Sources (NSPS), Subpart A and J that may apply to the Facility. As requested by BP, this AMP approval is only effective until BP installs and receives an AMP for a total sulfur analyzer on the FFHDS Flare. BP is also expected to install a flare gas recovery system on the FFHDS Flare to minimize start-up, shut-down and eliminate non-emergency flaring by July 2009.

If you have any questions about this letter, you may contact Yenhung Ho, Air Enforcement Office, at (415) 972-3262 or Charles Aldred at (415) 972-3986.

Sincerely,

Douglas K. McDaniel,
Chief, Enforcement Office
Air Division

cc: Dr. Barry R. Wallerstein, SCAQMD

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

July 11, 2003

Susan Livingston
Environmental Manager
BP Carson Refinery
Box 6210
Carson, CA 90749-6210

Dear Ms. Livingston:

On June 18, 2003, BP West Coast Products LLC (BP) submitted a request for an Alternative Monitoring Plan (AMP) that pertains to the four gas turbines operated by BP and which combust refinery fuel gas generated at the BP Carson Refinery (Refinery). For time periods when these turbines exclusively use butane generated at the Refinery the AMP proposes that this refinery fuel gas does not need to be continuously monitored for hydrogen sulfide (H_2S) content. For the reasons proposed by BP and outlined below, the United States Environmental Protection Agency (EPA) approves the requested AMP.

Regulatory Background

The Standards of Performance for New Stationary Sources (NSPS) Subpart J (Standards of Performance for Petroleum Refineries) at 40 C.F.R. § 60.104(a)(1) requires the owner or operator of a fuel gas combustion device at a petroleum refinery to burn no refinery fuel gas that contains H_2S in excess of 230 milligrams per dry standard cubic meter (0.10 grain per dry standard cubic foot). Pursuant to 40 C.F.R. § 60.105(a)(3), the owner or operator of a fuel gas combustion device subject to 40 C.F.R. § 60.104(a) is required to install, calibrate, maintain, and operate a continuous monitoring system (CMS) to monitor and record the concentration by volume of sulfur dioxide emitted to the atmosphere.

Pursuant to 40 C.F.R. § 60.13(i), after receipt and consideration of written application, the Administrator may approve alternative procedures to any monitoring procedures or requirements of [Part 60].

The EPA issued guidance titled "Alternative Monitoring Plan for NSPS Subpart J Refinery Fuel Gas" (RFG Guidance). The RFG Guidance is divided into four subjects: conditions for approval; data requirements; monitoring schedules for approved alternative plans; and general conditions for approved monitoring plans.

BP on behalf of the Refinery requested an AMP for butane that is generated at the Refinery and combusted in any of four combined cycle gas turbines at the Watson Cogeneration Company (WCC), which is operated by BP. The request for an AMP included the information required by the RFG Guidance. This information was: a description of the gas stream to be considered including submission of the appropriate piping diagrams indicating the boundaries of the gas streams/system, the affected fuel gas combustion device(s) to be considered, and an identification of the proposed sampling point for the alternative monitoring; a statement that there are no sour gas crossover points into the gas stream/system (this should also be shown in the piping diagram); an explanation of the conditions that ensures low amounts of sulfur in the gas stream; and supporting test results using appropriate H_2S monitoring.

BP's Request

BP submitted supporting information with the June 18, 2003 AMP request. This information included a statement that the butane is generated in the Refinery's Hydrocracker and Superfraction units and a fuel gas system overview drawing indicating the WCC combustion turbines and the proposed sampling point (Tank 79). BP stated that there are no entry or crossover points which would allow sour gases to be combined with the butane that is used in the WCC turbines. The butane generated at the Refinery is also available for commercial sales and has a very low H_2S content. BP submitted six months worth of weekly sample results (27 tests) that indicate the H_2S content never exceeded 3 parts per million (ppm). The limit for H_2S in Subpart J is 160 ppm. BP proposed weekly grab samples of the butane be analyzed for sulfur content with ASTM Method D5504-94 "Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence". This ASTM Method has been incorporated by reference into 40 C.F.R. Part 75, Subpart A. The South Coast Air Quality Management District currently requires that the butane fired in the WCC turbines contain less than 50 ppmv H_2S and be tested weekly.

Approval of BP's Alternative Monitoring Plan

EPA has reviewed BP's request for an AMP and has determined that it includes all of the required information. The butane is commercial grade and inherently low in H_2S. BP submitted 6 months of sample results to support this conclusion. There are also no crossover or entry points that would allow for sour gas to be introduced into the butane stream. Therefore, the Administrator of the EPA, by authority duly-delegated to the undersigned, approves BP's request for an AMP when butane as refinery fuel gas is combusted at the WCC turbines.

If you have any questions regarding this determination please contact Charles Aldred, Air Enforcement Office, at (415) 972-3986.

Sincerely

Ken Bigos

for Jack P. Broadbent
Director, Air Division

Enclosure

cc: Ms. Pang Mueller, SCAQMD

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

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ENVIRONMENTAL DEPT.
BP CARSON BUSINESS UNIT

Allan C. Seese
Environmental Planning Supervisor
BP West Coast Products LLC
Carson One Campus
2350 E. 223rd Street
P.O. Box 6210
Carson, California 90749-6210

Dear Mr. Seese:

On February 1, 2008, BP West Coast Products LLC (BP) submitted to the United States Environmental Protection Agency, Region 9 (EPA) a revised Alternative Monitoring Plan (AMP) request for the C3 Splitter feed, NHDS Product, and three commercial grade product streams (natural gas, hydrogen and propylene) that are burned in the No.5 Flare at the BP Carson Refinery (Refinery). The AMP proposes that the C3 Splitter feed, NHDS Product, and commercial grade product streams do not need to be continuously monitored for hydrogen sulfide (H_2S) content; instead samples of the C3 Splitter feed and NHDS Product streams will be collected at least twice per year and analyzed for H_2S with South Coast Air Quality Management District (SCAQMD) Method 307-914 or total sulfur content with ASTM D-5453.

Regulatory Background

The Standards of Performance for New Stationary Sources (NSPS) Subpart J (Standards of Performance for Petroleum Refineries) at 40 C.F.R. § 60.104(a)(1) requires the owner or operator of a fuel gas combustion device at a petroleum refinery to burn no refinery fuel gas that contains H_2S in excess of 230 milligrams per dry standard cubic meter (0.10 grain per dry standard cubic foot). This limit is equivalent to 160 parts per million (ppm) H_2S. Pursuant to 40 C.F.R. § 60.105(a)(3), the owner or operator of a fuel gas combustion device subject to 40 C.F.R. § 60.104(a)(1) is required to install, calibrate, maintain, and operate a continuous monitoring system (CMS) to monitor and record the concentration by volume of sulfur dioxide emitted to the atmosphere. Alternatively, a CMS to monitor and record the H_2S in fuel gases before being burned in any fuel gas combustion device may be used. Pursuant to 40 C.F.R. § 60.13(i), after receipt and consideration of written application, the Administrator may approve alternative procedures to any monitoring procedures or requirements of [Part 60].

The EPA issued guidance titled "Alternative Monitoring Plan for NSPS Subpart J Refinery Fuel Gas" (RFG Guidance). The RFG Guidance is divided into four subjects: conditions for approval; data requirements; monitoring schedules for approved alternative plans; and general conditions for

File No. - 03603-19591

approved monitoring plans. BP's request for an AMP included the information required by the RFG Guidance:

- a description of the gas stream to be considered including submission of the appropriate piping diagrams indicating the boundaries of the gas streams/system;
- the affected fuel gas combustion device(s) to be considered;
- an identification of the proposed sampling point for the alternative monitoring;
- an explanation of the conditions that ensures low amounts of sulfur in the gas stream and supporting test results using appropriate H_2S monitoring.

BP's Request

BP submitted product certifications and test results for three groups of RFG streams subject to NSPS Subpart J.

- BP certifies the natural gas, hydrogen, and propylene commercial grade product streams each meets specifications of less than 30 ppmv sulfur content, and has submitted one-time sample results for the three product streams that indicated a maximum H_2S content of less than 1.0 ppm;
- The C3 Splitter feed has a target for sulfur of less than 0.1 ppm to protect the Arsine Guard Reactor catalyst. The low sulfur at the C3 Splitter is due to H_2S and other sulfur compounds removal that occurs upstream at the methyldiethanolamine (MEDA) Contactors and the Coker Gas Merox. BP collected fourteen daily samples from the C3 splitter feed and analysed with SCAQMD Method 307-914. These results indicated a maximum H_2S content of 0.5 ppm;
- The NHDS product has a target of less than 1 ppm sulfur in the NHDS stripper bottoms in order to protect the downstream catalyst. The low sulfur at the NHDS stripper is due to the removal of H_2S and other sulfur compounds that occurs at the MEDA Contactor in the NHDS process. BP has collected fourteen daily samples from the NHDS product stream and analysed with ASTM D-5453. These results indicated a maximum total sulfur content of 1.1 ppm.

BP proposed to use SCAQMD Method 307-914 and ASTM D-5453 to measure the H_2S of the C3 Splitter feed exiting the C3 Splitter and the total sulfur concentration of the NHDS product exiting the NHDS Stripper located upstream of the Flare Collection Header for the No. 5 Flare, respectively. The proposed alternative monitoring plan includes the following steps:

1. As the first step in developing the AMP, BP performed initial sampling of the streams/systems connected to the No. 5 flare to estimate the H_2S concentration in the fuel gas. Sampling was performed once per day for 14 consecutive days.
2. Based on results of Step 1, BP proposes to monitor H_2S from the C3 Splitter and total sulfur from the NHDS Product pursuant to the following schedule: i) Twice per week for the first six months; ii) Once per quarter for six quarters; and iii) Twice per year thereafter.
3. If at any time during the previous step, a single verified sample value is greater than or equal to 81 ppm H_2S, the samples will be collected on a daily basis for 7 days. If the average plus 3 standard deviations for those seven samples is less than 81 ppm H_2S, the sampling results will be included in the next scheduled report, and sampling shall resume monitoring in accordance with the schedule in Step 2. If the average plus 3 standard deviations is equal to or greater than 81 ppm H_2S, sampling will follow the requirements of Step 4.

4. If the average plus 3 standard deviations for those 7 samples is equal to or greater than 81 ppm H_2S, BP will notify EPA the next business day after receiving the analytical results. BP will then conduct sampling daily for a two-week period (14 samples). Afterwards, BP will sample once per week until EPA approves a revised sampling schedule or makes a determination to withdraw approval of the AMP.

There is one crossover connection between the fluididized catalytic cracking (FCC) flare and the No. 5 flare downstream of the C3 Splitter feed and NHDS product sampling points. This connection is used for re-routing flare fuel gas from the No. 5 flare to the FCC flare when the No.5 flare is shutdown for maintenance. BP proposed to block the connection between the No. 5 Flare and the FCC Flare with a closed valve equipped with a car seal, and do as follows:

- BP will keep a detailed record of each time the valve is opened and each time the car seal is unsealed. The record will include the reason the valve was opened, the length of time it was open, a calculation of the amount of gas sent to the FCC Flare, and the basis for the calculation.
- If the car seal is unsealed for any reason, BP will immediately replace the car seal and make a record of the time and date. Records of the valve openings will be submitted to EPA Region 9 along with the NSPS J semiannual compliance report.

Approval of BP's Request

Based on the information that BP submitted, and pursuant to 40 CFR 60.13(i), EPA approves BP's request that no CEMS be installed for monitoring the H_2S concentration in the vent gas streams generated from the C3 splitter feed and NHDS product streams. Instead, these RFG gas streams will each be monitored in accordance with the proposed alternative monitoring plan procedure mentioned above. The natural gas, propylene and hydrogen product streams also do not need to be continuously monitored for H_2S content. This AMP approval is based on the information submitted to EPA on February 01, 2008 and applies only to those RFG streams as described by BP. Furthermore, the AMP approval does not alter any of the other requirements of NSPS, Subpart A and J that may apply to the Facility. As requested by BP, this AMP is only effective until BP submits and EPA approves a different AMP for the use of a total sulfur analyzer on the No. 5 Flare. BP also expects to install a flare gas recovery system on the No.5 Flare to minimize start-up, shut-down and eliminate non-emergency flaring by July 2009.

If you have any questions about this letter, you may contact Yenhung Ho, Air Enforcement Office, at (415) 972-3262 or at ho.yenhung@epa.gov.

Sincerely,

Brent for DMcD

Douglas K. McDaniel,
Chief, Enforcement Office
Air Division

cc: Dr. Barry R. Wallerstein, SCAQMD

File 3H31

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

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ENVIRONMENTAL DEPT.
BP CARSON BUSINESS UNIT

Susan Sharp
Manager Environmental Department
BP West Coast Products LLC
BP Carson Refinery
1801 East Sepulveda Boulevard
P. O. Box 6210
Carson, CA 90749-6210

RE: Request for Approval of Alternate Monitoring Plan ("AMP") under 40 C.F.R. § 60.13(i) for the Semi-Regenerative Reformer Regeneration Gas Streams to Reformer Heaters No. 1, 2, and 3.

Dear Ms. Sharp:

This letter is in response to your letter of June 1, 2006, requesting approval of an AMP for the semi-regenerative reformer regeneration gas streams routed to the combustion chamber of Reformer Heaters No. 1, 2, and 3 (hereinafter, Reformer Heaters). The request contains all of the information specified in the policy "Conditions for Approval of [An] Alternative Monitoring Plan for Miscellaneous Refinery Fuel Gas Stream." On September 5, 2006, BP West Coast Products LLC ("BP") submitted an updated process flow diagram and hydrogen sulfide monitoring results during the most recent regeneration of Catalytic Reforming Unit No. 1. The United States Environmental Agency ("USEPA"), Region 9 has reviewed the request and has made the final determination as follows:

Regulatory Background

The New Source Performance Standards for Petroleum Refineries ("Petroleum Refinery NSPS"), 40 C.F.R. §§ 60.100 through 60.109, include emission standards and monitoring requirements for fuel gas combustion devices ("FGCDs"). 40 C.F.R. § 60.104(a)(1) requires the owner or operator of a FGCD at a petroleum refinery to burn no refinery fuel gas that contains hydrogen sulfide ("H_2S") in excess of 230 milligrams per dry standard cubic meter (0.10 grain per dry standard cubic foot; 162 parts per million by volume, dry basis). Pursuant to 40 C.F.R. § 60.105(a)(3), the owner or operator of a FGCD subject to 40 C.F.R. § 60.104(a)(1) is required to install, calibrate, maintain, and operate a continuous monitoring system ("CMS") to monitor and record the concentration by volume of sulfur dioxide emitted into the atmosphere. The specifications for the CMS are codified in 40 C.F.R. § 60.105(a)(3)(i-iv).

40 C.F.R. § 60.13(i) also sets forth: "After receipt and consideration of written application, the Administrator may approve alternative procedures to any monitoring procedures or requirements of [Part 60]...."

The EPA issued guidance titled "Alternative Monitoring Plan for NSPS Subpart J Refinery Fuel Gas" ("RFG Guidance"). The RFG Guidance is divided into four subjects: conditions for approval; data requirements; monitoring schedule for approved alternative plans; and general conditions for approved monitoring plans. The RFG Guidance requires that requests for AMPs include the following information:

- a description of the gas stream to be considered including submission of the appropriate piping diagrams indicating the boundaries of the gas streams/system;
- the affected fuel gas combustion device(s) to be considered;
- an identification of the proposed sampling point for the alternative monitoring;
- a statement that there are no sour gas crossover points into the gas stream/system along with an indication of this in the piping diagram(s); and
- an explanation of the conditions that ensure low amounts of sulfur in the gas stream and supporting test results using appropriate H_2S monitoring.

<u>BP's Request</u>

On June 1, 2006, BP requested approval of an AMP for the semi-regenerative reformer regeneration gas streams to Reformer Heaters. Catalytic Reforming Units ("CRUs") 1, 2, and 3 convert the low octane feed into a stabilized high octane gasoline blending stock. The octane increase is accomplished by passing the feed stream over a catalyst in the reactor at high temperature in a hydrogen-rich atmosphere. The reactors at each CRU are regenerated approximately once or twice a year.

During the regeneration process, the spent catalyst is exposed to the injected oxygen to burn off the coke that has deposited on the surface of the catalyst during the run cycle. The combustion of the coke converts any sulfur compounds into SOx. Some of the gas stream from the regenerators is directed into the flame zone of the particular reformer heater.

BP states that reformer feeds are hydrotreated to a specification of less than 1 ppmw sulfur and nominally monitored daily to prevent sulfur poisoning of the reformer catalyst. In addition, the hydrotreated feed is passed through a sulfur trap for additional sulfur removal during the run cycle. In the end, only trace amounts of sulfur are deposited on the catalyst during the normal run cycle.

To determine the H_2S concentration of the regeneration gas stream, BP collected 16 samples during the June 2006 regeneration of CRU No. 1. The samples, which demonstrated that the H_2S concentration of the stream is inherently low and stable, were taken at approximately 4-hour intervals during the regeneration process. The measured H_2S concentrations of the samples were consistently below the detection limit of 0.2 ppmv.

BP also certifies that there are no crossover or entry points designed for H_2S to be introduced into the fuel gas stream during the regeneration process of the reactors as showed in the submitted simplified process flow diagram.

In order to demonstrate compliance with the 160 ppmv limit, BP proposed to take one grab sample once every full calendar day during the regeneration cycle when the regeneration gas stream is sent to Reformer Heaters. No monitoring is proposed during partial calendar days of the regeneration cycle.

Approval of BP's Request

USEPA has determined that the proposed AMP for the catalytic reformer regeneration gas streams to Reformer Heaters is appropriate. Therefore, the Administrator of USEPA, by authority duly delegated to the undersigned, approves BP's proposed AMP for the reformer regeneration gas streams to Reformer Heaters at the BP Carson refinery with a modified sampling frequency. USEPA has determined that the H_2S detector tube sampling should be conducted at least once every calendar day whenever the reformer regeneration off gas is routed to the combustion chamber of Reformer Heaters. The approval of the proposed AMP does not alter any of the other requirements of New Source Performance Standards, Subparts A and J that may apply to the BP Carson refinery.

If you have any questions regarding this response, please contact John Kim, Air Enforcement Office, at (415) 972-3984.

Sincerely,

Mark A. Simi

for Douglas K. McDaniel
Chief, Enforcement Office
Air Division

cc: Dr. Barry R. Wallerstein, SCAQMD

Attachment 2

Consent Decree Projects

BP Consent Decree Completed Projects - Project Sunshine

Process	System	Existing Equipment	Existing Equipment AQMD ID	New Equipment	New Equipment AQMD ID	Project Name	Project Description/Purpose	A/N	PC Issued Date	Public Notice
13	1	Claus A Pit	D2645	Pressure sulfur degass vessel RW-6844 with two circulation pumps	D2645	Project Sunshine	Eliminated sulfur pit vent by installing a pressure vessel and two vertical pumps in the existing pit, level controlling the sulfur out of the vessel into sulfur tanks on a continuous basis.	397368	6/12/2002	Per Abatement Order 1011-255
13	2	Claus B Pit	D2646	Pressure sulfur degass vessel RW-6842 with two circulation pumps	D2646	Project Sunshine	Eliminated sulfur pit vent by installing a pressure vessel and two vertical pumps in the existing pit, level controlling the sulfur out of the vessel into sulfur tanks on a continuous basis.	397368	6/12/2002	Per Abatement Order 1011-255
13	3	Claus C Pit	D888	Pressure sulfur degass vessel RW-6845 with two circulation pumps	D888	Project Sunshine	Eliminated sulfur pit vent by installing a pressure vessel and two vertical pumps in the existing pit, level controlling the sulfur out of the vessel into sulfur tanks on a continuous basis.	397368	6/12/2002	Per Abatement Order 1011-255
13	7	No. 1 Tail Gas Unit Absorber RW-6693	C2406	NA	NA	Project Sunshine Phase II	Added a TRS analyzer for No. 1 TGU absorber outlet to the incinerator.	401274	10/22/2002	Not required
13	5	No. 2 Tail Gas Unit Pit		Tail Gas KO drum sulfur collector RW-6866	D2668	Project Sunshine Phase II	Eliminated sulfur pit vent by installing a pressure vessel and two vertical pumps in the existing pit to route sulfur directly to sulfur tanks.	396913	10/22/2002	Per Abatement Order 1011-255
13	5	No. 2 Tail Gas Absorber RPV-4118	C896	NA	NA	Project Sunshine Phase II	Modified No. 2 TGU to improve DEA regeneration and added a TRS analyzer for No. 2 TGU absorber outlet to the incinerator.	396913	10/22/2002	Not required
		Foul air H2S analyzer		NA	NA	Project Sunshine Phase II	Install an H2S analyzer on the foul air stream to the incinerator.	NA	NA	Not required
Various	Various	DEA contactors (17)		NA	NA	Project Sunshine	Installation of instruments to the DEA contactors (17) to improve early detection and mitigation of hydrocarbon upsets and minimize the possibility of acid gas flaring. Added differential pressure indication, rich amine flowmeters and thermocouples (only piping and instrumentation).	NA	NA	Not required