Bay Area Air Quality Management District

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Permit Evaluation
and
Statement of Basis
for the

MAJOR FACILITY REVIEW PERMIT

for

Air Liquide Large Industries, US LP
Facility #B7419

Facility Address:
1391 San Pablo Avenue
Rodeo, CA 94572

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Rodeo, CA 94572

February 2012

Application Engineer: Brenda Cabral
Site Engineer: Brenda Cabral

Application: 23561

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Title V Statement of Basis

A. Background

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Title 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a major facility as defined by BAAQMD Regulation 2-6-212. It is a major facility because it has the "potential to emit," as defined by BAAQMD Regulation 2-6-218, of more than 100,000 tons per year of a regulated air pollutant, CO2, and because it is a support facility for a major facility, the ConocoPhillips refinery.

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6. The permits must contain all applicable requirements (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

A facility may be made up of several sites. Each site in the Bay Area is assigned a site identifier that consists of a letter and a 4-digit number. This identifier is also considered to be the identifier for the permit. The identifier for this site is B7419.

Air Liquide Large Industries, US LP submitted Application 13678 for an Authority to Construct on October 28, 2005. The Authority to Construct was granted on October 5, 2007. Air Liquide submitted Application 14738 for a Title V permit on June 5, 2006. The Title V permit was issued on March 4, 2010.

This is the Permit Evaluation/Statement of Basis for Application 23561. The purpose of this application is to make the ammonia monitoring in Conditions 23178, 23179, and 23181 for the following equipment consistent:

S1, Hydrogen Plant
S2, Hydrogen Plant Furnace
S3, Flare

The change in conditions will not change the ammonia emissions. The change in conditions is an administrative amendment to the Title V permit because the changes are solely to non-federally enforceable permit conditions as allowed by BAAQMD Regulation 2-6-201, Administrative amendment, which reads as follows:

> A non-substantive amendment to a major facility review permit. The following amendments are administrative amendments: changes in recordkeeping format that are not relaxations of applicable requirements, the correction of typographical errors, changes in permit format that are not alterations of applicable requirements, changes in source

descriptions that are not alterations of applicable requirements, changes in the descriptions of applicable requirements that add detail but do not affect substantive requirements, deletion of requirements containing sunset dates that have passed, the identification of administrative changes at a facility (such as a replacement of the facility's responsible official or a change in ownership or operational control of the facility which involves no physical or operational changes to the facility), the deletion of sources, the approval of a District rule into the SIP, the imposition of more frequent emission monitoring requirements, and changes to applicable requirements and related monitoring that are not federally enforceable.

B. Facility Description

This site is a hydrogen plant. The hydrogen plant consists of the following equipment:

S1, Hydrogen Plant, 120 MMscf/day, including HRSG and steam turbine generator (12 MW)
S2, Hydrogen Plant Furnace, 1,072 MMbtu/hr abated by A1, SCR
S3, Hydrogen Plant Flare, 2200 MMbtu/hr
S4, Cooling Tower, 3,700 gpm
S5, Ammonia Tank, 10,000 gal-19% aqueous ammonia
A1, Selective Catalytic Reduction Unit abating S2, Hydrogen Plant Furnace

The hydrogen plant uses the steam-methane reforming process to take water and hydrocarbons, strip the hydrogen from the water and hydrocarbons, and convert the remaining carbon into carbon monoxide and carbon dioxide. The waste from the process is burned in the hydrogen plant furnace to provide process heat. Most of the carbon monoxide that is generated is burned to form carbon dioxide.

The excess heat is used to make steam in the heat recovery steam generator (HRSG). The steam will be used in the steam turbine generator to generate electricity that will be used by Air Liquide and by ConocoPhillips exclusively.

The purpose of the flare is to burn hydrogen and off-gas safely in the case of a shutdown or turndown. The flare will burn clean gas from the hydrogen plant, not refinery fuel gas.

The cooling tower will be used to cool the hydrogen process.

The ammonia tank will provide 19% aqueous ammonia for NOx control in A1, Selective Catalytic Reduction Unit.

C. Permit Content

The legal and factual basis for the permit revision follows. The permit sections are described in the order presented in the permit.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for certain fossil-fuel fired electrical generating facilities or the accidental release (40 CFR § 68) programs apply, the section

will contain a standard condition pertaining to these programs. Many of these conditions derive from 40 CFR § 70.6, Permit Content, which dictates certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

The standard conditions also contain references to BAAQMD Regulation 1 and Regulation 2. These are the District's General Provisions and Permitting rules.

Changes
No changes will be made to this section.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S24).

Permitted sources are those sources that require a BAAQMD operating permit pursuant to BAAQMD Rule 2-1-302.

Significant sources are those sources that have a potential to emit of more than 2 tons of a "regulated air pollutant," as defined in BAAQMD Rule 2-6-222, per year or 400 pounds of a "hazardous air pollutant," as defined in BAAQMD Rule 2-6-210, per year.

All abatement (control) devices that control permitted or significant sources are listed. Each abatement device whose primary function is to reduce emissions is identified by an A and a number (e.g., A24). .

The equipment section is considered to be part of the facility description. It contains information that is necessary for applicability determinations, such as fuel types, contents or sizes of tanks, etc. This information is part of the factual basis of the permit.

Each of the permitted sources has previously been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. These permits are issued in accordance with state law and the District's regulations. The capacities in the permitted sources table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-403.

Changes
No changes will be made to this section.

III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources and portable equipment that may not require a District permit. If a generally applicable requirement applies specifically to a source that is permitted or significant, the standard will also appear in Section IV and the monitoring for that requirement will appear in Sections IV and VII of the permit. Parts of this section apply to all facilities (e.g., particulate, architectural coating, odorous substance,

and sandblasting standards). In addition, standards that apply to insignificant or unpermitted sources at a facility (e.g., refrigeration units that use more than 50 pounds of an ozone-depleting compound) are placed in this section.

Unpermitted sources are exempt from normal District permits pursuant to an exemption in BAAQMD Regulation 2, Rule 1. They may, however, be specifically described in a Title V permit if they are considered significant sources pursuant to the definition in BAAQMD Rule 2-6-239.

Changes
No changes will be made to this section.

IV. Source-Specific Applicable Requirements

This section of the permit lists the applicable requirements that apply to permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The order of the requirements is:

- District Rules
- SIP Rules (if any) are listed following the corresponding District rules. SIP rules are District rules that have been approved by EPA for inclusion in the California State Implementation Plan. SIP rules are "federally enforceable" and a "Y" (yes) indication will appear in the "Federally Enforceable" column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the "Federally Enforceable" column will have a "Y" for "yes". If the SIP rule is not the current District rule, the SIP rule or the necessary portion of the SIP rule is cited separately after the District rule. The SIP portion will be federally enforceable; the non-SIP version will not be federally enforceable, unless EPA has approved it through another program.
- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.
- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

Section IV of the permit contains citations to all of the applicable requirements. The text of the requirements is found in the regulations, which are readily available on the District's or EPA's websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements.

Changes
No changes will be made to this section.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 which provides that a major facility review permit shall contain the following information and provisions:

"409.10 A schedule of compliance containing the following elements:

10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;

10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and

10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted."

Changes

No changes will be made to this section.

VI. Permit Conditions

The Major Facility Review permit contains conditions that are derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). Permit conditions may also be imposed or revised as part of the annual review of the facility by the District pursuant to California Health and Safety Code (H&SC) § 42301(e), through a variance pursuant to H&SC § 42350 et seq., an order of abatement pursuant to H&SC § 42450 et seq., or as an administrative revision initiated by District staff. After issuance of the Title V permit, permit conditions will be revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

When necessary to meet Title V requirements, additional monitoring, recordkeeping, or reporting has been added to the permit.

Each permit condition is identified with a unique numerical identifier, up to five digits.

All changes to existing permit conditions that have been made in this action are clearly shown in "strike-out/underline" format in this Statement of Basis.

The District is amending non-federally enforceable conditions regarding the ammonia monitoring and recordkeeping. BAAQMD Regulation 2-6-201 defines these changes as administrative amendments, which can be issued directly without public comment or EPA review. Therefore, the permit conditions in the permit are not in "strike-out/underline" format, but rather in a "clean" format.

The amendments clarify that the facility will use source test results and calculations to determine compliance, not a correlation of ammonia injection monitoring and heat input. This monitoring already exists in Condition 23179, part 23, but Condition 23181, part

B.4g, was not amended to be consistent with Condition 23179 during the issuance of the initial Title V permit. A more detailed explanation is found in the permit evaluation for Application 23560, which is attached in Appendix B.

Facility Condition 23181

A. Facility Conditions

1. *The owner/operator shall notify the District in writing by fax or email no less than three calendar days in advance of any scheduled startup or shutdown of any process unit, and, for any unscheduled startup or shutdown of a process unit, within 48 hours or within the next normal business day. The notification shall be sent in writing by fax or email to the Director of Enforcement and Compliance. This requirement is not federally enforceable. [Regulation 2-1-403]

2. The owner/operator shall ensure that the concentration of ammonia in the ammonia tank is less than 20% by weight so that 40 CFR 68, Accidental Release, does not apply. [2-1-305]

B. Project Mass Emission Limits

1. Following are the sources that are subject to the project mass emission limits:
   S1, Hydrogen Plant including HRSG and steam turbine generator
   S2, Hydrogen Plant Furnace
   S3, Hydrogen Plant Flare
   [Cumulative Increase, 2-1-403]

2. The owner/operator shall ensure that the annual emissions of the above sources do not exceed the following annual emission limits, including periods of startup, shutdown, malfunction, and upset emissions.

a.	NOx	30.9 tpy [Cumulative Increase, 2-1-403]
b.	SO2	5.0 tpy [Cumulative Increase, 2-1-403]
c.	PM10	13.8 tpy [Cumulative Increase, 2-1-403]
d.	POC	13.9 tpy [Cumulative Increase, 2-1-403]
e.	CO	46.2 tpy [Cumulative Increase, 2-1-403]
f.	Sulfuric acid mist	0.43 tpy [PSD]
*g.	Ammonia	26.9 tpy [Regulation 2, Rule 5]

3. The owner/operator shall ensure that the daily emissions of the above sources do not exceed the following daily emission limit, including periods of startup, shutdown, malfunction, and upset emissions.

a.	Sulfuric acid mist	2.35 lb/day [PSD]

4. The owner/operator shall determine whether the emissions are below the allowable mass emissions for the above sources as shown below. The owner/operator calculate and report the emissions of NOX, SO2, PM10, POC, CO, ammonia, and sulfuric acid mist on an annual basis in the following manner.
   a. The owner/operator shall the use the POC emission rate determined by the annual source test data at the deaerator for S1.
   b. The owner/operator shall use the data generated by the BAAQMD Regulation 8, Rule 18, monitoring to determine the annual POC emission rate for the components.
   c. The owner/operator shall use the mass emissions data generated by the NOx and CO CEMs at S2.

d. Deleted Application 14738.
e. The owner/operator shall use the CEM monitoring of SO2 at the outlet of the hydrogen plant furnace.
f. The owner/operator shall use the emission rates of sulfuric acid mist, PM10, POC, and CO determined in annual source tests at S2 in units of pounds of pollutant per MMbtu and the records of heat input to calculate emissions of sulfuric acid mist, PM10, POC, and CO.
*g. The owner/operator shall use the ammonia emission rates determined by source tests at S1 and S2 and the clock hours of operation ~~injection monitoring and the records of heat input~~ to calculate emissions of ammonia at S1 and S2.
h. The owner/operator shall use the calculations of flare emissions at S3 required by BAAQMD Condition 23180, part 5.
*i. In the case that ammonia is released to the flare, S3, the owner/operator shall prepare and submit an estimate of ammonia emissions from the flare to the District Engineering Division for approval. Upon approval of the calculation, the owner/operator shall add the resulting ammonia emissions to the annual total.

[2-1-305]

5. If the annual emissions, as determined in part B.4, are above the allowable emissions for the project, the owner/operator shall supply additional offsets, where applicable, and perform additional analysis for PSD, if necessary. The results of the analysis shall be submitted to the Director of Compliance and Enforcement on an annual basis on the anniversary of the startup of S2, Hydrogen Plant Furnace. [2-1-403]

6. The annual emissions of the following sources shall not exceed 16.3 tons PM10/yr: S45, S434, and S1010 at Facility A0016, and S2 and S3 at Facility B7419. If the emissions exceed 16.3 tons in any consecutive 12 month period, the owners/operators of Facilities A0016 and B7419 shall provide contemporaneous offsets of PM10 that comply with BAAQMD Regulations 2-2-201 and 2-2-605. [1-104, 2-2-304]

7. Deleted Application 14738

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

A discussion of the adequacy of monitoring is contained in the Engineering Evaluation for the initial Title V permit in Application 13678, which is available upon request.

Changes to permit

The following amendments have been made to Section VII of the permit:

The ammonia limit that applies to the entire facility has been added to Table VII-Facility-Specific Generally Applicable Requirements:

Table VII - All Sources
Applicable Limits and Compliance Monitoring Requirements
Facility-Specific Generally Applicable Requirements

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
NH3	BAAQMD Cond# 23181, part 2g	N		26.9 tons per year for S1, S2, and S3	BAAQMD Cond# 23181, part 4	P/A	Source tests and calculations

The facility limit and the description of the monitoring type for the ammonia limit in 23181, part g. has been added to Table VII-A.

Table VII - A
Applicable Limits and Compliance Monitoring Requirements
S1 – HYDROGEN PLANT

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
NH3	BAAQMD 7-303	N		5000 ppm	BAAQMD Cond# 23178, part 9b	P/A	Source test
NH3	BAAQMD Cond# 23178, part 5	N		0.64 lb/hr	BAAQMD Cond# 23178, part 9b	P/A	Source test
NH3	BAAQMD Cond# 23181, part 2g	N		26.9 tons per year for S1, S2, and S3	BAAQMD Cond# 23181, part 4	P/A	~~Ammonia injection and heat input monitoring~~ Source tests and calculations

The description of the monitoring type for the ammonia limit in 23181, part g, has been revised in Table VII-B.

Table VII - B
Applicable Limits and Compliance Monitoring Requirements
S2 – HYDROGEN PLANT FURNACE

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
NH3	BAAQMD Cond# 23179, parts 6 and 21	N		10 ppmv @ 3% O2, 1-hr average	BAAQMD Cond# 23179, part 17a	P/A	Source test
NH3		N		None	BAAQMD Cond# 23179, part 22	C	Monitoring of ammonia injection rates
NH3	BAAQMD Cond# 23179, part 8	N		6.5 lb/clock hour	BAAQMD Cond# 23179, part 17a	P/A	Source test
NH3	BAAQMD Cond# 23179, part 11	N		48,200 lb per any consecutive 12 months	BAAQMD Cond# 23179, part 23	P/A or 4 times per year	annual or quarterly source tests and calculations
NH3	BAAQMD Cond# 23181, part 2g	N		26.9 tons per year for S1, S2, and S3	BAAQMD Cond# 23181, part 4	P/A	~~Ammonia injection and heat input monitoring~~ Source tests and calculations

The ammonia limit monitoring that applies to the entire facility has been added to Table VII-C, since there is a new provision that would require calculation of ammonia emissions if the ammonia tank is vented to the flare:

Table VII – C
Applicable Limits and Compliance Monitoring Requirements
S3 – HYDROGEN PLANT FLARE

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
NH3	BAAQMD Cond# 23181, part 2g	N		26.9 tons per year for S1, S2, and S3	BAAQMD Cond# 23181, part 4	P/A	Source tests and calculations

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not applicable requirements.

If a rule or permit condition requires ongoing testing, the requirement will also appear in Section IV of the permit.

Changes

No changes will be made to this section.

IX. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in a major facility review permit explaining that specific federally enforceable regulations and standards do not apply to a source or group of sources, or (2) A provision in a major facility review permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting

requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

No permit shield has been requested for this facility.

X. Revision History

The Revision History section contains a list of all of the instances that the permit is issued, the type of action (initial issuance, renewals, administrative amendments, minor or significant revisions, and reopenings), the application number, and the date of the action.

XI. Glossary

A glossary of terms has been provided for both the permit and the statement of basis.

Changes

No changes will be made to this section.

D. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

E. Compliance Status:

It is expected that the permit conditions will assure compliance with all applicable requirements.

APPENDIX A

GLOSSARY

ARB
Air Resources Board

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

Basis
The underlying authority that allows the District to impose requirements.

CAA
The federal Clean Air Act

CAAQS
California Ambient Air Quality Standards

CEM
Continuous Emission Monitor

CEQA
California Environmental Quality Act

CFEP
Clean Fuel Expansion Project

CFR
The Code of Federal Regulations 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

CO
Carbon Monoxide

Cumulative Increase
The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Cumulative increase is used to determine whether threshold-based requirements are triggered.

District
The Bay Area Air Quality Management District

dscf
Dry Standard Cubic Feet

EPA
The federal Environmental Protection Agency.

EFRT
External Floating Roof Tank

Federally Enforceable, FE
All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPs), Part 63 (MACT), and Part 72 (Permits Regulation, Acid Rain), including limitations and conditions contained in operating permits issued under an EPAapproved program that has been incorporated into the SIP.

FP
Filterable Particulate as measured by BAAQMD Method ST-15, Particulate.

MOP

The District's Manual of Procedures.

NAAQS
National Ambient Air Quality Standards

NESHAPS
National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Parts 61 and 63.

NH3
Ammonia

NOx
Oxides of nitrogen.

NSPS
Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Federal Clean Air Act, and implemented by 40 CFR Part 60 and District Regulation 10.

NSR
New Source Review. A federal program for pre-construction review and permitting of new and modified sources of pollutants for which criteria have been established in accordance with Section 108 of the Federal Clean Air Act. Mandated by Title I of the Federal Clean Air Act and implemented by 40 CFR Parts 51 and 52 and District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

Offset Requirement
A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, NOx, PM10, and SO2.

POC
Precursor Organic Compounds

PM
Particulate Matter

PM10
Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

PSD
Prevention of Significant Deterioration. A federal program for permitting new and modified sources of those air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

SCR
Selective Catalytic Reduction

SIP
State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

SO2
Sulfur dioxide

Title V
Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

TRMP
Toxic Risk Management Plan

VOC
Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
cfm	=	cubic feet per minute
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
hp	=	horsepower
hr	=	hour
lb	=	pound
in	=	inches
max	=	maximum
m^2	=	square meter
min	=	minute
mm	=	million
MMbtu	=	million btu
MMcf	=	million cubic feet
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scfm	=	standard cubic feet per minute
yr	=	year

APPENDIX B

Engineering Evaluation Application 23561

ENGINEERING EVALUATION
Air Liquide Large Industries, Plant 17419
Application No. 23561

BACKGROUND

Air Liquide has submitted an application to coordinate the ammonia monitoring in Conditions 23178, 23179, and 23181 for the following equipment:

S1, Hydrogen Plant
S2, Hydrogen Plant Furnace
S3, Flare

The ammonia limits and the ammonia monitoring are not federally enforceable limits because they have been imposed pursuant to BAAQMD Regulation 2, Rule 5, New Source Review for Toxic Air Contaminants.

When the original Authority to Construct for this equipment was issued on October 5, 2007, Condition 23179, parts 21-23, contained a requirement to establish a correlation between ammonia injection, heat input rates, and the ammonia concentration at the stack. The text of the original conditions is shown below:

21. Ammonia (NH3) emission concentrations at the hydrogen plant stack shall not exceed 10 ppmv, on a dry basis, corrected to 3% O2, on a clock hour basis. This ammonia emission concentration shall be verified by the continuous recording of the ammonia solution injection rate to A1, SCR. The correlation between the heat input rates, the SCR ammonia solution injection rates, and corresponding ammonia emission concentration at the hydrogen plant stack shall be determined in accordance with permit condition 23. (Toxics Risk Management for NH3)

22. The owner/operator shall demonstrate compliance with part 21 by using a properly operated and maintained continuous monitor (during all hours of operation including start-up and shutdown periods) for the ammonia solution injection rate. The owner/operator shall record the ammonia solution injection rate every 15 minutes (excluding normal calibration periods) and shall summarize the ammonia solution injection rate for each clock hour. (Toxics Risk Management for NH3)

23. Within 60 days of start-up of the hydrogen plant furnace, the owner/operator shall conduct a District-approved source test on at the hydrogen plant stack to determine the corrected ammonia emission concentration to determine compliance with part 21. The source test shall determine the correlation between the heat input rates of the hydrogen plant furnace, the ammonia

solution injection rate, and the corresponding ammonia emission concentration at the emission point. The source test shall be conducted over the expected operating range of the hydrogen plant furnace to establish the range of ammonia solution injection rates necessary to achieve NOx emission reductions while maintaining ammonia slip levels. Source testing shall be repeated on an annual basis thereafter. Ongoing compliance with part 21 shall be demonstrated through calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia solution injection rate. Source test results shall be submitted to the District within 45 days of conducting the tests. (Toxics Risk Management for NH3)

When the District issued the Major Facility Review (Title V) permit on March 4, 2010, the District amended the condition so that compliance would be determined with testing only, not a correlation. The text of the amended conditions is shown below:

*21. Ammonia (NH3) emission concentrations at the hydrogen plant stack shall not exceed 10 ppmv, on a dry basis, corrected to 3% O2, on a clock hour basis. This ammonia emission concentration shall be verified by annual source test required in part 17a of this condition. If the APCO determines that a reliable ammonia concentration monitor has become available, the APCO may require installation of an ammonia CEM at S2, Hydrogen Plant Furnace. (Regulation 2, Rule 5)

*22. The owner/operator shall operate and maintain a continuous flow monitor (during all hours of operation including start-up and shutdown periods) for the ammonia solution injection rate. The owner/operator shall record the ammonia solution injection rate every 15 minutes (excluding normal calibration periods) and shall summarize the ammonia solution injection rate for each clock hour. (Regulation 2, Rule 5)

*23. Compliance with annual ammonia limit: Within 60 days of start-up of the hydrogen plant furnace, the owner/operator shall conduct a District-approved source test on at the hydrogen plant stack to determine the corrected ammonia emission concentration to determine compliance with part 21. Source testing shall be repeated on an annual basis thereafter. Compliance with the annual limit in part 11 shall be determined by multiplying the hourly rate determined in the annual source test by the clock hours of operation. Compliance shall be determined for each 12-month period within 30 days of the end of each calendar month.

The owner/operator shall also calculate the emissions for each consecutive 3-month period within 30 days of the end of each calendar month. If the calculation determines that emissions of ammonia are greater than 12,050 lb for any 3-month period, the owner/operator shall perform a source test every quarter. In this case, the owner/operator shall use the hourly rate determined in the source test for calculation of the emissions starting on the date of the source test until the date of the next source test. The owner/operator may lower the frequency to annually after 4 consecutive

> tests below 5.5 lb ammonia per hour or after 4 consecutive quarters under 12,050 lb ammonia per quarter. Source test results shall be submitted to the District within 45 days of conducting the tests. (Regulation 2, Rule 5)

The condition above contained a contingency for more frequent testing if it appeared that the emissions were close to the annual limit.

Condition 23181, part B, requires the owner/operator to determine whether the facility is in compliance with annual facility-wide ammonia limit of 26.9 tons/yr. Part B.4.g requires use of the ammonia injection and heat input rates to calculate ammonia emission rates. This condition is obsolete. The condition will be changed to say that the owner/operator shall use the results of source tests to determine compliance.

One scenario that has not been considered is the unlikely venting of ammonia to the flare from the exempt ammonia tank. A provision shall be added to Condition 23181, part B, requiring the owner/operator to estimate emissions and submit them to the District in that case. The ammonia is in 19% aqueous solution, so a catastrophic release is not possible, as it would be if the ammonia were in a gaseous state.

EMISSIONS

The change in conditions will not affect emissions.

PLANT CUMULATIVE INCREASE, OFFSETS

The change in conditions will not affect the cumulative increase and additional offsets will not be required.

TOXIC RISK SCREENING ANALYSIS

The change in conditions will not affect emissions and therefore, a toxic risk screening analysis is not required.

BACT

The change in conditions will not affect emissions, so therefore, BACT is not required.

STATEMENT OF COMPLIANCE

CEQA

This application is exempt from CEQA pursuant to BAAQMD Regulation 2-1-312.1 because it is an application "to modify permit conditions for existing or permitted sources or facilities that do not involve any increases in emissions or physical modifications."

PSD

PSD is not triggered because there will be no increase in emissions.

NSPS

S2, Hydrogen Plant Furnace, and S3, Flare, are subject to the provisions of NSPS, Subpart Ja, Standards of Performance for Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After May 14, 2007.

Valves, flanges, pumps, pressure relief valves, and compressors at the facility are subject to the provisions of NSPS, Subpart VVa, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006, and Subpart GGGa, Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006.

This change in conditions will not affect compliance with the NSPS.

NESHAPS

S2, Hydrogen Plant Furnace, is subject to 40 CFR 63, Subpart B, Requirements for Control Technology Determinations for Major Sources in Accordance With Clean Air Act Sections, Sections 112(g) and 112(j), and may be subject to 40 CFR 63, Subpart DDDDD, when the standard is finalized.

The furnace is in compliance because the BACT limit for CO will be lower than the CO limit in the NESHAPS.

Public School Notification

The facility is not within 1000 feet of a school, therefore, the application is not subject to public notification pursuant to BAAQMD Regulation 2-1-412, Public Notice, Schools.

BAAQMD Regulation 2, Rule 6, Major Facility Review

The facility is considered to be part of the ConocoPhillips facility, which is a major facility. Therefore, it requires a Major Facility Review (Title V) permit. The initial Title V permit was issued on March 4, 2010.

This change in conditions will be considered an administrative amendment to the Major Facility Review permit because only non-federally enforceable conditions will be changed.

The ammonia limits and the ammonia monitoring are not federally enforceable limits because they have been imposed pursuant to BAAQMD Regulation 2, Rule 5, New Source Review for Toxic Air Contaminants.

Section 2-6-201 defined “administrative amendment” as:

> A non-substantive amendment to a major facility review permit. The following amendments are administrative amendments: changes in recordkeeping format that are not relaxations of applicable requirements, the correction of typographical errors, changes in permit format that are not alterations of applicable requirements, changes in source descriptions that are not alterations of applicable requirements, changes in the descriptions of applicable requirements that add detail but do not affect substantive requirements, deletion of requirements containing sunset dates that have passed, the identification of administrative changes at a facility (such as a replacement of the facility's responsible official or a change in ownership or operational control of the facility which involves no physical or operational changes to the facility), the deletion of sources, the approval of a District rule into the SIP, the imposition of more frequent emission monitoring requirements, and changes to applicable requirements and related monitoring that are not federally enforceable.

PERMIT CONDITIONS

CONDITION 23178

S1, Hydrogen Plant

1. The production of S1, Hydrogen Plant, shall not exceed 120 MMscf H2/day, averaged over any consecutive 12-months. The owner/operator shall install and maintain a hydrogen flow monitor and a device that continuously records hydrogen flow. The hydrogen flow monitor shall be calibrated according to the manufacturer's instructions. The owner/operator shall maintain records of daily hydrogen output. [Cumulative Increase, 2-6-503]

2. The owner/operator of the electrical generator associated with the hydrogen plant shall not generate more than 12 MW at any time. The owner/operator shall ensure that the hydrogen plant or the refinery consumes all of the electricity that is produced by the generator. The owner/operator shall monitor electrical output and record any exceedances. [2-1-301, 2-1-305, 2-6-503]

3. The owner/operator shall not burn any fuel in the HRSG associated with the S1, Hydrogen Plant. [2-1-301, 2-1-305]

4. The owner/operator shall ensure that the emissions of POC from the deaerator vent at S1 do not exceed 4.35 lb/day. [2-1-301, 2-1-305, Cumulative Increase]

*5. The owner/operator shall ensure that the emissions of NH3 from the deaerator vent at S1 do not exceed 0.64 lb/hr. [Regulation 2, Rule 5]

6. The owner/operator shall ensure that the fugitive emissions of POC from the components (valves, flanges, pumps, compressors, connectors, sample points, etc.) at the hydrogen plant do not exceed 3,000 lb/year. [Cumulative Increase, 2-1-305]

7. Deleted Application 14738.

8. Deleted Application 14738.

9a. No later than 90 days from the startup of S1 and every year thereafter, the owner/operator shall conduct a District-approved source test to determine compliance with the limit in Part 4 for POC and the limit in BAAQMD Regulation 8-2-301. The owner/operator shall conduct the POC source tests in accordance with the Manual of Procedures, Volume IV, Method ST-7 or EPA Method 25 or 25A. The owner/operator shall submit the source test results to the District staff no later than 60 days after the source test. [Cumulative Increase, 2-1-305]

*9b. No later than 90 days from the startup of S1 and every year thereafter, the owner/operator shall conduct a District-approved source test to determine compliance with the limit in Part 5 for NH3. The owner/operator shall conduct the NH3 source tests in accordance with the Manual of

Procedures, Volume IV, Method ST-1B. The owner/operator shall submit the source test results to the District staff no later than 60 days after the source test. [Regulation 2, Rule 5]

10. The owner/operator shall ensure that all pressure relief devices on the process unit are vented to a fuel gas recovery system, furnace, or flare with a recovery/destruction efficiency of 98%. [BAAQMD and SIP 8-28-302, BACT]

Fugitive Components at S1, Hydrogen Plant, and S2, Hydrogen Plant Furnace

11a. The owner/operator shall equip all new light hydrocarbon control valves installed at S1 and S2 with live loaded packing systems and polished stems, or equivalent.
[BACT]

11b. The owner/operator shall comply with a leak standard of 100 ppm of TOC (measured as C1) at any new valve installed at S1 and S2. 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. [BACT, Regulation 8, Rule 18]

12. The owner/operator shall equip all new flanges/connectors installed in the light hydrocarbon piping systems at S1 and S2 with graphitic-based gaskets unless the service requirements prevent this material. [BACT]

13. The owner/operator shall equip all new hydrocarbon centrifugal compressors installed at S1 and S2 with "wet" dual mechanical seals with a heavy liquid barrier fluid, or dual dry gas mechanical seals buffered with inert gas. [BACT]

14. The owner/operator shall equip all new light hydrocarbon centrifugal pumps installed at S1 and S2 with a seal-less design or with dual mechanical seals with a heavy liquid barrier fluid, or equivalent. [BACT]

15. The owner/operator shall comply with a leak standard of 100 ppm of TOC (measured as C1) at any new pumps and/or compressors installed at S1 and S2. 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. [BACT]

16. The Owner/Operator shall submit a count of installed pumps, compressors, valves, and flanges/connectors every 180 days starting the startup date of the first unit, S1 or S2, until construction is complete. For flanges/connectors, the owner/operator shall also provide a count of the number of graphitic-based and non-graphitic gaskets used. The

owner/operator has been permitted to install fugitive components (948 valves in gas service, 48 valves in light liquid service, 4,193 flanges in gas service, 98 flanges in light liquid service, 5 pumps in light liquid service, 4 sample connections in gas service, 3 compressors in gas service) with a total POC emission rate of 1.5 ton/yr. The exact number of components may change without penalty. If there is an increase in the total fugitive component emissions, the plant's cumulative emissions for the project shall be adjusted to reflect the difference between emissions based on predicted versus actual component counts. The owner/operator shall provide to the District all additional required offsets at an offset ratio of 1.15:1 no later than 14 days after the submittal of the final POC fugitive equipment count. If the actual component count is less than the predicted, at the completion of the project, the total will be adjusted accordingly and all emission offsets applied by the owner/operator in excess of the actual total fugitive emissions will be credited back to owner/operator prior to issuance of the permits. [BACT, Cumulative Increase, Regulation 2, Rule 5]

17. Inspections

The owner/operator shall conduct inspections of new fugitive components installed at S1 and S2 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

[BACT, Regulation 8, Rule 18]

18. In order to determine compliance with part 6, the owner/operator shall determine the daily emissions of fugitive components within 90 days of start-up, and within 30 days of the end of every calendar quarter thereafter. The owner/operator shall use the last concentration measured in accordance with BAAQMD Regulation 8, Rule 18, for each component. The owner/operator shall use the equations in ARB publication California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities. [Cumulative Increase, Regulation 2-1-305]

CONDITION 23179

S2, Hydrogen Plant Furnace

1. S2 shall use only pressure swing adsorption (PSA) off gas, refinery fuel gas and pipeline quality natural gas as fuel. [Cumulative Increase]

2. Total fuel firing at S2 shall not exceed 9,636,000 MMbtu (HHV) over any consecutive 12-month period. [Cumulative Increase]

3. Total fuel firing at S2 shall not exceed 1,072 MMbtu (HHV) during any clock hour. [Cumulative Increase]

4. Deleted Application 14738.

5. The following emission concentration limits from S2 shall not be exceeded. These limits shall not apply during startup periods not exceeding 24 hours (120 hours when drying refractory or during the first startup following catalyst replacement) and shutdown periods not exceeding 24 hours. The District may approve other startup and shutdown durations.

   a. NOx: 5 ppmv @ 3% oxygen, averaged over any clock hour [BACT]
   b. CO: 10 ppmv @ 3% oxygen, averaged over any 1 hour period [BACT, 40 CFR 63.52(a)]
   c. POC: 0.0027 lb/MMbtu, averaged over any 1 hour period [BACT]
   d. PM10: 0.0037 lb/MMbtu, averaged over any 1 hour period [BACT]
   e. SO2: 0.0012 lb/MMbtu, averaged over any 1 hour period [BACT]

6. *The following emission concentration limits from S2 shall not be exceeded. NH3: 10 ppmv @ 3% oxygen (1 hr average) [Regulation 2, Rule 5]

7a. The following hourly mass emission limits from S2 shall not be exceeded. These limits shall not apply during startup periods not exceeding 24 hours (120 hours when drying refractory or during the first startup following catalyst replacement) and shutdown periods not exceeding 24 hours. The District may approve other startup and shutdown durations.

   1. NOx: 7.5 lb per clock hour [BACT]
   2. CO: 9.1 lb per clock hour [BACT]
   3. POC: 3.5 lb per clock hour [BACT]
   4. PM10: 4.8 lb per clock hour [BACT]
   5. SO2: 1.5 lb per clock hour [BACT]

7b. The following hourly mass emission limit from S2 shall not be exceeded.
   1. NOx: 50 lb per clock hour [BACT]

8. *The following hourly mass emission limit from S2 shall not be exceeded.
   a. NH3: 6.5 lb per clock hour
   [Regulation 2, Rule 5]

9. The following hourly mass emission limit from S2 shall not be exceeded.
   a. Sulfuric acid mist: 0.098 lb per clock hour
   [Regulation 2, Rule 5, PSD]

10. The following annual mass emission limits from S2 shall not be exceeded including periods of startup, shutdown, upset and malfunction:
   a. NOx: 28.1 tons per any consecutive 12 months
   [BACT, Cumulative Increase]
   b. CO: 34.2 tons per any consecutive 12 months
   [BACT, Cumulative Increase]

c. POC: 11.5 tons per any consecutive 12 months
[BACT, Cumulative Increase]
d. PM10: 13.8 tons per any consecutive 12 months
[BACT, Cumulative Increase]
e. SO2: 5.0 tons per any consecutive 12 months
[BACT, Cumulative Increase]

11. *The following annual mass emission limits from S2 shall not be exceeded including periods of startup, shutdown, upset and malfunction.
a. NH3: 48,200 lb per any consecutive 12 months
[Regulation 2, Rule 5]

12. The following annual mass emission limits from S2 shall not be exceeded including periods of startup, shutdown, upset and malfunction.
a. Sulfuric acid mist: 860 lb per any consecutive 12 months
[2-1-305, Regulation 2, Rule 5, PSD]

13. A1, SCR unit, shall abate the S2, Hydrogen Plant Furnace, at all times, with the following exceptions. Operation of A1 is not required for limited periods during startup and shutdown. S2 may operate without SCR abatement on a temporary basis for periods of planned or emergency maintenance. A District-approved NOx CEM shall monitor and record the S2 NOx emission rate whenever S2 operates without abatement. All emission limits applicable to S2 shall remain in effect even if it is not operated with SCR abatement. [BACT, Cumulative Increase]

14a. Deleted Application 14738.

14b. The owner/operator shall install a CEM for SO2 at the S2, Hydrogen Plant Furnace, stack. The monitor shall comply with BAAQMD Manual of Procedures, Volume V, and 40 CFR 60.107a(a)(1). The monitor shall be used to determine compliance with any SO2 limits in 40 CFR 60, Subpart Ja, the lb/MMbtu limit in part 5e, the hourly limit in part 7a, and the annual limits in part 10 and Condition 23181, part B.2.

15. Deleted Application 14738.

16. No later than 90 days from the startup of S2, the owner/operator shall conduct District-approved source tests to determine initial compliance with the limits in Parts 5, 7, and 9 for NOx, CO, POC, PM10, SO2, sulfuric acid mist, and POC. The owner/operator shall conduct the source tests in accordance with Part 18. The owner/operator shall submit the source test results to the District source test manager and the District Director of Compliance and Enforcement no later than 60 days after the source test. [BACT, Cumulative Increase, PSD]

*16a. No later than 90 days from the startup of S2, the owner/operator shall conduct District-approved source tests to determine initial compliance with the limits in Parts 6 and 8 for NH3. The owner/operator shall conduct the source tests in accordance with Part 18. The owner/operator shall submit

the source test results to the District source test manager and the District Director of Compliance and Enforcement no later than 60 days after the source test. [Regulation 2, Rule 5]

17. On an annual basis, the owner/operator shall conduct District-approved source tests to determine compliance with the limits in Parts 5c, 5d, 5e, 7a.3, 7a.4, 7a.5, and 9 for POC, PM10, SO2, and sulfuric acid mist. The owner/operator shall conduct the source tests in accordance with Part 18. The owner/operator shall submit the source test results to the District source test manager and the District Director of Compliance and Enforcement no later than 60 days after the source test. [BACT, Cumulative Increase, PSD, Regulation 2, Rule 5]

*17a. On an annual basis, the owner/operator shall conduct District-approved source tests to determine compliance with the limits in Parts 6, 8, and 21 for NH3. The owner/operator shall conduct the source tests in accordance with Part 18. The owner/operator shall submit the source test results to the District source test manager and the District Director of Compliance and Enforcement no later than 60 days after the source test. [Regulation 2, Rule 5]

18. The owner/operator shall submit protocols for all source test procedures to the District's Source Test Section prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements for continuous emissions monitors as specified in Volume V of the District's Manual of Procedures. The owner/operator shall notify the District's Source Test Section, in writing, of the source test protocols and projected test dates at least 7 days prior to testing. [BACT, Cumulative Increase, PSD, Regulation 2, Rule 5]

19. The following instruments shall be installed and maintained to demonstrate compliance with Parts 5a, 5b, 7a, 7b, 9a and 9b, BAAQMD Regulation 1-520 and 40 CFR 63.52:
    a. continuous NOx analyzer/recorder
    b. continuous CO analyzer/recorder
    c. continuous O2 or CO2 analyzer/recorder
    d. continuous SO2 analyzer/recorder
    The instruments shall operate at all times of operation of S2 including start-up, shutdown, upset, and malfunction, except as allowed by BAAQMD Regulation 1-522, BAAQMD Manual of Procedures, Volume V. If necessary to comply with this requirement, the owner/operator shall install dual-span monitors.
    [1-520, BACT, Cumulative Increase, 40 CFR 63.52(a)]

20. The owner/operator shall equip S2 with District-approved continuous fuel flow monitors and recorders on each fuel in order to determine fuel consumption. The owner/operator shall install, operate, maintain, and calibrate heating value analyzers and recorders for each fuel, except natural gas, to accurately measure the HHV of each fuel. The deadline for installation and calibration of the heating value analyzer for the PSA gas

shall be 9 months after the date of issuance of the Major Facility Review permit pursuant to Application 14738. Parametric monitors as defined in Regulation 1-238 are not acceptable. The fuel flow monitors and heating value analyzers shall be operated, maintained, and calibrated in accordance with the manufacturer's specifications. The owner/operator shall keep continuous fuel flow records for at least five years and shall make these records available to the District upon request. [Cumulative Increase]

*21. Ammonia (NH3) emission concentrations at the hydrogen plant stack shall not exceed 10 ppmv, on a dry basis, corrected to 3% O2, on a clock hour basis. This ammonia emission concentration shall be verified by annual source test required in part 17a of this condition. If the APCO determines that a reliable ammonia concentration monitor has become available, the APCO may require installation of an ammonia CEM at S2, Hydrogen Plant Furnace. (Regulation 2, Rule 5)

*22. The owner/operator shall operate and maintain a continuous flow monitor (during all hours of operation including start-up and shutdown periods) for the ammonia solution injection rate. The owner/operator shall record the ammonia solution injection rate every 15 minutes (excluding normal calibration periods) and shall summarize the ammonia solution injection rate for each clock hour. (Regulation 2, Rule 5)

*23. Compliance with annual ammonia limit: Within 60 days of start-up of the hydrogen plant furnace, the owner/operator shall conduct a District-approved source test on at the hydrogen plant stack to determine the corrected ammonia emission concentration to determine compliance with part 21. Source testing shall be repeated on an annual basis thereafter. Compliance with the annual limit in part 11 shall be determined by multiplying the hourly rate determined in the annual source test by the clock hours of operation. Compliance shall be determined for each 12-month period within 30 days of the end of each calendar month.

The owner/operator shall also calculate the emissions for each consecutive 3-month period within 30 days of the end of each calendar month. If the calculation determines that emissions of ammonia are greater than 12,050 lb for any 3-month period, the owner/operator shall perform a source test every quarter. In this case, the owner/operator shall use the hourly rate determined in the source test for calculation of the emissions starting on the date of the source test until the date of the next source test. The owner/operator may lower the frequency to annually after 4 consecutive tests below 5.5 lb ammonia per hour or after 4 consecutive quarters under 12,050 lb ammonia per quarter. Source test results shall be submitted to the District within 45 days of conducting the tests. (Regulation 2, Rule 5)

CONDITION 23180

S3, Hydrogen Plant Flare

1. The owner/operator shall ensure that only the following streams are sent to S3, Hydrogen Plant Flare:
   a. Hydrogen
   b. Syn-gas
   c. Venting from the ammonia tank
   d. PSA Offgas
   The owner/operator shall ensure that any feed for S1, Hydrogen Plant, or any fuel including natural gas that is provided to S2, Hydrogen Plant Furnace, is not flared in S3, Hydrogen Plant Flare.
   [2-1-305]

2. S3, Hydrogen Plant Flare, may be used during startup, shutdown, upset, or malfunction of S1, Hydrogen Plant, loss of the PSA process, PSA maintenance, contractual outage, and customer constraint, as long as the emissions do not exceed the limits in part 4. [2-1-305, Cumulative Increase]

3. The owner/operator shall install a flow meter to determine the flow of gases to the flare. The flow meter shall comply with the requirements for flow meters in BAAQMD Regulation 12, Rule 11. [Cumulative increase]

4. The owner/operator shall ensure that the emissions of S3, Hydrogen Plant Flare, do not exceed the following limits:
   a. NOx: 2.8 tons/any consecutive 12 months [Cumulative increase]
   b. CO: 12.1 tons/any consecutive 12 months [Cumulative increase]
   c. NOx: 129 lb/any consecutive 60 minutes [2-1-403, CAAQS]

5. The owner/operator shall estimate the emissions every month by using the flow data to the flare and estimating emissions using the emission factors provided in Application 13678. [Cumulative increase]

6. If the limits in parts 4a and 4b are exceeded, the owner/operator shall apply to increase the annual limit within 60 days of determining that the limit has been exceeded, and shall provide offsets for the increase in the limits. If the limit in part 4c is exceeded, the owner/operator shall determine using PSD modeling if the CAAQS or NAAQS for NO2 was exceeded during the event, and if so, shall report the exceedance to the BAAQMD Director of Enforcement and Compliance. [2-1-403, CAAQS, Cumulative increase]

7. For the purposes of these conditions, a flaring event is defined as a flow rate of vent gas flared in any consecutive 15 minutes period that continuously exceeds 330 standard cubic feet per minute (scfm). If during a flaring event, the vent gas flow rate drops below 330 scfm and then increases above 330 scfm within 30 minutes, that shall still be considered a single flaring event, rather than two separate events. For each flaring event during daylight hours (between sunrise and sunset), the owner/operator shall inspect the flare within 15 minutes of determining the flaring event, and within 30 minutes of the last inspection thereafter, using video monitoring or visible inspection following the procedure described in Part 8. [Regulation 2-6-409.2]

8. The owner/operator shall use the following procedure for the initial inspection and each 30-minute inspection of a flaring event.

a. If the owner/operator can determine that there are no visible emissions using video monitoring, then no further monitoring is necessary for that particular inspection.

b. If the owner/operator cannot determine that there are no visible emissions using video monitoring, the owner/operator shall conduct a visual inspection outdoors using either:

i. EPA Reference Method 9; or

ii. Survey the flare by selecting a position that enables a clear view of the flare at least 15 feet, but not more than 0.25 miles, from the emission source, where the sun is not directly in the observer's eyes.

c. If a visible emission is observed, the owner/operator shall continue to monitor the flare for at least 3 minutes, or until there are no visible emissions, whichever is shorter.

d. The owner/operator shall repeat the inspection procedure for the duration of the flaring event, or until a violation is documented in accordance with Part 9. After a violation is documented, no further inspections are required until the beginning of a new calendar day.
[Regulation 6-1-301, 2-1-403]

9. The owner/operator shall comply with one of the following requirements if visual inspection is used:

a. If EPA Method 9 is used, the owner/operator shall comply with Regulation 6-1-301 when operating the flare.

b. If the procedure of Part 8.b.ii is used, the owner/operator shall not operate a flare that has visible emissions for three consecutive minutes.
[Regulation 2-1-403]

10. The owner/operator shall keep records of all flaring events, as defined in Part 7. The owner/operator shall include in the records the name of the person performing the visible emissions check, whether video monitoring or visual inspection (EPA Method 9 or visual inspection procedure of Part 8) was used, the results of each inspection, and whether any violation of this condition (using visual inspection procedure in Part 8) or Regulation 6-301 occurred (using EPA Method 9). [Regulation 2-1-403]

11. Deleted Application 14738.

12. Deleted Application 14738.

CONDITION 23181

A. Facility Conditions

1. *The owner/operator shall notify the District in writing by fax or email no less than three calendar days in advance of any scheduled startup or shutdown of any process unit, and, for any unscheduled startup or shutdown of a process unit, within 48 hours or within the next normal business day. The notification shall be sent in writing by fax or email to the Director of Enforcement and Compliance. This requirement is not federally enforceable. [Regulation 2-1-403]

2. The owner/operator shall ensure that the concentration of ammonia in the ammonia tank is less than 20% by weight so that 40 CFR 68, Accidental Release, does not apply. [2-1-305]

B. Project Mass Emission Limits

1. Following are the sources that are subject to the project mass emission limits:
   S1, Hydrogen Plant including HRSG and steam turbine generator
   S2, Hydrogen Plant Furnace
   S3, Hydrogen Plant Flare
   [Cumulative Increase, 2-1-403]

2. The owner/operator shall ensure that the annual emissions of the above sources do not exceed the following annual emission limits, including periods of startup, shutdown, malfunction, and upset emissions.

a.	NOx	30.9 tpy [Cumulative Increase, 2-1-403]
b.	SO2	5.0 tpy [Cumulative Increase, 2-1-403]
c.	PM10	13.8 tpy [Cumulative Increase, 2-1-403]
d.	POC	13.9 tpy [Cumulative Increase, 2-1-403]
e.	CO	46.2 tpy [Cumulative Increase, 2-1-403]
f.	Sulfuric acid mist	0.43 tpy [PSD]
*g.	Ammonia	26.9 tpy [Regulation 2, Rule 5]

3. The owner/operator shall ensure that the daily emissions of the above sources do not exceed the following daily emission limit, including periods of startup, shutdown, malfunction, and upset emissions.

a.	Sulfuric acid mist	2.35 lb/day [PSD]

4. The owner/operator shall determine whether the emissions are below the allowable mass emissions for the above sources as shown below. The owner/operator calculate and report the emissions of NOX, SO2, PM10, POC, CO, ammonia, and sulfuric acid mist on an annual basis in the following manner.
   a. The owner/operator shall the use the POC emission rate determined by the annual source test data at the deaerator for S1.
   b. The owner/operator shall use the data generated by the BAAQMD Regulation 8, Rule 18, monitoring to determine the annual POC emission rate for the components.
   c. The owner/operator shall use the mass emissions data generated by the NOx and CO CEMs at S2.
   d. Deleted Application 14738.

e. The owner/operator shall use the CEM monitoring of SO2 at the outlet of the hydrogen plant furnace.

f. The owner/operator shall use the emission rates of sulfuric acid mist, PM10, POC, and CO determined in annual source tests at S2 in units of pounds of pollutant per MMbtu and the records of heat input to calculate emissions of sulfuric acid mist, PM10, POC, and CO.

*g. The owner/operator shall use the ammonia emission rates determined by source tests at S1 and S2 and the clock hours of operation ~~injection monitoring and the records of heat input~~ to calculate emissions of ammonia at S1 and S2.

h. The owner/operator shall use the calculations of flare emissions at S3 required by BAAQMD Condition 23180, part 5.

*i. In the case that ammonia is released to the flare, S3, the owner/operator shall prepare and submit an estimate of ammonia emissions from the flare to the District Engineering Division for approval. Upon approval of the calculation, the owner/operator shall add the resulting ammonia emissions to the annual total.

[2-1-305]

5. If the annual emissions, as determined in part B.4, are above the allowable emissions for the project, the owner/operator shall supply additional offsets, where applicable, and perform additional analysis for PSD, if necessary. The results of the analysis shall be submitted to the Director of Compliance and Enforcement on an annual basis on the anniversary of the startup of S2, Hydrogen Plant Furnace. [2-1-403]

6. The annual emissions of the following sources shall not exceed 16.3 tons PM10/yr: S45, S434, and S1010 at Facility A0016, and S2 and S3 at Facility B7419. If the emissions exceed 16.3 tons in any consecutive 12 month period, the owners/operators of Facilities A0016 and B7419 shall provide contemporaneous offsets of PM10 that comply with BAAQMD Regulations 2-2-201 and 2-2-605. [1-104, 2-2-304]

7. Deleted Application 14738

RECOMMENDATION

Issue a change in conditions 23178, 23179, and 23181 for the following equipment:

S1, Hydrogen Plant
S2, Hydrogen Plant Furnace
S3, Flare

By: _____ Date: _____

Brenda Cabral
Supervising Air Quality Engineer