

## Brian Lusher

---

**From:** Eastep, Brent P <Brent.P.Eastep@p66.com>  
**Sent:** Monday, March 16, 2015 12:05 PM  
**To:** Brian Lusher  
**Subject:** No changes

Brian – I'm listening to the stationary source meeting right now. No additional changes relative to what we discussed this morning. Please call if you have any questions.

Brent

**Brian Lusher**

---

**From:** Brian Lusher  
**Sent:** Wednesday, March 18, 2015 4:15 PM  
**To:** Eastep, Brent P (P66) (Brent.P.Eastep@p66.com)  
**Subject:** Authority to Construct for Application 25199 (Propane Recovery Project)  
**Attachments:** 25199 Eval Final 031615.docx; AC25199 031815.pdf

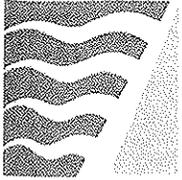
Brent,

Please find the enclosed Authority to Construct for Application 25199 (Propane Recovery Project).

I have also attached the final engineering evaluation for the project.

Regards,

Brian Lusher  
Senior Air Quality Engineer  
Bay Area Air Quality Management District  
Phone 415 749-4623  
Fax 415 749-5030



BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT  
SINCE 1955

March 18, 2015

Phillips 66 Company - San Francisco Refinery  
1380 San Pablo Ave  
Rodeo, CA 94572

Attention: Don Bristol

### Authorities to Construct for Permit Application No. 25199, Plant No. 21359

---

#### Required Action

Your Authorities to Construct are enclosed. These Authorities to Construct are not Permits to Operate. **To receive your Permits to Operate you must:**

1. Complete the Start-up Notification portion of the Authorities to Construct.
2. Send the Start-up Notifications to the assigned Permit Engineer via e-mail, fax or mail **at least seven days** prior to operating your equipment.

*Note: Operation of equipment without sending the Start-up Notification to the District may result in enforcement action.*

---

#### Authorization of Limited Use

The Authority to Construct authorizes operation during the start-up period from the date of initial operation indicated in your Start-up Notification until the Permit to Operate is issued, up to a maximum of 90 days. All conditions (specific or implied) included in this Authority to Construct will be in effect during the start-up period.

---

#### Contact Information

If you have any questions, please contact your assigned Permit Engineer:

Brian K Lusher, Senior Air Quality Engineer

**Tel:** (415) 749-4623    **Fax:** (415) 749-5030    **Email:** blusher@baaqmd.gov

---



*Save the Air*

The Air District is a Certified Green Business  
committed to the highest levels of environmental stewardship.

939 ELLIS STREET • SAN FRANCISCO CALIFORNIA 94109 • 415.771.6000 • WWW.BAAQMD.GOV



**BAY AREA AIR QUALITY MANAGEMENT DISTRICT**

**Authority to Construct**

(This is not a Permit to Operate)

**Plant No. 21359**  
**Application No. 25199**

**Phillips 66 Company - San Francisco Refinery**  
1380 San Pablo Ave, Rodeo, CA 94572

is hereby granted an *Authority to Construct* for the following equipment:  
**S-520 Refinery Fuel Gas Hydrotreatment Unit, 27.25 MMscf/day maximum capacity**

Equipment above is subject to attached condition nos. 25965 and 25966.

Approved by   
for **JIM KARAS, P.E.**  
**DIRECTOR OF ENGINEERING**

*Issue date:* March 18, 2015  
*Expiration date:* March 17, 2017

**Start-up Notification**

**Instructions:** At least **seven days** before the scheduled initial operation contact your assigned Permit Engineer via email or complete and send this Start-up Notification to the District via fax or mail.

**Engineer:** Brian K Lusher, Senior Air Quality Engineer  
**Tel:** (415) 749-4623    **Fax:** (415) 749-5030  
**Email:** blusher@baaqmd.gov

**Plant No.** 21359  
**Source No.** S-520  
**Application No.** 25199

The initial operation of this equipment is scheduled for \_\_\_\_\_ (month/day/year)

Print your first and last name \_\_\_\_\_

Telephone No. \_\_\_\_\_



BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Authority to Construct

(This is not a Permit to Operate)

Plant No. 21359
Application No. 25199

Phillips 66 Company - San Francisco Refinery
1380 San Pablo Ave, Rodeo, CA 94572

is hereby granted an Authority to Construct for the following equipment:
S-521 LPG Recovery Unit, 14,500 bbl/day maximum capacity

Equipment above is subject to attached condition nos. 25965 and 25966.

Approved by [Signature]
for JIM KARAS, P.E.
DIRECTOR OF ENGINEERING

Issue date: March 18, 2015
Expiration date: March 17, 2017

Start-up Notification

Instructions: At least seven days before the scheduled initial operation contact your assigned Permit Engineer via email or complete and send this Start-up Notification to the District via fax or mail.

Engineer: Brian K Lusher, Senior Air Quality Engineer
Tel: (415) 749-4623 Fax: (415) 749-5030
Email: blusher@baaqmd.gov
Plant No. 21359
Source No. S-521
Application No. 25199

The initial operation of this equipment is scheduled for \_\_\_\_\_ (month/day/year)

Print your first and last name \_\_\_\_\_

Telephone No. \_\_\_\_\_



Plant Name: Phillips 66 Company - San Francisco Refinery

S-520 & S-521

Condition No. 25965

Plant No. 21359

Application No. 25199

1. The owner/operator of S-520 shall ensure that the refinery fuel gas throughput shall not exceed the following limits: 27.25 MMscf/day, and/or 9,946 MMscf in any consecutive 12-month period.  
(Basis: Cumulative Increase)
2. The owner/operator of S-521 shall ensure that the throughput of propane and/or butane does not exceed the following limits: 14,500 bbl/day, and/or 5,295,500 bbl in any consecutive 12-month period.  
(Basis: Cumulative Increase)
3. The owner/operator shall ensure that no hydrogen is supplied to S-520 from the Air Liquid H2 plant (Site B7419) and/or from the onsite hydrogen manufacturing unit (S-437).  
(Basis: 2-1-403, Cumulative Increase)
4. The owner/operator shall prepare a monitoring plan using District approved methods to measure the fuel gas flowrate and the amount of recovered propane and butane at S-520 and S-521. The monitoring plan shall be submitted to the assigned permit engineer for the facility 30 days before the startup of S-520 and S-521. (Basis: 2-1-403, 2-6-503)
5. The owner/operator shall ensure that the shipments by rail of propane and butane from the facility do not exceed 6,701 rail cars in any consecutive 12-month period.  
(Basis: Cumulative Increase)

*End of Conditions*



Plant Name: Phillips 66 Company - San Francisco Refinery

S-520 & S-521

Condition No. 25966

Plant No. 21359

Application No. 25199

1. Fugitive Equipment
  - a. The owner/operator shall as part of the PRP install only the following types of valves in light hydrocarbon service where the hydrocarbon has an initial boiling point less than or equal to 302 degree F: (1) bellows sealed, (2) live loaded, (3) graphite packed, (4) quarter-turn (e.g., ball valves or plug valves), or equivalent as determined by the APCO.  
[Basis: BACT, Offsets, Regulation 8-18]
  - b. The owner/operator shall comply with a leak standard of 100 ppm of TOC (measured as C1) at any valve installed as part of the PRP in hydrocarbon service. The owner/operator shall not be considered in violation of the leak standard if the owner/operator complies with the applicable minimization and repair provisions contained in Regulation 8, Rule 18. Valves that are not of a type listed in part 1 and for which a leak greater than 100 ppm (measured as C1) has been determined, shall become subject to the inspection provisions contained in Regulation 8-18. If the leak remains greater than 100 ppm (measured as C1) after repair, or if the valve is determined to have a leak greater than 100 ppm (measured as C1) a second time within a 5-year period, the owner/operator shall replace the valve with a type listed in part 1 (a) within 5 years or at the next scheduled turnaround, whichever is sooner.  
[Basis: BACT, Regulation 8, Rule 18]
  - c. The owner/operator shall install graphitic-based gaskets on all flanges or connectors (gasketed) installed as part of the PRP in light hydrocarbon service unless the owner/operator demonstrates to the satisfaction of the APCO that the service requirements prevent this gasket material from being used. [Basis: BACT]
  - d. The Owner/Operator shall comply with a leak standard of 100 ppm of TOC (measured as C1) at any flanges/connectors installed as part of the PRP in light hydrocarbon service unless the owner/operator complies with the applicable minimization and repair provisions contained in Regulation 8-18.  
[Basis: BACT, Regulation 8 Rule 18]



Plant Name: Phillips 66 Company - San Francisco Refinery

S-520 & S-521

Condition No. 25966

Plant No. 21359

Application No. 25199

- e. The owner/operator shall install double mechanical seals with barrier fluid; or gas seal system vented to a thermal oxidizer or other District approved equivalent control device or technology as determined by the APCO on all compressors installed as part of the PRP. [Basis: BACT]
- f. The owner/operator shall comply with a leak standard of 100 ppm of TOC (measured as C1) at any pumps and/or compressors installed as part of the PRP in hydrocarbon service. The owner/operator shall not be considered in violation of the leak standard if the owner/operator complies with the applicable minimization and repair provisions contained in Regulation 8-18. All pumps and/or compressors subject to the leak standard of 100 ppm TOC shall be included in the total number of pumps and compressors used in Regulation 8-18-306.2 to determine the total number of non-repairable pumps and compressors allowed. [Basis: BACT]
- g. The owner/operator shall install double mechanical seals with barrier fluid; dual nitrogen gas purge seals; magnetically coupled pumps; canned pumps; magnetic fluid sealing technology; gas seal system vented to thermal oxidizer, or other BAAQMD approved equivalent control device; or District approved control technology as determined by the APCO on all pumps installed as part of the PRP in light hydrocarbon service where the hydrocarbon has an initial boiling point less than or equal to 302 degree F. The owner/operator shall install double mechanical seals or District approved equivalent technology on all pumps in hydrocarbon service with a flash point less than 250 degree F. [Basis: BACT]
- h. Unless the equipment exclusively handles material(s) with a flash point greater than or equal to 250 degree F, the owner/operator shall identify all new pumps and compressors installed as part of the PRP in hydrocarbon service with a unique permanent identification code and shall include all new and replaced fugitive equipment in the Regulation 8, Rule 18 fugitive equipment monitoring and repair program. The



Plant Name: Phillips 66 Company - San Francisco Refinery  
S-520 & S-521

Condition No. 25966

Plant No. 21359

Application No. 25199

owner/operator shall monitor all repaired equipment within 24 hours of the repair.  
[Basis: Cumulative Increase, BACT]

- i. The Owner/Operator shall vent all pressure relief valves installed as part of the PRP in hydrocarbon service as defined in part 2 subject to Rule 8-28 to a flare gas recovery system with a recovery and/or destruction efficiency of at least 98% by weight.  
[Basis: BACT]
2. The Owner/Operator shall provide the District's Engineering Division with a final count of all fugitive components along with each components unique permanent identification code for all installed pumps, compressors, valves, pressure relief devices, and flanges/connectors in light hydrocarbon service 90 days after startup of S-520 Refinery Fuel Gas Hydrotreatment Unit and S-521 LPG Recovery Unit. The owner/operator has been permitted to install the following number of fugitive components for the PRP:

Pumps: 16 [As identified in part 1 (g)]  
Compressors: 2  
Valves: 2,810  
Connectors (No Flanges): 1,875  
Flanges: 3,745  
Pressure Relief Devices: 42 non-atmospheric

The owner/operator shall not exceed 4.58 tons per year of POC emissions measured as C1 from the total fugitive component count installed in TOC services as part of the PRP. Compliance with this provision shall be verified quarterly using methods described in Part 3. The results shall be submitted to the District on a quarterly basis for two years commencing with start-up of S-520 and S-521. Documentation of results shall be kept on site for five years.

If there is an increase in the total fugitive component counts, the plant's cumulative emissions for the project shall be adjusted, subject to APCO approval provided no other regulatory requirements are triggered, to reflect the difference between emissions based on predicted component counts versus actual component counts. The owner/operator may have enough remaining contemporaneous emissions reduction credits (ERCs) to cover any increase in POC fugitive emissions beyond the original



Plant Name: Phillips 66 Company - San Francisco Refinery

S-520 & S-521

Condition No. 25966

Plant No. 21359

Application No. 25199

projection. If not, the owner/operator shall provide to the District all additional required offsets at an offset ratio of 1.15:1 no later than 21 days after the submittal of the final POC fugitive equipment count. If the actual component count is less than the predicted count, at the completion of the project, the total will be adjusted accordingly. Any ERCs applied by the facility in excess of the actual total fugitive emissions estimate based on actual counts as opposed to estimated will be credited back to the owner/operator.  
[Basis: Cumulative Increase, Offsets, Regulation 2, Rule 5]

3. The owner/operator shall calculate fugitive emissions from PRP fugitive components utilizing District approved methods.  
[Basis: Cumulative Increase, BACT, Offsets]
4. Inspections
  - a. The owner/operator shall conduct inspections of PRP fugitive components in light hydrocarbon service with an initial boiling point less than or equal to 302 degree F in accordance with the frequency listed below:

Pumps: Quarterly

Compressors: Quarterly

Valves: Quarterly

Connectors (Not Flanges): Annual Flanges: Annual

Pressure Relief Devices: Not applicable,

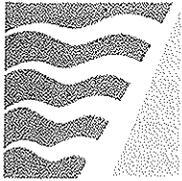
non-atmospheric

[Basis: BACT, Regulation 8, Rule 18]

- b. The owner/operator shall conduct quarterly inspections of all PRP pumps in hydrocarbon service with a flash point less than 250 deg. F.

[Basis: BACT]

*End of Conditions*



BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT  
SINCE 1955

March 18, 2015

Phillips 66 Company - San Francisco Refinery  
1380 San Pablo Ave  
Rodeo, CA 94572

Attention: Don Bristol

---

**Authorities to Construct for Alterations Application No. 25199, Plant No. 21359**

---

**Required  
Action**

Your Authorities to Construct are enclosed. These Authorities to perform alterations are not Permits to Operate. **To receive your Permits to Operate you must:**

1. Complete the Start-up Notification portion of the Authorities to Construct.
2. Send the Start-up Notifications to the assigned Permit Engineer via e-mail, fax or mail **at least seven days** prior to operating your equipment.

*Note: Operation of equipment without sending the Start-up Notification to the District may result in enforcement action.*

---

**Authorization  
of Limited Use**

The Authority to Construct authorizes operation during the start-up period from the date of initial operation indicated in your Start-up Notification until the Permit to Operate is issued, up to a maximum of 90 days. All conditions (specific or implied) included in this Authority to Construct will be in effect during the start-up period.

---

**Contact  
Information**

If you have any questions, please contact your assigned Permit Engineer:

Brian K Lusher, Senior Air Quality Engineer

**Tel:** (415) 749-4623    **Fax:** (415) 749-5030    **Email:** blusher@baaqmd.gov

---

*Breathe the Air*

San Francisco Bay Area Air Quality Management District

San Francisco Bay Area Air Quality Management District



939 ELLIS STREET • SAN FRANCISCO CALIFORNIA 94109 • 415.771.6000 • WWW.BAAQMD.GOV



BAY AREA AIR QUALITY MANAGEMENT DISTRICT

**Authority to Construct**

(This is not a Permit to Operate)

Plant No. 21359  
Application No. 25199

**Phillips 66 Company - San Francisco Refinery**

1380 San Pablo Ave, Rodeo, CA 94572

is hereby granted an *Authority to Construct* for the following equipment:

**S-338 U233 FUEL GAS CENTER, MEA ABSORPTION**

Equipment above is subject to attached condition no. 25964.

Approved by   
for JIM KARAS, P.E.  
DIRECTOR OF ENGINEERING

Issue date: March 18, 2015  
Expiration date: March 17, 2017

**Start-up Notification**

*Instructions:* At least **seven days** before the scheduled initial operation contact your assigned Permit Engineer via email or complete and send this Start-up Notification to the District via fax or mail.

**Engineer:** Brian K Lusher, Senior Air Quality Engineer

**Tel:** (415) 749-4623    **Fax:** (415) 749-5030

**Email:** blusher@baaqmd.gov

**Plant No.** 21359

**Source No.** S-338

**Application No.** 25199

The initial operation of this equipment is scheduled for \_\_\_\_\_ (month/day/year)

Print your first and last name \_\_\_\_\_

Telephone No. \_\_\_\_\_



Plant Name: Phillips 66 Company - San Francisco Refinery

S-338

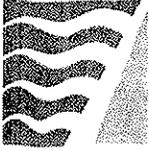
Condition No. 25964

Plant No. 21359

Application No. 25199

1. The owner/operator of S-338 (U233) Fuel Gas Center and S-520 Refinery Fuel Gas Hydrotreatment Unit shall ensure that the concentration of total sulfur in the U233 refinery fuel gas does not exceed 200 ppm total sulfur in any consecutive 12-month period. The owner/operator of S-338 (U233) Fuel Gas Center and S-520 Refinery Fuel Gas Hydrotreatment Unit shall ensure that SO<sub>2</sub> emissions from the combustion of refinery fuel gas processed at S-338 and S-520 including blended natural gas does not exceed 185 tons SO<sub>2</sub> in any consecutive 12-month period.  
(Basis: Cumulative Increase)
  
2. The owner/operator shall prepare a monitoring plan using District approved methods to measure U233 fuel gas flowrate and U233 fuel gas total sulfur. The owner/operator shall install a District approved total sulfur analyzer to measure total sulfur at S-338 U233 Fuel Gas Center. The monitoring plan shall be submitted to the assigned permit engineer for the facility at least 30 days before the startup of S-520 and S-521.  
(Basis: 2-1-403, 2-6-503)

*End of Conditions*



**BAY AREA AIR QUALITY MANAGEMENT DISTRICT**

**Authority to Construct**

(This is not a Permit to Operate)

**Plant No. 21359**  
**Application No. 25199**

**Phillips 66 Company - San Francisco Refinery**

1380 San Pablo Ave, Rodeo, CA 94572

is hereby granted an *Authority to Construct* for the following equipment:

**S-1002 Sulfur Plant - Unit 236**

Equipment above is subject to attached condition no. 25963.

Approved by   
for **JIM KARAS, P.E.**  
**DIRECTOR OF ENGINEERING**

*Issue date:* March 18, 2015  
*Expiration date:* March 17, 2017

---

**Start-up Notification**

**Instructions:** At least **seven days** before the scheduled initial operation contact your assigned Permit Engineer via email or complete and send this Start-up Notification to the District via fax or mail.

**Engineer:** Brian K Lusher, Senior Air Quality Engineer

**Tel:** (415) 749-4623    **Fax:** (415) 749-5030

**Email:** blusher@baaqmd.gov

**Plant No.** 21359

**Source No.** S-1002

**Application No.** 25199

The initial operation of this equipment is scheduled for \_\_\_\_\_ (month/day/year)

Print your first and last name \_\_\_\_\_

Telephone No. \_\_\_\_\_



**BAY AREA AIR QUALITY MANAGEMENT DISTRICT**

**Authority to Construct**

(This is not a Permit to Operate)

**Plant No. 21359**  
**Application No. 25199**

**Phillips 66 Company - San Francisco Refinery**  
1380 San Pablo Ave, Rodeo, CA 94572

is hereby granted an *Authority to Construct* for the following equipment:

**S-1003 Sulfur Plant Unit 238**

Equipment above is subject to attached condition no. 25963.

Approved by   
for **JIM KARAS, P.E.**  
**DIRECTOR OF ENGINEERING**

*Issue date:* March 18, 2015  
*Expiration date:* March 17, 2017

**Start-up Notification**

**Instructions:** At least **seven days** before the scheduled initial operation contact your assigned Permit Engineer via email or complete and send this Start-up Notification to the District via fax or mail.

**Engineer:** Brian K Lusher, Senior Air Quality Engineer  
**Tel:** (415) 749-4623 **Fax:** (415) 749-5030  
**Email:** blusher@baaqmd.gov

**Plant No.** 21359  
**Source No.** S-1003  
**Application No.** 25199

The initial operation of this equipment is scheduled for \_\_\_\_\_ (month/day/year)

Print your first and last name \_\_\_\_\_

Telephone No. \_\_\_\_\_



Plant Name: Phillips 66 Company - San Francisco Refinery

S-1002 & S-1003

Condition No. 25963

Plant No. 21359

Application No. 25199

Conditions for S-1002 and S-1003

1. Deleted Application 12433
2. Deleted Application 12433
3. An annual District-approved source test shall be performed to verify compliance with the requirements of Regulation 6-1-330. A copy of the source test results shall be provided to the District Director of Compliance and Enforcement within 45 days of the test.  
[Basis: Regulation 6-1-330]
4. The Owner/Operator shall perform a visible emissions check on Sources S-1002 and S-1003 on a monthly basis. The visible emissions check shall take place while the equipment is operating and during daylight hours. If any visible emissions are detected, the owner/operator shall have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures outlined in the CARB manual, "Visible Emissions Evaluation" for six (6) minutes within three (3) days and record the results of the reading. If the reading is in compliance with the Ringelmann 1.0 limit in BAAQMD Regulation 6-1-301, the reading shall be recorded and the owner/operator shall continue to perform a visible emissions check on a monthly basis. If the reading is not in compliance with the Ringelmann 1.0 limit in BAAQMD Regulation 6-1-301, the owner/operator shall take corrective action and report the violation in accordance with Standard Condition 1.F of the Title V permit. The certified smoke-reader shall continue to conduct the Method 9 or CARB Visible Emission Evaluation on a daily basis until the daily reading shows compliance with the applicable limit or until the equipment is shut down. Records of visible emissions checks and opacity readings made by a CARB-certified smoke reader shall be kept for a period of at least 5 years from date of entry and shall be made available to District staff upon request.  
[Basis: Regulations 6-1-301, 2-6-501, 2-6-503]
5. Within 90 days of issuance of the Major Facility review permit pursuant to Application 10994, the owner/operator shall perform source tests at the stacks of Tail Gas Incinerators A422 and A423 to determine compliance with BAAQMD Regulations 6-1-310 and 6-1-311 for filterable particulate using the existing single port. The owner/operator shall also utilize a District approved method to measure condensable particulate during annual particulate testing conducted under this part for a



Plant Name: Phillips 66 Company - San Francisco Refinery

S-1002 & S-1003

Condition No. 25963

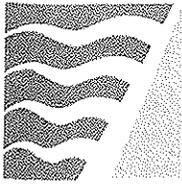
Plant No. 21359

Application No. 25199

period of three years after issuance of the authority to construct under application 25199. The APCO may administratively request that the owner/operator continue to perform annual condensable testing at the end of the three year period. The owner/operator shall submit a proposed source test protocol to the Source Test group at least 30 days before conducting the source test. Within 60 days of the source tests, the owner/operator shall submit the results of the source tests to the District. The owner/operator shall repeat the source tests on an annual basis. The District's Source Test Group will observe the initial test to determine if testing with a single port is acceptable for these stacks. If the Source Test Group finds that a single port is not acceptable, the District may reopen the permit to require installation of a second port at each stack. [Basis: 2-6-503]

6. The owner/operator shall ensure that the throughput of molten sulfur at S-1002 and S-1003 does not exceed 106.3 long tons/day and 134.5 long tons/day, respectively. The owner/operator shall ensure that the throughput of molten sulfur at S-1002 and S-1003 combined does not exceed 201 long tons/day. The owner/operator shall ensure that the throughput of molten sulfur at S-1002 and S-1003 does not exceed 31,390 long tons/year and 41,975 long tons/year, respectively. The owner/operator shall record the throughput of molten sulfur on a daily basis. [Basis: Cumulative Increase]

*End of Conditions*



BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT  
SINCE 1955

March 18, 2015

Phillips 66 Company - San Francisco Refinery  
1380 San Pablo Ave  
Rodeo, CA 94572

ALAMEDA COUNTY

Tom Bates  
Margaret Fujioka  
Scott Haggerty  
Nate Miley

Attention: Don Bristol

Application Number: 25199  
Plant Number: 21359  
Equipment Location: *same as above*

CONTRA COSTA COUNTY

John Gioia  
David Hudson  
Karen Mitchoff  
Mark Ross

Dear Applicant:

MARIN COUNTY

Katie Rice

SUBJECT: PERMIT TO OPERATE ALTERED EQUIPMENT

NAPA COUNTY  
Brad Wagenknecht

This letter is to advise you that your Permit to Operate the following equipment which will be altered in association with application No. 25199 is approved:

SAN FRANCISCO COUNTY

John Avaios  
Edwin M. Lee  
Eric Mar  
(Vice-Chair)

- S-307 U240 Unicracking Unit
- S-352 Combustion Turbine, 291 MMBtu/hr
- S-353 Combustion Turbine, 291 MMBtu/hr
- S-354 Combustion Turbine, 291 MMBtu/hr
- S-355 Supplemental Firing Duct Burners, 175 MMBtu/hr
- S-356 Supplemental Firing Duct Burners, 175 MMBtu/hr
- S-357 Supplemental Firing Duct Burners, 175 MMBtu/hr
- S-1010 Sulfur Recovery Unit, 200 LTD

SAN MATEO COUNTY

David J. Canepa  
Carole Groom  
(Chair)

The above described equipment remains subject to any related existing conditions.

SANTA CLARA COUNTY

Cindy Chavez  
Liz Kniss  
(Secretary)  
Jan Pepper  
Rod G. Sinks

Please include your application number with any correspondence with the District. The District's regulations may be viewed online at [www.baaqmd.gov](http://www.baaqmd.gov). If you have any questions on this matter, please call **Brian K Lusher**, Senior Air Quality Engineer at (415) 749-4623.

SOLANO COUNTY

James Sperring

Very truly yours,

Jim Karas, P.E.  
Director of Engineering

SONOMA COUNTY

Teresa Barrett  
Shirlee Zane

by  
Air Quality Engineering Manager

Jack P. Broadbent  
EXECUTIVE OFFICER/APCO

PJL:BKL

*Bay Area Air Quality Management District*



**Engineering Evaluation  
Phillips 66  
Plant #21359  
Application #25199**

**BACKGROUND**

Phillips 66 is applying for an Authority to Construct/Permit to Operate for the Rodeo Propane/Butane Recovery Project consisting of the following new sources:

**S-520 Refinery Fuel Gas Hydrotreatment Unit, 27.25 MMscf/day maximum capacity**  
**S-521 LPG Recovery Unit, 14,500 bbl/day, maximum capacity**

and alterations of the following existing sources:

**S-307 U240 Unicracking Unit**  
**S-338 U233 Fuel Gas Center**  
**S-462 U215 Fuel Gas Caustic Unit (Not Affected)**  
**S-463 U215 Butane Caustic System (Not Affected)**  
**S-352 Combustion Turbine, 291 MMBtu/hour**  
**S-353 Combustion Turbine, 291 MMBtu/hour**  
**S-354 Combustion Turbine, 291 MMBtu/hour**  
**S-355 Supplemental Firing Duct Burners, 175 MMBtu/hour**  
**S-356 Supplemental Firing Duct Burners, 175 MMBtu/hour**  
**S-357 Supplemental Firing Duct Burners, 175 MMBtu/hour**  
**S-1002 Sulfur Plant, 90.5 LTD**  
**S-1003 Sulfur Plant, 115 LTD**  
**S-1010 Sulfur Recovery Unit, 200 LTD**

Phillips 66 has applied to install two new sources (S-520, S-521) at the Rodeo refinery. The project is known as the Propane Recovery Project (PRP) and alters numerous existing sources at the refinery (see above). The project will allow Phillips 66 to increase the amount of butane that is recovered from the fuel gas system. The project will also allow Phillips 66 to start recovering propane from the fuel gas system. The recovered propane and butane will be stored onsite in six new exempt pressure vessels (six tanks with a combined capacity of 15,000 barrels) prior to shipment to customers via railcars. The project will modify the existing butane loading equipment to include propane loading, install an additional exempt propane/butane loading rack, and two additional exempt rail spurs. The project will also make additions and modifications to ancillary facilities such as pumps, heat exchangers, instrumentation, utilities, and piping.

The project will also reduce sulfur concentrations in the post project refinery fuel gas (RFG) system and reduce SO<sub>2</sub> emissions from the majority of sources that combust refinery fuel gas at the facility. The refinery is adding a hydrotreater and an amine contactor (S-520) to remove sulfur compounds from the fuel gas system at S-338 prior to recovering the propane

and butane from the fuel gas system. The refinery will continue to meet fuel gas demand by blending in utility grade natural gas.

The current RFG system collects most of the fuel gas and processes it at S-338 Fuel Gas Center which removes sulfur using an amine contactor. After the project, the majority of these streams will be processed through S-520 hydrotreater which includes a new amine contactor. After the project, the refinery also plans to continue to process certain low sulfur fuel gas streams using the existing amine contactor at S-338 U233 Fuel Gas Center. SO<sub>2</sub> emissions due to the combustion of these low sulfur process gas streams are not expected to change due to the installation of the equipment associated with the project.

As stated above, the refinery is also adding equipment to recover propane and butane (S-521) from a portion of the RFG system. A new hydrotreatment unit and amine contactor (S-520) will be installed to remove sulfur from this portion of the RFG system. The lower sulfur propane and butane will be removed using an LPG recovery unit (S-521). Propane will be stored onsite in pressure vessels (six tanks with combined capacity of 15,000 barrels) and butane will be stored in existing tankage prior to shipment offsite via rail cars. The refinery will blend in natural gas to the RFG system to meet onsite fuel gas demand. The heating value of the RFG will change from approximately 1,300 Btu/scf to a nominal range of 1,100 to 1,200 Btu/scf. The fuel gas baseline (S-338, U233 majority of fuel gas system) total sulfur concentration was 374.8 ppm and post project Phillips 66 is estimating the concentration will be less than or equal to 200 ppm total sulfur. The baseline SO<sub>2</sub> emissions at S-338 were 325.6 tons/year and post project the refinery has requested a permit limit of 185 tons/year for the same portions of the fuel gas system. The expected emission reductions of SO<sub>2</sub> are approximately 140.6 tons/year after the project is completed.

## **NEW SOURCES**

The new S-520 Hydrotreater will have a capacity 27.25 MMscf/day. S-520 will consist of 1 repurposed compressor, 3 repurposed reactors, 5 new heat exchangers, 3 process vessels, 4 process pumps, and other associated fugitive components. The refinery has stated that no hydrogen will be supplied to S-520 from either the onsite hydrogen plant S-437 or the Air Liquide hydrogen plant (Site B7419).

The new LPG recovery unit S-521 will have a maximum capacity of 14,500 bbl/day. S-521 will consist of process vessels and equipment including: three new fractionating towers, rebuilding one existing fractionating tower, two absorber towers, installation of 15 heat exchangers, 11 process vessels, 16 process pumps, and other associated fugitive components. S-521 LPG recovery unit will be located adjacent to S-307 (U240). S-521 will utilize three new fractionation towers and an existing fractionation tower (D-302, depropanizer tower) currently associated with S-307 uncracking unit. The existing tower will be optimized by replacing internal components (trays) along with associated heat exchangers and reflux pumps will be replaced. After the project is completed, D-302 depropanizer tower will be associated with S-521.

Both new sources will be supplied steam from the onsite steam power plant. The steam power plant consists of three gas turbine/heat recovery steam generator trains (S-352 through S-357). The refinery estimates that the new equipment will require the heat recovery steam generators to increase the firing rate (for all three heat recovery steam generators combined) by 45 MMBtu/hour.

The first step in the sulfur removal process at S-520 Hydrotreater is the use of hydrogen already present in the refinery fuel gas to strip sulfur compounds from the refinery fuel gas. The second step in the sulfur removal process is to treat the refinery fuel gas using an amine contactor to remove sulfur species that are not captured by the hydrotreater. The rich amine solution will be regenerated and the sulfur species from the amine contactor and hydrotreater will be sent to the three sulfur recovery units (S-1002, S-1003, and S-1010) as hydrogen sulfide gas. The refinery estimates that the amount of sulfur recovered at the Sulfur Recovery Units due to the addition of S-520 and S-521 will be less than 0.5 tons per day or 135 long tons/year.

There is no defined emission point associated with S-520 or S-521.

The component counts associated with the project:

- Pumps: 16
- Compressors: 2
- Valves: 2,810
- Connectors (No Flanges): 1,875
- Flanges: 3,745
- Pressure Relief Devices: 42 non-atmospheric

## **ALTERED SOURCES**

### **S-307 U240 Unicracking Unit**

S-307 does not have a process vent that normally vents to atmosphere. Process gasses from S-307 may be routed to refinery fuel gas header and combusted by sources burning refinery fuel gas or during certain process conditions may be vented to S-296 C-1 Refinery Waste Gas Flare. S-521 LPG recovery unit will not have a process vent that normally vents to atmosphere. Process gases from S-521 LPG recovery unit may also be routed to the refinery gas header and combusted by sources burning refinery fuel gas or during certain process conditions may be vented to S296 C-1 Refinery Waste Gas Flare.

As discussed above after the project is complete, the existing depropanizer tower (D-302) at S-307 U240 will be associated with the S-521 LPG recovery unit. The installation and changes to fugitive components at the existing depropanizer tower (D-302) are included in the project total.

The removal of the fractionation tower (D-302) from the source description S-307 and the associated piping changes are considered a physical change or change in the method of operation of S-307. It should be noted that D-302 fractionation tower will still be physically located in the S-307 uncracking unit. There are no other changes to S-307. S-307 is considered an altered source under 2-1-233. There are no emission increases at S-307 associated with this application.

#### **S-338 U233 Fuel Gas Center**

S-338 U233 will have piping changes and additional new fugitive components will be installed. These new fugitive components will be included in the condition that will limit emissions from all components installed as part of the project. The refinery will also install a total sulfur analyzer at S-338 to continuously monitor the total sulfur in the RFG and to demonstrate compliance with the 185 ton/year mass limit for SO<sub>2</sub>.

#### **S-462 U215 Fuel Gas Caustic Unit (Not Affected)**

#### **S-463 U215 Butane Caustic System (Not Affected)**

The Merichem treatment equipment at U215 is identified as S-462 Fuel Gas Caustic Unit and S-463 Butane Caustic System. The equipment currently removes sulfur from a portion of the fuel gas system that supplies two RFG Heaters (S-461, S-36) which have permit limits of 100 ppm total reduced sulfur calendar day average. The equipment also removes sulfur from butane that is currently recovered from the fuel gas system. This equipment is not expected to operate when the new hydrotreater S-520 is in operation. Post project this equipment may operate if S-520 is down for maintenance (every 2 to 3 years). S-462 has a permit limit of 4.2 million scf/day in Table II of the Title V permit. S-463 has a permit limit of 1,000 bbl/day in Table II of the Title V permit. There are no emissions impacts at S-462 and S-463 due to the project.

**S-352 Combustion Turbine, 291 MMBtu/hour maximum capacity**

**S-353 Combustion Turbine, 291 MMBtu/hour maximum capacity**

**S-354 Combustion Turbine, 291 MMBtu/hour maximum capacity**

**S-355 Supplemental Firing Duct Burners, 175 MMBtu/hour maximum capacity**

**S-356 Supplemental Firing Duct Burners, 175 MMBtu/hour maximum capacity**

**S-357 Supplemental Firing Duct Burners, 175 MMBtu/hour maximum capacity**

The steam power plant gas turbine/heat recovery steam generator trains will supply steam to S-520 hydrotreatment unit. The addition of S-520 will increase refinery steam demand. The increased utilization of the Gas Turbines and HRSGs is considered a change in the method of operation of these sources. In addition, the refinery will be installing new piping to send steam from the Gas Turbines and HRSGs to the new hydrotreatment unit. The installation of piping is considered a physical change to the Gas Turbines/HRSGs.

The Gas Turbines/HRSG trains are all identical sources. These sources are limited by existing permit condition #12122 and condition #18269 to the following:

- Firing rate limits 466 MMBtu/hour per train, 1048 MMBtu/hour combined, 2.42 E12 Btu/365 day average combined
- NOx 66 lb/hour all three trains combined, 528 lb/day per train, 78.5 tons/year all three trains combined (12122)
- NOx 83 lb/hour all three trains combined, 664 lb/day per train, 25 ppm 3 hour average (18269)
- CO 39 ppm @15% O2 30-day average, 200 tons/365 day average all three trains
- POC 6 ppm @15% O2 30 day average, 8.3 lb/hour for all three trains combined, 30.5 tons/year for all three trains combined.
- SO2 15.6 lb/hr per train, 44 lb/hr total all three trains 3 hour average, 34 lb/hr not to be exceeded more than 36 days per year, 156 tons per year for all three trains combined.

The steam power plant trains are expected to continue to comply with existing condition #12122 and #18269. The existing permit limits are adequate to demonstrate that there is no emissions increase for all pollutants except particulate matter. The existing limit on the amount of fuel combusted at each gas turbine/heat recovery steam generator train is limited to 466 MMBtu/hour. This firing rate limit is considered to be a surrogate limit for particulate matter (PM10) and ensures that the particulate emissions from the gas turbine/heat recovery steam generator trains will not increase due to the proposed project and will remain below permitted levels estimated during the original permitting of these sources.

The District has determined that S-352, S-353, S-354, S-355, S-356, and S-357 are altered sources since there is no emissions increase above permitted levels and are not modified sources under 2-1-234.1.

**S-1002 Sulfur Plant, 106.3 LTD**

**S-1003 Sulfur Plant, 134.5 LTD**

The project will generate and send an additional 135 tons/year of sulfur (as H<sub>2</sub>S) to the three sulfur recovery units. The addition of piping that allows acid gas generated by the new hydrotreatment unit S-520 and associated amine contactor to be sent to the three Sulfur Recovery Units (S-1002, S-1003, S-1010) is considered a physical change or change in the method of operation of these sources.

S-1002 Sulfur Plant started initial operation in 1971 and was issued a permit in September of 1978. S-1003 Sulfur Plant started initial operation in 1975 and was issued a permit in September of 1978. The original design capacities for S-1002 and S-1003 were 75 LT/day and 100 LT/day. Under application 5814 (2002), the capacity of each unit was allowed to increase by 15% to 86 LT/day and 115 LT/day. The application approved of the installation of oxygen enrichment. The application treated the capacity increase and installation of oxygen enrichment as an alteration since the emissions of H<sub>2</sub>S and SO<sub>2</sub> were expected to remain the same pre and post project. The mass emissions from the tail gas unit may actually decrease with an increase in acid gas feed rate due to the use of oxygen enrichment. The concentration of H<sub>2</sub>S and SO<sub>2</sub> may increase in the exhaust stream, but the exhaust gas flowrate will decrease due to the use of the oxygen enrichment since the nitrogen in the

ambient air is being replaced by oxygen. Oxygen enrichment may also improve the removal efficiency of sulfur in each Claus unit in the sulfur recovery unit.

The current condition #19278 limits annual throughput for both sources to 73,365 long tons per year combined. Table II of the Title V permit limits the throughput to 201 long tons per day for both sources combined. There are no individual source limits that limit throughput or daily and annual emissions. S-1002 and S-1003 were never considered modified under application 5814 since there was no increase in emissions. Therefore, these sources are considered grandfathered sources that have never been subject to NSR review and the emissions from these sources have never been offset.

As stated in the application, the sulfur throughput increase at S-1002 and S-1003 due to the project may increase actual daily and annual emissions at these sources. However, the actual emissions increases are not above the approved permitted level. The combined throughput of S-1002 and S-1003 will not exceed 201 long tons/day and the annual throughput will not exceed 73,365 long tons/day.

The District recognizes that there are no source level throughput limits on a daily or annual basis in condition 19278 or condition 21009.

In order to ensure these sources are not considered modified under 2-1-234, the District is establishing source level throughput limits in accordance with 2-1-233 that will define the current approved permitted throughput for each SRU based on a review of the permitting history of these units.

The nominal capacity of S-1002 was increased from 75 long tons/day to 86 long tons/day of sulfur under application 5814. The nominal capacity of S-1003 was increased from 100 long tons/day to 115 long tons/day of sulfur under application 5814. The source description in the engineering evaluation describes these capacities as nominal. It describes the maximum capacity for three sulfur recovery units as 271 long tons/day which include 70 long tons/day for S-1001. S-1001 has been permanently shutdown and the value was revised to 201 long ton/day for S-1002 and S-1003. The combined limit recognized that each unit could process more than the nominal capacity and allowed the refinery operational flexibility to exceed the nominal capacity on a daily basis when one of the sulfur recovery units was down for maintenance.

District staff reviewed the throughput data for S-1002 and S-1003 from May 2009 to July 2013 to determine the maximum daily capacity for each unit. The maximum daily sulfur throughput for S-1002 was 90.5 long tons/day on June 24, 2009. The maximum daily acid gas feed rate was 3.272 MMSCFD on June 24, 2009. The maximum daily sulfur throughput for S-1003 was 103.7 long tons/day on October 15, 2009. The maximum daily acid gas feed rate was 4.138 MMSCFD on August 4, 2009.

District staff reviewed both the maximum sulfur production and the acid gas feed rate data to determine the maximum daily capacity for each sulfur recovery unit since the acid gas has varying levels of hydrogen sulfide. The hydrogen sulfide content of the acid gas coming

from the amine contactors is nominally 88%. The hydrogen sulfide content of the acid gas coming from the ammonia sour water strippers is nominally 34%. The acid gas feed rate and the hydrogen sulfide content need to be considered together to determine the maximum daily capacity of each sulfur recovery unit. The maximum daily throughput of sulfur for each sulfur recovery unit is calculated as shown below.

**S-1002**

S LT/day = Acid Gas MMscf/day x H<sub>2</sub>S scf/scf x 1/386.8 scf/lb-mol x 34 lb H<sub>2</sub>S/lb-mol x 32 lb S/34 lb H<sub>2</sub>S x 1/2240 lb S/LT

S LT/day = 3.272 MMscf/day x 0.88 H<sub>2</sub>S scf/scf x 1/386.8 scf/lb-mol x 34 lb H<sub>2</sub>S/lb-mol x 32 lb S/34 lb H<sub>2</sub>S x 1/2240 lb S/LT

S LT/day = 106.3

**S-1003**

S LT/day = 4.138 MMscf/day x 0.88 H<sub>2</sub>S scf/scf x 1/386.8 scf/lb-mol x 34 lb H<sub>2</sub>S/lb-mol x 32 lb S/34 lb H<sub>2</sub>S x 1/2240 lb S/LT

S LT/day = 134.5

The District is establishing the daily throughput limit for S-1002 based on the maximum acid gas feed rate of 3.272 MMscf/day and the H<sub>2</sub>S content of the amine acid gas of 88%. The permit limit for S-1002 will be 106.3 long tons/day. The District is establishing the daily throughput limit for S-1003 based on the maximum acid gas feed rate of 4.138 MMscf/day and the H<sub>2</sub>S content of the amine acid gas of 88%. The permit limit for S-1003 will be 134.5 long tons/day. The combined throughput limit of 201 long tons/day will remain to ensure emissions do not increase above the existing permitted level.

The District is also imposing annual throughput limits on each source that correspond to the throughput that was approved under application 5814. S-1002 will be limited to 86 LT/day x 365 days/year which equals 31,390 LT/year. S-1003 will be limited to 115 LT/day x 365 days/year which equals 41,975 LT/year. These annual throughput limits correspond to the existing combined limit for S-1002 and S-1003 of 73,365 LT/year. The annual combined throughput limit will no longer be necessary and will be removed from condition 19278.

### **S-1010 Sulfur Recovery Unit, 200 LTD**

As discussed above the installation of piping that allows additional acid gas to be sent from the new hydrotreatment unit S-520 and associated amine contactor is considered a physical change or a change in the method of operation to S-1010.

S-1010 was recently permitted (NSR) as part of the Clean Fuels Expansion Project (application 13424, 2008). S-1010 is subject to the following conditions: 23125, 22970, 22964, 1694, and 1440. The conditions limit emissions to the following limits:

Throughput 200 LT/day

NO<sub>x</sub> 42.2 ppm @7% O<sub>2</sub> 1-hour average, 8 lb/hour, 11.2 tons/year

CO 75 ppm 1-hour average, 37.9 tons/year

POC 0.43 tons/year

PM<sub>10</sub> 9.5 lb/day, 1.19 tons/year

SO<sub>2</sub> 50 ppm 24-hour average, 29.7 tons/year

S-1010 is expected to continue to comply with existing permit limits, and there is a reasonable assurance that there is no emissions increase above existing permitted levels per 2-1-234.2. S-1010 is considered an altered source under 2-1-233. S-1010 is subject to condition 23125 which requires the following pollutants to be monitored:

<b>Pollutant</b>	<b>Monitoring</b>
Nitrogen Oxides (NO <sub>x</sub> )	Continuous Emission Monitor
Carbon Monoxide (CO)	Annual Source Test
Precursor Organic Compounds (POC)	None
Particulate Matter (PM <sub>10</sub> )	Annual Source Test
Sulfur Oxides (SO <sub>2</sub> )	Continuous Emission Monitor
Hydrogen Sulfide (H <sub>2</sub> S)	Annual Source Test
Ammonia (NH <sub>3</sub> )	Annual Source Test
Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> )	Annual Source Test

**Emissions Summary**

S-520, S-521 and S-338 have no defined emissions points. The fugitive emissions shown below are for all of the project components to be installed at these sources. Fugitive emissions below are based on counts submitted with permit application.

Phillips 66 Propane Recovery Project  
BAAQMD May 2014

**POC Emissions from Fugitive Components**

Component	Equation	Screening Value (ppm)	Emission Factor (kg/hr/source)	Component Count	Hourly POC (lb/hour)	Daily POC (lb/day)	Annual POC (tons/year)
Valves/All	$2.27E-6 * (SV)^{0.747}$	100	7.08E-05	2810	4.40E-01	10.5	1.920
Connectors/All	$1.53E-6 * (SV)^{0.736}$	100	4.54E-05	5620	5.60E-01	13.5	2.460
Pump Seals/All	$5.07E-5 * (SV)^{0.622}$	100	8.89E-04	16	3.00E-02	0.8	0.140
Other (PRVs + Compressors)	$8.69E-6 * (SV)^{0.642}$	100	1.67E-04	44	2.00E-02	0.4	0.070
Total All Components				8490	1.05E+00	25.1	4.580

**Toxic Air Contaminant Emissions from Fugitive Components**

Pollutant	Mass Fraction	Hourly (lb/hour)	Annual (lb/year)	Trigger (lb/hour)	Trigger (lb/year)	Trigger Exceeded
Hydrogen Sulfide	8.71E-04	9.11E-04	7.98E+00	9.30E-02	3.90E+02	No
Carbon Disulfide	1.36E-06	1.42E-06	1.24E-02	14	3.10E+04	No
Propylene	2.57E-02	2.69E-02	2.35E+02	None	1.20E+05	No
1,3-Butadiene	2.25E-04	2.35E-04	2.06E+00	None	0.63	Yes
Benzene	9.97E-04	1.04E-03	9.13E+00	2.9	3.8	Yes

The refinery has updated the counts of fugitive components associated with the project (See condition text for latest counts). The refinery is still going to comply with the annual POC limit of 4.58 tons/year from fugitive components.

Rail Emissions Due to the Proposed Project

Phillips 66 provided an estimate of increased emissions due to increased rail emissions associated with the project. The District has reviewed these estimates and is using the estimates to calculate the required offsets for transportation emissions as required by the definition of facility under 2-1-213.

The potential emissions from rail cargo carriers due to the project are:

NOx	10.17 tons per year
CO	1.80 tons per year
POC	0.49 tons per year
PM10	0.26 tons per year
SOx	0.01 tons per year

These emissions correspond to an additional 12 railcars per day (annual average) or 4,380 railcars per 12-month period. The current 3-year baseline for the period from November 2011 ending October 2014 is 6.36 railcars per day (annual average) or 2,321 railcars per 12-month period. The post project railcar limit will be 18.36 railcars per day annual average or 6,701 railcars per 12-month period. The permit conditions include a limit of 6,701 railcars per 12-month period to ensure that the railcar emissions from the project have been adequately offset.

Emission Reductions at S-338 U233 Fuel Gas System

Post project S-338 U233 Fuel Gas System will have lower SO2 emissions due to the additional hydrotreating of the fuel gas and the blending of natural gas into the refinery fuel gas system. The baseline emissions of SO2 for the fuel gas system are shown below.

Period	SO <sub>2</sub> (tpy)	Total S (ppm)	MMSCFD	H <sub>2</sub> S (ppm)	HHV (Btu/scf)
Aug '10 - July '11	337.7	359.7	29.7	12	1,295
Aug '11 - July '12	355.7	417.8	28.0	20	1,288
Aug '12 - July '13	283.3	346.9	27.0	20	1,301
<b>Aug '10 - July '13</b>	<b>325.6</b>	<b>374.8</b>	<b>28.2</b>	<b>17</b>	<b>1,295</b>

Phillips 66 has agreed to accept a post project emissions limit of 185 tons/year of SO<sub>2</sub> on the fuel gas that is treated at S-338 U233 Fuel Gas Center and S-520 Refinery Fuel Gas Hydrotreatment Unit. S-338 treats the majority of the refinery fuel gas at the refinery. The refinery does not treat some low sulfur streams at S-338.

The SO<sub>2</sub> emissions reductions due to the project are 325.6 tons/year – 185 tons/year = 140.6 tons/year. The SO<sub>2</sub> emissions associated with rail cargo carriers is 0.01 tons/year. The application cumulative increase is a reduction of 140.59 tons/year.

**Plant Cumulative Increase: (tons/year)**

<b>Pollutant</b>	<b>Current Cumulative Increase</b>	<b>A25199 New</b>	<b>Total</b>
NO <sub>x</sub>	0	10.17	10.170
CO	0	1.80	1.800
POC	0.002	5.07	5.072
PM <sub>10</sub>	0	0.26	0.260
SO <sub>2</sub>	0.120	-140.59	-140.47

Note: SO<sub>2</sub> in current cumulative increase is associated with application 11293 (2005). POC emissions include fugitives and increased rail traffic associated with the project. SO<sub>2</sub> Emissions represent the three year baseline for S-338 (U233) of 325.6 minus the new SO<sub>2</sub> permit limit of 185 tons per year and minus SO<sub>2</sub> emissions increase from rail.

**Toxic Risk Screening:**

The toxic air contaminant emissions from S-520 and S-521 fugitive components are shown in the Emissions Summary. Emissions of 1,3-butadiene were estimated at 2.1 lb/year which exceeds the chronic trigger level in Regulation 2, Rule 5 of 0.63 lb/year. Emissions of benzene were estimated at 9.1 lb/year which exceeds the chronic trigger level in Regulation 2, Rule 5 of 3.8 lb/year. Therefore, a health risk screening assessment was required for this project.

The health risk screening assessment results for the project (worker receptor) have a maximum cancer risk of 0.02 chances in a million and a non-cancer hazard index of 0.00008 (per memorandum from Daphne Chong to Brian Lusher, 10/17/2013). In accordance with the District's Regulation 2, Rule 5, these sources are in compliance with the project risk requirements.

## STATEMENT OF COMPLIANCE

### Regulation 1 – General Provision and Definitions

#### Section 1-301 Public Nuisance

The sources and equipment associated with the project are not expected to cause a public nuisance.

#### Regulation 2, Rule 2

Fugitive components associated with S-520 and S-521 will emit more than 10 lb/day of POC. The POC emissions from the fugitive sources are subject to BACT requirements under 2-2-301. The components associated with the project will meet District BACT guidelines for technology as shown below. Phillips 66 will also be required to satisfy BACT level monitoring frequency and confirmation of compliance with an emissions limit for the components included in this project, which was the basis for the POC offsets.

Component Type	Leak Definition	Technology	Reference
Valves	100 ppm as CH <sub>4</sub>	Bellows Valves; Diaphragm Valves; Quarter Turn Valves; Live Loaded Valves; or Other Low-Emission Valves	BACT(2) Guideline 136.1, Rev 3, 1/18/06
Connectors	100 ppm as CH <sub>4</sub>	Graphitic Gaskets	BACT(2) Guideline 78.1, Rev 3, 1/18/06
Flanges	100 ppm as CH <sub>4</sub>	Graphitic Gaskets	BACT(2) Guideline 78.1, Rev 3, 1/18/06
Pumps	100 ppm as CH <sub>4</sub>	Double Mechanical Seals w/Barrier Fluid; or Gas Seal System Vented to a Thermal Oxidizer or Other BAAQMD Approved Control Device	BACT(1) Guideline 137.1, Rev 4, 1/18/06
Compressors	100 ppm as CH <sub>4</sub>	Double Mechanical Seals w/Barrier Fluid; or Gas Seal System Vented to a Thermal Oxidizer or Other BAAQMD Approved Control Device;	BACT(1) Guideline 48B.1, 1/18/06
Pressure Relief Devices	100 ppm as CH <sub>4</sub>	Vent to fuel gas recovery system, furnace, or flare with a recovery/destruction efficiency >98%	BACT (2) Guideline 135.1, 6/30/95

**2-2-317 – Maximum Achievable Control Technology Requirement**

The project emissions of Hazardous Air Pollutants (HAPs) are less than 10 tons/year of any single HAP or 25 tons/year of any combination of HAPs. Therefore, TBACT is not required for the PRP emission sources pursuant to this section.

**Regulation 2, Rule 6 – Major Facility Review**

Phillips 66 is a major facility and holds a Title V operating permit. Phillips 66 has applied for a significant revision of the Title V permit under application #25200. District staff will determine if this Title V revision application is a minor or significant revision to the Title V permit during the processing of this application.

**Regulation 8, Rule 18-Equipment Leaks**

This regulation limits leaks from fugitive components. This regulation applies to the project fugitive components. The regulation states that equipment except for pumps and compressors shall not leak total organic compounds in excess of 100 ppm, unless the leak has been discovered by the operator, minimized within 24 hours, and repaired within 7 days. For pumps, compressors, and pressure relief devices, this limit is 500 ppm. Phillips 66 operates a leak detection and repair (LDAR) program to comply with these criteria for inspection, repair, and subsequent reporting per Regulation 8, Rule 18. The fugitive components installed as part of the project will be included in the LDAR program. Phillips 66 is expected to comply with Regulation 8, Rule 18 requirements.

**Regulation 8, Rule 28 –Episodic Releases from Pressure Relief Valves at Petroleum Refineries and Chemical Plants**

Section 302 of this regulation requires that any person installing a new refinery source or modifying an existing refinery source that is equipped with at least one pressure relief device in organic service must meet all applicable requirements of Regulation 2, Rule 2, including BACT. The new pressure relief devices installed for this project will meet BACT requirements by venting to the fuel gas recovery system to be combusted by furnace or flare with a destruction efficiency of 98%.

### **Regulation 9, Rule 1-Sulfur Dioxide**

This Rule establishes a general emission limit of 300 ppm (dry) for SO<sub>2</sub> from any source excluding ships, and limits ground level concentrations of SO<sub>2</sub> to 0.5 ppm continuously for 3 consecutive minutes or 0.25 ppm averaged over 60 consecutive minutes, or 0.05 ppm averaged over 24 hours, from any source, other than a ship. The refinery demonstrates compliance with these requirements via its ground level monitoring program.

Section 313 Sulfur Removal Operations at Petroleum Refineries prohibits operation of a refinery that processes more than 20,000 barrels per day of crude oil unless the refinery removes and recovers 95% of the H<sub>2</sub>S from the RFG. This requirement applies to the fuel gas treatment and recovery processes. The efficiency of the existing Sulfur Recovery Units at the refinery meets this requirement and the new hydrotreatment unit proposed as a part of the PRP, will further remove H<sub>2</sub>S from the refinery fuel gas.

### **Regulation 9, Rule 2-Hydrogen Sulfide**

Section 301 limits hydrogen sulfide emissions to levels that will result in a ground level concentrations less than or equal to 0.06 ppm, averaged over 3 consecutive minutes or 0.03 ppm, averaged over 60 consecutive minutes, in any 24-hour period. This will apply to fugitive components of the project.

The hydrotreatment unit and amine contactor will generate additional H<sub>2</sub>S by removing sulfur compounds from the refinery fuel gas, prior to propane and butane recovery. H<sub>2</sub>S emissions due to project operations at the refinery are not expected to significantly change the H<sub>2</sub>S concentrations around the refinery from current levels. The refinery is expected to continue to meet the requirements of Regulation 9, Rule 2.

### **California Environmental Quality Act (CEQA)**

The lead agency for CEQA is the Contra Costa County Community Development Department (CCCDD). The lead agency has determined the proposed project is subject to CEQA review. In accordance with Regulation 2-1-310.3, the District may not issue an Authority to Construct for this project until final action has been taken by the lead agency. A draft environmental impact report (DEIR) was prepared by CCCDD in June 2013. The draft EIR includes all sources and activities that are the subject of this application. The District is a responsible agency under CEQA and has provided comments to the CCCDD on the draft EIR.

On November 19, 2013, the final EIR was approved by the Contra Costa County Planning Commission. On December 2, 2013, a mandatory 10-day appeal period for the EIR ended. Contra Costa County received two appeals to the final EIR for the project.

The final EIR went before the Contra Costa Board of Supervisors for approval on January 21, 2014. The Board delayed the decision/final action on the final EIR until June 3, 2014. The Contra Costa County Board of Supervisor approved of County staff's recommendation to recirculate portions of the draft EIR on June 3, 2014 after a cumulative community Health Risk Assessment was prepared and other revisions to the draft EIR were completed.

Portions of the revised draft EIR were completed and made available for recirculation on October 21, 2014. The revised draft EIR includes all sources and activities that are the subject of this application. The District is a responsible agency under CEQA and provided comments to the CCCDD on the revised draft EIR. These comments, as well as others received by the CCCDD have been addressed in the final EIR.

The final EIR was certified by the Contra Costa County Board of Supervisors on February 3, 2015. The Board of Supervisors also denied the two appeals of the EIR on February 3, 2015. The District may issue an Authority to Construct for the project since the final action under CEQA has been taken.

### **School Notification**

The project is not located within 1000 feet of a school. The project is not subject to the public notification requirements of Reg. 2-1-412.

**Offsets:** Offsets must be provided at an offset ratio of 1.15 to 1 for any new or modified source at a facility that is permitted to emit more than 35 tons/yr of POC or NOx. Offsets must be provided at an offset ratio of 1.0 to 1.0 for any new or modified source at a facility that is permitted to emit more than 100 tons/yr of PM10 or SOx. Phillips 66 is permitted to emit more than 35 tons/yr of POC and NOx. Phillips 66 is also permitted to emit more than 100 tons/yr of PM10 and SOx.

Phillips 66 is required to offset 10.17 tons/year of NOx and 5.072 tons/year of POC at the 1.15 to 1 ratio. Phillips 66 is also required to offset 0.26 tons/year of PM10 at the 1.0 to 1 ratio.

Phillips 66 recently shutdown a large refinery fuel gas heater (S-14, U240, B-401) that will be used to provide contemporaneous offsets to mitigate the NOx, POC, and PM10 emissions from the project. Phillips 66 has provided the following contemporaneous offsets 4.54 tons/year of NOx, 2.81 tons/year of POC, 0.26 tons/year of PM10 to mitigate the emissions increase associated with this application and the cumulative increase that has not been offset. Phillips 66 is also surrendering emission reduction certificate #1456 with a balance of 43.963 tons of POC to offset the remaining nitrogen oxides (5.630 tons NOx) and precursor organic compound emissions (2.262 tons POC). The offsets and contemporaneous emission reductions are summarized in the following table.

**Summary of Contemporaneous Offsets Used for Project**

Description	NOx (tons/year)	CO (tons/year)	POC (tons/year)	PM10 (tons/year)	SOx (tons/year)	Notes
S-14 Shutdown (See A22904/A25275)	37.700	0.421	5.986	8.260	0.777	3/4/09 to 3/3/12 Baseline
Contemporaneous from S-14 for A24256	0.000	0.000	1.166	0.000	0.000	
Contemporaneous from S-14 for A22904	33.160	0.421	2.010	0.640	0.777	
Contemporaneous from S-14 for A25621	0.000	0.000	0.000	0.4	0.000	
Remaining Balance (S-14)	4.540	0.000	2.810	7.220	0.000	
PRP Emissions Increase	10.170	1.800	5.07	0.260	-140.59	
Current Cumulative Increase (Not Offset)	0	NA	0.002	0	0.120	
Remaining Balance (S-14)	0	NA	0	6.960	0.000	
Remaining Cumulative Increase (Subject to Offsets)	5.630	NA	2.262	0	-140.47	
Offsets Required (NOx, POC at 1.15 to 1)	6.475	0	2.601	0	0	

NOx Offsets Required = 5.630 tons/year x 1.15 = 6.475 tons/year. Offsets to be provided by ERC #1456.

POC Offsets Required = 2.262 tons/year x 1.15 = 2.601 tons/year. Offsets to be provided by ERC #1456.

ERC #1456 holds 43.963 tons of POC. As allowed by Regulation 2, Rule 2, Section 302, the refinery is using POC to offset the cumulative increase of NOx from this application. The balance will be sent back to the refinery under a different ERC #.

Phillips 66 has surrendered the identified ERCs to offset the remaining cumulative increase of NOx and POC associated with the project. The permit conditions will include a provision that ensures that Phillips 66 has fully offset the POC emissions associated with the fugitive emissions from this project.

## **New Source Performance of Standards**

### **40 CFR Part 60 Subpart A-General Provisions**

Any source subject to an applicable standard under 40 CFR Part 60 is also subject to the general provisions of Subpart.

### **40 CFR Part 60 GGGa-Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006**

The new fugitive components being installed as part of the project will be subject to Subpart GGGa. Fugitive components subject to 40 CFR Subpart GGGa must also comply with Subpart VVa (New Source Performance Standards for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006). Subpart GGGa/VVa includes leak criteria, repair requirements and component monitoring requirements. The refinery currently operates an LDAR program to comply with both Subpart GGGa/VVa, Regulation 8, Rule 18, and BACT requirements.

## **NESHAP**

### **40 CFR Part 61 Subpart FF-Benzene Waste Operations NESHAP**

District Regulation 11, Rule 12-National Emission Standard for Benzene Emissions adopts 40 CFR Part 61 Subpart FF by reference. Subpart FF applies to chemical manufacturing plants, coke-by-product recovery plants, and petroleum refineries. The refinery has stated that the project will not generate benzene-containing wastes. The only sources of benzene from the project are from fugitive emissions from components. Section 61.340(c)(1) of this subpart exempts waste in the form of gases or vapors that are emitted from process fluids are exempt from the requirements of this subpart. Phillips 66 has a benzene waste organic NESHAP program that is expected to continue to demonstrate compliance with this standard.

## **PSD**

Phillips 66 asserts that it has prepared an analysis of the project that demonstrates that the project is not subject to the PSD permit program. The analysis has not been submitted to the District. Phillips 66 has stated that the analysis relies on NSR reform methodology which allows the refinery to compare baseline emissions to projected actual emissions instead of permit potential emissions. The PSD delegation agreement in affect at the time of this writing does not allow the District to use NSR reform methodology in PSD applicability determinations. The District is sending EPA a courtesy notification that Phillips 66 has

prepared an analysis that demonstrates PSD does not apply to the project. In addition, Phillips 66 has not requested a PSD permit for this project.

## PERMIT CONDITIONS

### ALTERED SOURCES

#### S-1002, S-1003 Sulfur Recovery Units

The permit condition below is based on the existing permit condition 19278 and will become effective when S-520 Hydrotreatment Unit and S-521 LPG Recovery Unit start operation. The changes to the existing condition are shown in strikethrough/lineout.

Condition #25963

Conditions for S-1002 and S-1003

1. Deleted Application 12433
2. Deleted Application 12433
3. An annual District-approved source test shall be performed to verify compliance with the requirements of Regulation 6-1-330. A copy of the source test results shall be provided to the District Director of Compliance and Enforcement within 45 days of the test.

[Basis: Regulation 6-1-330]

4. The Owner/Operator shall perform a visible emissions check on Sources S-1002 and S-1003 on a monthly basis. The visible emissions check shall take place while the equipment is operating and during daylight hours. If any visible emissions are detected, the owner/operator shall have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures outlined in the CARB manual, "Visible Emissions Evaluation" for six (6) minutes within three (3) days and record the results of the reading. If the reading is in compliance with the Ringelmann 1.0 limit in BAAQMD Regulation 6-1-301, the reading shall be recorded and the owner/operator shall continue to perform a visible emissions check on a monthly basis. If the reading is not in compliance with the Ringelmann 1.0 limit in BAAQMD Regulation 6-1-301, the owner/operator shall take corrective action and report the violation in accordance with Standard Condition 1.F of theis Title V permit. The certified smoke-reader shall continue to conduct the Method 9 or CARB Visible Emission Evaluation on a daily basis until the daily reading shows compliance with the applicable limit or until the equipment is shut down. Records of visible emissions checks and opacity readings made by a CARB-certified smoke reader shall be kept for a period of at least 5 years from date of entry and shall be made available to District staff upon request. [Basis: Regulations 6-1-301, 2-6-501, 2-6-503]

5. Within 90 days of issuance of the Major Facility review permit pursuant to Application 10994, the owner/operator shall perform source tests at the stacks of Tail Gas

Incinerators A422 and A423 to determine compliance with BAAQMD Regulations 6-1-310 and 6-1-311 for filterable particulate using the existing single port. The owner/operator shall also utilize a District approved method to measure condensable particulate during annual particulate testing conducted under this part for a period of three years after issuance of the authority to construct under application 25199. The APCO may administratively request that the owner/operator continue to perform annual condensable testing at the end of the three year period. The owner/operator shall submit a proposed source test protocol to the Source Test group at least 30 days before conducting the source test. Within 60 days of the source tests, the owner/operator shall submit the results of the source tests to the District. The owner/operator shall repeat the source tests on an annual basis. The District's Source Test Group will observe the initial test to determine if testing with a single port is acceptable for these stacks. If the Source Test Group finds that a single port is not acceptable, the District may reopen the permit to require installation of a second port at each stack. [Basis: 2-6-503]

6. The owner/operator shall ensure that the throughput of molten sulfur at S-1002 and S-1003 does not exceed 106.3 long tons/day and 134.5 long tons/day, respectively. The owner/operator shall ensure that the throughput of molten sulfur at S-1002 and S-1003 combined does not exceed 201 long tons/day. The owner/operator shall ensure that the throughput of molten sulfur at S-1002 and S-1003 does not exceed 31,390 long tons/year and 41,975 long tons/year, respectively. The owner/operator shall ensure that the throughput of molten sulfur at S-1002 and S-1003 combined does not exceed 73,365 long tons/yr. The owner/operator shall record the throughput of molten sulfur on a daily-monthly basis. [Basis: Cumulative Increase]

### **Emission Limits for S-338 Fuel Gas System (U233)**

Condition #25964

1. The owner/operator of S-338 (U233) Fuel Gas Center and S-520 Refinery Fuel Gas Hydrotreatment Unit shall ensure that the concentration of total sulfur in the U233 refinery fuel gas does not exceed 200 ppm total sulfur in any consecutive 12-month period. The owner/operator of S-338 (U233) Fuel Gas Center and S-520 Refinery Fuel Gas Hydrotreatment Unit shall ensure that SO<sub>2</sub> emissions from the combustion of refinery fuel gas processed at S-338 and S-520 including blended natural gas does not exceed 185 tons SO<sub>2</sub> in any consecutive 12-month period.  
(Basis: Cumulative Increase)
2. The owner/operator shall prepare a monitoring plan using District approved methods to measure U233 fuel gas flowrate and U233 fuel gas total sulfur.

The owner/operator shall install a District approved total sulfur analyzer to measure total sulfur at S-338 U233 Fuel Gas Center. The monitoring plan shall be submitted to the assigned permit engineer for the facility at least 30 days before the startup of S-520 and S-521.

(Basis: 2-1-403, 2-6-503)

### **Emission Limits for S-520 RFG Hydrotreatment Unit and S-521 LPG Recovery Unit**

Condition #25965 -----

1. The owner/operator of S-520 shall ensure that the refinery fuel gas throughput shall not exceed the following limits: 27.25 MMscf/day, and/or 9,946 MMscf in any consecutive 12-month period.  
(Basis: Cumulative Increase)
2. The owner/operator of S-521 shall ensure that the throughput of propane and/or butane does not exceed the following limits: 14,500 bbl/day, and/or 5,295,500 bbl in any consecutive 12-month period.  
(Basis: Cumulative Increase)
3. The owner/operator shall ensure that no hydrogen is supplied to S-520 from the Air Liquid H2 plant (Site B7419) and/or from the onsite hydrogen manufacturing unit (S-437).  
(Basis: 2-1-403, Cumulative Increase)
4. The owner/operator shall prepare a monitoring plan using District approved methods to measure the fuel gas flowrate and the amount of recovered propane and butane at S-520 and S-521. The monitoring plan shall be submitted to the assigned permit engineer for the facility 30 days before the startup of S-520 and S-521. (Basis: 2-1-403, 2-6-503)
5. The owner/operator shall ensure that the shipments by rail of propane and butane from the facility do not exceed 6,701 rail cars in any consecutive 12-month period.  
(Basis: Cumulative Increase)

## CONDITIONS FOR PROPANE RECOVERY PROJECT (PRP) FUGITIVE COMPONENTS

COND# 25966 -----

### 1. Fugitive Equipment

- a. The owner/operator shall as part of the PRP install only the following types of valves in light hydrocarbon service where the hydrocarbon has an initial boiling point less than or equal to 302 degree F: (1) bellows sealed, (2) live loaded, (3) graphite packed, (4) quarter-turn (e.g., ball valves or plug valves), or equivalent as determined by the APCO.  
[Basis: BACT, Offsets, Regulation 8-18]
  
- b. The owner/operator shall comply with a leak standard of 100 ppm of TOC (measured as C1) at any valve installed as part of the PRP in hydrocarbon service. The owner/operator shall not be considered in violation of the leak standard if the owner/operator complies with the applicable minimization and repair provisions contained in Regulation 8, Rule 18. Valves that are not of a type listed in part 1 and for which a leak greater than 100 ppm (measured as C1) has been determined, shall become subject to the inspection provisions contained in Regulation 8-18. If the leak remains greater than 100 ppm (measured as C1) after repair, or if the valve is determined to have a leak greater than 100 ppm (measured as C1) a second time within a 5-year period, the owner/operator shall replace the valve with a type listed in part 1 (a) within 5 years or at the next scheduled turnaround, whichever is sooner.  
[Basis: BACT, Regulation 8, Rule 18]
  
- c. The owner/operator shall install graphitic-based gaskets on all flanges or connectors (gasketed) installed as part of the PRP in light hydrocarbon service unless the owner/operator demonstrates to the satisfaction of the APCO that the service

requirements prevent this gasket material from being used. [Basis: BACT]

- d. The Owner/Operator shall comply with a leak standard of 100 ppm of TOC (measured as C1) at any flanges/connectors installed as part of the PRP in light hydrocarbon service unless the owner/operator complies with the applicable minimization and repair provisions contained in Regulation 8-18.  
[Basis: BACT, Regulation 8 Rule 18]
- e. The owner/operator shall install double mechanical seals with barrier fluid; or gas seal system vented to a thermal oxidizer or other District approved equivalent control device or technology as determined by the APCO on all compressors installed as part of the PRP. [Basis: BACT]
- f. The owner/operator shall comply with a leak standard of 100 ppm of TOC (measured as C1) at any pumps and/or compressors installed as part of the PRP in hydrocarbon service. The owner/operator shall not be considered in violation of the leak standard if the owner/operator complies with the applicable minimization and repair provisions contained in Regulation 8-18. All pumps and/or compressors subject to the leak standard of 100 ppm TOC shall be included in the total number of pumps and compressors used in Regulation 8-18-306.2 to determine the total number of non-repairable pumps and compressors allowed. [Basis: BACT]
- g. The owner/operator shall install double mechanical seals with barrier fluid; dual nitrogen gas purge seals; magnetically coupled pumps; canned pumps; magnetic fluid sealing technology; gas seal system vented to thermal oxidizer, or other BAAQMD approved equivalent control device; or District approved control technology as determined by the APCO on all pumps installed as part of the PRP in light

hydrocarbon service where the hydrocarbon has an initial boiling point less than or equal to 302 degree F. The owner/operator shall install double mechanical seals or District approved equivalent technology on all pumps in hydrocarbon service with a flash point less than 250 degree F.  
[Basis: BACT]

h. Unless the equipment exclusively handles material(s) with a flash point greater than or equal to 250 degree F, the owner/operator shall identify all new pumps and compressors installed as part of the PRP in hydrocarbon service with a unique permanent identification code and shall include all new and replaced fugitive equipment in the Regulation 8, Rule 18 fugitive equipment monitoring and repair program. The owner/operator shall monitor all repaired equipment within 24 hours of the repair.  
[Basis: Cumulative Increase, BACT]

i. The Owner/Operator shall vent all pressure relief valves installed as part of the PRP in hydrocarbon service as defined in part 2 subject to Rule 8-28 to a flare gas recovery system with a recovery and/or destruction efficiency of at least 98% by weight.  
[Basis: BACT]

2. The Owner/Operator shall provide the District's Engineering Division with a final count of all fugitive components along with each components unique permanent identification code for all installed pumps, compressors, valves, pressure relief devices, and flanges/connectors in light hydrocarbon service 90 days after startup of S-520 Refinery Fuel Gas Hydrotreatment Unit and S-521 LPG Recovery Unit. The owner/operator has been permitted to install the following number of fugitive components for the PRP:

Pumps: 16 [As identified in part 1 (g)]  
Compressors: 2  
Valves: 2,810

Connectors (No Flanges): 1,875  
Flanges: 3,745  
Pressure Relief Devices: 42 non-atmospheric

The owner/operator shall not exceed 4.58 tons per year of POC emissions measured as C1 from the total fugitive component count installed in TOC services as part of the PRP. Compliance with this provision shall be verified quarterly using methods described in Part 3. The results shall be submitted to the District on a quarterly basis for two years commencing with start-up of S-520 and S-521. Documentation of results shall be kept on site for five years.

If there is an increase in the total fugitive component counts, the plant's cumulative emissions for the project shall be adjusted, subject to APCO approval provided no other regulatory requirements are triggered, to reflect the difference between emissions based on predicted component counts versus actual component counts. The owner/operator may have enough remaining contemporaneous emissions reduction credits (ERCs) to cover any increase in POC fugitive emissions beyond the original projection. If not, the owner/operator shall provide to the District all additional required offsets at an offset ratio of 1.15:1 no later than 21 days after the submittal of the final POC fugitive equipment count. If the actual component count is less than the predicted count, at the completion of the project, the total will be adjusted accordingly. Any ERCs applied by the facility in excess of the actual total fugitive emissions estimate based on actual counts as opposed to estimated will be credited back to the owner/operator.

[Basis: Cumulative Increase, Offsets, Regulation 2, Rule 5]

3. The owner/operator shall calculate fugitive emissions from PRP fugitive components utilizing District approved methods.  
[Basis: Cumulative Increase, BACT, Offsets]

#### 4. Inspections

- a. The owner/operator shall conduct inspections of PRP fugitive components in light hydrocarbon service with an initial boiling point less than or equal to 302 degree F in accordance with the frequency listed below:

Pumps: Quarterly

Compressors: Quarterly

Valves: Quarterly

Connectors (Not Flanges): Annual Flanges: Annual

Pressure Relief Devices: Not applicable,  
non-atmospheric

[Basis: BACT, Regulation 8, Rule 18]

- b. The owner/operator shall conduct quarterly inspections of all PRP pumps in hydrocarbon service with a flash point less than 250 deg. F.

[Basis: BACT]

## RECOMMENDATION

Issue a conditional Authority to Construct for the following:

**S-520 Refinery Fuel Gas Hydrotreatment Unit, 27.25 MMscf/day maximum capacity**

**S-521 LPG Recovery Unit, 14,500 bbl/day, maximum capacity**

and alterations of the following existing sources:

**S-307 U240 Unicracking Unit**

**S-338 U233 Fuel Gas Center**

**S-352 Combustion Turbine, 291 MMBtu/hour**

**S-353 Combustion Turbine, 291 MMBtu/hour**

**S-354 Combustion Turbine, 291 MMBtu/hour**

**S-355 Supplemental Firing Duct Burners, 175 MMBtu/hour**

**S-356 Supplemental Firing Duct Burners, 175 MMBtu/hour**

**S-357 Supplemental Firing Duct Burners, 175 MMBtu/hour**

**S-1002 Sulfur Plant, 106.3 LTD**

**S-1003 Sulfur Plant, 134.5 LTD**

**S-1010 Sulfur Recovery Unit, 200 LTD**

## EXEMPTIONS

Six pressure tanks for storage of liquefied petroleum gases with a total storage capacity of 15,000 bbls of propane. The tanks are considered exempt from permitting per 2-1-123.3.1.

The new two-sided railcar loading rack is also exempt from permitting per 2-1-123.3.1.

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

Date: \_\_\_\_\_

Brian Lusher  
Senior Air Quality Engineer