

South Coast Air Quality Management District

Statement of Basis

Proposed Title V Renewal Permit

(Issued for Public Notice – **March 15, 2013**)

Facility Name:	Air Liquide El Segundo Hydrogen Plant (Air Liquide Large Industries U.S., LP)
Facility ID:	148236
SIC Code:	2813
Equipment Location:	324 W. El Segundo Blvd. El Segundo, California 90245
Application #:	544646
Application Submittal Date:	11/08/2012
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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.

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

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 NO₂, SO₂, CO, and lead. The status for PM-2.5 is nonattainment, the status for PM-10 is serious nonattainment, and the status for ozone is currently extreme nonattainment.

A Title V permit renewal is proposed to cover the hydrogen production operations of Air Liquide Large Industries U.S., LP, located at 324 W. El Segundo Blvd. in El Segundo. This facility is located within the boundaries of the Chevron El Segundo Refinery. The hydrogen plant facility is subject to Title V requirements because it is a major source for NO_x and VOC.

2. Facility Description

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

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 medium temperature shift reaction; and hydrogen purification by pressure-swing adsorption (PSA). In addition to steam, feedstocks to the hydrogen plant can include natural gas, pentane, and refinery fuel gas. The fuel to the heater (reformer) is composed primarily of PSA offgas. The balance of the fuel is either refinery fuel gas or natural gas.

The hydrogen product is sold and delivered to the Chevron Refinery, which is governed under a separate Title V permit. A portion of the steam produced at the plant is also sent to the Chevron Refinery. The Chevron refinery provides the hydrogen plant with ammonia, pentane, refinery fuel gas, and certain utilities including treated water for steam production.

3. Construction and Permitting History

Permits to construct for initial construction of the hydrogen plant were issued to Chevron in September of 2003. Air Liquide, who owns and operates the plant, began operation of the plant in December of 2004. The permits to construct issued to Chevron for this equipment were subsequently transferred to Air Liquide in June 2006. An initial Title V permit was issued to the facility on May 9, 2008 and seven subsequent revisions were issued as follows:

Revision Date	Permit Action	Section
July 1, 2009	Administrative Permit Revision to update RECLAIM Annual Emission Allocation	B
July 1, 2010	Administrative Permit Revision to update Responsible Official, Contact Person, and RECLAIM Annual Emission Allocation	A, B
November 16, 2010	Minor Permit Revision to approve Rule 1118 compliance plan	I
April 22, 2011	Administrative Permit Revision to convert Permits to Construct to Permits to Operate	D, H

Revision Date	Permit Action	Section
June 3, 2011	Administrative Permit Revision to convert Permit to Construct to Permit to Operate	D, H
July 1, 2011	Administrative Permit Revision to update RECLAIM Annual Emission Allocation	B
July 24, 2012	Administrative Permit Revision to update Responsible Official and RECLAIM Annual Emission Allocation, and to clarify RTC hold requirements	A, B, D

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 and E of the proposed Title V permit). 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. NSPS requirements of 40 CFR Part 60 apply to certain units at the facility as detailed below, and the permit terms and condition may be found in Section D of the Title V permit.

The facility is generally subject to 40CFR60 Subpart A – General Provisions. Applicability of this regulation is reflected in the Title V permit (i.e. facility level condition F52.1).

The Steam Methane Reformer (SMR) heater and the SMR ground flare are subject to the applicable requirements of 40CFR60 Subpart J - Standards of Performance for Petroleum Refineries. Requirements and limits of this NSPS are reflected in the Title V permit (i.e. device level conditions B61.2 and H23.5).

Components in "VOC service" at the facility are subject to the requirements of 40CFR60 Subpart GGG – Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries. The only components in this plant that are in “VOC service” are those that handle refinery fuel gas. Other equipment in the plant, including compressors, are not subject to this regulation since the equipment is not in “VOC service.” Applicability of this NSPS is reflected in the Title V permit under device level condition H23.2.

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).

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, F, 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 and as detailed below:

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?
SMR Heater	Yes – 5 ppmv NOx (BACT)	Yes – SCR	Yes	Yes – §64.2(b)(vi)	No
PSA offgas/syngas vents from hydrogen plant	Yes – 2,000 ppmv CO (Rule 407)	Yes – flare	No	--	No

NOx emissions from the SMR heater 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)(vi).

CO emissions from the venting of syngas and PSA offgas from the hydrogen plant are subject to an emission limit in SIP-approved Rule 407 and are controlled by venting to the SMR ground flare. However, pre-control emissions of CO are only 44 tons per year, less than the 100 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 compliance 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 AQMD 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, and monitoring, recordkeeping, and reporting requirements may be streamlined. Compliance with a streamlined condition will be deemed compliance 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 2011**

Pollutant	Emissions (tons/year)
CO	4.355
NOx	18.313
VOC	14.285
SOx	0.853
PM	3.275
PM10	3.148
PM2.5	3.036

**Toxic Air Contaminants Emissions (TACs)
Annual Reported Emissions for Calendar Year 2011**

The Following TACs Were Reported	Emissions (lbs/yr)
1,3-Butadiene*	0.252
Ammonia	9370.069
Arsenic*	0.678
Benzene*	71.240
Beryllium*	0.206
Cadmium*	0.781
Chromium (VI)*	0.000
Formaldehyde*	160.034
Lead (inorganic)*	3.892
Naphthalene*	1.210
Nickel*	7.519
PAHs, total, with components not reported*	0.576

*These TACS are also Hazardous Air Pollutants (HAPs), Section 112, 1990 Clean Air Act Amendments. Total HAPs reported are 246.388 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 2004. The plant has been subject to both self-reporting requirements and AQMD inspections. There have been no citizens complaints filed or Notices of Violation issued for equipment in the hydrogen plant since the initial Title V permit was issued. Two (2) Notices to Comply were issued to Air Liquide in 2011 for failure to submit the Title V Annual Compliance Report certification and the Annual Permit Emissions Performance (APEP) report, respectively, in a timely manner to the AQMD. The facility is currently in compliance. Further information regarding the facility's compliance status is available on the internet under the AQMD's "Facility Information Detail" database (FIND, at <http://www3.aqmd.gov/webappl/fim/prog/search.aspx>).

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

There were no significant changes in this permit since the initial issuance of the Title V permit.