FACILITY PERMIT TO OPERATE
AIR PRODUCTS & CHEMICALS, INC.

SECTION I: PLANS AND SCHEDULES

This section lists all plans approved by AQMD for the purpose of meeting the requirements of applicable AQMD rules specified below. The operator shall comply with all conditions specified in the approval of these plans, with the following exceptions:

a. The operator does not have to comply with NOx and SOx emission limits from rules identified in Table 1 or Table 2 of Rule 2001(j) which became effective after December 31, 1993.

b. The operator does not have to comply with NOx or SOx emission limits from rules identified in Table 1 or Table 2 of Rule 2001(j) after the facility has received final certification of all monitoring and reporting requirements specified in Section F and Section G.

Documents pertaining to the plan applications listed below are available for public review at AQMD Headquarters. Any changes to plan applications will require permit modification in accordance with Title V permit revision procedures.

List of approved plans:

Application	Rule
458529	1118

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

December 3, 2010

Mr. Chris McWilliams
Plant Manager
Air Products & Chemical, Inc.
700 Henry Ford Ave.
Wilmington, CA 90744

Re: Rule 1118 Flare Monitoring and Recording Plan
Application Number: 458529
Plan Owner/Operator: Air Products & Chemical, Inc.
Facility ID: 101656
Facility Address: 700 Henry Ford Ave., Wilmington, CA 90744

Dear Mr. McWilliams:

The South Coast Air Quality Management District (AQMD) has reviewed the revised Flare Monitoring and Recording Plan submitted on June 30, 2006 by Air Products & Chemical, Inc (Wilmington facility) to comply with District Rule 1118(f)(1)(A). Based on the information submitted, along with the supplemental information submitted to District Engineer Thomas Lee in response to additional information requests made by the District, the compliance plan is approved subject to the following conditions:

1. The owner/operator shall perform monitoring and recording of the operating parameters for the flare in accordance with this approved compliance plan and other applicable requirements of Rule 1118(g). Monitoring and recording of the below flare pursuant to this approved plan shall be performed at all times, except when out of service for reasons described in Rule 1118(g)(5)(A).

Flare Device ID	Type of Service
C46	Clean

2. The owner/operator shall use the on/off status of the stage burner valves as flow indicators to C46. The operator shall implement algorithms to the plant's DCS to calculate and record continuously the volumetric flare gas flow rate based on the number of on/off staged burner valves that are opened. The calculation shall be based on the staging curve provided by the flare manufacturer and corrected to a gas molecular weight of 20.81 lb/lb-mole.

3. The start of a flare event shall be defined when the 1st stage burner valve (no. XV-9012A) is not in the fully closed position and the end of a flare event shall be defined when the 1st stage burner valve is fully closed.

4. A flare event lasting 24 hours or less shall be considered a single flare event even when the vent occurs in two consecutive days. When a flare event continues for more than 24 hours, each calendar day shall be a separate flare event.

5. The vent gas flow rate shall be assumed to be at the maximum design capacity of the flare when the last burner stage valve (no. XV-9040) is not in the fully closed position.

6. Volumetric flow rates of vent gases shall be corrected to standard conditions of 14.7 psia and 68F and recorded as one-minute averages.

7. Except for flare events originating from automatic vent valve PV-223 only (Hydrogen vent gas stream), the owner/operator shall calculate emissions of criteria pollutants for each flare event using the methods described in Attachment B of Rule 1118 and the appropriate HHV and Cs values specified in Section 3.4.2 of the revised FMRP. Whenever two (2) or more automatic vent valves (PV-3, PV-578, PV-220 and PV-223) are opened concurrently during a flare event, the worst case HHV and sulfur content stream will be used to calculate flare emissions.

8. The operator shall sample and analyze the Process Feed Gas, Syngas, PSA Purge Gas and Hydrogen vent streams to the flare once a year pursuant to the methods listed in Rule 1118(j). For the Process Feed Gas vent stream, the analysis shall include the gas composition, HHV and total sulfur content of the gas. For the Syngas, PSA Purge Gas and Hydrogen vent streams, the total sulfur content can be considered 0 and the analysis shall be for gas composition and HHV only. Samples shall be taken within 30 minutes, but no sooner than 15 minutes, of the start of a flare event. In the event the HHV of these vent steams deviate by 10% or more from the values shown in this approved plan, the owner/operator shall submit an application to the Executive Officer to modify the HHV used to calculate emissions pursuant to Attachment B of Rule 1118.

9. The owner/operator shall calculate emissions for a flare event that occurs even when all four (4) automatic vent valves (PV-3, PV-578, PV-220 and PV-223) are in the fully closed position by using the methods described in Attachment B of Rule 1118 and the appropriate HHV and Cs factors specified in Section 3.4.2 of the revised FMRP.

10. For flare events originating from PV-223 only, the operator shall calculate NOx emissions using the following equation and emission factor. Emissions of other criteria pollutants (ROG, CO, PM10 and SOx) are considered zero under this flaring scenario.

Hydrogen Vent Gas Stream		
Air Pollutant	Equation	EF
NO_X	$E_v = V_v \times 324 \times EF$	0.068 lb/mmBtu

Where:

E_v = Vent gas emissions, calculated, lbs
V_v = Volume flow of vent gas, measured in million standard cubic foot (mmScf) at 14.7 psia and 68°F

11. The natural gas flow to the pilots shall be based on usage from monthly gas bills from the Gas Company. If gas bills are not available by the time quarterly reports are being prepared, the pilot gas usage shall be based on the maximum design capacity of 1600 SCFH for the pilots.

12. The owner/operator shall monitor the flare at all times for presence of a pilot flame using a thermocouple that will alarm the owner/operator in the event of a flame out. The owner/operator shall reignite the pilot immediately after a pilot flame out occurs.

13. The owner/operator shall notify the Executive Officer within one hour of any unplanned flare event with emissions exceeding either 100 pounds of VOC or 500 pounds of sulfur dioxide, or exceeding 500,000 standard cubic feet of flared vent gas. The owner/operator shall also notify the Executive Officer by telephone at least 24 hours prior to the start of a planned flare event with emissions exceeding either 100 pounds of VOC or 500 pounds of sulfur dioxide, or 500,000 standard cubic feet of combusted vent gas.

14. The owner/operator shall conduct a Specific Cause Analysis for any flare event, excluding planned shutdown, planned startup and turnaround, resulting in any of the followings: (a) 100 pounds of VOC emissions. (b) 500 pounds of sulfur dioxide emissions. (c) 500,000 standard cubic feet of vent gas combusted. The analysis shall identify the cause and duration of the flare event and describe any mitigation or corrective action taken to prevent recurrence of a similar flare event in the future. Unless an extension is granted, the owner/operator shall submit a Specific Cause Analysis to the Executive Officer within 30 days of the event.

15. The owner/operator shall conduct an analysis and determine the relative cause for a flare event that results in combustion of more than 5,000 standard cubic feet of vent gas. A Specific Cause Analysis may be submitted to satisfy this condition.

16. The owner/operator shall maintain records of all the information required to be monitored and make such records available to District personnel upon request.

    a. Flare event data collected pursuant to paragraphs (g)(3), (g)(4), (g)(5), (g)(6) and (g)(8)(C) of Rule 1118 as applicable.
    b. Total daily and quarterly emissions of criteria pollutant from the flare and each flare event along with all information specified by Rule 1118(i)(5)(B).
    c. Monitoring record of automatic vent valves on/off positions pursuant to Condition No. 7, 9 and 10.
    d. Pilot flame failure report.

e. Planned and unplanned flare monitoring system downtime report that includes date, time and explanation for taking the system out of service.
f. Sample results for gas composition, HHV and Cs pursuant to Condition No. 8.
g. Specific Cause Analysis completed pursuant to Condition No. 14.
h. Relative Cause Analysis completed pursuant to Condition No. 15.
i. Annual acoustical pressure relief device leak survey.
j. Video records pursuant to Rule 1118(g)(7).

Within 30 days after the end of each calendar quarter, the owner/operator shall submit a quarterly report to the AQMD Refinery Compliance Team at the below address. Item (a) through (h) shall be submitted quarterly in electronic format. Hard copy of item (i) shall be submitted with the quarterly report for the quarter which the survey was conducted. Item (j) shall be made available to the Executive Officer upon request.

All records required by this condition shall be certified for accuracy in writing by the responsible facility official and maintained for at least five years.

SOUTH COAST AIR QUALITY MGMT DISTRICT
REFINERY COMPLIANCE
1500 WEST CARSON STREET, SUITE 115
LONG BEACH, CA 90810

17. The operator shall comply with all provisions of this approved Flare Monitoring and Recording Plan unless the plan is suspended, revoked, modified, reissued, or denied. Violation of any of the terms of the plan is a violation of Rule 1118.

Please review the plan carefully and contact Mr. Thomas Lee at (909) 396-3138 or tlee1@aqmd.gov if you have any questions.

Sincerely,

Jay Chen, P.E.
Senior AQ Engineering Manager
Refinery and Waste Management Permitting
Engineering and Compliance

cc: Ed Pupka, Compliance
A/N 458529 file