PERMIT #70386
PLACE ID #2433

PERMITTEE:	**Praxair, Inc.**
FACILITY:	**Praxair, Inc. – Kingman Facility**
PERMIT TYPE	**Class II Air Quality Permit**
DATE ISSUED:	**TBD**
EXPIRY DATE:	**TBD**

SUMMARY

This Class II operating permit is issued to Praxair, Inc., the Permittee, for the continued operation of the chemical synthesis and repackaging facility. The facility is located in Mohave County at the intersection of I-40 and Griffith Road in Kingman, Arizona. This is a renewal of Permit No. 56187.

A permit is required in order to keep the facility's potential to emit (PTE), with controls, of hazardous air pollutants (HAPs) less than major source thresholds.

This permit is issued in accordance with Arizona Revised Statutes (ARS) 49-426. It contains requirements from Title 18, Chapter 2 of the A.A.C. and Title 40 of the Code of Federal Regulations. All definitions, terms, and conditions used in this permit conform to those in the Arizona Administrative Code R18-2-101 et. seq. (A.A.C.) and Title 40 of the Code of Federal Regulations (CFR), except as otherwise defined in this permit.

This page left blank intentionally

TABLE OF CONTENTS

ATTACHMENT "A": GENERAL PROVISIONS

I. PERMIT EXPIRATION AND RENEWAL

[ARS § 49-426.F, A.A.C. R18-2-304.D.2, and -306.A.1]

A. This permit is valid for a period of five (5) years from the date of issuance.

B. The Permittee shall submit an application for renewal of this permit at least six (6) months, but not more than eighteen (18) months, prior to the date of permit expiration.

II. COMPLIANCE WITH PERMIT CONDITIONS

A. The Permittee shall comply with all conditions of this permit including all applicable requirements of the Arizona Revised Statutes (A.R.S.) Title 49, Chapter 3, and the air quality rules under Title 18, Chapter 2 of the Arizona Administrative Code. Any permit noncompliance is grounds for enforcement action; for permit termination, revocation and reissuance, or revision; or for denial of a permit renewal application. In addition, noncompliance with any federally enforceable requirement constitutes a violation of the Clean Air Act.

[A.A.C. R18-2-306.A.8.a]

B. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

[A.A.C. R18-2-306.A.8.b]

III. PERMIT REVISION, REOPENING, REVOCATION AND REISSUANCE, OR TERMINATION FOR CAUSE

A. The permit may be revised, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit revision, revocation and reissuance, termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

[A.A.C. R18-2-306.A.8.c]

B. The permit shall be reopened and revised under any of the following circumstances:

1. The Director or the Administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit; or

[A.A.C. R18-2-321.A.1.c]

2. The Director or the Administrator determines that the permit needs to be revised or revoked to assure compliance with the applicable requirements.

[A.A.C. R18-2-321.A.1.d]

C. Proceedings to reopen and issue a permit, including appeal of any final action relating to a permit reopening, shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists. Such re-openings shall be made as expeditiously as practicable. Permit re-openings shall not result

in a resetting of the five-year permit term.

[A.A.C. R18-2-321.A.2]

IV. POSTING OF PERMIT

A. The Permittee shall post this permit or a certificate of permit issuance on location where the equipment is installed in such a manner as to be clearly visible and accessible. All equipment covered by this permit shall be clearly marked with one of the following:

1. Current permit number; or

[A.A.C. R18-2-315.A.1]

2. Serial number or other equipment ID number that is also listed in the permit to identify that piece of equipment.

[A.A.C. R18-2-315.A.2]

B. A copy of the complete permit shall be kept on site.

[A.A.C. R18-2-315.B]

V. FEE PAYMENT

The Permittee shall pay fees to the Director pursuant to ARS § 49-426(E) and A.A.C. R18-2-326.

[A.A.C. R18-2-306.A.9 and -326]

VI. ANNUAL EMISSION INVENTORY QUESTIONNAIRE

A. The Permittee shall complete and submit to the Director an annual emissions inventory questionnaire. The questionnaire is due by March 31st or ninety (90) days after the Director makes the inventory form available each year, whichever occurs later, and shall include emission information for the previous calendar year.

[A.A.C. R18-2-327.A]

B. The questionnaire shall be on a form provided by the Director and shall include the information required by A.A.C. R18-2-327.B.

[A.A.C. R18-2-327.B]

VII. COMPLIANCE CERTIFICATION

A. The Permittee shall submit a compliance certification to the Director semiannually which describes the compliance status of the source with respect to each permit condition. The certifications shall be submitted no later than May 15th and November 15th. The May 15th compliance certification shall report the compliance status of the source during the period between October 1st of the previous year and March 31st of the current year. The November 15th compliance certification shall report the compliance status of the source during the period between April 1st and September 30th of the current year.

[A.A.C. R18-2-309.2.a]

B. The compliance certifications shall include the following:

1. Identification of each term or condition of the permit that is the basis of the certification;

[A.A.C. R18-2-309.2.c.i]

2. Identification of the methods or other means used by the Permittee for determining

the compliance status with each term and condition during the certification period;
[A.A.C. R18-2-309.2.c.ii]

3. Status of compliance with the terms and conditions of the permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent. The certification shall be based on the methods or means designated in Condition VII.B.2 above. The certifications shall identify each deviation and take it into account in the compliance certification;
[A.A.C. R18-2-309.c.iii]

4. All instances of deviations from permit requirements reported pursuant to Condition XII.B of this Attachment; and

5. Other facts the Director may require determining the compliance status of the source.
[A.A.C. R18-2-309.c.iv]

C. A progress report on all outstanding compliance schedules shall be submitted every six months beginning six months after permit issuance.
[A.A.C. R18-2-309.5.d]

VIII. CERTIFICATION OF TRUTH, ACCURACY AND COMPLETENESS

Any document required to be submitted by this permit, including reports, shall contain a certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
[A.A.C. R18-2-304.I and -309.A.3]

IX. INSPECTION AND ENTRY

Upon presentation of proper credentials, the Permittee shall allow the Director or the authorized representative of the Director to:

A. Enter upon the Permittee's premises where a source is located, emissions-related activity is conducted, or where records are required to be kept under the conditions of the permit;
[A.A.C. R18-2-309.4.a]

B. Have access to and copy, at reasonable times, any records that are required to be kept under the conditions of the permit;
[A.A.C. R18-2-309.4.b]

C. Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
[A.A.C. R18-2-309.4.c]

D. Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements; and
[A.A.C. R18-2-309.4.d]

E. Record any inspection by use of written, electronic, magnetic and photographic media.
[A.A.C. R18-2-309.4.e]

X. PERMIT REVISION PURSUANT TO FEDERAL HAZARDOUS AIR POLLUTANT STANDARD

If this source becomes subject to a standard promulgated by the Administrator pursuant to Condition 112(d) of the Act, then the Permittee shall, within twelve months of the date on which the standard is promulgated, submit an application for a permit revision demonstrating how the source will comply with the standard.

[A.A.C. R18-2-304.D.3]

XI. ACCIDENTAL RELEASE PROGRAM

If this source becomes subject to the provisions of 40 CFR Part 68, then the Permittee shall comply with these provisions according to the time line specified in 40 CFR Part 68.

[40 CFR Part 68]

XII. EXCESS EMISSIONS, PERMIT DEVIATIONS, AND EMERGENCY REPORTING

A. Excess Emissions Reporting

1. Excess emissions shall be reported as follows:

a. The Permittee shall report to the Director any emissions in excess of the limits established by this permit. Such report shall be in two parts as specified below:

[A.A.C. R18-2-310.01.A]

(1) Notification by telephone or facsimile within 24 hours of the time when the Permittee first learned of the occurrence of excess emissions including all available information from Condition XII.A.1.b below.

[A.A.C. R18-2-310.01.A.1]

(2) Detailed written notification by submission of an excess emissions report within 72 hours of the notification pursuant to Condition XII.A.1.a(1) above.

[A.A.C. R18-2-310.01.A.2]

b. The excess emission report shall contain the following information:

[A.A.C. R18-2-310.01.B]

(1) Identity of each stack or other emission point where the excess emissions occurred;

[A.A.C. R18-2-310.01.B.1]

(2) Magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions;

[A.A.C. R18-2-310.01.B.2]

(3) Date, time and duration, or expected duration, of the excess emissions;

[A.A.C. R18-2-310.01.B.3]

(4) Identity of the equipment from which the excess emissions emanated;

[A.A.C. R18-2-310.01.B.4]

(5) Nature and cause of the emissions;

[A.A.C. R18-2-310.01.B.5]

(6) If the excess emissions were the result of a malfunction, steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunctions;

[A.A.C. R18-2-310.01.B.6]

(7) Steps that were or are being taken to limit the excess emissions; and

[A.A.C. R18-2-310.01.B.7]

(8) If the excess emissions resulted from start-up or malfunction, the report shall contain a list of the steps taken to comply with the permit procedures.

[A.A.C. R18-2-310.01.B.8]

2. In the case of continuous or recurring excess emissions, the notification requirements of this Condition shall be satisfied if the source provides the required notification after excess emissions are first detected and includes in such notification an estimate of the time the excess emissions will continue. Excess emissions occurring after the estimated time period, or changes in the nature of the emissions as originally reported, shall require additional notification pursuant to Condition XII.A.1 above.

[A.A.C. R18-2-310.01.C]

B. Permit Deviations Reporting

The Permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. Where the applicable requirement contains a definition of prompt or otherwise specifies a timeframe for reporting deviations, that definition or timeframe shall govern. Where the applicable requirement does not address the timeframe for reporting deviations, the Permittee shall submit reports of deviations according to the following schedule:

[A.A.C. R18-2-306.A.5.b]

1. Notice that complies with A.A.C. R18-2-310.01.A is prompt for deviations that constitute excess emissions;

[A.A.C. R18-2-306.A.5.b.i]

2. Notice regarding upset conditions, which are defined as malfunctions or breakdowns of pollution control equipment, continuous emissions monitoring systems (CEMS), or continuous opacity monitoring systems (COMS) that are submitted within two working days of discovery shall be considered prompt; and

[A.A.C. R18-2-306.A.5.b.ii]

3. Except as provided in Condition XII.B.1and XII.B.2, prompt notification of all other types of deviations shall be every 6-months, concurrent with the semi-annual

compliance certifications required in Condition VII, and can be submitted on the annual/semiannual deviation monitoring report form located on the Arizona Department of Environmental Quality Website.

[A.A.C. R18-2-306.A.5.a]

C. Emergency Provision

1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the Permittee, including acts of God, that require immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error. [A.A.C. R18-2-306.E.1]

2. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if Condition XII.C.3 below is met.

[A.A.C. R18-2-306.E.2]

3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

[A.A.C. R18-2-306.E.3]

a. An emergency occurred and that the Permittee can identify the cause(s) of the emergency;

[A.A.C. R18-2-306.E.3.a]

b. At the time of the emergency, the permitted facility was being properly operated;

[A.A.C. R18-2-306.E.3.b]

c. During the period of the emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and

[A.A.C. R18-2-306.E.3.c]

d. The Permittee submitted notice of the emergency to the Director by certified mail, facsimile, or hand delivery within two working days of the time when emission limitations were exceeded due to the emergency. This notice shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective action taken.

[A.A.C. R18-2-306.E.3.d]

4. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

[A.A.C. R18-2-306.E.4]

5. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

[A.A.C. R18-2-306.E.5]

D. Affirmative Defenses for Excess Emissions Due to Malfunctions, Startup, and Shutdown

1. Applicability

A.A.C. R18-2-310 establishes affirmative defenses for certain emissions in excess of an emission standard or limitation and applies to all emission standards or limitations except for standards or limitations:

[A.A.C. R18-2-310.A]

a. Promulgated pursuant to Conditions 111 or 112 of the Act;

[A.A.C. R18-2-310.A.1]

b. Promulgated pursuant to Titles IV or VI of the Clean Air Act;

[A.A.C. R18-2-310.A.2]

c. Contained in any Prevention of Significant Deterioration (PSD) or New Source Review (NSR) permit issued by the U.S. EPA;

[A.A.C. R18-2-310.A.3]

d. Contained in A.A.C. R18-2-715.F; or

[A.A.C. R18-2-310.A.4]

e. Included in a permit to meet the requirements of A.A.C. R18-2-406.A.5.

[A.A.C. R18-2-310.A.5]

2. Affirmative Defense for Malfunctions

Emissions in excess of an applicable emission limitation due to malfunction shall constitute a violation. When emissions in excess of an applicable emission limitation are due to a malfunction, the Permittee has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the Permittee has complied with the reporting requirements of A.A.C. R18-2-310.01 and has demonstrated all of the following:

[A.A.C. R18-2-310.B]

a. The excess emissions resulted from a sudden and unavoidable breakdown of process equipment or air pollution control equipment beyond the reasonable control of the Permittee;

[A.A.C. R18-2-310.B.1]

b. The air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;

[A.A.C. R18-2-310.B.2]

c. If repairs were required, the repairs were made in an expeditious fashion when the applicable emission limitations were being exceeded. Off-shift labor and overtime were utilized where practicable to ensure that the repairs were made as expeditiously as possible. If off-shift labor and overtime were not utilized, the Permittee satisfactorily demonstrated that the measures were impracticable;

[A.A.C. R18-2-310.B.3]

d. The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during

periods of such emissions;

[A.A.C. R18-2-310.B.4]

e. All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;

[A.A.C. R18-2-310.B.5]

f. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance;

[A.A.C. R18-2-310.B.6]

g. During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in Title 18, Chapter 2, Article 2 of the Arizona Administrative Code that could be attributed to the emitting source;

[A.A.C. R18-2-310.B.7]

h. The excess emissions did not stem from any activity or event that could have been foreseen and avoided, or planned, and could not have been avoided by better operations and maintenance practices;

[A.A.C. R18-2-310.B.8]

i. All emissions monitoring systems were kept in operation if at all practicable; and

[A.A.C. R18-2-310.B.9]

j. The Permittee's actions in response to the excess emissions were documented by contemporaneous records.

[A.A.C. R18-2-310.B.10]

3. Affirmative Defense for Startup and Shutdown

a. Except as provided in Condition XII.D.3.b below, and unless otherwise provided for in the applicable requirement, emissions in excess of an applicable emission limitation due to startup and shutdown shall constitute a violation. When emissions in excess of an applicable emission limitation are due to startup and shutdown, the Permittee has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the Permittee has complied with the reporting requirements of A.A.C. R18-2-310.01 and has demonstrated all of the following:

[A.A.C. R18-2-310.C.1]

(1) The excess emissions could not have been prevented through careful and prudent planning and design;

[A.A.C. R18-2-310.C.1.a]

(2) If the excess emissions were the result of a bypass of control equipment, the bypass was unavoidable to prevent loss of life, personal injury, or severe damage to air pollution control equipment, production equipment, or other property;

[A.A.C. R18-2-310.C.1.b]

(3) The air pollution control equipment, process equipment, or

processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;

[A.A.C. R18-2-310.C.1.c]

(4) The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;

[A.A.C. R18-2-310.C.1.d]

(5) All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;

[A.A.C. R18-2-310.C.1.e]

(6) During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in Title 18, Chapter 2, Article 2 of the Arizona Administrative Code that could be attributed to the emitting source; [A.A.C. R18-2-310.C.1.f]

(7) All emissions monitoring systems were kept in operation if at all practicable; and

[A.A.C. R18-2-310.C.1.g]

(8) Contemporaneous records documented the Permittee's actions in response to the excess emissions.

[A.A.C. R18-2-310.C.1.h]

b. If excess emissions occur due to a malfunction during routine startup and shutdown, then those instances shall be treated as other malfunctions subject to Condition XII.D.2 above.

[A.A.C. R18-2-310.C.2]

4. Affirmative Defense for Malfunctions during Scheduled Maintenance

If excess emissions occur due to a malfunction during scheduled maintenance, then those instances will be treated as other malfunctions subject to Condition XII.D.2 above.

[A.A.C. R18-2-310.D]

5. Demonstration of Reasonable and Practicable Measures

For an affirmative defense under Condition XII.D.2 or 3 above, the Permittee shall demonstrate, through submission of the data and information required by Condition XII.D and A.A.C. R18-2-310.01, that all reasonable and practicable measures within the Permittee's control were implemented to prevent the occurrence of the excess emissions.

[A.A.C. R18-2-310.E]

XIII. RECORDKEEPING REQUIREMENTS

A. The Permittee shall keep records of all required monitoring information including, but not limited to, the following:

[A.A.C. R18-2-306.A.4.a]

1. The date, place as defined in the permit, and time of sampling or measurements;

[A.A.C. R18-2-306.A.4.a.i]

2. The date(s) analyses were performed; [A.A.C. R18-2-306.A.4.a.ii]

3. The name of the company or entity that performed the analyses; [A.A.C. R18-2-306.A.4.a.iii]

4. A description of the analytical techniques or methods used; [A.A.C. R18-2-306.A.4.a.iv]

5. The results of such analyses; and [A.A.C. R18-2-306.A.4.a.v]

6. The operating conditions as existing at the time of sampling or measurement. [A.A.C. R18-2-306.A.4.a.vi]

B. The Permittee shall retain records of all required monitoring data and support information for a period of at least five (5) years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings or other data recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.
[A.A.C. R18-2-306.A.4.b]

XIV. REPORTING REQUIREMENTS

[A.A.C. R18-2-306.A.5.a and b]

The Permittee shall submit the following reports:

A. Compliance certifications in accordance with Condition VII of this Attachment.
[A.A.C. R18-2-306.A.5.a]

B. Excess emission, permit deviation, and emergency reports in accordance with Condition XII of this Attachment.
[A.A.C. R18-2-306.A.5.b]

C. Other reports required by any condition of Attachment "B."

XV. DUTY TO PROVIDE INFORMATION

A. The Permittee shall furnish to the Director, within a reasonable time, any information that the Director may request in writing to determine whether cause exists for revising, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. Upon request, the Permittee shall also furnish to the Director copies of records required to be kept by the permit. For information claimed to be confidential, the Permittee shall furnish an additional copy of such records directly to the Administrator along with a claim of confidentiality.
[A.A.C. R18-2-306.A.8.e]

B. If the Permittee has failed to submit any relevant facts or has submitted incorrect information in the permit application, the Permittee shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information.
[A.A.C. R18-2-304.H]

XVI. PERMIT AMENDMENT OR REVISION

The Permittee shall apply for a permit amendment or revision for changes to the facility which does not qualify for a facility change without revision under Condition XVII below, as follows:

A. Facility Changes that Require a Permit Revision - Class II (A.A.C. R18-2-317.01);
[A.A.C. R18-2-317.01]

B. Administrative Permit Amendment (A.A.C. R18-2-318);
[A.A.C. R18-2-318]

C. Minor Permit Revision (A.A.C. R18-2-319); and
[A.A.C. R18-2-319]

D. Significant Permit Revision (A.A.C. R18-2-320).
[A.A.C. R18-2-320]

The applicability and requirements for such action are defined in the above referenced regulations.

XVII. FACILITY CHANGE WITHOUT A PERMIT REVISION

A. Except for a physical change or change in the method of operation at a Class II source requiring a permit revision under A.A.C. R18-2-317.01, or a change subject to logging or notice requirements in Conditions XVII.B and C below, a change at a Class II source shall not be subject to revision, notice, or logging requirements under this Condition.
[A.A.C. R18-2-317.02.A]

B. Except as otherwise provided in the conditions applicable to an emissions cap created under A.A.C. R18-2-306.02, the following changes may be made if the Permittee keeps on site records of the changes according to Appendix 3 of the Arizona Administrative Code:
[A.A.C. R18-2-317.02.B]

1. Implementing an alternative operating scenario, including raw materials changes;
[A.A.C. R18-2-317.02.B.1]

2. Changing process equipment, operating procedures, or making any other physical change if the permit requires the change to be logged;
[A.A.C. R18-2-317.02.B.2]

3. Engaging in any new insignificant activity listed in A.A.C. R18-2-101.68 but not listed in the permit;
[A.A.C. R18-2-317.02.B.3]

4. Replacing an item of air pollution control equipment listed in the permit with an identical (same model, different serial number) item. The Director may require verification of efficiency of the new equipment by performance tests; and
[A.A.C. R18-2-317.02.B.4]

5. A change that results in a decrease in actual emissions if the source wants to claim credit for the decrease in determining whether the source has a net emissions increase for any purpose. The logged information shall include a description of the change that will produce the decrease in actual emissions. A decrease that has not been logged is creditable only if the decrease is quantifiable, enforceable, and

otherwise qualifies as a creditable decrease.

[A.A.C. R18-2-317.02.B.5]

C. Except as provided in the conditions applicable to an emissions cap created under A.A.C. R18-2-306.02, the following changes may be made if the source provides written notice to the Department in advance of the change as provided below:

[A.A.C. R18-2-317.02.C]

1. Replacing an item of air pollution control equipment listed in the permit with one that is not identical but that is substantially similar and has the same or better pollutant removal efficiency: 7 days. The Director may require verification of efficiency of the new equipment by performance tests;

[A.A.C. R18-2-317.02.C.1]

2. A physical change or change in the method of operation that increases actual emissions more than 10% of the major source threshold for any conventional pollutant but does not require a permit revision: 7 days;

[A.A.C. R18-2-317.02.C.2]

3. Replacing an item of air pollution control equipment listed in the permit with one that is not substantially similar but that has the same or better efficiency: 30 days. The Director may require verification of efficiency of the new equipment by performance tests;

[A.A.C. R18-2-317.02.C.3]

4. A change that would trigger an applicable requirement that already exists in the permit: 30 days unless otherwise required by the applicable requirement;

[A.A.C. R18-2-317.02.C.4]

5. A change that amounts to reconstruction of the source or an affected facility: 7 days. For the purposes of this Condition, reconstruction of a source or an affected facility shall be presumed if the fixed capital cost of the new components exceeds 50% of the fixed capital cost of a comparable entirely new source or affected facility and the changes to the components have occurred over the 12 consecutive months beginning with commencement of construction; and

[A.A.C. R18-2-317.02.C.5]

6. A change that will result in the emissions of a new regulated air pollutant above an applicable regulatory threshold but that does not trigger a new applicable requirement for that source category: 30 days. For purposes of this requirement, an applicable regulatory threshold for a conventional air pollutant shall be 10% of the applicable major source threshold for that pollutant.

[A.A.C. R18-2-317.02.C.6]

D. For each change under Condition XVII.C above, the written notice shall be by certified mail or hand delivery and shall be received by the Director the minimum amount of time in advance of the change. Notifications of changes associated with emergency conditions, such as malfunctions necessitating the replacement of equipment, may be provided with less than required notice, but must be provided as far in advance of the change, or if advance notification is not practicable, as soon after the change as possible. The written notice shall include:

[A.A.C. R18-2-317.02.D]

1. When the proposed change will occur;

[A.A.C. R18-2-317.02.D.1]

2. A description of the change;

[A.A.C. R18-2-317.02.D.2]

3. Any change in emissions of regulated air pollutants; and

[A.A.C. R18-2-317.02.D.3]

4. Any permit term or condition that is no longer applicable as a result of the change.

[A.A.C. R18-2-317.02.D.4]

E. A source may implement any change in Condition XVII.C above without the required notice by applying for a minor permit revision under A.A.C. R18-2-319 and complying with A.A.C. R18-2-319.D(2) and G.

[A.A.C. R18-2-317.02.E]

F. The permit shield described in A.A.C. R18-2-325 shall not apply to any change made under this Condition, other than implementation of an alternate operating scenario under Condition XVII.B.1 above.

[A.A.C. R18-2-317.02.F]

G. Notwithstanding any other part of this Condition, the Director may require a permit to be revised for any change that, when considered together with any other changes submitted by the same source under this Condition over the term of the permit, constitutes a change under Condition A.A.C. R18-2-317.01.A.

[A.A.C. R18-2-317.02.G]

H. If a source change is described under both Conditions XVII.B and C above, the source shall comply with Condition XVII.C above. If a source change is described under both Condition XVII.C above and A.A.C. R18-2-317.01.B, the source shall comply with A.A.C. R18-2-317.01.B.

[A.A.C. R18-2-317.02.H]

I. A copy of all logs required under Condition XVII.B above shall be filed with the Director within 30 days after each anniversary of the permit issuance date. If no changes were made at the source requiring logging, a statement to that effect shall be filed instead.

[A.A.C. R18-2-317.02.I]

J. Logging Requirements

[Arizona Administrative Code, Appendix 3]

1. Each log entry required by a change under Condition XVII.B above shall include at least the following information:

   a. A description of the change, including:

      (1) A description of any process change;

      (2) A description of any equipment change, including both old and new equipment descriptions, model numbers, and serial numbers, or any other unique equipment ID number; and

      (3) A description of any process material change.

b. The date and time that the change occurred.

c. The provision of A.A.C. R18-2-317.02.B that authorizes the change to be made with logging.

d. The date the entry was made and the first and last name of the person making the entry.

2. Logs shall be kept for five (5) years from the date created. Logging shall be performed in indelible ink in a bound log book with sequentially number pages, or in any other form, including electronic format, approved by the Director.

XVIII. TESTING REQUIREMENTS

A. The Permittee shall conduct performance tests as specified in the permit and at such other times as may be required by the Director.

[A.A.C. R18-2-312]

B. Operational Conditions during Performance Testing

Performance tests shall be conducted under such conditions as the Director shall specify to the plant operator based on representative performance of the source. The Permittee shall make available to the Director such records as may be necessary to determine the conditions of the performance tests. Operations during periods of start-up, shutdown, and malfunction (as defined in A.A.C. R18-2-101) shall not constitute representative conditions of performance tests unless otherwise specified in the applicable standard.

[A.A.C. R18-2-312.C]

C. Performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in the Arizona Testing Manual unless modified by the Director pursuant to A.A.C. R18-2-312.B.

[A.A.C. R18-2-312.B]

D. Test Plan

At least 14 working days prior to performing a test, the Permittee shall submit a test plan to the Director in accordance with the Arizona Testing Manual. This test plan must include the following:

1. Test duration;

2. Test location(s);

3. Test method(s); and

4. Source operation and other parameters that may affect test results.

[A.A.C. R18-2-312.D]

E. Stack Sampling Facilities

The Permittee shall provide, or cause to be provided, performance testing facilities as follows:

[A.A.C. R18-2-312.E]

1. Sampling ports adequate for test methods applicable to the facility;

[A.A.C. R18-2-312.E.1]

2. Safe sampling platform(s);

[A.A.C. R18-2-312.E.2]

3. Safe access to sampling platform(s); and

[A.A.C. R18-2-312.E.3]

4. Utilities for sampling and testing equipment.

[A.A.C. R18-2-312.E.4]

F. Interpretation of Final Results

Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic mean of the results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs is required to be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control, compliance may, upon the Director's approval, be determined using the arithmetic mean of the results of the other two runs. If the Director or the Director's designee is present, tests may only be stopped with the Director's or such designee's approval. If the Director or the Director's designee is not present, tests may only be stopped for good cause. Good cause includes: forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control. Termination of any test without good cause after the first run is commenced shall constitute a failure of the test. Supporting documentation, which demonstrates good cause, must be submitted.

[A.A.C. R18-2-312.F]

G. Report of Final Test Results

A written report of the results of performance tests conducted pursuant to 40 CFR 63, shall be submitted to the Director within 60 days after the test is performed. A written report of the results of all other performance tests shall be submitted within 30 days after the test is performed or as otherwise provided in the Arizona Testing Manual. All performance testing reports shall be submitted in accordance with the Arizona Testing Manual and A.A.C. R18-2-312.A.

[A.A.C. R18-2-312.A]

H. Extension of Performance Test Deadline

For performance testing required under Condition XVIII.A above, the Permittee may request an extension to a performance test deadline due to a force majeure event as follows:

[A.A.C. R18-2-312.J]

1. If a force majeure event is about to occur, occurs, or has occurred for which the Permittee intends to assert a claim of force majeure, the Permittee shall notify the

Director in writing as soon as practicable following the date the Permittee first knew, or through due diligence should have known that the event may cause or caused a delay in testing beyond the regulatory deadline. The notification must occur before the performance test deadline unless the initial force majeure or a subsequent force majeure event delays the notice, and in such cases, the notification shall be given as soon as practicable.

[A.A.C. R18-2-312.J.1]

2. The Permittee shall provide to the Director a written description of the force majeure event and a rationale for attributing the delay in testing beyond the regulatory deadline to the force majeure; describe the measures taken or to be taken to minimize the delay; and identify a date by which the Permittee proposes to conduct the performance test. The performance test shall be conducted as soon as practicable after the force majeure event occurs.

[A.A.C. R18-2-312.J.2]

3. The decision as to whether or not to grant an extension to the performance test deadline is solely within the discretion of the Director. The Director shall notify the Permittee in writing of approval or disapproval of the request for an extension as soon as practicable.

[A.A.C. R18-2-312.J.3]

4. Until an extension of the performance test deadline has been approved by the Director under subsections XVIII.H.1, 2, and 3 of this Condition, the Permittee remains subject to the requirements of Condition XVIII.

[A.A.C. R18-2-312.J.4]

5. For purposes of this Condition, a "force majeure event" means an event that will be or has been caused by circumstances beyond the control of the Permittee, its contractors, or any entity controlled by the Permittee that prevents it from complying with the regulatory requirement to conduct performance tests within the specified timeframe despite the Permittee's best efforts to fulfill the obligation. Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazard beyond the control of the Permittee.

[A.A.C. R18-2-312.J.5]

XIX. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

[A.A.C. R18-2-306.A.8.d]

XX. SEVERABILITY CLAUSE

The provisions of this permit are severable. In the event of a challenge to any portion of this permit, or if any portion of this permit is held invalid, the remaining permit conditions remain valid and in force.

[A.A.C. R18-2-306.A.7]

XXI. PERMIT SHIELD

Compliance with the conditions of this permit shall be deemed compliance with all applicable requirements identified in the portions of this permit subtitled "Permit Shield". The permit shield shall not apply to any minor revisions pursuant to Condition XVI.C of this Attachment and any

facility changes without a permit revision pursuant to Condition XVII of this Attachment.

[A.A.C. R18-2-325]

XXII. PROTECTION OF STRATOSPHERIC OZONE

If this source becomes subject to the provisions of 40 CFR Part 82, then the Permittee shall comply with these provisions accordingly.

[40 CFR Part 82]

XXIII. APPLICABILITY OF NSPS/NESHAP GENERAL PROVISIONS

For all equipment subject to a New Source Performance Standard or a National Emission Standard for Hazardous Air Pollutants, the Permittee shall comply with all applicable requirements contained in Subpart A of Title 40, Chapter 60 and Chapter 63 of the Code of Federal Regulations respectively.

[40 CFR 60, Subpart A and 40 CFR 63, Subpart A]

ATTACHMENT "B": SPECIFIC CONDITIONS

I. FACILITY-WIDE REQUIREMENTS

A. Opacity

1. Instantaneous Surveys and Six-Minute Observations

a. Instantaneous Surveys

Any instantaneous survey required by this permit shall be determined by either option listed in Conditions I.A.1.a(1) and I.A.1.a(2):

(1) Alternative Method ALT-082 (Digital Camera Operating Technique)

(a) The Permittee, or Permittee representative, shall be certified in the use of Alternative Method ALT-082.

(b) The results of all instantaneous surveys and six-minute observations shall be obtained within 30 minutes.
[A.A.C. R18-2-311.b]

(2) EPA Reference Method 9 Certified Observer.
[A.A.C. R18-2-306.A.3.c]

b. Six-Minute Observations

Any six-minute observation required by this permit shall be determined by either option listed in Conditions I.A.1.b(1) and I.A.1.b(2):

(1) Alternative Method ALT-082 (Digital Camera Operating Technique)

(a) The Permittee, or Permittee representative, shall be certified in the use of Alternative Method ALT-082.

(b) The results of all instantaneous surveys and six-minute observations shall be obtained within 30 minutes.
[A.A.C. R18-2-311.b]

(2) EPA Reference Method 9.

c. EPA Reference Method 9 Observer

The Permittee shall have on site or on call a person certified in EPA Reference Method 9 unless all instantaneous visual surveys and six-minute observations required by this permit are conducted by Alternative Method ALT-082.
[A.A.C. R18-2-306.A.3.c]

2. Monitoring, Recordkeeping, and Reporting Requirements

a. At the frequency specified in the following sections of this permit, the Permittee shall conduct an instantaneous survey of visible emissions from both process stack sources, when in operation, and fugitive dust sources.

b. If the plume on an instantaneous basis appears less than or equal to the applicable opacity standard, then the Permittee shall keep a record of the name of the observer, the date on which the instantaneous survey was made, and the results of the instantaneous survey.

c. If the plume on an instantaneous basis appears greater than the applicable opacity standard, then the Permittee shall immediately conduct a six-minute observation of the plume.

(1) If the six-minute observation of the plume is less than or equal to the applicable opacity standard, then the Permittee shall record the name of the observer, the date on which the six-minute observation was made, and the results of the six-minute observation.

(2) If the six-minute observation of the plume is greater than the applicable opacity standard, then the Permittee shall do the following:

(a) Adjust or repair the controls or equipment to reduce opacity to less than or equal to the opacity standard;

(b) Record the name of the observer, the date on which the six-minute observation was made, the results of the six-minute observation, and all corrective action taken; and

(c) Report the event as an excess emission for opacity in accordance with Condition XII.A of Attachment "A".

(d) Conduct another six-minute observation to document the effectiveness of the adjustments or repairs completed.

[A.A.C. R18-2-306.A.3.c]

B. Operating Limitations

1. The Permittee shall operate and maintain all equipment listed in Attachment "D" in accordance with the Operation and Maintenance Plan.

[A.A.C. R18-2-306.A.2]

2. Recordkeeping Requirements

a. The Permittee shall maintain records of the Operation and Maintenance Plan for all equipment listed in Attachment "D". These records shall be kept on-site.

[A.A.C. R18-2-306.A.4]

b. All records, analyses and reports that are required by this permit shall be

retained for a minimum of five years from the date of generation. The most recent two years of data shall be kept on-site.

[A.A.C. R18-2-306.A.4]

3. Reporting Requirements

The Permittee shall submit reports of all monitoring activities required in Attachment "B" along with the compliance certifications required by Section VII of Attachment "A."

C. Ambient Monitoring System Requirements

1. *The Permittee shall operate and maintain the Vertex monitoring system in accordance with the Ambient Air Monitoring Plan incorporated herein as Appendix A.*

2. Any one-hour average fenceline concentration of arsine exceeding 7.5 parts per billion (ppb) shall be reported as described below.

3. Reportable alarms resulting from the fenceline monitors shall be reported as follows:

a. The Permittee shall report to the Director any reportable alarms resulting from the monitors. Such report shall be in two parts as specified below:

(1) Notification by telephone or facsimile within 24 hours of the time when the Permittee first learned of the reportable alarm event including all available information from Condition I.C.3.b below.

(2) Detailed written notification by submission of a report within 72 hours of the notification pursuant to Condition I.C.3.a(1) above.

b. The report shall contain the following information:

(1) Identity of each monitor involved in the reportable alarm event;

(2) Magnitude of the pollutant concentration detected by the monitor(s);

(3) Date, time and duration, or expected duration, of the reportable alarm event;

(4) Identity of the equipment from which the pollutant(s) emanated;

(5) Nature and cause of such emissions;

(6) If the reportable alarm event was the result of a malfunction, steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunctions; and

(7) Steps taken to reduce concentrations below the reportable alarm threshold. If the reportable alarm event resulted from start-up or malfunction, the report shall contain a list of the steps taken to

comply with the permit procedures.

4. In the case of continuous or recurring reportable alarm events, the notification requirements of this section shall be satisfied if the source provides the required notification after reportable alarm events occur and includes in such notification an estimate of the time the reportable alarm event will continue. Reportable alarm events occurring after the estimated time period, or changes in the nature of the emissions as originally reported, shall require additional notification pursuant to Condition I.C.3 above.

[A.A.C. R18-2-306.A.3.c and -331.A.3.c]
[Material permit conditions are indicated by underline and italics]

II. SYNTHESIS AND HANDLING OPERATIONS

This section applies to the synthesis and/or handling of arsine, diborane, diethyltelluride, phosphine, silane, dichlorosilane, ammonia, silicon tetrafluoride, germanium tetrafluoride, silicon tetrachloride, enriched boron 11 triflouride, boron trifluoride, carbon tetrafluoride, carbon monoxide, methyl fluoride, fluorine, methyl bromide, methyl iodide, dichloromethane, and any mixtures thereof.

A. Particulate Matter and Opacity

1. Emission Limitations and Standards

a. The opacity of any plume or effluent from any stack shall not be greater than 20%.

[A.A.C. R18-2-702.B.3]

b. If the presence of uncombined water is the only reason for an exceedance of any visible emissions requirement in Condition II.A.1.a, the exceedance shall not constitute a violation of the applicable opacity limit.

[A.A.C. R18-2-702.C]

c. In any one hour period, the Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere in excess of the amounts calculated by the following equations:

(1) For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$E = 4.1P^{0.67}$

E = the maximum allowable particulate emission rate in pounds-mass per hour

P = the process weight rate in tons-mass per hour

[A.A.C. R18-2-730.A.1.a]

(2) For process sources having a process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

$E = 55.0P^{0.11} - 40$

Where E and P are defined as indicated in Condition II.A.1.c(1) above.

[A.A.C. R18-2-730.A.1.b]

d. When applying the process weight rate equations, the Permittee shall utilize the total process weight from all similar units employing a similar type process to determine the maximum allowable emissions of particulate matter.

[A.A.C. R18-2-730.B]

2. Air Pollution Controls

a. Arsine Baghouse 1

(1) *The Permittee shall operate* and maintain *Arsine Baghouse 1 to capture particulate matter emissions from the Arsine Guardian 1 combustion unit in a manner consistent with good air pollution control practices.*

(2) *The effluent of Arsine Baghouse 1 shall be directed to the Ventilation Emergency Scrubber 1 (VES-1).*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

b. Arsine Baghouse 2

(1) *The Permittee shall operate* and maintain *Arsine Baghouse #2 to capture particulate matter emissions from the Arsine Guardian 2 combustion unit in a manner consistent with good air pollution control practices.*

(2) *The effluent of Arsine Baghouse #2 shall be directed to the Ventilation Emergency Scrubber 1 (VES-1).*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

c. Phosphine Dynawave Wet Scrubber

(1) *The Permittee shall operate* and maintain *Phosphine Dynawave Wet Scrubber to capture particulate matter emissions from the Phosphine Guardian combustion unit in a manner consistent with good air pollution control practices.*

(2) *The effluent of the Phosphine Dynawave Wet Scrubber shall be directed to the Ventilation Emergency Scrubber 1 (VES-1).*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

d. Silane Baghouses 1 and 2

(1) *The Permittee shall operate* and maintain *Silane Baghouses 1 and*

2 to capture particulate matter emissions from the Silane Guardian combustion unit in a manner consistent with good air pollution control practices.

(2) *The effluent of Silane Baghouses 1 and 2 shall be directed to the Ventilation Emergency Scrubber 1 (VES-1).*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

3. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-702.B.3 and C, and -730.A.1 and B.

[A.A.C. R18-2-325]

B. HAPs and Gaseous Emissions

1. Emission Limitations and Standards

a. *The Permittee shall not cause, allow or permit to be discharged into the atmosphere arsine emissions in excess of 10.23 grams in any one-hour period.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material permit conditions are indicated by underline and italics]

b. *The Permittee shall not cause, allow or permit to be discharged into the atmosphere arsine emissions in excess of 618.18 grams in any rolling 24-hour period.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material permit conditions are indicated by underline and italics]

c. *The Permittee shall not cause, allow or permit to be discharged into the atmosphere arsine emissions in excess of 3,343.15 grams in any rolling 365-day period.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material permit conditions are indicated by underline and italics]

d. The Permittee shall not emit gaseous or odorous materials from equipment, operations or premises under his control in such quantities or concentrations as to cause air pollution.

[A.A.C. R18-2-730.D]

e. Materials including solvents or other volatile compounds, paints, acids, alkalis, pesticides, fertilizers and manure shall be processed, stored, used and transported in such a manner and by such means that they will not evaporate, leak, escape or be otherwise discharged into the ambient air so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage or discharge, the installation and use of such control methods, devices or equipment shall be mandatory.

[A.A.C. R18-2-730.F]

f. Where a stack, vent or other outlet is at such a level that fumes, gas mist, odor, smoke, vapor or any combination thereof constituting air pollution

is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stack, vent, or other outlet by the Permittee to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to adjoining property.

[A.A.C. R18-2-730.G]

2. Air Pollution Controls

a. Arsine Guardian 1

(1) *The Permittee shall operate* and maintain *Arsine Guardian 1 combustion unit to capture and destroy emissions of arsine and its mixtures as well as diethyltelluride and its mixtures in a manner consistent with good air pollution control practices.*

(2) *The effluent of the Arsine Guardian 1 combustion unit shall be directed to the Arsine Baghouse 1 for particulate matter collection.*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]

[Material permit conditions are indicated by underline and italics]

b. Arsine Guardian 2

(1) *The Permittee shall operate* and maintain *Arsine Guardian 2 combustion unit to capture and destroy emissions of arsine and its mixtures as well as diethyltelluride and its mixtures in a manner consistent with good air pollution control practices.*

(2) *The effluent of the Arsine Guardian 2 combustion unit shall be directed to the Arsine Baghouse 2 for particulate matter collection.*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]

[Material permit conditions are indicated by underline and italics]

c. Phosphine Guardian

(1) *The Permittee shall operate* and maintain *Phosphine Guardian combustion unit to capture and destroy emissions of phosphine and its mixtures in a manner consistent with good air pollution control practices.*

(2) *The effluent of the Phosphine Guardian combustion unit shall be directed to the Phosphine Dynawave Wet Scrubber System for particulate matter collection.*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]

[Material permit conditions are indicated by underline and italics]

d. Silane Guardian

(1) *The Permittee shall operate* and maintain *Silane Guardian combustion unit to capture and destroy emissions silane and its mixtures, diborane and its mixtures, and carbon monoxide in a manner consistent with good air pollution control practices.*

(2) *The effluent of the Silane Guardian combustion unit shall be directed to the Silane Baghouses 1 and 2 for particulate matter collection.*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

e. Wet Scrubbers A, B, C and D

(1) *The Permittee shall operate* and maintain *Wet Scrubbers A, B, C and D to capture and destroy emissions of dichlorosilane, trichlorosilane, silicon tetrachloride and methyltrichlorosilane in a manner consistent with good air pollution control practices.*

(2) *The effluent of Wet Scrubbers A, B, C and D shall be directed to the Ventilation Emergency Scrubber 1 (VES-1).*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

f. Ventilation Emergency Scrubber 1 (VES-1)

(1) *The Permittee shall operate* and maintain *Ventilation Emergency Scrubber 1 (VES-1) to capture and destroy emissions of arsine, diborane, silane, diethyltelluride, phosphine, dichlorosilane, trichlorosilane, methyltrichlorosilane, silicon tetrachloride, dichloromethane, methyl bromide, methyl iodide, and carbon monoxide in a manner consistent with good air pollution control practices.*

(2) *The Permittee shall operate Ventilation Emergency Scrubber 1 (VES-1) in accordance with Attachment "C" of this permit.*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

g. Process Caustic Wet Scrubber (PCWS-1)

(1) *The Permittee shall operate* and maintain *Process Caustic Wet Scrubber 1 (PCWS-1) to capture and destroy emissions of silicon tetrafluoride, germanium tetrafluoride, fluorine and enriched boron 11 trifluoride in a manner consistent with good air pollution control practices.*

(2) *The effluent of the Process Caustic Wet Scrubber 1 (PCWS-1) shall be directed to the Ventilation Emergency Scrubber 2 (VES-2).*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

h. Ventilation Emergency Scrubber #3

Upon installation, the Permittee shall operate and maintain *Ventilation Emergency Scrubber (VES-3) to capture and destroy emissions of disilane; mixtures of disilane and silane; mixtures of disilane and silicon tetrafluoride; enriched boron-11 trifluoride; boron trifluoride; mixtures*

of diborane and hydrogen; and mixtures of diborane and nitrogen, mixtures of diborane and boron tetrafluoride, enriched boron-11 trifluoride, and carbon monoxide in a manner consistent with good air pollution control practices.

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

i. Process Dry Scrubber (PDS-1)

(1) *The Permittee shall operate and maintain Process Dry Scrubber (PDS-1) to capture emissions of fluorine and inert gases in a manner consistent with good air pollution control practices.*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

(2) *The effluent of the Process Dry Scrubber (PDS-1) shall be directed to the Ventilation Emergency Scrubber 2 (VES-2).*

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

j. Ventilation Emergency Scrubber 2 (VES-2)

The Permittee shall operate and maintain *Ventilation Emergency Scrubber 2 (VES-2) to capture and destroy emissions of silicon tetrafluoride, germanium tetrafluoride, enriched boron 11 trifluoride, boron trifluoride, mixtures of diborane and boron trifluoride, mixtures of diborane and entriched boron 11 trifluoride, fluorine, and inert gases in a manner consistent with good air pollution control practices*.

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

3. Testing Requirements

The Permittee shall schedule and conduct an annual performance test for arsine emissions from the stack of Ventilation Emergency Scrubber 1 (VES-1). Testing shall be conducted in accordance with Section XVIII of Attachment "A" of this permit.

[A.A.C. R18-2-312.A]

4. Monitoring, Recordkeeping and Reporting Requirements

The Permittee shall operate, maintain and *calibrate the Vertex continuous monitoring system, in accordance with the manufacturer's specifications, for purposes of demonstrating compliance with the emission limits in Conditions II.B.1.a, II.B.1.b, and II.B.1.c above*.

[A.A.C. R18-2-306.A.3.c and -331.A.3.c]
[Material permit conditions are indicated by underline and italics]

5. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-730.D, F and G.

[A.A.C. R18-2-325]

III. AMMONIA OPERATIONS

This section applies to the ammonia filling and processing operations.

A. Particulate Matter and Opacity

1. Emission Limitations and Standards

a. The opacity of any plume or effluent from the stack of the ammonia scrubber shall not be greater than 20%.

[A.A.C. R18-2-702.B.3]

b. If the presence of uncombined water is the only reason for an exceedance of any visible emissions requirement in III.A.1.a, the exceedance shall not constitute a violation of the applicable opacity limit.

[A.A.C. R18-2-702.C]

c. In any one hour period, the Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere in excess of the amounts calculated by the following equations:

(1) For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$E = 4.1P^{0.67}$

Where:

E = the maximum allowable particulate emission rate in pounds-mass per hour

P = the process weight rate in tons-mass per hour

[A.A.C. R18-2-730.A.1.a]

(2) For process sources having a process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

$E = 55.0P^{0.11} - 40$

Where E and P are defined as indicated in III.A.1.c(1) above.

[A.A.C. R18-2-730.A.1.b]

d. When applying the process weight rate equations, the Permittee shall utilize the total process weight from all similar units employing a similar type process to determine the maximum allowable emissions of particulate matter.

[A.A.C. R18-2-730.B]

2. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-702.B.3, A.A.C. R18-2-702.C, A.A.C. R18-2-730.A.1 and A.A.C. R18-2-730.B.

[A.A.C. R18-2-325]

B. Gaseous and Odorous Emissions

1. Emission Limitations

a. The Permittee shall not emit gaseous or odorous materials from equipment, operations or premises under his control in such quantities or concentrations as to cause air pollution.

[A.A.C. R18-2-730.D]

b. Materials including solvents or other volatile compounds, paints, acids, alkalis, pesticides, fertilizers and manure shall be processed, stored, used and transported in such a manner and by such means that they will not evaporate, leak, escape or be otherwise discharged into the ambient air so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage or discharge, the installation and use of such control methods, devices or equipment shall be mandatory.

[A.A.C. R18-2-730.F]

c. Where a stack, vent or other outlet is at such a level that fumes, gas mist, odor, smoke, vapor or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stack, vent, or other outlet by the Permittee to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to adjoining property.

[A.A.C. R18-2-730.G]

2. Air Pollution Controls

The Permittee shall install, operate and maintain *the Ammonia Recovery System (Wet Scrubber) to capture and destroy ammonia emissions associated with ammonia cylinder processing operations in a manner consistent with good air pollution control practices*.

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

3. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-730.D, F and G.

[A.A.C. R18-2-325]

IV. NON-NSPS EMERGENCY GENERATORS

A. Applicability

This Section applies to each internal combustion engine identified in Attachment "C" as subject to A.A.C. R18-2-719 and 40 CFR 63 Subpart ZZZZ.

B. Particulate Matter and Opacity

1. Emission Limitations and Standards

[A.A.C. R18-2-719.B, -719.C.1 and -719.E]

a. Particulate Matter

(1) The Permittee shall not cause or allow to be discharged into the atmosphere from the generator stack(s) particulate matter in excess of the amount calculated by the following equation:

$$E = 1.02\ Q^{0.769}$$

where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour
Q = the heat input in million Btu per hour

(2) For the purposes of the calculations required in Condition IV.B.1.a(1) above, the heat input shall be the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet. The total heat input of all operating fuel-burning units at a plant or premises shall be used for determining the maximum allowable amount of particulate matter which may be emitted.

b. Opacity

[A.A.C. R18-2-719.E]

(1) The Permittee shall not cause, allow or permit to be emitted into the atmosphere from any stationary rotating machinery, smoke for any period greater than 10 consecutive seconds which exceeds 40% opacity.

(2) Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes.

2. Monitoring and Recordkeeping

[A.A.C. R18-2-306.A.3.c.]

a. The Permittee shall conduct a quarterly survey of visible emissions emanating from each generator stack when the generator is in operation. If the opacity of the emissions observed appears to exceed the opacity limit, the observer shall conduct a certified EPA Reference Method 9 observation. The Permittee shall keep records of the survey and any EPA Reference Method 9 observations performed, including date, time, generator stack ID, location of observer, name of the observer, and results of the observation. If the observation results in an exceedance of the opacity limit, the Permittee shall take corrective action and log all such

actions. Any exceedance shall be reported as excess emissions in accordance with Section XI of Attachment "A".

b. The Permittee shall keep records of fuel supplier certifications. The certification shall contain information regarding the name of fuel supplier and lower heating value of the fuel. These records shall be made available to ADEQ upon request

3. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-719.B, -719.C.1 and -719.E.

[A.A.C. R18-2-325]

C. Sulfur Dioxide

1. Emission Limitations and Standards

a. The Permittee shall not emit or cause to emit more than 1.0 pound of sulfur dioxide per million Btu heat input

[A.A.C. R18-2-719.F]

b. The Permittee shall not burn high sulfur diesel fuel (sulfur content greater than 0.9 % by weight) in the generator(s).

[A.A.C. R18-2-719.H]

2. Recordkeeping and Reporting

a. The Permittee shall keep daily records of the sulfur content and lower heating value of the fuel being fired in the generator(s). The Permittee shall keep records of fuel supplier certifications or other documentation listing the sulfur content to demonstrate compliance with the sulfur content limit specified in Condition IV.C.1 above. These records shall be made available to ADEQ upon request.

[A.A.C. R18-2-306.A.3.c and -719.I]

b. The Permittee shall report to the Director any daily period during which the sulfur content of the fuel being fired in the machine exceeds 0.8%.

[A.A.C. R18-2-719.J]

3. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-719.F, -719.H, -719.I, and -719.J.

[A.A.C. R18-2-325]

D. Hazardous Air Pollutants

1. Compliance Dates [40 CFR 63.6595(a)(1)]

The Permittee operating an existing Compression Ignition (CI) Reciprocating Internal Combustion Engine (RICE) shall comply with the following applicable emission limitations and operating limitations.

2. General Requirements

a. The Permittee shall comply with the applicable emission limitations and operating limitations in this Attachment at all times.

b. The Permittee shall operate and maintain at all times the generator(s) including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

c. The Permittee shall minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.

[40 CFR 63.6625(h); Table 2c of Subpart ZZZZ]

d. The Permittee shall operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop a maintenance plan which shall provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

[40 CFR 63.6625(e)]

3. Operating Requirements

[40 CFR 60.6640 (f)]

a. The Permittee shall operate the emergency stationary RICE according to the requirements in Conditions IV.D.3.a(1) and IV.D.3.a(2) below. If the engine is not operated according to the requirements in Conditions IV.D.3.a(1) and IV.D.3.a(2) below, the engine will not be considered an emergency engine and shall meet all requirements for non-emergency engines.

(1) The Permittee may operate the emergency stationary RICE for any combination of the purposes specified in Condition IV.D.3.a(5) of this section for a maximum of 100 hours per calendar year. Any non-emergency situations as allowed by Condition IV.D.3.a(5) count towards the 100 hours per calendar year.

[40 CFR 63.6640 (f)(2)]

(2) The Permittee may operate the emergency RICE for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. The Permittee may petition the Administrator and the Director for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the Permittee maintains records indicating that the Federal, State, or local standards require maintenance and testing beyond 100 hours per year. Copies of records shall be made available to ADEQ upon request.

[40 CFR 63.6640 (f)(2)(i)]

(3) The Permittee may operate the emergency stationary RICE for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference***), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

[40 CFR 63.6640 (f)(2)(ii)]

(4) The Permittee may operate the emergency stationary RICE for emergency demand response for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

[40 CFR 63.6640 (f)(2)(iii)]

(5) The Permittee operating an emergency stationary RICE located at area sources of HAP may be operated for up to 50 hours per calendar year on non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in Condition IV.D.3.a(1). Except as provided in Conditions IV.D.3.a(2) and IV.D.3.a(3), the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

b. If the emergency CI stationary RICE has a site rating of more than 100 brake HP, a displacement of less than 30 liters, uses diesel fuel, and is contractually obligated to be available for more than 15 hours per calendar year for purposes specified in Conditions IV.D.3.a(3) and IV.D.3.a(4) or Condition IV.D.3.a(5), the Permittee must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for non-road diesel fuel beginning January 1, 2015, except that any existing fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

[40 CFR 63.6604(b)]

c. *The Permittee shall install a non-resettable hour meter if one is not already installed*.

[40 CFR 63.6625(f), R18-2-331.A.3.c]
[Material Permit Conditions are indicated by underline and italics]

d. The Permittee shall change the oil and oil filter of the emergency stationary RICE every 500 hours of operation or annually, whichever comes first. If the Permittee prefers to extend the oil change requirement, an oil analysis program described below shall be shall be completed.

Oil Analysis

The Permittee shall at a minimum analyze the following three parameters: Total Base Number, viscosity and water content. The condemning limits for these parameters are as follows:

Total Base Number-	changed less than 30 percent of Total Base Number of oil when new;
Viscosity-	changed more than 20 percent from the viscosity of oil when new;
Water Content -	changed more than 0.5 percent by volume

If all of the above limits are not exceeded, the Permittee is not required to change the oil. If any of the above limits are exceeded, the Permittee shall change the oil within 2 days of receiving the results of the analysis or before commencing operation, whichever is later. The analysis program shall be part of the maintenance plan for the operation of the engine.

[40 CFR 63.6603(a); Table 2d of Subpart ZZZZ; 63.6625(i)]

e. The Permittee shall inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary;

[40 CFR 63.6603(a); Table 2d of Subpart ZZZZ]

f. The Permittee shall inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

[40 CFR 63.6603(a); Table 2d of Subpart ZZZZ]

4. Recordkeeping Requirements

a. The Permittee shall keep records of the hours of operation of the RICE that is recorded through the non-resettable hour meter. Records shall include the date, start and stop times, hours spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engine is used for the purposes specified in Condition IV.D.3.a(3), the owner or operator must keep records of the notification of the emergency situation and the date, start time, and end time of the engine operation for these purposes

[40 CFR 63.6655(f)]

b. The Permittee shall keep records of the parameters that are analyzed and the results of the oil analysis, if any, and the oil changes for the engine.

[40 CFR 63.6625(i)]

c. The Permittee shall keep records of the maintenance conducted on the CI RICE that demonstrates operation and maintenance of the CI RICE in accordance with your maintenance plan.

[40 CFR 63.6655(e)]

d. If the emergency stationary RICE does not meet the standards applicable to non-emergency engine, the Permittee shall keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The Permittee shall document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engines are used for demand response operation, the Permittee shall keep records of the notification of the emergency situation, and the time

the engine was operated as part of demand response.

[40 CFR 63.6655]

c. The Permittee shall keep records of the maintenance conducted on the stationary RICE in order to demonstrate that the stationary RICE and after-treatment control device (if any) were operated and maintained in accordance with the Permittee's maintenance plan.

[40 CFR 63.6655]

5. Reporting

[40 CFR 63.6650]

a. For emergency stationary RICE with a site rating of more than 100 brake HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in Conditions IV.D.3.a(2) and IV.D.3.a(3) or that operates for the purpose specified in Condition IV.D.3.a(4), the Permittee must submit to the Administrator and Director annually, a report according to the following requirements:

(1) Company name and address where the engine is located.

(2) Date of the report and beginning and ending dates of the reporting period.

(3) Engine site rating and model year.

(4) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(5) Hours operated for the purpose specified in Condition IV.D.3.a(2).

(6) Number of hours the engine is contractually obligated to be available for the purposes specified in Condition IV.D.3.a(3).

(7) A statement declaring deviations, if any, from the fuel requirements as specified in 40 CFR 80.510(b) for non-road diesel fuel.

(8) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(9) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.edpa.gov/cdx). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator and Director at their respective addresses below.

(a) EPA Region IX, Director, Air Division
75th Hawthorne Street
San Francisco, CA 94105

(b) Director, Air Quality Division
1110 W. Washington Street
Phoenix, AZ 85007

6. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR Part 63.6603(a); 6605(b); 63.6625(f); 63.6655(e); 63.6655(f), Table 2d of 40 CFR subpart ZZZZ, 63.6655.

[A.A.C. R18-2-325]

V. NSPS – EMERGENCY COMPRESSION IGNITION INTERNAL COMBUSTION ENGINES (CI ICE)

A. Applicability

This Section applies to each emergency CI ICE (emergency generator) identified in Attachment "C" as subject to New Source Performance Standards (NSPS) Subpart IIII.

B. Emergency ICE

An emergency ICE shall be limited to emergency situations and required testing and maintenance only such as to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or used to pump water in the case of fire or flood, etc. Stationary CI ICE used to supply power to an electric grid or that supply power as part of a financial arrangement with another entity shall not be considered to be emergency engines.

C. Operating Requirements

1. *The Permittee shall install a non-resettable hour meter prior to startup of the engine.*

[A.A.C. R18-2-306.A.3 and -331.A.3.c]
[Material Permit Conditions are indicated by underline and italics]

2. The Permittee must operate the emergency stationary ICE according to the requirements in Condition V.C.2.a through V.C.2.c below. In order for the engine to be considered an emergency stationary ICE, any operation other than emergency operation, maintenance response, and operation in non-emergency situations for 50 hours per year, as described in Conditions V.C.2.a through V.C.2.c below is prohibited. If the emergency stationary ICE is not operated in accordance with the requirements in Conditions V.C.2.a through V.C.2.c below, the engine will not be considered an emergency engine and must meet all requirements for non-emergency engines.

[40 CFR 60.4211(f)]

a. There is no time limit on the use of emergency stationary ICE in

emergency situations.

[40 CFR 60.4211(f)(1)]

b. The Permittee may operate the emergency stationary ICE for any combination of the purposes specified in Conditions V.C.2.b(1) through V.C.2.b(3) below for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by Condition V.C.2.c below counts as part of the 100 hours per calendar year allowed by this Condition V.C.2.b.

[40 CFR 60.4211(f)(2)]

(1) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government, the manufacturer, the vendor, the regional transmission operator, or the insurance company associated with the engine. The Permittee may petition the Administrator or Director for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond the 100 hours per year.

[40 CFR 60.4211(f)(2)(i)]

(2) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see 40 CFR 60.17), or other authorized entity as determined by the Reliability Coordinator has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

[40 CFR 60.4211(f)(2)(ii)]

(3) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

[40 CFR 60.4211(f)(2)(iii)]

c. The Permittee may operate the emergency stationary ICE for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in Condition V.C.2.b. Except as provided in Condition V.C.2.c(1), the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

[40 CFR 60.4211(f)(3)]

(1) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(a) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.

(b) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(c) The dispatch follows reliability emergency operation or similar protocols that follow specific NERC regional, state, public utility commission, or local standards or guidelines.

(d) The power is provided only to the facility or to support the local transmission and distribution system.

(e) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

[40 CFR 60.4211(f)(3)(i)]

3. Operation of the CI ICE other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, is prohibited.

[40 CF 60.4211(f) and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are indicated by underline and italics]

4. For CI ICE with a displacement of less than 30 liters per cylinder that use diesel fuel, the Permittee must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for non-road diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.

[40 CFR 60.4207(b)]

5. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR 60.4209(a) and §60.4211(f).

[A.A.C. R18-2-325]

D. Emission Limitations and Standards

[40 CFR 60.4205 (a) through (e)]

1. The Permittee operating a new or modified or reconstructed emergency CI ICE shall comply with the emission standards listed in the corresponding applicable regulations for the same model year and cylinder displacement as stated in Conditions V.D.2 through V.D.7.

2. Pre-2007 with Displacement <10 Liters:

The Permittee operating pre-2007 model year emergency stationary CI ICE with a displacement of less than 10 liters per cylinder that are not fire pump engines must comply with the emission standards in Table 1 of this section.

[40 CFR 60.4205(a)]

3. Pre-2007 with Displacement 10 ≤ x <30 Liters:

The Permittee operating pre-2007 model year emergency stationary CI ICE with a displacement great than or equal to 10 liters per cylinder and less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards in 40 CFR 94.8(a)(1).

[40 CFR 60.4205(a)]

4. 2007 and Later < 30 Liters

The Permittee operating 2007 and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new non-road CI engines in 40 CFR 60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.

[40 CFR 60.4205(b)]

5. Fire Pump Displacement < 30 Liters:

The Permittee operating fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emissions standards in Table 2 of this subsection, for all pollutants.

[40 CFR 60.4205(c)]

6. Displacement ≥ to 30 Liters:

[40 CFR 60.4205(d)]

The Permittee operating emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements below:

a. For engines installed prior to January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(1) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is 130 rpm;

(2) $45*n^{-0.2}$ g/KW-hr ($34*n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm where n is maximum engine speed; and

(3) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

b. For engines installed on or after January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(1) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less

than 130 rpm;

(2) $44*n^{-0.23}$ g/KW-hr ($33*n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(3) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

7. Displacement < 30 Liters with Performance Test Requirements:

The Permittee operating emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the NTE standards as indicated in 40 CFR 60.4212.

[40 CFR 60.4205(e)]

Table 1

Emission Standards for Stationary Pre-2007 Model Year Engines with a Displacement of <10 Liters per Cylinder and 2007-2010 Model Year Engines > 2237 KW (3000 HP) and With a Displacement of <10 Liters per Cylinder

Engine Power	NMHC + NO_X	HC	NO_X	CO	VOC
	g/KW-hr (g/HP-hr)				
KW<8 (HP<11)	10.5 (7.8)			8.0 (6.0)	1.0 (0.75)
8≤KW<19 (11≤HP<25)	9.5 (7.1)			6.6 (4.9)	0.80 (0.60)
19≤KW<37 (25≤HP<50)	9.5 (7.1)			5.5 (4.1)	0.80 (0.60)
37≤KW<56 (50≤HP<75)			9.2 (6.9)		
56≤KW<75 (75≤HP<100)			9.2 (6.9)		
75≤KW<130 (100≤HP<175)			9.2 (6.9)		
130≤KW<225 (175≤HP<300)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
225≤KW<450 (300≤HP<600)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
450≤KW<560 (600≤HP<750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
KW>560 (HP>750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)

Table 2

Emission Standards for 2008 Model Year and Later Emergency Stationary CI ICE <37 KW (50 HP) With a Displacement of <10 Liters per Cylinder

Engine Power	Model Year(s)	NO_X + NMHC	CO	PM
	g/KW-hr (g/HP-hr)			

KW<8 (HP<11)	2008+	7.5 (5.6)	8.0 (6.0)	0.40 (0.30)
8≤KW<19 (11≤HP<25)	2008+	7.5 (5.6)	6.6 (4.9)	0.40 (0.30)
19≤KW<37 (25≤HP<50)	2008+	7.5 (5.6)	5.5 (4.1)	0.30 (0.22)

8. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR 60.4205(a), §60.4205(b), §60.4205(c), §60.4205 (d), §60.4205(e), and §60.4205(f)

[A.A.C. R18-2-325]

E. Compliance Requirements

1. Pre-2007 Model Year Engines

[40 CFR 60.4211 (b)]

The Permittee operating a pre-2007 model year stationary CI ICE or a CI fire pump manufactured prior to the model years in Table 3 of 40 CFR Part 60 Subpart IIII, shall demonstrate compliance according to one of the following methods:

a. Purchasing an engine certified according to 40 CFR Part 89 or 40 CFR Part 94, as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.

b. Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

c. Keeping records of engine manufacturer data indicating compliance with the standards.

d. Keeping records of control device vendor data indicating compliance with the standards.

e. Conducting an initial performance test to demonstrate compliance with the emission standards according to the requirements specified in 40 CFR 60.4212, as applicable.

2. 2007 and later Year Stationary CI ICE

[40 CFR 60.4211(c)]

The Permittee operating a 2007 model year and later stationary CI ICE or a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in Table 3 of 40 CFR Part 60, Subpart IIII, shall comply by purchasing an engine certified to the emission standards in

§60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's specifications, except as permitted in Condition V.E.4.

3. Modified or Reconstructed Stationary ICE

[40 CFR 60.4205(e) and 4211(e)]

The Permittee operating a modified or reconstructed stationary CI ICE shall demonstrate compliance with the applicable standards using one of the following methods:

a. Purchasing an engine certified to the emission standards in 60.4205(f).

b. Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in 60.4212. The test shall be conducted within 60 days after the engine commences operation after the modification or reconstruction. The in-use performance tests shall meet the NTE standards as indicated in 40 CFR 60.4212.

4. If the Permittee does not install, configure, operate, and maintain the CI ICE and control device according to the manufacturer's emission-related written instructions, or change the emission-related setting in a way that is not permitted by the manufacturer, the Permittee shall demonstrate compliance as following:

[40 CFR 60.4211(g)]

a. CI ICE less than 100 HP

The Permittee shall keep a maintenance plan and records of conducted maintenance to demonstrate compliance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.

b. CI ICE greater than or equal to 100 HP and less than or equal to 500 HP

The Permittee shall keep a maintenance plan and records of conducted maintenance to demonstrate compliance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after changing any non-permitted emission-related setting.

c. CI ICE greater than 500 HP

The Permittee shall keep a maintenance plan and records of conducted maintenance to demonstrate compliance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with

good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after changing any non-permitted emission-related setting on the engine. Subsequent tests shall be conducted every 8760 hours of engine operation or 3 years, whichever comes first.

5. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR 60.4211(b), §60.4211(c), §60.4211(e), §60.4211(g) and §60.4205(e).

[A.A.C. R18-2-325]

F. Notification Requirements

[40 CFR 60.4214(b)]

There is no requirement for submission of initial notification for emergency stationary ICEs.

G. Recordkeeping Requirements

1. Starting with model years in Table 5 of 40 CFR Subpart IIII, the Permittee operating an emergency ICE that does not meet the standards applicable to non-emergency engines in the applicable model year, shall keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter.

2. The Permittee shall record the time of operation of the engine and the reason the engine was in operation during that time.

[40 CFR 60.4214(b)]

3. The Permittee operating an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in Condition V.C.2, you must submit an annual report according to the requirements in Conditions V.G.3.a through V.G.3.c of this section.

a. The report must contain the following information.

(1) Company name and address where the engine is located.

(2) Date of the report and beginning and ending dates of the reporting period.

(3) Engine site rating and model year.

(4) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(5) Hours operated for the purposes specified in Conditions V.C.2.b(1) and V.C.2.b(2) including the date, start time, and end time for engine operation for the purposes specified in Conditions V.C.2.b(1) and V.C.2.b(2).

(6) Number of hours the engine is contractually obligated to be available for the purposes specified in Condition V.C.2.

(7) Hours spent operating for the purposes specified in Condition V.C.2.b(3), including the date, start time, and end time for engine operation for the purposes specified in Condition V.C.2.b(3). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

b. Annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

c. The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in 40 CFR 60.4.

[40 CFR 60.4214(d)]

4. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR 60.4214(b).

VI. FUGITIVE DUST REQUIREMENTS

A. Applicability

This Section applies to any non-point source of fugitive dust in the facility.

B. Particulate Matter and Opacity

Open Areas, Roadways & Streets, Storage Piles, and Material Handling

1. Emission Limitations/Standards

a. Opacity of emissions from any fugitive dust non-point source shall not be greater than 40%.

[A.A.C. R18-2-614]

b. The Permittee shall employ the following reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne:

(1) Keep dust and other types of air contaminants to a minimum in an open area where construction operations, repair operations, demolition activities, clearing operations, leveling operations, or any earth moving or excavating activities are taking place, by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means;

[A.A.C. R18-2-604.A]

(2) Keep dust to a minimum from driveways, parking areas, and vacant lots where motor vehicular activity occurs by using an approved dust suppressant, or adhesive soil stabilizer, or by paving, or by barring access to the property, or by other acceptable means;

[A.A.C. R18-2-604.B]

(3) Keep dust and other particulates to a minimum by employing dust suppressants, temporary paving, detouring, wetting down or by other reasonable means when a roadway is repaired, constructed, or reconstructed;

[A.A.C. R18-2-605.A]

(4) Take reasonable precautions, such as wetting, applying dust suppressants, or covering the load when transporting material likely to give rise to airborne dust;

[A.A.C. R18-2-605.B]

(5) Take reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods when crushing, handling, or conveying material likely to give rise to airborne dust;

[A.A.C. R18-2-606]

(6) Take reasonable precautions such as chemical stabilization, wetting, or covering when organic or inorganic dust producing material is being stacked, piled, or otherwise stored;

[A.A.C. R18-2-607.A]

(7) Operate stacking and reclaiming machinery utilized at storage piles at all times with a minimum fall of material, or with the use of spray bars and wetting agents;

[A.A.C. R18-2-607.B]

(8) Any other method as proposed by the Permittee and approved by the Director.

[A.A.C. R18-2-306.A.3.c]

2. Air Pollution Control Requirements

Haul Roads and Storage Piles

Water, or an equivalent control, shall be used to control visible emissions from haul roads and storage piles.

[A.A.C. R18-2-306.A.2 and -331.A.3.d]
[Material Permit Condition is indicated by underline and italics]

3. Monitoring and Recordkeeping Requirements

a. The Permittee shall maintain records of the dates on which any of the activities listed in Conditions VI.B.1.b were performed and the control measures that were adopted.

[A.A.C. R18-2-306.A.3.c]

b. Opacity Monitoring Requirements

Each month, the Permittee shall monitor visible emissions from fugitive sources in accordance with Condition I.A.

[A.A.C. R18-2-306.A.3.c]

4. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-604, -605, -606, -607, and -614.

VII. MOBILE SOURCE REQUIREMENTS

A. Applicability

The requirements of this Section are applicable to mobile sources which either move while emitting air contaminants or are frequently moved during the course of their utilization but are not classified as motor vehicles, agricultural vehicles, or agricultural equipment used in normal farm operations. Mobile sources shall not include portable sources as defined in A.A.C. R18-2-101.109.

[A.A.C. R18-2-801.A]

B. Particulate Matter and Opacity

1. Emission Limitations/Standards

a. Off-Road Machinery

The Permittee shall not cause, allow, or permit to be emitted into the atmosphere from any off-road machinery, smoke for any period greater than ten consecutive seconds, the opacity of which exceeds 40%. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes. Off-road machinery shall include trucks, graders, scrapers, rollers, and other construction and mining machinery not normally driven on a completed public roadway.

[A.A.C. R18-2-802.A and -802.B]

b. Roadway and Site Cleaning Machinery

(1) The Permittee shall not cause, allow or permit to be emitted into the atmosphere from any roadway and site cleaning machinery smoke or dust for any period greater than ten consecutive seconds, the opacity of which exceeds 40%. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes.

[A.A.C. R18-2-804.A]

(2) The Permittee shall take reasonable precautions, such as the use of dust suppressants, before the cleaning of a site, roadway, or alley. Earth or other material shall be removed from paved streets onto which earth or other material has been transported by

trucking or earth moving equipment, erosion by water or by other means.

[A.A.C. R18-2-804.B]

c. Unless otherwise specified, no mobile source shall emit smoke or dust the opacity of which exceeds 40%.

[A.A.C. R18-2-801.B]

2. Recordkeeping Requirement

The Permittee shall keep a record of all emissions related maintenance activities performed on the Permittee's mobile sources stationed at the facility as per manufacturer's specifications.

[A.A.C. R18-2-306.A.5.a]

3. Permit Shield

Compliance with this Section shall be deemed compliance with A.A.C. R18-2-801, -802, and -804.

[A.A.C. R18-2-325]

VIII. OTHER PERIODIC ACTIVITIES

A. Abrasive Blasting

1. Particulate Matter and Opacity

a. Emission Limitations/Standards

The Permittee shall not cause or allow sandblasting or other abrasive blasting without minimizing dust emissions to the atmosphere through the use of good modern practices. Good modern practices include:

(1) Wet blasting;

(2) Effective enclosures with necessary dust collecting equipment; or

(3) Any other method approved by the Director.

[A.A.C. R18-2-726]

b. Opacity

The Permittee shall not cause, allow or permit visible emissions from sandblasting or other abrasive blasting operations in excess of 20% opacity.

[A.A.C. R18-2-702.B.3]

2. Monitoring and Recordkeeping Requirement

Each time an abrasive blasting project is conducted, the Permittee shall make a record of the following:

a. The date the project was conducted;

b. The duration of the project; and

c. Type of control measures employed.

[A.A.C. R18-2-306.A.3.c]

3. Permit Shield

Compliance with this Section shall be deemed compliance with A.A.C. R18-2-702.B.3 and -726.

[A.A.C.R18-2-325]

B. Use of Paints

1. Volatile Organic Compounds

a. Emission Limitations/Standards

While performing spray painting operations, the Permittee shall comply with the following requirements:

(1) The Permittee shall not conduct or cause to be conducted any spray painting operation without minimizing organic solvent emissions. Such operations, other than architectural coating and spot painting, shall be conducted in an enclosed area equipped with controls containing no less than 96 percent of the overspray.

[A.A.C.R18-2-727.A]

(2) The Permittee or their designated contractor shall not either:

(a) Employ, apply, evaporate, or dry any architectural coating containing photochemically reactive solvents for industrial or commercial purposes; or

(b) Thin or dilute any architectural coating with a photochemically reactive solvent.

[A.A.C.R18-2-727.B]

(3) For the purposes of Condition VIII.B.1.a(2), a photochemically reactive solvent shall be any solvent with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified in Condition VIII.B.1.a(3), or which exceeds any of the following percentage composition limitations, referred to the total volume of solvent:

(a) A combination of the following types of compounds having an olefinic or cyclo-olefinic type of unsaturation-hydrocarbons, alcohols, aldehydes, esters, ethers, or ketones: 5 percent.

(b) A combination of aromatic compounds with eight or more carbon atoms to the molecule except ethylbenzene: 8 percent.

(c) A combination of ethylbenzene, ketones having branched hydrocarbon structures, trichloroethylene or toluene: 20 percent.

[A.A.C.R18-2-727.C]

(4) Whenever any organic solvent or any constituent of an organic solvent may be classified from its chemical structure into more than one of the groups of organic compounds described in Condition VIII.B.1.a(3), it shall be considered to be a member of the group having the least allowable percent of the total volume of solvents.

[A.A.C.R18-2-727.D]

b. Monitoring and Recordkeeping Requirements

(1) Each time a spray painting project is conducted, the Permittee shall make a record of the following:

(a) The date the project was conducted;

(b) The duration of the project;

(c) Type of control measures employed;

(d) Safety Data Sheets (SDS) for all paints and solvents used in the project; and

(e) The amount of paint consumed during the project.

(2) Architectural coating and spot painting projects shall be exempt from the recordkeeping requirements of Condition VIII.B.1.b(1).

[A.A.C. R18-2-306.A.3.c]

c. Permit Shield

Compliance with this Section shall be deemed compliance with A.A.C.R18-2-727.

[A.A.C.R18-2-325]

2. Opacity

a. Emission Limitation/Standard

The Permittee shall not cause, allow or permit visible emissions from painting operations in excess of 20% opacity.

[A.A.C. R18-2-702.B.3]

b. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C.R18-2-702.B.3.

[A.A.C. R18-2-325]

C. Demolition/Renovation - Hazardous Air Pollutants

1. Emission Limitation/Standard

The Permittee shall comply with all of the requirements of 40 CFR 61 Subpart M (National Emissions Standards for Hazardous Air Pollutants - Asbestos).

[A.A.C. R18-2-1101.A.12]

2. Monitoring and Recordkeeping Requirement

The Permittee shall keep all required records in a file. The required records shall include the "NESHAP Notification for Renovation and Demolition Activities" form and all supporting documents.

[A.A.C. R18-2-306.A.3.c]

3. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-1101.A.12.

[A.A.C. R18-2-325]

ATTACHMENT "C": OPERATION AND MAINTENANCE PLAN

I. GENERAL REQUIREMENTS

A. Prior to implementing any changes to this Attachment, the Permittee shall obtain the Director's approval pursuant to the appropriate provisions of Condition XVI of Attachment "A".

B. At the time that the Permittee submits an air quality permit application or notification pursuant to Condition XVI of Attachment "A" (including changes that do not require a permit revision) for the construction, modification or replacement of an air pollution control device, the Permittee shall develop and submit an Operation and Maintenance Plan that contains the following information:

1. The process parameters that provide reasonable assurance that the control device is achieving the designed level of control;

2. The operating parameter set points for each process parameter to be monitored; and

3. A detailed preventative maintenance plan.

C. The Permittee shall monitor the parameters required by this Attachment as required by this permit, except for weekends and holidays when no plant activity is occurring.

D. The Permittee shall inspect and maintain all equipment in accordance with Condition I.B.1 of Attachment "B".

[A.A.C. R18-2-306.A.3.c]

II. ARSINE GUARDIANS AND BAGHOUSES

A. The following process parameters shall be monitored and recorded on a process log at the intervals listed below:

1. Reaction Chamber Temperature, in degrees Celsius, shall be recorded continuously.

2. Baghouse pressure differential in Arsine Baghouses 1 and 2, in inches of H_2O, shall be recorded continuously.

[A.A.C. R18-2-306.A.3.c]

B. The Permittee shall maintain records of all maintenance activities in a log that identifies the date, time and description of the maintenance activity, as well as a reason for the maintenance activity that was performed.

[A.A.C. R18-2-306.A.3.c]

C. Operating Parameter Set points

The baghouse pressure differentials for Baghouses 1 and 2 shall be kept between 0.2" H_2O and 10"H_2O.

[A.A.C. R18-2-306.A.3.c]

D. Excursions

1. An excursion is defined as any Baghouse pressure differential less than 0.2" H_2O or greater than 10" H_2O, on a 15-minute average, while the baghouse is in operation or arsine is being vented to the control system.

2. Upon detection of an excursion, the Permittee shall restore operation of the equipment to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include:

   a. Minimizing the period of any startup, shutdown, or malfunction, and

   b. Taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of the excursion. Such actions may include:

      (1) Initial inspection and evaluation,

      (2) Recording that operations returned to normal without operator action, or

      (3) Any necessary follow-up actions to return operations to within the parameters listed in Condition II.C.

   [A.A.C. R18-2-306.A.3.c]

3. The Permittee shall submit reports of all excursions along with the compliance certifications required by Section VII of Attachment "A." The reports shall include, at a minimum, the following:

   a. Summary information on the number, duration and cause (including unknown cause, if applicable) of the excursion, and the corrective actions taken.

   b. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitoring downtime incidents (other than downtime associated with zero and span or other calibration checks, if applicable).

   [A.A.C. R18-2-306.A.3.c]

III. PHOSPHINE GUARDIANS AND DYNAWAVE

A. The following process parameters shall be monitored and recorded on a process log at the intervals listed below, during days that phosphine is being produced, processed, or phosphine is being vented to the control system:

1. Reaction Chamber Temperature, in degrees Celsius, shall be recorded continuously.

2. Dynawave Spray Nozzle Inlet Pressure, in psig, shall be manually recorded at least once per day.

3. Dynawave pressure differential, in inches of H_2O, shall be recorded at least once

per day.

[A.A.C. R18-2-306.A.3.c]

B. The Permittee shall maintain records of all maintenance activities in a log that identifies the date, time and description of the maintenance activity, as well as a reason for the maintenance activity that was performed.

[A.A.C. R18-2-306.A.3.c]

C. Operating Parameter Setpoints

Operating parameters listed in Condition III.A above shall be kept within the values listed in Table C-1 below.

Table C-1: Operating Parameters for Phosphine Operations

	Reaction Chamber Temperature	Dynawave Spray Nozzle Inlet Pressure	Dynawave ΔP
Max	900 °C	30 psig	31" H_2O
Min	350 °C	5 psig	0.5" H_2O

[A.A.C. R18-2-306.A.3.c]

D. Excursions

1. An excursion is defined as:

   a. Any Reaction Chamber temperature reading less than 350°C.

   b. Any Dynawave spray nozzle inlet pressure less than 5 psig or greater than 30 psig.

   c. Any Dynawave pressure differential less than 0.5" H_2O or greater than 31" H_2O.

[A.A.C. R18-2-306.A.3.c]

2. Upon detection of an excursion, the Permittee shall restore operation of the equipment to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include:

   a. Minimizing the period of any startup, shutdown, or malfunction, and

   b. Taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of the excursion. Such actions may include:

      (1) Initial inspection and evaluation,

      (2) Recording that operations returned to normal without operator

action, or

(3) Any necessary follow-up actions to return operations to within the parameters listed in Table C-1 above.

[A.A.C. R18-2-306.A.3.c]

3. The Permittee shall submit reports of all excursions along with the compliance certifications required by Section VII of Attachment "A." The reports shall include, at a minimum, the following:

a. Summary information on the number, duration and cause (including unknown cause, if applicable) of the excursion, and the corrective actions taken.

b. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitoring downtime incidents (other than downtime associated with zero and span or other calibration checks, if applicable).

[A.A.C. R18-2-306.A.3.c]

IV. SILANE GUARDIANS AND BAGHOUSES

A. The following process parameters shall be monitored and recorded on a process log at the intervals listed below, on days when silane is being processed or silane is being vented to the control system:

1. Reaction Chamber Temperature, in degrees Celsius, shall be recorded continuously.

2. Baghouse pressure differential, in inches of H_2O, shall be recorded at least once per day for the baghouse that is in operation.

[A.A.C. R18-2-306.A.3.c]

B. The Permittee shall maintain records of all maintenance activities in a log that identifies the date, time and description of the maintenance activity, as well as a reason for the maintenance activity that was performed.

[A.A.C. R18-2-306.A.3.c]

C. Operating Parameter Setpoints

Operating parameters listed in Condition IV.A above shall be kept within the values listed in Table C-2 below.

Table C-2: Operating Parameters for Silane Operations

	Reaction Chamber Temperature	Baghouse ΔP
Max	900 °C	10" H_2O
Min	100 °C	0.2" H_2O

[A.A.C. R18-2-306.A.3.c]

D. Excursions

1. An excursion is defined as:

   a. Any Reaction Chamber temperature reading less than 100°C while the unit is in operation or silane is being vented to the control system.

   b. Any Baghouse pressure differential less than 0.2" H_2O or greater than 10" H_20 while the baghouse is in operation or silane is being vented to the control system.

2. Upon detection of an excursion, the Permittee shall restore operation of the equipment to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include:

   a. Minimizing the period of any startup, shutdown, or malfunction, and

   b. Taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of the excursion. Such actions may include:

      (1) Initial inspection and evaluation,

      (2) Recording that operations returned to normal without operator action, or

      (3) Any necessary follow-up actions to return operations to within the parameters listed in Table C-2 above.

      [A.A.C. R18-2-306.A.3.c]

3. The Permittee shall submit reports of all excursions along with the compliance certifications required by Section VII of Attachment "A." The reports shall include, at a minimum, the following:

   a. Summary information on the number, duration and cause (including unknown cause, if applicable) of the excursion, and the corrective actions taken.

   b. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitoring downtime incidents (other than downtime associated with zero and span or other calibration checks, if applicable).

   [A.A.C. R18-2-306.A.3.c]

V. DICHLOROSILANE WET SCRUBBERS

A. The following process parameters shall be monitored and recorded on a process log at the intervals listed below, during days that dichlorosilane is being processed or dichlorosilane is being vented to the control system:

1. Caustic strength (strength of scrubber solution), in mL acid, shall be recorded at least once per day.

2. Tower flow rate (flow rate of scrubber solution in the scrubber tower), in gallons per minute, shall be recorded at least once per day.

3. Pressure differential across the orifice plate, in inches H_2O, shall be recorded at least once per day.

[A.A.C. R18-2-306.A.3.c]

B. The Permittee shall maintain records of all maintenance activities in a log that identifies the date, time and description of the maintenance activity, as well as a reason for the maintenance activity that was performed.

[A.A.C. R18-2-306.A.3.c]

VI. AMMONIA SCRUBBER

A. The following process parameters shall be monitored and recorded on a process log at the intervals listed below, on days when ammonia is being processed or ammonia is being vented to the control system:

1. NH_4OH Concentration, in percent, shall be recorded at least once per day.

2. Tank Level, in percent of full, shall be recorded at least once per day.

3. Mini Scrubber Pump Discharge Pressure, in psig, shall be recorded at least once per day.

[A.A.C. R18-2-306.A.3.c]

B. The Permittee shall maintain records of all maintenance activities in a log that identifies the date, time and description of the maintenance activity, as well as a reason for the maintenance activity that was performed.

[A.A.C. R18-2-306.A.3.c]

C. Operating Parameter Setpoints

Operating parameters listed in Condition VI.A above shall be kept within the values listed in Table C-3 below.

Table C-3: Operating Parameters

	NH_4OH Concentration	Tank Level	Mini Scrubber Pump Discharge Pressure
Max	30%	95%	40 psig
Min	N/A	15%	5 psig

[A.A.C. R18-2-306.A.3.c]

D. Excursions

1. An excursion is defined as:

   a. Any NH_4OH concentration of greater than 30%.

b. Any tank level less than 15% full (except when the tank is being emptied or refilled) or greater than 95% full.

c. Any mini scrubber pump discharge pressure greater than 40 psig or less than 5 psig.

2. Upon detection of an excursion, the Permittee shall restore operation of the equipment to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include:

a. Minimizing the period of any startup, shutdown, or malfunction, and

b. Taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of the excursion. Such actions may include:

(1) Initial inspection and evaluation,

(2) Recording that operations returned to normal without operator action, or

(3) Any necessary follow-up actions to return operations to within the parameters listed in Table C-3 above.

[A.A.C. R18-2-306.A.3.c]

3. The Permittee shall submit reports of all excursions along with the compliance certifications required by Section VII of Attachment "A." The reports shall include, at a minimum, the following:

a. Summary information on the number, duration and cause (including unknown cause, if applicable) of the excursion, and the corrective actions taken.

b. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitoring downtime incidents (other than downtime associated with zero and span or other calibration checks, if applicable).

[A.A.C. R18-2-306.A.3.c]

VII. VENTILATION EMERGENCY SCRUBBER (VES-1)

A. The following process parameters shall be monitored and recorded on a process log at the intervals listed below:

1. Potassium Permanganate ($KMnO_4$) concentration, in percent $KMnO_4$, shall be recorded at least once per day.

2. $KMnO_4$ flow rate, in gallons per minute, shall be recorded continuously.

3. Air flow rate, in cubic feet per minute, shall be recorded continuously.

[A.A.C. R18-2-306.A.3.c]

B. The primary $KMnO_4$ electric pump shall be backed up by a diesel generator. In the event of an electric motor pump failure, loss of flow must be detected via motor amperage or other method as approved by ADEQ, and the diesel generator must start up automatically.
[A.A.C. R18-2-306.A.3.c]

C. The $KMnO_4$ solution shall be tested every week to determine the % dissolved solids and % suspended solids, except during a week in which a muck-out is scheduled.
[A.A.C. R18-2-306.A.3.c]

D. The Permittee shall maintain records of all maintenance activities in a log that identifies the date, time and description of the maintenance activity, as well as a reason for the maintenance activity that was performed.
[A.A.C. R18-2-306.A.3.c]

E. During times when the liquid flow meter is inoperative, the Permittee shall monitor the potassium permanganate liquid flow rate by manually verifying the pump motor amperage and the potassium permanganate level in the VES-1 at least twice per 8-hour shift with at least 3 hours between each measurement. An alternative monitoring approach may be used with prior written approval by the Director. The Permittee shall not operate for more than 7 days with the liquid flow meter inoperative.
[A.A.C. R18-2-306.A.2]

VIII. PROCESS CAUSTIC WET SCRUBBER (PCWS-1)

A. The following process parameters shall be monitored and recorded on a process log at the intervals listed below, during days that GeF_4, SiF_4 and $B^{11}F_3$ are being processed or such compounds are being vented to the control system:

1. Caustic (Sodium Hydroxide – NaOH) concentration, shall be monitored using the surrogate parameter "pH" and recorded at least once per day.

2. Tower Nozzle Pressure shall have a low pressure alarm and the status recorded daily.

3. Sump Liquid Level shall have a low level alarm switch and the level shall be recorded at least once per day.

4. The Pressure Differential across the tower, in inches water column, shall be recorded at least once per day.

[A.A.C. R18-2-306.A.3.c]

B. The Permittee shall maintain records of all maintenance activities in a log that identifies the date, time and description of the maintenance activity, as well as a reason for the maintenance activity that was performed.
[A.A.C. R18-2-306.A.3.c]

C. Operating Parameter Setpoints

Operating parameters listed in Condition VIII.A above shall be kept within the values listed in Table C-4 below.

Table C-4: Operating Parameters for Caustic Wet Scrubber

	Caustic (NaOH) Strength (pH)	Tower Nozzle Pressure	Sump Liquid Level	DP Across Tower (inches water column)
Max	N/A	16 psig	20 in.	0.6 " wc
Min	12 pH	10 psig	14 in.	0.1 " wc

[A.A.C. R18-2-306.A.3.c]

D. Excursions

1. An excursion is defined as:

   a. Anytime the pH falls below 12.

   b. Anytime the Tower nozzle pressure falls below 10 psig during any venting operation.

   c. Any Sump Liquid Level that falls below 14 inches during any venting operation.

   d. Anytime the Differential Pressure (DP) Across the Tower climbs above 0.6 inches water column or below 0.1 inches water column.

2. Upon detection of an excursion, the Permittee shall restore operation of the equipment to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include:

   a. Minimizing the period of any startup, shutdown, or malfunction, and

   b. Taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of the excursion. Such actions may include:

      (1) Initial inspection and evaluation,

      (2) Recording that operations returned to normal without operator action, or

      (3) Any necessary follow-up actions to return operations to within the parameters listed in Table C-4 above.

[A.A.C. R18-2-306.A.3.c]

3. The Permittee shall submit reports of all excursions along with the compliance certifications required by Section VII of Attachment "A." The reports shall include, at a minimum, the following:

a. Summary information on the number, duration and cause (including unknown cause, if applicable) of the excursion, and the corrective actions taken.

b. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitoring downtime incidents (other than downtime associated with zero and span or other calibration checks, if applicable).

[A.A.C. R18-2-306.A.3.c]

IX. VENTILATION EMERGENCY SCRUBBER (VES-3)

A. The following process parameters shall be monitored and recorded on a process log at the intervals listed below, during days that Disilane, Silane, Silicon Tetrafluoride, Enriched Boron-11 Trifluoride, Boron Trifluoride, Diborane, or any mixtures thereof, are being processed or vented to the control system:

1. Tower 1 liquid flow rate shall be recorded at least once per day on a process log.

2. Tower 2 liquid flow rate shall be recorded at least once per day on a process log.

3. Liquid pH shall be recorded at least once per day on a process log.

[A.A.C. R18-2-306.A.3.c]

B. The Permittee shall maintain records of all maintenance activities in a log that identifies the date, time and description of the maintenance activity, as well as a reason for the maintenance activity that was performed.

[A.A.C. R18-2-306.A.3.c]

C. Operating Parameter Setpoints

Operating parameters listed in Condition IX.A above shall be kept within the values listed in Table C-5 below.

Table C-5: Operating Parameters for Ventilation Emergency Scrubber (VES-3)

	Tower 1 Liquid Flow Rate	Tower 2 Liquid Flow Rate	Liquid pH
Max	200 gpm	200 gpm	13.5
Min	100 gpm	100 gpm	9.5

[A.A.C. R18-2-306.A.3.c]

D. Excursions

1. An excursion is defined as:

a. Any Tower 1 liquid flow rate less than 100 gpm or greater than 200 gpm.

b. Any Tower 2 liquid flow rate less than 100 gpm or greater than 200 gpm.

c. Any pH less than 9.5 or greater than 13.5.

2. Upon detection of an excursion, the Permittee shall restore operation of the equipment to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include:

a. Minimizing the period of any startup, shutdown, or malfunction, and

b. Taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of the excursion. Such actions may include:

(1) Initial inspection and evaluation,

(2) Recording that operations returned to normal without operator action, or

(3) Any necessary follow-up actions to return operations to within the parameters listed in Table C-4 above.

[A.A.C. R18-2-306.A.3.c]

3. The Permittee shall submit reports of all excursions along with the compliance certifications required by Section VII of Attachment "A." The reports shall include, at a minimum, the following:

a. Summary information on the number, duration and cause (including unknown cause, if applicable) of the excursion, and the corrective actions taken.

b. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitoring downtime incidents (other than downtime associated with zero and span or other calibration checks, if applicable).

[A.A.C. R18-2-306.A.3.c]

X. PROCESS DRY SCRUBBER (PDS-1)

A. The End Point Sensor Light status shall be recorded on a daily basis and a log shall be maintained recording when the End Point Sensor Light activities.

[A.A.C. R18-2-306.A.3.c]

B. The Permittee shall maintain records of all maintenance activities, including when the alumina bed is replaced, in a log that identifies the date, time and description of these maintenance activities, as well as the reason for the maintenance activity performed.

[A.A.C. R18-2-306.A.3.c]

C. Excursions

1. An excursion is defined as:

   Continuing a venting operation without changing out the alumina bed cartridge with a new one after the End Point Sensor Light has shut off signifying that the alumina bed has reached the 95% saturation level.

2. Upon detection of an excursion, the Permittee shall restore operation of the equipment to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include:

   a. Shutting down venting to the Process Dry Scrubber until a fresh alumina bed cartridge is installed and the End Point Sensor Lamp is reset to "Lit" status.

   b. Maintaining a shutdown status until a replacement of the activated alumina bed is completed and any leaks are found and repaired.

   [A.A.C. R18-2-306.A.3.c]

3. The Permittee shall submit reports of all excursions along with the compliance certifications required by Section VII of Attachment "A." The reports shall include, at a minimum, the following:

   a. Summary information on the number, duration and cause (including unknown cause, if applicable) of the excursion, and the corrective actions taken.

   b. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitoring downtime incidents (other than downtime associated with zero and span or other calibration checks, if applicable).

   [A.A.C. R18-2-306.A.3.c]

XI. VENTILATION EMERGENCY SCRUBBER (VES-2)

A. The following process parameters shall be monitored and recorded on a process log at the intervals listed below during days that gases are being produced or vented to the control system:

1. Caustic (Sodium Hydroxide – NaOH) concentration in the Tower Liquid Recycle shall be monitored using the surrogate parameter "pH" and shall be recorded at least once per day.

2. Tower Liquid Recycle Rate, in gallons per minute, shall be recorded continuously and have a "low flow" alarm.

3. Sump Liquid Level shall have a low level alarm and the level status shall be recorded at least once per day.

4. Air flow rate, in cubic feet per minute, shall be recorded continuously.

5. The Pressure Differential across the tower, in inches water column, shall be recorded at least once per day.

[A.A.C. R18-2-306.A.3.c]

B. In the event of a recirculation pump failure, the loss of flow must be detected and the process must be shut down until flow is restored.

[A.A.C. R18-2-306.A.3.c]

C. The NaOH solution shall be tested every week to determine the % dissolved solids and % suspended solids, except during a week in which a muck-out is scheduled.

[A.A.C. R18-2-306.A.3.c]

D. The Permittee shall maintain records of all maintenance activities in a log that identifies the date, time and description of the maintenance activity, as well as a reason for the maintenance activity that was performed.

[A.A.C. R18-2-306.A.3.c]

E. During times when the liquid flow meter is inoperative, the Permittee shall monitor the Tower Liquid Recycle Rate manually along with the Liquid Sump Level in the VES-2 Scrubber at least twice per 8-hour shift. An alternative monitoring approach may be used with prior written approval by the Director. The Permittee shall not operate for more than 7 days with the liquid flow meter inoperative.

[A.A.C. R18-2-306.A.2]

F. Operating Parameter Setpoints

Operating parameters listed in Condition XI.A above shall be kept within the values listed in Table C-6 below.

Table C-6: Operating Parameters for the Ventilation Emergency Scrubber VES-2

	Caustic (NaOH) Strength (pH)	Tower Liquid Recycle Rates	Sump Liquid Level	DP Across Tower (inches water column)
Max	N/A	N/A	20 in.	4.5 " wc
Min	8 pH	30 gpm	12 in.	1.5 " wc

[A.A.C. R18-2-306.A.3.c]

G. Excursions

1. An excursion is defined as:

   a. Anytime the pH falls below 8.

   b. Anytime the Tower Liquid Recycle Rate falls below 30 gpm.

   c. Anytime the Sump Liquid Level falls below 12 inches.

d. Anytime the Differential Pressure (DP) Across the Tower climbs above 4.5 inches water column or below 1.5 inches water column.

2. Upon detection of an excursion, the Permittee shall restore operation of the equipment to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include:

a. Minimizing the period of any startup, shutdown, or malfunction, and

b. Taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of the excursion. Such actions may include:

(1) Initial inspection and evaluation,

(2) Recording that operations returned to normal without maintenance repair as a result of operator adjustment or action, or

(3) Any necessary follow-up actions to return operations to within the parameters listed in Table C-6 above.

[A.A.C. R18-2-306.A.3.c]

3. The Permittee shall submit reports of all excursions along with the compliance certifications required by Section VII of Attachment "A." The reports shall include, at a minimum, the following:

a. Summary information on the number, duration and cause (including unknown cause, if applicable) of the excursion, and the corrective actions taken.

b. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitoring downtime incidents (other than downtime associated with zero and span or other calibration checks, if applicable).

[A.A.C. R18-2-306.A.3.c]

ATTACHMENT "D": EQUIPMENT LIST

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	DATE OF MFG.	EQUIPMENT ID	AAC/NSPS
Ventilation Emergency Scrubber	30,000 scfm	Construction International, Inc.	Countercurrent Packed Column Wet Scrubber	N/A	VES-1	730
Arsine Guardian 1	2,000 scfm	Hoechst Celanese	Guardian 8	N/A		730
Arsine Guardian 2	2,000 scfm	ATMI	Guardian 8	N/A		730
Arsine Baghouse 1		Mikropul Environmental Systems	64S8 TRH"C"	N/A		730
Arsine Baghouse 2		Mikropul Environmental Systems	64S8 TRH	N/A		730
Silane Guardian	2,000 scfm	MG Industries	Guardian 8	N/A		730
Silane Baghouses 1 and 2	1,800 acfm	STACLEAN Diffuser Co.	49-8-ADR	N/A		730
Phosphine Guardian	1,300 scfm	Hoechst Celanese	Guardian 8	N/A		730
Phosphine Dynawave Wet Scrubber	1,300 scfm	Monsanto Enviro-Chem	Reverse Jet Scrubbing System	N/A		730
TCS Wet Scrubber A		Advanced Air Technologies	Apollo Series	N/A		730
DCS Wet Scrubber B	200 scfm	Advanced Air Technologies	Apollo Series	N/A		730
DCS Wet Scrubber C	200 scfm	Advanced Air Technologies	Apollo Series	N/A		730
TCS Wet Scrubber D		Advanced Air Technologies	Apollo Series	N/A		730

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	DATE OF MFG.	EQUIPMENT ID	AAC/NSPS
Emergency Generator	535 hp	Cummins Diesel	N/A	1986		719/ZZZZ
VES-1 Diesel Generator	230 hp	Caterpillar	C6.6 DIT	March 2017		IIII
Diesel Generator VES-2 Scrubber	136 hp	Onsite Energy / John Deere	N/A	2010		IIII
Diesel Fire Water Pump	244 hp	Cummins Diesel	N/A	1990		719/ZZZZ
Cylinder Shot Blaster & Dust Collector	240 cyl/day	Viking Corp	GC112 (blaster) 9DC (collector)	April 2006		726
Spray Paint Booth	6'x7'2"x6'	DeVilbiss Company	XDF-6000 (M)	N/A		727
Ammonia Recovery System	200 lb/hr	RM Technologies	N/A	July 2006		730
Caustic Wet Scrubber	2,825-3,000 scfm 1.5 hp pump 10 hp - fan	Advanced Air Technologies	Orion Series	2010	VES-2	730
Process Caustic Wet Scrubber	50 scfm 1.5 hp – pump	Advanced Air Technology	Apollo 50 Series	04/09/2008	PCWS-1	730
Process Dry Scrubber	100 slpm	CS Clean Systems	CS200BS	2010	PDS-1	730
Gas Detection	N/A	Honeywell	Vertex	2010	N/A	N/A
Ventilation Emergency Scrubber	20 scfm	Advanced Air Technologies	Orion Series Twin Tower	TBD	VES-3	730

APPENDIX "A": AMBIENT AIR MONITOIRING PLAN