

# South Coast Air Quality Management District

## Statement of Basis

### Proposed Title V Permit Renewal

(Issued for Public Notice – 11/21/14)

**Facility Name:** Air Products and Chemicals, Inc.  
**Facility ID:** 101656  
**SIC Code:** 2813  
**Equipment Location:** 700 N. Henry Ford Avenue  
Wilmington, California 90744

**Application #:** 554971  
**Application Submittal Date:** 8/05/2013

**SCAQMD Contact Person:** Thomas Lee  
Air Quality Engineer  
**Phone Number:** (909) 396-3138  
**E-Mail Address:** tlee1@aqmd.gov

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#### 1. Introduction and Scope of Permit

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

The SCAQMD implements Title V through Regulation XXX – Title V Permits, adopted by the SCAQMD Governing Board in order to comply with EPA's requirement that local air permitting authorities develop a Title V program. Regulation XXX was developed with the participation of the public and affected facilities through a series of public workshops, working group meetings, public hearings and other meetings.

Pursuant to Title V of the federal Clean Air Act and SCAQMD Rule 3004(f), a Title V permit shall expire five years from the date of issuance unless such permit has been renewed. Accordingly, each facility is required to submit a Title V renewal application and request the SCAQMD to renew their Title V permit. The proposed permit incorporates updates to the facility information provided in the facility's Title V renewal application and all rules and regulations that are currently applicable to the facility.

The Title V major source threshold for a particular pollutant depends on the attainment status of the pollutant in the South Coast Air Basin. The Basin is in attainment with federal standards for

NO<sub>2</sub>, SO<sub>2</sub>, CO and PM-10. The status for PM-2.5 and ozone is nonattainment and extreme nonattainment, respectively. Effective December 31, 2010, the Los Angeles County portion of the SCAQMD was designated as non-attainment for the new federal standard for lead.

A Title V permit renewal is proposed for the hydrogen production operations of Air Products and Chemicals, Inc., located at 700 N. Henry Ford Avenue in Wilmington, California. This facility is referred to as the Air Products Wilmington Plant. It is subject to Title V requirements because it is a major source for NO<sub>x</sub> and VOC. Current federal regulations for NSPS (New Source Performance Standards) and NESHAP (National Emission Standards for Hazardous Air Pollutants) do not apply to the operations of this facility.

## 2. Facility Description

This is an existing facility applying for a Title V permit renewal that is in the business of hydrogen production. The facility operates one heater with a selective catalytic reduction (SCR) control device, one aqueous ammonia storage tank, one ground flare, and other equipment directly involved in the core hydrogen production operations.

The facility operations can be basically characterized by the following processes: feed compression and preheating; feed desulfurization by hydrogenation; hydrogen production by steam-hydrocarbon reforming process; CO conversion by high temperature shift reaction; and hydrogen purification by pressure-swing adsorption (PSA). This facility uses commercial-quality natural gas, refinery gas and steam, produced from treated water, to produce the desired hydrogen product. The refinery gas is provided by Ultramar and Tesoro refineries. Commercial-quality natural gas, refinery gas and PSA purge gas are burned in the heater (reformer) to provide the required heat for the process. Hydrogen product is delivered by pipeline and sold to local refineries that are governed under separate Title V permits. Air Products and Chemicals, Inc. owns and operates another hydrogen plant in the neighboring city of Carson, which has been issued its own Title V renewal permit.

## 3. Construction and Permitting History

The facility has been in continuous operation since 1996 when several permits to construct and temporary permits to operate were issued to the facility for initial construction. The initial Title V permit was issued on February 2, 2009 and the facility is currently operating under the provision of an application shield pursuant to SCAQMD Rule 3002(b). In addition to annual administrative permit revisions to update the facility's RECLAIM Annual Emission Allocations, the following permit revisions have been issued to the facility since the issuance of the initial Title V permit:

Revision Date	Permit Action	Section
January 20, 2011 (Rev. 14)	Administrative Permit Revision to update Responsible Official for the facility. Minor Permit Revision to incorporate approved R1118 Flare Monitoring and Recording Plan in Section I.	A, I

Revision Date	Permit Action	Section
November 17, 2011 (Rev. 16)	Administrative Permit Revision to convert numerous Permits to Construct into Permits to Operate, make rule tagging changes to affected permit conditions, tag emission limit to applicable devices, remove redundant permit condition and add new conditions to clarify BACT requirements for ammonia storage tank D47.	D
July 1, 2013 (Rev. 18)	Administrative Permit Revision to clarify the RTC hold requirement of Rule 2005 with the addition of permit condition I298.1 to reformer heater D38.	D
January 3, 2014 (Rev. 19)	Minor Permit Revision to reflect the installation of additional hydrogen purification equipment and loading arm to produce ultra pure hydrogen for distribution as a transportation fuel.	H
May 8, 2014 (Rev. 20)	De Minimis Significant Revision for modification of the hydrogen plant to reroute the vent stream of condensate break tank D32 to ground flare C46.	H

#### 4. Regulatory Applicability Determinations

Applicable legal requirements for which this facility is required to comply have been determined and are identified in the Title V permit (for example, Section D, E, H and J). Device level conditions H23.x denote applicability of federal regulations and source specific SCAQMD Rules to permitted equipment. Applicability determination details (i.e., determinations made by the District with respect to what legal requirements apply to a specific piece of equipment, process, or operation) can be found in the Engineering Evaluations associated with the pre and post initial Title V permit the SCAQMD issued for this facility. Aside from general provisions of 40CFR 60, Subpart A, this facility is not subject to any source specific NSPS or NESHAP<sup>1</sup> requirements.

The facility is generally subject to 40CFR68 – Chemical Accident Prevention Provisions. The requirements of this regulation are reflected in the Title V permit (i.e. facility level condition F24.1 of Section D and H).

#### 5. Monitoring and Operational Requirements

Applicable monitoring and operational requirements for which the facility is required to comply are identified in the Title V permit (for example, Sections D, E, F, G, H and J and Appendix B of the proposed Title V permit). Discussion of applicable monitoring and operational requirements can be found in the Engineering Evaluations. All periodic monitoring requirements were developed using strict adherence to the following applicable guidance documents: SCAQMD Periodic Monitoring Guidelines for Title V Facilities (November 1997) and CAPCOA/CARB/EPA Region IX Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP (June 1999).

Compliance Assurance Monitoring (CAM) requirements of 40 CFR Part 64 do not apply to any of the permitted emission sources at this facility as summarized in the following table:

<sup>1</sup>40 CFR63, Subpart VVVVVV – NESHAP for Chemical Manufacturing Area Sources (CMAS): The EPA has ruled on June 24, 2013 in an applicability determination that this CMAS rule does not apply to the catalyst change out activities at the Air Products Wilmington Plant. A copy of this EPA ruling is attached for reference.

## CAM Applicability Determinations for Equipment with Control Devices

Emissions Unit	Subject to emission limitation or standard?	Uses control device to comply with emission limitation or standard?	Pre-control emissions greater than major source threshold?	Meets any of the exemptions listed in §64.2(b)?	Subject to CAM requirements?
Reformer Furnace, D38	Yes – 9 ppmv NOx (BACT)	Yes – SCR	Yes	Yes – §64.2(b)(1)(vi); equipped with CEMS	No
PSA purge gas/syngas vents from hydrogen plant	Yes – 2,000 ppmv CO (Rule 407)	Yes – flare	No	--	No

NOx emissions from the Reformer Furnace D38 are subject to a BACT emission limit and are controlled by venting to an SCR. Pre-control emissions of NOx are greater than the major source threshold. However, compliance with the NOx emission limit is already monitored via a continuous compliance determination method as defined in §64.1 (a RECLAIM NOx CEMS) as specified by a Part 70 Title V permit (existing permit condition D82.1). Therefore, CAM requirements of 40 CFR Part 64 are not applicable per the exemption in §64.2(b)(1)(vi).

CO emissions from the venting of syngas and PSA purge gas from the hydrogen plant during periods of planned startups and shutdowns are subject to an emission limit in SIP-approved Rule 407 and are controlled by venting to ground flare C46. However, pre-control emissions of CO are calculated to be 31 tons per year at worst, which is less than the 50 tons per year major source threshold for CO in the South Coast Air Basin. Therefore, CAM requirements are not applicable per the applicability requirements in §64.2(a)(3).

### 6. Permit Features

#### Permit Shield

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

#### Alternate Operating Scenarios

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

### Streamlining Requirements

Some emission units may be subject to multiple requirements which are closely related or redundant. The conditions may be streamlined to simplify the permit conditions and compliance. Emission limits, work practice standards, monitoring, recordkeeping, and reporting requirements may be streamlined. Compliance with a streamlined condition will be deemed compliant with the underlying requirements whether or not the emission unit is actually in compliance with the specific underlying requirement. This facility has not applied for any streamlined condition.

## 7. Summary of Emissions and Health Risks

### **Criteria Pollutant Emissions Annual Reported Emissions for Calendar Year 2013**

Pollutant	Emissions (tons/year)
CO	17.149
NOx	28.614
VOC	22.774
SOx	1.701
PM	7.924

### **Toxic Air Contaminants Emissions (TACs) Annual Reported Emissions for Calendar Year 2013**

The Following TACs Were Reported	Emissions (lbs/yr)
1,3-Butadiene*	0.049
Ammonia	10055.765
Arsenic*	0.000
Benzene*	37.402
Cadmium*	0.000
Chromium (VI)*	0.000
Formaldehyde*	130.941
Lead (inorganic)*	0.001
Naphthalene*	5.543
Nickel*	0.000
PAHs, total, with components not reported*	1.813

Source: SCAQMD "Facility Information Detail" (FIND) database, available at [http://www3.aqmd.gov/webappl/fim/prog/emission.aspx?fac\\_id=101656](http://www3.aqmd.gov/webappl/fim/prog/emission.aspx?fac_id=101656)

\*These TACS are also Hazardous Air Pollutants (HAPs), Section 112, 1990 Clean Air Act Amendments. Total HAPs reported are 175.75 lbs/yr

### Health Risk from Toxic Air Contaminants

The facility is exempt from performing a Health Risk Assessment under the Air Toxics Information and Assessment Act (AB2588 program) because of its low priority score.

## **8. Compliance History**

As noted, the hydrogen plant has been in constant operation since late 1996. The plant has been subject to both self-reporting requirements and AQMD inspections. There have been no citizens complaints filed. Three (3) Notices of Violation were issued in the last five years. These compliance issues have all been resolved. Further information regarding the facility's compliance status is available on the internet under the AQMD's "Facility Information Detail" (FIND) database at [http://www3.aqmd.gov/webappl/fim/prog/novnc.aspx?fac\\_id=101656](http://www3.aqmd.gov/webappl/fim/prog/novnc.aspx?fac_id=101656).

## **9. Compliance Certification**

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

## **10. Comments**

None

# **ATTACHMENT**

**EPA's NESHAP Subpart VVVVVV Applicability Determination  
for Air Products & Chemicals, Inc.**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

JUN 24 2013

OFFICE OF  
ENFORCEMENT AND  
COMPLIANCE ASSURANCE

Brian R. Keck  
Environmental Manager  
Electronics, Gases, Manufacturing and R&D  
Air Products and Chemicals, Inc.  
7201 Hamilton Boulevard  
Allentown, Pennsylvania 18195

Re: Response to Air Products' Request for Applicability, National Emission Standards for Hazardous Air Pollutants for Source Categories, 40 CFR 63 Subpart VVVVVV, Chemical Manufacturing Area Sources Rule

Dear Mr. Keck:

Thank you for your February 4, 2013 request for a determination of the applicability of the National Emission Standards for Hazardous Air Pollutants for Source Categories, 40 CFR Part 63, Subpart VVVVVV, Chemical Manufacturing Area Sources Rule (CMAS rule) to your company's 24 hydrogen steam-methane-reforming (SMR) facilities located nationwide.

On December 4, 2012, you contacted the Air Enforcement and Compliance Assurance Branch of the United States Environmental Protection Agency's (EPA) Region 5 Office to determine whether the CMAS rule applies to the catalyst loading and unloading activities at the SMR facilities. Subsequently, you sent Region 5 a written request for a determination. Based on the information in your request, the EPA is providing a written applicability determination to clarify that the CMAS rule does not apply to the Air Products SMR facilities during their catalyst change out activities.

In the February 4, 2013 request, you provided a description of the hydrogen formation process at the SMR facilities stating that hydrogen formation is promoted through the use of metal-bearing catalysts during reforming and shift reactions. Air Products stated that these catalysts may contain trace amounts of chromium and nickel, which could potentially be released during catalyst loading and unloading activities at the SMR facilities.

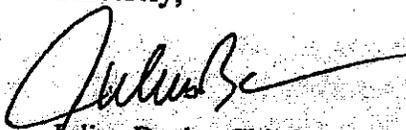
According to §63.11494(a) of the CMAS rule, an affected facility is a chemical manufacturing process unit (CMPU) that is located at an area source of hazardous air pollutant (HAP) emissions. The CMAS rule applies when the CMPU uses as a feedstock, generates as a byproduct, or produces as a product any Table 1 HAP, as specified in §63.11494 (a)(2)(i)-(iv).

During catalyst change out, the CMPU would be out of service and would not meet the rule requirements for HAP use or generation during production. In the case of the SMR facilities, the CMAS rule would not apply during the catalyst change out process since the CMPU would not be in use for hydrogen production at the time of loading and unloading.

The response to comments section in the October 29, 2009 preamble of the CMAS rule states that EPA is ["...concerned only with metal HAP emissions. Metal HAP in structures and metal HAP existing as articles (as defined in 40 CFR 372.3), where no metal HAP is released to the atmosphere, are not covered by this rule."] EPA further states that ["...if the use of catalysts in the processes results in Table 1 HAP emissions from the CMPU, then the CMPU is subject to the applicable standards for the affected CMPU."] In other words, "in the process" means during production. Catalyst change out would not be considered part of CMPU use during hydrogen production. Therefore, the CMAS rule is not applicable to the catalyst loading and unloading activities at the SMR facilities.

If you have any questions, please contact Tavera Culpepper of my staff at [culpepper.tavera@epa.gov](mailto:culpepper.tavera@epa.gov) or (202) 564-0902.

Sincerely,



Julius Banks, Chief  
Air Branch  
Monitoring, Assistance, and Media Programs Division  
Office of Compliance