KEEP PERMIT AT SITE

CONTROL NO. B- 05895

Lawrence J. Hogan, Jr.
Governor

State of Maryland

Ben Grumbles
Secretary

DEPARTMENT OF THE ENVIRONMENT

Air and Radiation Administration
1800 Washington Boulevard, Suite 720
Baltimore, MD 21230

[ ] Construction Permit

Part 70
[X] Operating Permit

PERMIT NO. 24-510-0076

DATE ISSUED September 1, 2019

PERMIT FEE To be paid in accordance with COMAR 26.11.02.19B

EXPIRATION DATE August 31, 2024

LEGAL OWNER & ADDRESS

W.R. Grace & Co.-Conn.
5500 Chemical Road
Baltimore, MD 21226
Attn: Mr. Mark Galloway, Env. Engineer

SITE

W.R. Grace & Co.-Conn.
Grace Curtis Bay Works
5500 Chemical Road
Baltimore, MD 21226
AI#2102

SOURCE DESCRIPTION

Multi-plant facility that manufactures Silica-based and Alumina-based inorganic chemicals.

This source is subject to the conditions described on the attached pages.

Program Manager

Director, Air and Radiation Administration

W.R. GRACE & CO. – CONN
GRACE CURTIS BAY WORKS
5500 CHEMICAL ROAD, BALTIMORE, MD 21226
PART 70 OPERATING PERMIT NO. 24-510-0076

SECTION I SOURCE IDENTIFICATION

1. DESCRIPTION OF FACILITY

W. R. Grace & Co. – Conn's Grace Curtis Bay Works (Grace) is a multi-product specialty inorganic chemicals manufacturing facility that includes several plants that operate independently. The facility is located in Baltimore City Maryland Air Quality Region III. Products manufactured at the facility are either silica-based or alumina-based, and include molecular sieves, catalysts, and various grades of silica gel.

The facility uses equipment typical of solids handling operations, e.g., calciners, dryers, crushers, grinders, belt conveyors, pneumatic conveyors, screening/classifying devices, storage silos, and fabric filters for product collection and air pollution control. The primary SIC code for the facility is 2819.

2. FACILITY INVENTORY LIST

Plant Name and General 3-Letter Designation	ARA Registration Number	General Process Description	Date of Initial Operation
Powerhouse Boilers (POW)	510-0076-5-0294 (POW-01)	125-MMBtu/hr boiler equipped with low NO_x burners & flue gas recirculation, and fired with natural gas or no. 2 oil	Pre 1968, upgraded 1994
	510-0076-5-0016 (POW-02)	60-MMBtu/hr boiler fired with natural gas or no. 2 oil	Pre 1968
	510-0076-5-1379 (POW-05)	rental boiler, less than 50 MMBtu/hr, equipped with low NO_x burners, and fired with natural gas only	1995
	510-0076-5-1679 (POW-06)	rental boiler, less than 100 MMBtu/hr, equipped with low NO_x burners and flue gas recirculation, fired with natural gas only; to be placed in service only when POW-01 is out of service for maintenance and repair	2004
Emergency Generators	510-0076-9-0991 (POW-08) (WRP-GEN2)	1,115 hp emergency generator fired by diesel fuel to supply back-up emergency power to the Water Reclamation Plant (WRP).	1987
	510-0076-9-0990 (SAC-136) (SAC-GEN2)	755 hp emergency generator fired by diesel fuel used to supply back-up emergency power in the FCC Plant (ARA Registration No. 510-0076-7-1644).	1996
Combined Heat and Power (CHP) Plant	510-0076-9-1365 (CHP-01)	Natural gas-fired Caterpillar G3520H combined heat and power unit equipped with an engine rated at 2,485 kilowatts (3,448 brake	2018

Plant Name and General 3-Letter Designation	ARA Registration Number	General Process Description	Date of Initial Operation
		horsepower) equipped with selective catalytic reduction (SCR) and oxidation catalyst controls	
	510-0076-9-1366 (CHP-02)	Natural gas-fired Caterpillar G3520H combined heat and power unit equipped with an engine rated at 2,485 kilowatts (3,448 brake horsepower) equipped with selective catalytic reduction (SCR) and oxidation catalyst controls	
Technical Development Center Operations (DCO) Plant	510-0076-7-0951	Includes a variety of pilot scale installations used for product development. The installations are usually similar to the full scale installations used in the facility's production units.	1972
Magnapore and Magnapore Expansion (MAG and MGX) Plants	510-0076-7-1024	The MAG and MGX plants produce silica gel impregnated with titanium and chromium. Operations include mixing of raw materials, washing crude product with inorganic solutions to remove salts, azeotroping with solvent to remove water, drying in a dryer to remove excess solvent, recovery of solvent by distillation, sizing product with screens and grinders, calcining to remove residual solvent, homogenizing (blending), and packaging.	1980 for MAG and 1991 for MGX
Catalyst Additives Operations (CAO) Plant	510-0076-7-1076	The CAO plant produces molecular sieves that are either shipped in bulk or slurried for use in other plants at the facility. Operations include crystallization of a mixture of raw materials, washing the crystallized material to obtain a molecular sieve, recovering raw materials washed out during the initial washing step, washing the molecular sieve, stripping ammonia generated during this second washing step and converting the ammonia back to ammonium sulfate, drying the molecular sieve, recovering ammonia released during the drying step, and pneumatically conveying product to storage silos.	1940 (Est.)
Automobile Emissions Operations (AEO) Plant (This Plant is also referred to as the Hydroprocessing Catalyst Plant)	510-0076-7-1077	The AEO plant includes four (4) processes as follows: 1. Alumina process where raw materials are reacted to produce a dried powder product. 2. Spheres plant where material from the alumina process is formed into spheres and dried. 3. Spherical Hydroprocessing Plant where additional chemicals can be added to the spheres from the spheres plant. 4. Extruded Hydroprocessing Plant where additional chemicals are added to the material from the alumina process and formed into extrudates.	1973

Plant Name and General 3-Letter Designation	ARA Registration Number	General Process Description	Date of Initial Operation
Silica Alumina Catalyst Plant – CX & Additives ($SAC^{(1-100)}$) Plant	510-0076-7-1079	The $SAC^{(1-100)}$ plant includes 3 processes: 1. The production of an intermediate material known as CX-100, which is used as a raw material in some catalysts. 2. The production of zeolites used as raw material in some catalysts. 3. The production of catalysts.	1982
Silica Alumina Catalyst – FCC CAT (FCC) Plant (This plant is also referred to as the $SAC^{(101-End)}$ Plant)	510-0076-7-1644	Inorganic raw materials including a silicate, alumina, and clay are mixed and dried (some at higher temperatures than others) to form a catalyst product in the form of spherical particles. The spheres are washed, and some grades are further dried to aid processing. The product is again washed, and then subjected to a final drying step before being conveyed to a storage silo.	1994
Industrial Catalyst Operations (ICO) Plant (This plant is also referred to as the Polyolefin Plant or the Poly Plant.)	510-0076-7-1094	Silica gel, with or without chrome, is dried into catalysts or catalyst raw materials.	1950
Silica Gel Operations – K-1 Granular and Syloids (SGO) Plant	510-0076-7-1095	A silicate is mixed with sulfuric acid to produce a raw silica gel, which is washed to develop desired surface properties and to remove impurities. The washed product is dried, sized, and treated with various chemicals to obtain a final product.	1930 (Approx.)
Former High Pore Volume (HPV) silica gel operations – Sylox Plant	510-0076-7-1405	A silicate is mixed with carbon dioxide to produce silica gel, which is aged, washed to remove impurities, dried, and sized before packaging.	1985
Specialty Catalyst Plant (SCP) (This plant is also referred to as the Organo-Metallic Catalyst Plant or OMC Plant)	510-0076-7-1667	Silica gel is dried for use as a raw material or as an end product. Organic and inorganic materials are reacted in a reactor, and the resulting catalyst product is dried and packaged. The plant includes solvent recovery operations and a thermal oxidizer for control of VOC emissions.	1997

SECTION II GENERAL CONDITIONS

1. DEFINITIONS

[COMAR 26.11.01.01] and [COMAR 26.11.02.01]

The words or terms in this Part 70 permit shall have the meanings established under COMAR 26.11.01 and .02 unless otherwise stated in this permit.

2. ACRONYMS

ARA	Air and Radiation Administration
BACT	Best Available Control Technology
Btu	British thermal unit
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEM	Continuous Emissions Monitor
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COMAR	Code of Maryland Regulations
EPA	United States Environmental Protection Agency
FR	Federal Register
gr	grains
HAP	Hazardous Air Pollutant
MACT	Maximum Achievable Control Technology
MDE	Maryland Department of the Environment
MVAC	Motor Vehicle Air Conditioner
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NO_x	Nitrogen Oxides
NSPS	New Source Performance Standards
NSR	New Source Review
OTR	Ozone Transport Region
PM	Particulate Matter
PM10	Particulate Matter with Nominal Aerodynamic Diameter of 10 micrometers or less
ppm	parts per million
ppb	parts per billion
PSD	Prevention of Significant Deterioration
PTC	Permit to construct
PTO	Permit to operate (State)
SIC	Standard Industrial Classification

SO_2	Sulfur Dioxide
TAP	Toxic Air Pollutant
tpy	tons per year
VE	Visible Emissions
VOC	Volatile Organic Compounds

3. EFFECTIVE DATE

The effective date of the conditions in this Part 70 permit is the date of permit issuance, unless otherwise stated in the permit.

4. PERMIT EXPIRATION

[COMAR 26.11.03.13B(2)]

Upon expiration of this permit, the terms of the permit will automatically continue to remain in effect until a new Part 70 permit is issued for this facility provided that the Permittee has submitted a timely and complete application and has paid applicable fees under COMAR 26.11.02.16.

Otherwise, upon expiration of this permit the right of the Permittee to operate this facility is terminated.

5. PERMIT RENEWAL

[COMAR 26.11.03.02B(3)] and [COMAR 26.11.03.02E]

The Permittee shall submit to the Department a completed application for renewal of this Part 70 permit at least 12 months before the expiration of the permit. Upon submitting a completed application, the Permittee may continue to operate this facility pending final action by the Department on the renewal.

The Permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application, shall submit such supplementary facts or corrected information no later than 10 days after becoming aware that this occurred. The Permittee shall also provide additional information as necessary to address any requirements that become applicable to the facility after the date a completed application was submitted, but prior to the release of a draft permit. This

information shall be submitted to the Department no later than 20 days after a new requirement has been adopted.

6. CONFIDENTIAL INFORMATION

[COMAR 26.11.02.02G]

In accordance with the provisions of the State Government Article, Sec. 10-611 et seq., Annotated Code of Maryland, all information submitted in an application shall be considered part of the public record and available for inspection and copying, unless the Permittee claims that the information is confidential when it is submitted to the Department. At the time of the request for inspection or copying, the Department will make a determination with regard to the confidentiality of the information. The Permittee, when requesting confidentiality, shall identify the information in a manner specified by the Department and, when requested by the Department, promptly provide specific reasons supporting the claim of confidentiality. Information submitted to the Department without a request that the information be deemed confidential may be made available to the public. Subject to approval of the Department, the Permittee may provide a summary of confidential information that is suitable for public review. The content of this Part 70 permit is not subject to confidential treatment.

7. PERMIT ACTIONS

[COMAR 26.11.03.06E(3)] and [COMAR 26.11.03.20(A)]

This Part 70 permit may be revoked or reopened and revised for cause. The filing of an application by the Permittee for a permit revision or renewal; or a notification of termination, planned changes or anticipated noncompliance by the facility, does not stay a term or condition of this permit.

The Department shall reopen and revise, or revoke the Permittee's Part 70 permit under the following circumstances:

a. Additional requirements of the Clean Air Act become applicable to this facility and the remaining permit term is 3 years or more;

b. The Department or the EPA determines that this Part 70 permit contains a material mistake, or is based on false or inaccurate information supplied by or on behalf of the Permittee;

c. The Department or the EPA determines that this Part 70 permit must be revised or revoked to assure compliance with applicable requirements of the Clean Air Act; or

d. Additional requirements become applicable to an affected source under the Federal Acid Rain Program.

8. PERMIT AVAILABILITY

[COMAR 26.11.02.13G]

The Permittee shall maintain this Part 70 permit in the vicinity of the facility for which it was issued, unless it is not practical to do so, and make this permit immediately available to officials of the Department upon request.

9. REOPENING THE PART 70 PERMIT FOR CAUSE BY THE EPA

[COMAR 26.11.03.20B]

The EPA may terminate, modify, or revoke and reissue a permit for cause as prescribed in 40 CFR §70.7(g)

10. TRANSFER OF PERMIT

[COMAR 26.11.02.02E]

The Permittee shall not transfer this Part 70 permit except as provided in COMAR 26.11.03.15.

11. REVISION OF PART 70 PERMITS – GENERAL CONDITIONS

[COMAR 26.11.03.14] and [COMAR 26.11.03.06A(8)]

a. The Permittee shall submit an application to the Department to revise this Part 70 permit when required under COMAR 26.11.03.15 -.17.

b. When applying for a revision to a Part 70 permit, the Permittee shall comply with the requirements of COMAR 26.11.03.02 and .03 except that the application for a revision need include only information listed that is related to the proposed change to the source and revision to the permit. This information shall be sufficient to evaluate the proposed change and to determine whether it will comply with all applicable requirements of the Clean Air Act.

c. The Permittee may not change any provision of a compliance plan or schedule in a Part 70 permit as an administrative permit amendment or as a minor permit modification unless the change has been approved by the Department in writing.

d. A permit revision is not required for a change that is provided for in this permit relating to approved economic incentives, marketable permits, emissions trading, and other similar programs.

12. SIGNIFICANT PART 70 OPERATING PERMIT MODIFICATIONS

[COMAR 26.11.03.17]

The Permittee may apply to the Department to make a significant modification to its Part 70 Permit as provided in COMAR 26.11.03.17 and in accordance with the following conditions:

a. A significant modification is a revision to the federally enforceable provisions in the permit that does not qualify as an administrative permit amendment under COMAR 26.11.03.15 or a minor permit modification as defined under COMAR 26.11.03.16.

b. This permit does not preclude the Permittee from making changes, consistent with the provisions of COMAR 26.11.03, that would make the permit or particular terms and conditions of the permit irrelevant, such as by shutting down or reducing the level of operation of a source or of an emissions unit within the source. Air pollution control equipment shall not be shut down or its level of operation reduced if doing so would violate any term of this permit.

c. Significant permit modifications are subject to all requirements of COMAR 26.11.03 as they apply to permit issuance and renewal,

including the requirements for applications, public participation, and review by affected states and EPA, except:

(1) An application need include only information pertaining to the proposed change to the source and modification of this permit, including a description of the change and modification, and any new applicable requirements of the Clean Air Act that will apply if the change occurs;

(2) Public participation, and review by affected states and EPA, is limited to only the application and those federally enforceable terms and conditions of the Part 70 permit that are affected by the significant permit modification.

d. As provided in COMAR 26.11.03.15B(5), an administrative permit amendment may be used to make a change that would otherwise require a significant permit modification if procedures for enhanced preconstruction review of the change are followed that satisfy the requirements of 40 CFR 70.7(d)(1)(v).

e. Before making a change that qualifies as a significant permit modification, the Permittee shall obtain all permits-to-construct and approvals required by COMAR 26.11.02.

f. The Permittee shall not make a significant permit modification that results in a violation of any applicable requirement of the Clean Air Act.

g. The permit shield in COMAR 26.11.03.23 applies to a final significant permit modification that has been issued by the Department, to the extent applicable under COMAR 26.11.03.23.

13. MINOR PERMIT MODIFICATIONS

[COMAR 26.11.03.16]

The Permittee may apply to the Department to make a minor modification to the federally enforceable provisions of this Part 70 permit as provided in COMAR 26.11.03.16 and in accordance with the following conditions:

a. A minor permit modification is a Part 70 permit revision that:

(1) Does not result in a violation of any applicable requirement of the Clean Air Act;

(2) Does not significantly revise existing federally enforceable monitoring, including test methods, reporting, record keeping, or compliance certification requirements except by:

(a) Adding new requirements,

(b) Eliminating the requirements if they are rendered meaningless because the emissions to which the requirements apply will no longer occur, or

(c) Changing from one approved test method for a pollutant and source category to another;

(3) Does not require or modify a:

(a) Case-by-case determination of a federally enforceable emissions standard,

(b) Source specific determination for temporary sources of ambient impacts, or

(c) Visibility or increment analysis;

(4) Does not seek to establish or modify a federally enforceable permit term or condition for which there is no corresponding underlying applicable requirement of the Clean Air Act, but that the Permittee has assumed to avoid an applicable requirement to which the source would otherwise be subject, including:

(a) A federally enforceable emissions standard applied to the source pursuant to COMAR 26.11.02.03 to avoid classification as a Title I modification; and

(b) An alternative emissions standard applied to an emissions unit pursuant to regulations promulgated under Section 112(i)(5) of the Clean Air Act

(5) Is not a Title I modification; and

(6) Is not required under COMAR 26.11.03.17 to be processed as a significant modification to this Part 70 permit.

b. Application for a Minor Permit Modification

The Permittee shall submit to the Department an application for a minor permit modification that satisfies the requirements of COMAR 26.11.03.03 which includes the following:

(1) A description of the proposed change, the emissions resulting from the change, and any new applicable requirements that will apply if the change is made;

(2) The proposed minor permit modification;

(3) Certification by a responsible official, in accordance with COMAR 26.11.02.02F, that:

(a) The proposed change meets the criteria for a minor permit modification, and

(b) The Permittee has obtained or applied for all required permits-to-construct required by COMAR 26.11.03.16 with respect to the proposed change;

(4) Completed forms for the Department to use to notify the EPA and affected states, as required by COMAR 26.11.03.07-.12.

c. Permittee's Ability to Make Change

(1) For changes proposed as minor permit modifications to this permit that will require the applicant to obtain a permit to construct, the permit to construct must be issued prior to the new change.

(2) During the period of time after the Permittee applies for a minor modification but before the Department acts in accordance with COMAR 26.11.03.16F(2):

(a) The Permittee shall comply with applicable requirements of the Clean Air Act related to the change and the permit terms and conditions described in the application for the minor modification.

(b) The Permittee is not required to comply with the terms and conditions in the permit it seeks to modify. If the Permittee fails to comply with the terms and conditions in the application during this time, the terms and conditions of both this permit and the application for modification may be enforced against it.

d. The Permittee is subject to enforcement action if it is determined at any time that a change made under COMAR 26.11.03.16 is not within the scope of this regulation.

e. Minor permit modification procedures may be used for Part 70 permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, but only to the extent that the minor permit modification procedures are explicitly provided for in regulations approved by the EPA as part of the Maryland SIP or in other applicable requirements of the Clean Air Act.

14. ADMINISTRATIVE PART 70 OPERATING PERMIT AMENDMENTS

[COMAR 26.11.03.15]

The Permittee may apply to the department to make an administrative permit amendment as provided in COMAR 26.11.03.15 and in accordance with the following conditions:

a. An application for an administrative permit amendment shall:

(1) Be in writing;

(2) Include a statement certified by a responsible official that the proposed amendment meets the criteria in COMAR 26.11.03.15 for an administrative permit amendment, and

(3) Identify those provisions of this part 70 permit for which the amendment is requested, including the basis for the request.

b. An administrative permit amendment:

(1) Is a correction of a typographical error;

(2) Identifies a change in the name, address, or phone number of a person identified in this permit, or a similar administrative change involving the Permittee or other matters which are not directly related to the control of air pollution;

(3) requires more frequent monitoring or reporting by the Permittee;

(4) Allows for a change in ownership or operational control of a source for which the Department determines that no other revision to the permit is necessary and is documented as per COMAR 26.11.03.15B(4);

(5) Incorporates into this permit the requirements from preconstruction review permits or approvals issued by the Department in accordance with COMAR 26.11.03.15B(5), but only if it satisfies 40 CFR 70.7(d)(1)(v);

(6) Incorporates any other type of change, as approved by the EPA, which is similar to those in COMAR 26.11.03.15B(1)—(4);

(7) Notwithstanding COMAR 26.11.03.15B(1)—(6), all modifications to acid rain control provisions included in this Part 70 permit are governed by applicable requirements promulgated under Title IV of the Clean Air Act; or

(8) Incorporates any change to a term or condition specified as State-only enforceable, if the Permittee has obtained all necessary permits-to-construct and approvals that apply to the change.

c. The Permittee may make the change addressed in the application for an administrative amendment upon receipt by the Department of the application, if all permits-to-construct or approvals otherwise required by COMAR 26.11.02 prior to making the change have first been obtained from the Department.

d. The permit shield in COMAR 26.11.03.23 applies to administrative permit amendments made under Section B(5) of COMAR 26.11.03.15 , but only after the Department takes final action to revise the permit.

e. The Permittee is subject to enforcement action if it is determined at any time that a change made under COMAR 26.11.03.15 is not within the scope of this regulation.

15. OFF-PERMIT CHANGES TO THIS SOURCE

[COMAR 26.11.03.19]

The Permittee may make off-permit changes to this facility as provided in COMAR 26.11.03.19 and in accordance with the following conditions:

a. The Permittee may make a change to this permitted facility that is not addressed or prohibited by the federally enforceable conditions of this Part 70 permit without obtaining a Part 70 permit revision if:

(1) The Permittee has obtained all permits and approvals required by COMAR 26.11.02 and .03;

(2) The change is not subject to any requirements under Title IV of the Clean Air Act;

(3) The change is not a Title I modification; and

(4) The change does not violate an applicable requirement of the Clean Air Act or a federally enforceable term or condition of the permit.

b. For a change that qualifies under COMAR 26.11.03.19, the Permittee shall provide contemporaneous written notice to the Department and the EPA, except for a change to an emissions unit or activity that is exempt from the Part 70 permit application, as provided in COMAR 26.11.03.04. This written notice shall describe the change, including the date it was made, any change in emissions, including the pollutants emitted, and any new applicable requirements of the Clean Air Act that apply as a result of the change.

c. Upon satisfying the requirements of COMAR 26.11.03.19, the Permittee may make the proposed change.

d. The Permittee shall keep a record describing:

(1) Changes made at the facility that result in emissions of a regulated air pollutant subject to an applicable requirement of the Clean Air Act , but not otherwise regulated under this permit; and

(2) The emissions resulting from those changes.

e. Changes that qualify under COMAR 26.11.03.19 are not subject to the requirements for Part 70 revisions.

f. The Permittee shall include each off-permit change under COMAR 26.11.03.19 in the application for renewal of the part 70 permit.

g. The permit shield in COMAR 26.11.03.23 does not apply to off-permit changes made under COMAR 26.11.03.19.

h. The Permittee is subject to enforcement action if it is determined that an off-permit change made under COMAR 26.11.03.19 is not within the scope of this regulation.

16. ON-PERMIT CHANGES TO SOURCES

[COMAR 26.11.03.18]

The Permittee may make on-permit changes that are allowed under Section 502(b)(10) of the Clean Air Act as provided in COMAR 26.11.03.18 and in accordance with the following conditions:

a. The Permittee may make a change to this facility without obtaining a revision to this Part 70 permit if:

(1) The change is not a Title I modification;

(2) The change does not result in emissions in excess of those expressly allowed under the federally enforceable provisions of the Part 70 permit for the permitted facility or for an emissions unit within the facility, whether expressed as a rate of emissions or in terms of total emissions;

(3) The Permittee has obtained all permits and approvals required by COMAR 26.11.02 and .03;

(4) The change does not violate an applicable requirement of the Clean Air Act;

(5) The change does not violate a federally enforceable permit term or condition related to monitoring, including test methods, record keeping, reporting, or compliance certification requirements;

(6) The change does not violate a federally enforceable permit term or condition limiting hours of operation, work practices, fuel usage, raw material usage, or production levels if the term or condition has been established to limit emissions allowable under this permit;

(7) If applicable, the change does not modify a federally enforceable provision of a compliance plan or schedule in this Part 70 permit unless the Department has approved the change in writing; and

(8) This permit does not expressly prohibit the change under COMAR 26.11.03.18.

b. The Permittee shall notify the Department and the EPA in writing of a proposed on-permit change under COMAR 26.11.03.18 not later than 7 days before the change is made. The written information shall include the following information:

(1) A description of the proposed change;

(2) The date on which the change is proposed to be made;

(3) Any change in emissions resulting from the change, including the pollutants emitted;

(4) Any new applicable requirement of the Clean Air Act; and

(5) Any permit term or condition that would no longer apply.

c. The responsible official of this facility shall certify in accordance with COMAR 26.11.02.02F that the proposed change meets the criteria for the use of on-permit changes under COMAR 26.11.03.18.

d. The Permittee shall attach a copy of each notice required by condition b. above to this Part 70 permit.

e. On-permit changes that qualify under COMAR 26.11.03.18 are not subject to the requirements for part 70 permit revisions.

f. Upon satisfying the requirements under COMAR 26.11.03.18, the Permittee may make the proposed change.

g. The permit shield in COMAR 26.11.03.23 does not apply to on-permit changes under COMAR 26.11.03.18.

h. The Permittee is subject to enforcement action if it is determined that an on-permit change made under COMAR 26.11.03.18 is not within the scope of the regulation or violates any requirement of the State air pollution control law.

17. FEE PAYMENT

[COMAR 26.11.02.16A(2) & (5)(b)]

a. The fee for this Part 70 permit is as prescribed in Regulation .19 of COMAR 26.11.02.

b. The fee is due on and shall be paid on or before each 12-month anniversary date of the permit.

c. Failure to pay the annual permit fee constitutes cause for revocation of the permit by the Department.

18. REQUIREMENTS FOR PERMITS-TO-CONSTRUCT AND APPROVALS

[COMAR 26.11.02.09.]

The Permittee may not construct or modify or cause to be constructed or modified any of the following sources without first obtaining, and having in current effect, the specified permits-to-construct and approvals:

a. New Source Review source, as defined in COMAR 26.11.01.01, approval required, except for generating stations constructed by electric companies;

b. Prevention of Significant Deterioration source, as defined in COMAR 26.11.01.01, approval required, except for generating stations constructed by electric companies;

c. New Source Performance Standard source, as defined in COMAR 26.11.01.01, permit to construct required, except for generating stations constructed by electric companies;

d. National Emission Standards for Hazardous Air Pollutants source, as defined in COMAR 26.11.01.01, permit to construct required, except for generating stations constructed by electric companies;

e. A stationary source of lead that discharges one ton per year or more of lead or lead compounds measured as elemental lead, permit to construct required, except for generating stations constructed by electric companies;

f. All stationary sources of air pollution, including installations and air pollution control equipment, except as listed in COMAR 26.11.02.10, permit to construct required;

g. In the event of a conflict between the applicability of (a.— e.) above and an exemption listed in COMAR 26.11.02.10, the provision that requires a permit applies.

h. Approval of a PSD or NSR source by the Department does not relieve the Permittee obtaining an approval from also obtaining all permits-to-construct required b y (c.— g.) above.

19. CONSOLIDATION OF PROCEDURES FOR PUBLIC PARTICIPATION

[COMAR 26.11.02.11C] and [COMAR 26.11.03.01K]

The Permittee may request the Department to authorize special procedures for the Permittee to apply simultaneously, to the extent possible, for a permit to construct and a revision to this permit.

These procedures may provide for combined public notices, informational meetings, and public hearings for both permits but shall not adversely affect the rights of a person, including EPA and affected states, to obtain information about the application for a permit, to comment on an application, or to challenge a permit that is issued.

These procedures shall not alter any existing permit procedures or time frames.

20. PROPERTY RIGHTS

[COMAR 26.11.03.06E(4)]

This Part 70 permit does not convey any property rights of any sort, or any exclusive privileges.

21. SEVERABILITY

[COMAR 26.11.03.06A(5)]

If any portion of this Part 70 permit is challenged, or any term or condition deemed unenforceable, the remainder of the requirements of the permit continues to be valid.

22. INSPECTION AND ENTRY

[COMAR 26.11.03.06G(3)]

The Permittee shall allow employees and authorized representatives of the Department, the EPA, and local environmental health agencies, upon presentation of credentials or other documents as may be required by law, to:

a. Enter at a reasonable time without delay and without prior notification the Permittee's property where a Part 70 source is located, emissions-related activity is conducted, or records required by this permit are kept;

b. Have access to and make copies of records required by the permit;

c. Inspect all emissions units within the facility subject to the permit and all related monitoring systems, air pollution control equipment, and practices or operations regulated or required by the permit; and

d. Sample or monitor any substances or parameters at or related to the emissions units at the facility for the purpose of determining compliance with the permit.

23. DUTY TO PROVIDE INFORMATION

[COMAR 26.11.03.06E(5)]

The Permittee shall furnish to the Department, within a reasonable time specified by the Department, information requested in writing by the Department in order to determine whether the Permittee is in compliance with the federally enforceable conditions of this Part 70 permit, or whether cause exists for revising or revoking the permit. Upon request, the Permittee shall also furnish to the Department records required to be kept under the permit.

For information claimed by the Permittee to be confidential and therefore potentially not discloseable to the public, the Department may require the Permittee to provide a copy of the records directly to the EPA along with a claim of confidentiality.

The Permittee shall also furnish to the Department, within a reasonable time specified by the Department, information or records requested in writing by the Department in order to determine if the Permittee is in compliance with the State-only enforceable conditions of this permit.

24. COMPLIANCE REQUIREMENTS

[COMAR 26.11.03.06E(1)] and [COMAR 26.11.03.06A(11)] and [COMAR 26.11.02.05]

The Permittee shall comply with the conditions of this Part 70 permit. Noncompliance with the permit constitutes a violation of the Clean Air Act, and/or the Environment Article Title 2 of the Annotated Code of Maryland and may subject the Permittee to:

a. Enforcement action,

b. Permit revocation or revision,

c. Denial of the renewal of a Part 70 permit, or

d. Any combination of these actions.

The conditions in this Part 70 permit are enforceable by EPA and citizens under the Clean Air Act except for the State-only enforceable conditions.

Under Environment Article Section 2-609, Annotated Code of Maryland, the Department may seek immediate injunctive relief against a person who violates this permit in such a manner as to cause a threat to human health or the environment.

25. CREDIBLE EVIDENCE

Nothing in this permit shall be interpreted to preclude the use of credible evidence to demonstrate noncompliance with any term of this permit.

26. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

[COMAR 26.11.03.06E(2)]

The need to halt or reduce activity in order to comply with the conditions of this permit may not be used as a defense in an enforcement action.

27. CIRCUMVENTION

[COMAR 26.11.01.06]

The Permittee may not install or use any article, machine, equipment or other contrivance, the use of which, without resulting in a reduction in the total weight of emissions, conceals or dilutes emissions which would otherwise constitute a violation of any applicable air pollution control regulation.

28. PERMIT SHIELD

[COMAR 26.11.03.23]

A permit shield as described in COMAR 26.11.03.23 shall apply only to terms and conditions in this Part 70 permit that have been specifically identified as covered by the permit shield. Neither this permit nor COMAR 26.11.03.23 alters the following:

a. The emergency order provisions in Section 303 of the Clean Air Act, including the authority of EPA under that section;

b. The liability of the Permittee for a violation of an applicable requirement of the Clean Air Act before or when this permit is issued or for a violation that continues after issuance;

c. The requirements of the Acid Rain Program, consistent with Section 408(a) of the Clean Air Act;

d. The ability of the Department or EPA to obtain information from a source pursuant to Maryland law and Section 114 of the Clean Air Act; or

e. The authority of the Department to enforce an applicable requirement of the State air pollution control law that is not an applicable requirement of the Clean Air Act.

29. ALTERNATE OPERATING SCENARIOS

[COMAR 26.11.03.06A(9)]

For all alternate operating scenarios approved by the Department and contained within this permit, the Permittee, while changing from one approved scenario to another, shall contemporaneously record in a log maintained at the facility each scenario under which the emissions unit is operating and the date and time the scenario started and ended.

SECTION III PLANT WIDE CONDITIONS

1. PARTICULATE MATTER FROM CONSTRUCTION AND DEMOLITION

[COMAR 26.11.06.03D]

The Permittee shall not cause or permit any building, its appurtenances, or a road to be used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne.

2. OPEN BURNING

[COMAR 26.11.07]

Except as provided in COMAR 26.11.07.04, the Permittee shall not cause or permit an open fire from June 1 through August 31 of any calendar year. Prior to any open burning, the Permittee shall request and receive approval from the Department.

3. AIR POLLUTION EPISODE

[COMAR 26.11.05.04]

When requested by the Department, the Permittee shall prepare in writing standby emissions reduction plans, consistent with good industrial practice and safe operating procedures, for reducing emissions creating air pollution during periods of Alert, Warning, and Emergency of an air pollution episode.

4. REPORT OF EXCESS EMISSIONS AND DEVIATIONS

[COMAR 26.11.01.07] and [COMAR 26.11.03.06C(7)]

The Permittee shall comply with the following conditions for occurrences of excess emissions and deviations from requirements of this permit, including those in Section VI – State-only Enforceable Conditions:

a. Report any deviation from permit requirements that could endanger human health or the environment, by orally notifying the Department immediately upon discovery of the deviation;

b. Promptly report all occurrences of excess emissions that are expected to last for one hour or longer by orally notifying the Department of the onset and termination of the occurrence;

c. When requested by the Department the Permittee shall report all deviations from permit conditions, including those attributed to malfunctions as defined in COMAR 26.11.01.07A, within 5 days of the request by submitting a written description of the deviation to the Department. The written report shall include the cause, dates and times of the onset and termination of the deviation, and an account of all actions planned or taken to reduce, eliminate, and prevent recurrence of the deviation;

d. The Permittee shall submit to the Department semi-annual monitoring reports that confirm that all required monitoring was performed, and that provide accounts of all deviations from permit requirements that occurred during the reporting periods. Reporting periods shall be January 1 through June 30 and July 1 through December 31, and reports shall be submitted within 30 days of the end of each reporting period. Each account of deviation shall include a description of the deviation, the dates and times of onset and termination, identification of the person who observed or discovered the deviation, causes and corrective actions taken, and actions taken to prevent recurrence. If no deviations from permit conditions occurred during a reporting period, the Permittee shall submit a written report that so states.

e. When requested by the Department, the Permittee shall submit a written report to the Department within 10 days of receiving the request concerning an occurrence of excess emissions. The report shall contain the information required in COMAR 26.11.01.07D(2).

5. ACCIDENTAL RELEASE PROVISIONS

[COMAR 26.11.03.03B(23)] and [40 CFR 68]

The Permittee shall submit risk management plans by the date specified in 40 CFR 68.150.

The Permittee shall certify compliance with the requirements of 40 CFR 68 as part of the annual compliance certification as required by 40 CFR 70.

6. GENERAL TESTING REQUIREMENTS

[COMAR 26.11.01.04]

The Department may require the Permittee to conduct, or have conducted, testing to determine compliance with this Part 70 permit. The Department, at its option, may witness or conduct these tests. This testing shall be done at a reasonable time, and all information gathered during a testing operation shall be provided to the Department.

7. EMISSIONS TEST METHODS

[COMAR 26.11.01.04]

Compliance with the emissions standards and limitations in this Part 70 permit shall be determined by the test methods designated and described below or other test methods submitted to and approved by the Department.

Reference documents of the test methods approved by the Department include the following:

a. 40 CFR 60, appendix A

b. 40 CFR 51, appendix M

c. The Department's Technical Memorandum 91-01 "Test Methods and Equipment Specifications for Stationary Sources", (January 1991), as amended through Supplement 3, (October 1, 1997)

8. EMISSIONS CERTIFICATION REPORT

[COMAR 26.11.01.05-1] and [COMAR 26.11.02.19C] and [COMAR 26.11.02.19D]

The Permittee shall certify actual annual emissions of regulated pollutants from the facility on a calendar year basis.

a. The certification shall be on forms obtained from the Department and submitted to the Department not later than April 1 of the year following the year for which the certification is required;

b. The individual making the certification shall certify that the information is accurate to the individual's best knowledge. The individual shall be:

(1) Familiar with each source for which the certifications forms are submitted, and

(2) Responsible for the accuracy of the emissions information;

c. The Permittee shall maintain records necessary to support the emissions certification including the following information if applicable:

(1) The total amount of actual emissions of each regulated pollutant and the total of all regulated pollutants;

(2) An explanation of the methods used to quantify the emissions and the operating schedules and production data that were used to determine emissions, including significant assumptions made;

(3) Amounts, types and analyses of all fuels used;

(4) Emissions data from continuous emissions monitors that are required by this permit, including monitor calibration and malfunction information;

(5) Identification, description, and use records of all air pollution control equipment and compliance monitoring equipment including:

(a) Significant maintenance performed,
(b) Malfunctions and downtime, and
(c) Episodes of reduced efficiency of all equipment;

(6) Limitations on source operation or any work practice standards that significantly affect emissions; and

(7) Other relevant information as required by the Department.

9. COMPLIANCE CERTIFICATION REPORT

[COMAR 26.11.03.06G(6) and (7)]

The Permittee shall submit to the Department and EPA Region III a report certifying compliance with each term of this Part 70 permit including each applicable standard, emissions limitation, and work practice for the previous calendar year by April 1 of each year.

a. The compliance certification shall include:

(1) The identification of each term or condition of this permit which is the basis of the certification;

(2) The compliance status;

(3) Whether the compliance was continuous or intermittent;

(4) The methods used for determining the compliance status of each source, currently and over the reporting period; and

(5) Any other information required to be reported to the Department that is necessary to determine the compliance status of the Permittee with this permit.

b. The Permittee shall submit the compliance certification reports to the Department and EPA simultaneously.

10. CERTIFICATION BY RESPONSIBLE OFFICIAL

[COMAR 26.11.02.02F]

All application forms, reports, and compliance certifications submitted pursuant to this permit shall be certified by a responsible official as to truth, accuracy, and completeness. The Permittee shall expeditiously notify the Department of an appointment of a new responsible official.

The certification shall be in the following form:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

11. SAMPLING AND EMISSIONS TESTING RECORD KEEPING

[COMAR 26.11.03.06C(5)]

The Permittee shall gather and retain the following information when sampling and testing for compliance demonstrations:

a. The location as specified in this permit, and the date and time that samples and measurements are taken;

b. All pertinent operating conditions existing at the time that samples and measurements are taken;

c. The date that each analysis of a sample or emissions test is performed and the name of the person taking the sample or performing the emissions test;

d. The identity of the Permittee, individual, or other entity that performed the analysis;

e. The analytical techniques and methods used; and

f. The results of each analysis.

12. GENERAL RECORDKEEPING

[COMAR 26.11.03.06C(6)]

The Permittee shall retain records of all monitoring data and information that support the compliance certification for a period of five (5) years from the date that the monitoring, sample measurement, application, report or emissions test was completed or submitted to the Department.

These records and support information shall include:

a. All calibration and maintenance records;

b. All original data collected from continuous monitoring instrumentation;

c. Records which support the annual emissions certification; and

d. Copies of all reports required by this permit.

13. GENERAL CONFORMITY

[COMAR 26.11.26.09]

The Permittee shall comply with the general conformity requirements of 40 CFR 93, Subpart B and COMAR 26.11.26.09.

14. ASBESTOS PROVISIONS

[40 CFR 61, Subpart M]

The Permittee shall comply with 40 CFR 61, Subpart M when conducting any renovation or demolition activities at the facility.

15. OZONE DEPLETING REGULATIONS

[40 CFR 82, Subpart F]

The Permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR 82, Subpart F, except as provided for MVACs in subpart B:

a. Persons opening appliances for maintenance, service, repair, or disposal shall comply with the prohibitions and required practices pursuant to 40 CFR 82.154 and 82.156.

b. Equipment used during the maintenance, service, repair or disposal of appliances shall comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.

c. Persons performing maintenance, service, repairs or disposal of appliances shall be certified by an approved technician certification program pursuant to 40 CFR 82.161.

d. Persons disposing of small appliances, MVACS, and MVAC-like appliances as defined in 40 CFR 82.152, shall comply with record keeping requirements pursuant to 40 CFR 82.155.

e. Persons owning commercial or industrial process refrigeration equipment shall comply with the leak repair requirements pursuant to 40 CFR 82.156.

f. Owners/operators of appliances normally containing 50 or more pounds of refrigerant shall keep records of refrigerant purchased and added to such appliances pursuant to 40 CFR 82.166.

16. ACID RAIN PERMIT

Not applicable

SECTION IV PLANT SPECIFIC CONDITIONS

This section provides tables that include the emissions standards, emissions limitations, and work practices applicable to each emissions unit located at this facility. The Permittee shall comply with all applicable emissions standards, emissions limitations and work practices included herein.

The tables also include testing, monitoring, record keeping and reporting requirements specific to each emissions unit. In addition to the requirements included here in **Section IV**, the Permittee is also subject to the general testing, monitoring, record keeping and reporting requirements included in **Section III – Plant Wide Conditions** of this permit.

Unless otherwise provided in the specific requirements for an emissions unit, the Permittee shall maintain at the facility for at least five (5) years, and shall make available to the Department upon request, all records that the Permittee is required under this section to establish. [Authority: COMAR 26.11.03.06C(5)(g)]

Table IV – 1 **General Provisions for Section IV**	
1.0	**General Provisions Within Plant Specific Requirements** This table provides generally applicable provisions with regard to requirements for observations for visible emissions, continuous monitoring of operating parameters, preparation of operations and maintenance plans, implementation of good operating practices designed to minimize emissions of VOC, implementation of a VOC leak detection and repair program, stack testing, periodic testing conducted for product development, changes in raw materials and products, changes in equipment and record keeping and reporting requirements. Provisions in this table may be superseded or modified by requirements in succeeding tables. INDEX: 1.1 Observations for Visible Emissions 1.2 Continuous Monitoring and Recording of Operating Parameters 1.3 Operations and Maintenance Plans 1.4 Good Operating Practices Designed to Minimize Emissions of VOC 1.5 VOC Leak Detection and Repair 1.6 Stack Testing 1.7 Periodic Testing Conducted for Product Development 1.8 Changes in Raw Materials and Products 1.9 Relocation, Reconfiguration, and Installation of Equipment 1.10 Limits of Potential Emissions of Hazardous Air Pollutants (HAP) 1.11 Record Keeping and Reporting

Table IV – 1 **General Provisions for Section IV**	
1.1	**Observations for Visible Emissions** (1) Unless otherwise specified, the following shall apply for Section 1.1 of this table: (a) Reference to a facility plant shall be reference to all sources of air emissions and all emissions points associated with the plant as registered with ARA. For example, reference to the facility's Catalyst Additives Operations (CAO) plant shall be reference to all sources of air emissions and all emissions points associated with ARA registration number 7-1076. (b) Reference to an emissions point shall be reference to an emissions point that discharges to atmosphere. (c) An emissions point that discharges within the confines of a building is not subject to requirements concerning visible emissions. (d) Reference to an area observation shall be reference to simultaneous observations for visible emissions, conducted by a single observer, of more than one emissions point. (2) Unless otherwise provided in the specific requirements for an affected emissions unit or emissions point, whenever the Permittee is required to perform an observation for visible emissions from an individual emissions point the following shall apply: (a) Each required observation shall be performed when the affected source of emissions is in operation. If the affected source of emissions does not operate during daylight hours, or does not discharge to atmosphere at the emissions point designated for observation, within the period during which an observation would otherwise be required, the Permittee shall not be required to make an observation of the emissions point for that period. (b) If the Permittee is required to observe an emissions point that is common to more than one source of emissions,

Table IV – 1
General Provisions for Section IV

the Permittee shall make the required observation when at least one of the sources of emissions is in operation. If none of the affected sources of emissions operate within the period during which an observation would otherwise be required, the Permittee shall not be required to make an observation of the emissions point for that period.

(c) Observations shall be performed during daylight hours unless the Permittee obtains from the Department written approval to conduct observations of properly lighted emissions points during non-daylight hours.

(d) The frequency of observation for an emissions point shall be at least once per day on each day that the associated source(s) of emissions operates.

(e) Each required observation for visible emissions shall endure for at least one (1) minute.

(f) The Permittee shall make a written or printable electronic record of each required observation for visible emissions, and each such record shall include identification of the observer, the date of the observation, the time at the start of the observation, the time at the end of the observation if the observation endures for more than 1 minute, and an account of the observer's findings during performance of the observation.

(g) If visible emissions are found during an observation, the Permittee shall either initiate immediate shutdown of all installations contributing to the visible emissions or shall:

(i) inspect all process and/or control equipment with potential to contribute to the visible emissions. For combustion sources (e.g., fuel burning equipment), inspect all combustion control systems and all combustion operations with potential to contribute to the visible emissions;

Table IV – 1
General Provisions for Section IV

(ii) where practical, perform within 24 hours all repairs and/or adjustments to all process equipment, control equipment, combustion control systems and/or combustion sources necessary to eliminate visible emissions; and

(iii) make written records of any repairs and/or adjustments to process equipment, control equipment, combustion control systems and/or combustion sources that were necessary to eliminate visible emissions.

(h) If visible emissions have not been eliminated within 24 hours, the Permittee shall either:

(i) conduct at least once per day EPA Reference Method 9 visible emissions evaluations for a period of at least 12 minutes per evaluation until visible emissions have been eliminated; or

(ii) shut down all equipment contributing to the visible emissions, and effect all maintenance and repairs necessary to re-establish operation without visible emissions before re-starting.

[Authority: COMAR 26.11.03.06C]

(3) Unless otherwise provided in the specific requirements for a registered plant, whenever the Permittee is required to perform observations of multiple emissions points within a plant, the Permittee may elect to conduct area observations. If the Permittee elects to conduct area observations the following shall apply:

(a) Observations shall be performed during daylight hours unless the Permittee obtains from the Department written approval to conduct observations of properly lighted areas during non-daylight hours.

(b) Observations shall be conducted at least once per day on each day that any part of the affected plant operates during daylight hours.

Table IV – 1
General Provisions for Section IV

(c) The location of the observer shall be such that he or she has an unobstructed view of all emissions points being observed.

(d) Each area observation shall endure for at least 5 minutes.

(e) If visible emissions are detected in the area under observation the observer shall identify the emissions point or points from which the visible emissions originate, and the Permittee shall either initiate immediate shutdown of all equipment contributing to the visible emissions, or shall:

(i) inspect all process and/or control equipment with potential to contribute to the visible emissions. For combustion sources (e.g., fuel burning equipment), inspect all combustion control systems and all combustion operations with potential to contribute to the visible emissions;

(ii) where practical, perform within 24 hours all repairs and/or adjustments to all process equipment, control equipment, combustion control systems and/or combustion sources necessary to eliminate visible emissions; and

(iii) make written records of any repairs and/or adjustments to process equipment, control equipment, combustion control systems and/or combustion sources that were necessary to eliminate visible emissions.

(f) If visible emissions have not been eliminated within 24 hours, the Permittee shall either:

(i) conduct at least once per day EPA Reference Method 9 visible emissions evaluations for a period of at least 12 minutes per evaluation until visible emissions have been eliminated; or

Table IV – 1 **General Provisions for Section IV**	
	(ii) shut down all equipment contributing to the visible emissions, and effect all maintenance and repairs necessary to re-establish operation without visible emissions before re-starting. (g) The Permittee shall make a written or printable electronic record of each area observation, and each such record shall include: (i) identification of the observer; (ii) date of the observation; (iii) location of the observer; (iv) identification of all emissions points included in the area being observed; (v) the time at the start of the observation; (vi) the time at the end of the observation if the observation endures for more than 5 minutes; (vii) an account of the observer's findings during performance of the observation; and (viii) if visible emissions were observed, the date and time that the visible emissions abated. **[Authority: COMAR 26.11.03.06C]** (4) Any visible emissions from a point source or an area source lasting one hour or more in duration shall be reported as specified in Items 4 and 9, of Section III – Plant Wide Conditions. **[Authority: COMAR 26.11.03.06C]**
1.2	**<u>Continuous Monitoring and Recording of Operating Parameters</u>** Unless otherwise provided in the specific requirements for a source of emissions, whenever the Permittee is required to continuously monitor an operating parameter that is subject to a standard or limit the following shall apply: (1) A requirement to "continuously monitor" an operating parameter of an affected source shall require that the Permittee implement a monitoring system that:

Table IV – 1
General Provisions for Section IV

(a) makes a determination of the operating parameter at least as frequently as once every fifteen (15) minutes when the affected source is in operation; and

(b) on a calendar quarter basis, provides "valid determinations" of the value of the operating parameter at least 90 percent of the operating time of the affected source. A "valid determination" of a value for the operating parameter shall be any determination of the operating parameter made by a properly calibrated monitoring device unless the determination can be discredited for valid technical reasons.

(2) Compliance with a standard or limit included in this permit for an operating parameter that the Permittee is required to continuously monitor shall be determined by comparison of the standard or limit with a "valid arithmetic average" determined for the parameter during a 1-hour block averaging period. A "valid arithmetic average" of an operating parameter shall be computed using:

(a) at least three (3) valid determinations of the operating parameter, each determination made in a separate 15-minute block period during the 1-hour block averaging period; and

(b) all valid determinations of the operating parameter made during the 1-hour block averaging period.

(3) Any device that is used to determine the value of an operating parameter that the Permittee is required to continuously monitor shall be properly calibrated at least once every six (6) months in accordance with procedures in the operations and maintenance plan for the emission unit.

(4) A requirement that the Permittee "continuously record" the value of an operating parameter shall require that Permittee make record of all values of the parameter that the Permittee is required to monitor.

(5) The Permittee shall maintain records of:

Table IV – 1 **General Provisions for Section IV**	
	(a) all calibrations of devices used to determine the values of operating parameters that the Permittee is required to continuously monitor; and (b) the technical reasons for discrediting any value of an operating parameter determined by a properly calibrated monitoring device. (6) The Permittee may exclude monitoring data during any period in a one-hour block average when feed to the emissions unit or control device is shut off. **[Authority: COMAR 26.11.03.06C]**
1.3	**<u>Operations and Maintenance Plans</u>** Unless otherwise provided in the specific requirements for an emissions unit or plant, whenever the Permittee is required to develop and implement an operations and maintenance plan for a plant within the facility, the plan shall include at minimum: (1) Information that is sufficient to demonstrate that air emissions from each emissions unit within the plant can be expected to comply with all applicable limits and standards during periods of normal operation. Examples of types of information that could be included to support the required demonstrations would be design criteria, vendor specifications and performance guarantees, approved computer modeling studies, and results of testing programs in which approved test methods and procedures were utilized; (2) Procedures that provide for proper operation and maintenance of all active emissions units and air pollution control equipment associated with the source or plant; (3) Provisions for periodic monitoring of operating parameters and emissions as necessary to determine that emissions units and air pollution control equipment are functioning properly; (4) Descriptions of procedures to be followed and corrective actions to be taken when monitoring information indicates that an emissions unit or pollution control device is not functioning properly; and

Table IV – 1 **General Provisions for Section IV**	
	(5) Provisions for developing written or printable electronic records that will show whether prescribed operating, maintenance and monitoring procedures are consistently followed, and whether timely and appropriate corrective actions are taken when malfunctions occur. **[Authority: COMAR 26.11.03.06C]**
1.4	**<u>Good Operating Practices Designed to Minimize Emissions of VOC</u>** When specified in the specific requirements for a plant within the facility, whenever the Permittee is required to implement facility-wide "good operating practices" in accordance with COMAR 26.11.19.02I, the following shall apply: (1) "Good operating practices" shall include, at a minimum: (a) Provisions for training of operators on practices, procedures, and maintenance requirements that are consistent with the equipment manufacturers' recommendations and the source's experience in operating the equipment, with the training to include proper procedures for maintenance of air pollution control equipment; (b) Maintenance of covers on containers and other vessels that contain VOC and VOC-containing materials when not in use; (c) Minimize spills of VOC-containing cleaning materials; (d) Convey VOC-containing cleaning materials from one location to another in closed containers or pipelines; (e) Minimize VOC emissions from cleaning of storage, mixing, and conveying equipment; (f) As practical, scheduling of operations to minimize color or material changes when applying VOC coatings or other materials by spray gun;

Table IV – 1
General Provisions for Section IV

(g) For spray gun applications of coatings, use of high volume low pressure (HVLP) or other high efficiency application methods where practical; and

(h) As practical, mixing or blending materials containing VOC in closed containers and taking preventive measures to minimize emissions for products that contain VOC.

(2) "Good operating practices" shall be established in writing, shall be made available to the Department upon request, and shall be either included as part of an operator training program or posted where clearly visible to operators.

(3) The Permittee shall take all reasonable precautions to prevent or minimize the discharge of VOC into the atmosphere when cleaning process and coating application equipment, including containers, vessels, tanks, lines, and pumps. Reasonable precautions for equipment cleanup shall, at a minimum, include the following:

(a) Storing all wastes and waste materials, including cloth and paper that are contaminated with VOC, in closed containers;

(b) Preparing written standard operating procedures for frequently cleaned equipment, including when practical, provisions for the use of low-VOC or non-VOC materials and procedures to minimize the quantity of VOC materials used;

(c) Using enclosed spray gun cleaning, VOC-recycling systems and other spray gun cleaning methods where practical that reduce or eliminate VOC emissions; and

(d) Using, when practical, detergents, high-pressure water, or other non-VOC cleaning options to clean coating lines, containers, and process equipment.

(4) With regard to storage and transfer of VOC, the Permittee shall at a minimum:

(a) Install conservation vents, or other vapor control measures designed to minimize standing losses, on

Table IV – 1 **General Provisions for Section IV**	
	each storage tank with a capacity of 2000 gallons or more in VOC service; and (b) For stationary storage tanks with capacities greater than 10,000 gallons and less than 40,000 gallons that store VOC or VOC-bearing materials (excluding gasoline) with vapor pressures greater than 1.5 psia, use vapor balance, vapor control lines or other vapor control measures, whenever VOC are transferred from tank trucks into such tanks. **[Authority: COMAR 26.11.19.02I]** (5) The Permittee shall conduct inspections at least once every six (6) months to determine the compliance status of affected plant operations with regard to implementation of "good operating practices" designed to minimize emissions of VOC. **[Authority: COMAR 26.11.03.06C]** (6) The Permittee shall maintain: (a) written descriptions of all "good operating practices" designed to minimize emissions of VOC from facility-wide operations **[Authority: COMAR 26.11.19.02I]**; and (b) records of all inspections conducted to determine the facility's compliance status with regard to implementation of "good operating practices" designed to minimize emissions of VOC from facility-wide operations. The records shall include for each inspection the name of the inspector, the date and time of the inspection, and an account of the findings. **[Authority: COMAR 26.11.03.06C]**
1.5	**<u>VOC Leak Detection and Repair</u>** Unless otherwise provided in the specific requirements for a plant within the facility, whenever the Permittee is required to implement a VOC leak detection and repair program in accordance with COMAR 26.11.19.16, the following shall apply:

Table IV – 1 **General Provisions for Section IV**	
	(1) The Permittee shall visually inspect for leaks, at least once per calendar month, all equipment and components in VOC service. If leaks are detected, the Permittee shall: (a) tag any leak immediately so that the tag is clearly visible. The tag shall be made of a material that will withstand any weather or corrosive conditions to which it may be normally exposed. The tag shall bear an identification number, the date that the leak was discovered, and the identity of the person who discovered the leak. The tag shall remain in place until the leak has been repaired; (b) initiate immediate action to repair all observed VOC leaks that can be repaired within 48 hours; (c) repair all other leaking components within fifteen (15) days of discovery. If a replacement part is needed, the part shall be ordered within three (3) days of discovery of the leak, and the leak shall be repaired with 48 hours of receipt of the part; and (d) Maintain a supply of components and component parts, such as seals, gaskets, packing and pipe fittings, that are known to wear or corrode, or that otherwise need to be routinely replaced. (2) Components that cannot be repaired as required because they are inaccessible, or that cannot be repaired during operation of an installation, shall be identified in a log and included within the facility's maintenance schedule for repair during the next outage of the installation. (3) The Permittee shall maintain VOC leak detection and repair logs that include identification of the persons who conducted the leak detection inspections, the dates on which the inspections were conducted, the findings during the inspections, a listing by tag identification number and a description of all leaks discovered, and the date and nature of all leak repairs effected. **[Authority: COMAR 26.11.19.16]**

Table IV – 1 **General Provisions for Section IV**	
1.6	**<u>Stack Testing</u>** (1) Unless otherwise provided in the specific requirements for an emissions unit or emissions point, when the Permittee is required to perform stack testing the Permittee shall submit to the Department for approval a stack test protocol that includes: (a) the purpose of the stack testing; (b) a testing schedule that provides the projected dates and times of testing; (c) an account of all test methods and procedures to be employed during the testing program; (d) for the emissions source or sources to be tested, an account of the operating conditions that will be extant during the testing program; and (e) a description of operating data that will be collected during the testing periods. (2) The required stack test protocol shall be submitted at least 30 days prior to performance of any testing, and testing shall not be conducted before the Department provides approval of the protocol. (3) Results of all required stack tests shall be submitted to the Department in writing within 60 days of completion of the testing. **[Authority: COMAR 26.11.03.06C]**
1.7	**<u>Periodic Testing Conducted for Product Development</u>** Periodic testing for product development includes plant trials, customer trials, and other temporary testing and development practices that are designed to evaluate whether a material is functional, saleable, optimized, and/or manufacturable on a long-term basis. Periodic testing is exempt from permit-to-construct requirements provided that the Permittee consistently complies with all of the following conditions: (1) Active testing and activities involved with a discrete campaign shall not exceed 720 hours; this period shall not include related inactive or

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General Provisions for Section IV

passive activities (e.g., storage of materials between batches, passive drying of non-VOC materials that do not involve the use of a dryer). All activities for a discrete campaign must occur within six calendar months.

(2) A campaign shall not involve any new or modified equipment that triggers additional applicable federal or State air pollution control requirements or requires a permit-to-construct.

(3) Each campaign shall comply with all applicable emissions standards and limits for the equipment and operation involved and all production limits stipulated in current permits.

(4) The campaign shall comply with all applicable State-only air pollution control requirements, including Maryland toxic air pollutant requirements, specified in Section VI of this permit.

(5) A campaign that does not conform to the requirements of (1) through (4) of Section 1.7 of Table IV-1 may be undertaken only with advance written authorization of the Department.

(6) The Permittee shall maintain on site for at least 5 years, the following records for each campaign:

(a) the purpose of the campaign;

(b) chemical names and daily usage of raw materials used in the campaign, including any raw materials that are new;

(c) chemical names and daily amounts of products produced in the campaign, including any products that are new;

(d) identification of existing process lines or equipment involved in the test activity, including any new, reconfigured, or relocated equipment and evidence that the new or modified equipment does not trigger additional applicable federal or State air pollution control requirements or requires a permit-to-construct;

Table IV – 1 **General Provisions for Section IV**	
	(e) emissions calculations demonstrating compliance with all applicable emissions standards and limits for the equipment and operation involved and all production limits stipulated in current permits and all applicable State-only air pollution control requirements, including Maryland toxic air pollutant requirements, specified in Section VI of this permit; (f) a contemporaneous log noting the dates and times on which the facility began and ended activities for the campaign; and (g) once the campaign is completed, the total operating hours and duration of each campaign. (7) The Permittee shall maintain, and make available to the Department upon request, records necessary to demonstrate compliance with the periodic testing allowed by Table IV-1, 1.7. Maintenance of all required records of periodic testing for the previous calendar year shall be certified annually in the Compliance Certification Report required by this permit as specified in Item 9, of Section III – Plant Wide Conditions. **[Authority: COMAR 26.11.02.09 and COMAR 26.11.03.06]**
1.8	**<u>Changes in Raw Materials or Products</u>** A new product or raw material includes a product or raw material that has not previously been produced or used at the site. Reformulated products or raw materials include the alteration of raw materials, intermediates, process aids, and/or final products. Examples include, but are not limited to, using a particular binder from one product on another product, increasing the utilization of a raw material, or changing the formulation of the final product. Use of new or reformulated products or raw materials is exempt from permit-to-construct requirements provided that the Permittee consistently complies with all of the following conditions: (1) The use of new or reformulated products or raw materials shall not trigger additional applicable federal or State air pollution control requirements or require a permit-to-construct or involve any new or modified equipment that triggers additional applicable federal or

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General Provisions for Section IV

State air pollution control requirements or requires a permit-to-construct.

(2) Each process using a new or reformulated material or manufacturing a new or reformulated product shall comply with all applicable emissions standards and limits for the equipment and operation involved and all production limits stipulated in current permits.

(3) Each process using a new or reformulated material or manufacturing a new or reformulated product shall comply with all applicable State-only air pollution control requirements, including Maryland toxic air pollutant requirements, specified in Section VI of this permit.

(4) Use of new or reformulated products or raw materials that do not conform to the requirements of (1) through (3) of Section 1.8 of Table IV-1 may be undertaken only with advance written authorization of the Department.

(5) The Permittee shall maintain on-site for at least five (5) years, records of the following information:

(a) identification of the old raw materials or products and the new or reformulated raw materials or products and the purpose of the change/reformulation and evidence that the new or reformulated raw materials or products do not trigger additional applicable federal or State air pollution control requirements or require a permit-to-construct;

(b) identification of the existing process lines or equipment involved, including any new, reconfigured, or relocated equipment and evidence that the new or modified equipment does not trigger additional applicable federal or State air pollution control requirements or requires a permit-to-construct;

(c) emissions calculations demonstrating compliance with all applicable emissions standards and limits for the equipment and operation involved and all production limits stipulated in current permits and all applicable State-only air pollution control requirements, including

Table IV – 1 **General Provisions for Section IV**	
	Maryland toxic air pollutant requirements, specified in Section VI of this permit; and (d) a contemporaneous log noting the date on which the new/reformulated product or raw material was first manufactured or used, and the date on which the Permittee ceased using the new/reformulated product or raw material (if applicable). (6) The Permittee shall maintain, and make available to the Department upon request, records necessary to demonstrate compliance with the changes in raw materials or products allowed by Table IV-1, 1.8. Maintenance of all required records of changes in raw materials or products for the previous calendar year shall be certified annually in the Compliance Certification Report required by this permit as specified in Item 9, of Section III – Plant Wide Conditions. **[Authority: COMAR 26.11.02.09 and COMAR 26.11.03.06]**
1.9	**<u>Relocation, Reconfiguration, and Installation of Equipment</u>** Relocation or reconfiguration of existing equipment includes the changing the location or use of existing equipment, including new piping and connections. Relocation or reconfiguration of existing equipment or the installation of new equipment is exempt from permit-to-construct requirements provided that the Permittee consistently complies with all of the following conditions: (1) The relocation, reconfiguration, and/or the installation of new equipment shall not trigger additional applicable federal or State air pollution control requirements or require a permit-to-construct. (2) The relocation, reconfiguration, and/or the installation of new equipment shall comply with all applicable emissions standards and limits for the equipment and operation involved and all production limits stipulated in current permits. (3) The relocation, reconfiguration, and/or the installation of new equipment shall comply with all applicable State-only air pollution control requirements, including Maryland toxic air pollutant requirements, specified in Section VI of this permit.

Table IV – 1 **General Provisions for Section IV**	
	(4) Relocation, reconfiguration, and/or the installation of new equipment that do not conform to the requirements of (1) through (3) of Section 1.9 of Table IV-1 may be undertaken only with advance written authorization of the Department. (5) The Permittee shall maintain on-site for at least five (5) years, records of the following information: (a) identification of the existing process lines or equipment involved, identification of all new, reconfigured, or relocated equipment, and evidence that the new or modified equipment does not trigger additional applicable federal or State air pollution control requirements or requires a permit-to-construct; (b) emissions calculations demonstrating compliance with all applicable emissions standards and limits for the equipment and operation involved and all production limits stipulated in current permits and all applicable State-only air pollution control requirements, including Maryland toxic air pollutant requirements, specified in Section VI of this permit; and (c) a contemporaneous log noting the date on which the relocated, reconfigured, or new equipment was first used, and the date on which the Permittee ceased using the relocated/reconfigured/new equipment (if applicable). (6) The Permittee shall maintain, and make available to the Department upon request, records necessary to demonstrate compliance with the relocated, reconfigured, and new equipment changes allowed by Table IV-1, 1.9. Maintenance of all required records of relocated, reconfigured, and new equipment changes for the previous calendar year shall be certified annually in the Compliance Certification Report required by this permit as specified in Item 9, of Section III – Plant Wide Conditions. **[Authority: COMAR 26.11.02.09 and COMAR 26.11.03.06]**

Table IV – 1 **General Provisions for Section IV**	
1.10	**Limits of Premises Wide HAP Emissions** (1) Premises wide HAP emissions shall be less than the following limits in any rolling 12-month period: (a) 10 tons for any individual HAP; and (b) 25 tons for the total combination of HAP. (2) The Permittee shall maintain the following records: (a) Premises wide emissions of each individual HAP in tons per month and total tons per rolling 12-month period. (b) Premises wide emissions of total HAP in tons per month and total tons per rolling 12-month period.
1.11	**Record Keeping and Reporting** (1) Unless otherwise provided in the specific requirements for an emissions unit or emissions point, the Permittee shall maintain at the facility for at least five (5) years, and shall make available to the Department upon request, all records that the Permittee is required by this permit to establish. (2) Records required by this permit shall be maintained in a format that is acceptable to the Department. A format adopted by the Permittee shall be considered acceptable until the Department provides the Permittee with written notice otherwise. (3) Unless otherwise specified in this permit required records shall be maintained either in writing or in a printable electronic form. **[Authority: COMAR 26.11.03.06C]**

Table IV – 2 **Powerhouse Boilers (POW)**	
2.0	**Emissions Unit Number(s)** POW-01: One (1) natural gas or No. 2 fuel oil fired boiler equipped with low NO_x burners and flue gas recirculation rated at 125 million Btu per hour (ARA Registration No. 510-0076-5-0294). POW-02: One (1) natural gas or No. 2 fuel oil fired boiler rated at 60 million Btu per hour (ARA Registration No. 510-0076-5-0016). POW-05: One (1) natural gas fired, temporary rental boiler, equipped with low NO_x burners, rated at less than 50 million Btu per hour (ARA Registration No. 510-0076-5-1379). POW-06: One (1) natural gas fired, temporary rental boiler, equipped with low NO_x burners and flue gas recirculation, rated at less than 100 million Btu per hour (ARA Registration No. 510-0076-5-1679).
2.1	**Applicable Standards/Limits:** A. Visible Emissions Limitations **COMAR 26.11.09.05A(2)**, which prohibits visible emissions from fuel burning equipment other than water in an uncombined form. Exceptions. COMAR 26.11.09.05A(3) establishes that "Section A(2) does not apply to emissions during load changing, soot blowing, start-up, or adjustments or occasional cleaning of control equipment if (a) the visible emissions are not greater than 40 percent opacity; and (b) the visible emissions do not occur for more than 6 consecutive minutes in any 60 minute period." B. Control of Sulfur Oxides **COMAR 26.11.09.07A(2)(b)** which states that "a person may not burn, sell, or make available for sale any distillate fuel oils with a sulfur content by weight in excess of 0.3 percent. C. Control of Nitrogen Oxides (1) **COMAR 26.11.09.08D(1)(b)**, which requires that fuel burning equipment with a rated heat input capacity of less than 250 Million Btu per hour and greater than 100 Million Btu per hour (POW-01) shall meet the NO_x emission rates set forth in §B(1)(c) of the regulation. **COMAR 26.11.09.08B(1)(c)** requires that NO_x emissions from affected wall-fired units that burn gas and oil be not more than 0.25 pounds per million Btu of heat input.

Table IV – 2
Powerhouse Boilers (POW)

(2) **COMAR 26.11.09.08E**, which requires that a person who operates fuel burning equipment with a rated heat input capacity of 100 MMBtu per hour or less (POW-02, POW-05, and POW-06):

(a) submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each installation;

(b) perform a combustion analysis for each affected installation at least once each year and optimize combustion based on the analysis; and

(c) at least once every 3 years require each operator of the installation to attend an operator training program on combustion optimization that is sponsored by the Department, the EPA or equipment vendors. In accordance with COMAR 26.11.09.08B(5)(a), the equipment operator to be trained may be the person who maintains the equipment and makes the necessary adjustments for efficient operation.

D. Control of HAP

40 CFR 63, Subparts A and JJJJJJ, which specify general provisions and work practice standards, emission reduction measures, and management practices for control of HAP emissions for existing oil-fired boilers. This regulation applies to POW-01 and POW-02 only.

E. Operational Limitations

(1) Unless the Permittee obtains from the Department written authorization otherwise, POW-06 shall be equipped with low NO_x burners and a flue gas recirculation system, and shall burn only natural gas. **[Authority: Permit to Construct No. 510-5-1679 issued November 30, 2004]**

(2) Except for brief periods, not to exceed 6 hours per period, during which the Permittee is preparing to either take POW-01 out of service or place it back into service, the Permittee shall not operate temporary boiler POW-06 when POW-01 is in operation. **[Authority: Permit to Construct No. 510-5-1679 issued November 30, 2004]**

Table IV – 2
Powerhouse Boilers (POW)

2.2 **Testing Requirements:**

A. Visible Emissions Limitations
See Monitoring, Record Keeping and Reporting Requirements.

B. Control of Sulfur Oxides
See Monitoring, Record Keeping and Reporting Requirements.

C. Control of Nitrogen Oxides

(1) At least once during the term of this permit, the Permittee shall conduct a stack emissions test on the stack of POW-01 to demonstrate compliance with the 0.25 pounds per million Btu of heat input NO_x emissions limit. The stack emissions test shall be conducted in accordance with Section 1.6 of Table IV-1 and the following requirements:

(a) The stack emissions test shall be conducted when POW-01 is burning No. 2 fuel oil.

(b) POW-01 shall be operated at 90% or higher of its rated capacity during the stack emissions test unless an alternate operating scenario is approved by the Department.

(c) The stack emissions test shall be conducted using Method 07 of the test methods referenced in COMAR 26.11.01.04C(1) or other test methods approved by the Department and the U.S. EPA.

[COMAR 26.11.01.04 and COMAR 26.11.09.08B(2)((a)(ii)]

(2) The Permittee shall perform at least one combustion analysis per year on POW-02 for each fuel burned, on POW-05 each year that POW-05 is placed in service, and on POW-06 each year that POW-06 is placed in service. The Permittee shall optimize combustion in the units in accordance with the findings of the combustion analyses. **[Authority: COMAR 26.11.09.08E(2)]**

D. Control of HAP

The Permittee must demonstrate continuous compliance by conducting performance tune-ups of POW-01 and POW-02. The

Table IV – 2
Powerhouse Boilers (POW)

Permittee must conduct the tune-up while burning the type of fuel that provided the majority of the heat input to the boiler over the 12 months prior to the tune-up. The Permittee must conduct a tune-up of each boiler biennially. Each biennial tune-up must be conducted no more than 25 months after the previous tune-up. Each tune-up shall be conducted as follows:

(a) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the Permittee may delay the burner inspection until the next scheduled unit shutdown, not to exceed 36 months from the previous inspection).

(b) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available.

(c) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the Permittee may delay the inspection until the next scheduled unit shutdown, not to exceed 36 months from the previous inspection).

(d) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxide requirement to which the unit is subject.

(e) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer.

(f) Maintain on-site and submit, if requested by the Department, a report containing the following information:

Table IV – 2 **Powerhouse Boilers (POW)**	
	(i) The concentrations of CO in the effluent stream in parts per million, by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler. (ii) A description of any corrective actions taken as a part of the tune-up of the boiler. (g) If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of startup. **[Authority: 40 CFR §63.11196(a)(1), §63.11201(b) and (d), §63.11210(c) and (j), §63.11223(a) and (b), and Table 2, Item 4, of 40 CFR 63, Subpart JJJJJJ]** **[Note: The most recent tune-ups for POW-01 was conducted on September 20, 2018 when burning natural gas and for POW-02 a tune-up was conducted December 5, 2018]** E. Operational Limitations See Record Keeping and Reporting Requirements.
2.3	**Monitoring Requirements:** A. Visible Emissions Limitations For POW-01 and POW-02 only, the Permittee shall perform an observation for visible emissions from the boiler exhaust stack at least once per day on any day that the boiler burns No. 2 fuel oil. Each observation shall be made when No. 2 fuel oil is being combusted in the affected boiler, and shall be made in accordance with Paragraph (2) of Section 1.1 of Table IV-1. **[Authority: COMAR 26.11.03.06C]** B. Control of Sulfur Oxides The Permittee shall obtain for fuel oil suppliers written certification that all No. 2 fuel oil received at the facility to be burned in POW-01 and POW-02 complies with the limitation regarding sulfur content (0.3 percent by weight) imposed under COMAR 26.11.09.07A(2)(b). **[Authority: COMAR 26.11.03.06C]**

Table IV – 2 **Powerhouse Boilers (POW)**	
	C. Control of Nitrogen Oxides See Testing, Record Keeping and Reporting Requirements. D. Control of HAP At all times the Permittee must operate and maintain the POW-01 and POW-02, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the Permittee to make any further efforts to reduce emissions if levels required by 40 CFR 63, Subpart JJJJJJ have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Department that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. **[Authority: 40 CFR §63.11205(a)]** E. Operational Limitations See Record Keeping and Reporting Requirements.
2.4	**Record Keeping Requirements:** A. Visible Emissions Limitations The Permittee shall maintain, in accordance with requirements under Paragraph (2) of Section 1.1 of Table IV-1, records of all required observations for visible emissions from the POW-01 and POW-02 boiler exhaust stacks. **[Authority: COMAR 26.11.03.06C]** B. Control of Sulfur Oxides The Permittee shall maintain written certifications from the facility's fuel oil suppliers that all No. 2 fuel oil received at the facility to be burned in POW-01 and POW-02 complies with the limitation regarding sulfur content imposed under COMAR 26.11.09.07A(2)(c). **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides (1) The Permittee shall maintain records of the following information for POW-01: (a) copies of all stack emissions tests;

Table IV – 2
Powerhouse Boilers (POW)

(b) vendor recommendations with regard to maintenance of POW-01; and

(c) all maintenance performed on POW-01.
[Authority: COMAR 26.11.03.06C]

(2) The Permittee shall maintain records of the following information for POW-02, POW-05, and POW-06:

(a) all required combustion analyses performed on POW-02, POW-05, and POW-06; and

(b) required training of equipment operators concerning combustion optimization. Such records shall include the names of all trainees, the dates on which the training was administered, and identification of the concern that provided the training.
[Authority: COMAR 26.11.09.08E(3) and E(5), and COMAR 26.11.03.06C]

D. Control of HAP
The Permittee must maintain the following records for POW-01 and POW-02:

(1) As required in 40 CFR §63.10(b)(2)(xiv), the Permittee must keep a copy of each notification and report that the Permittee submitted to comply with 40 CFR 63, Subpart JJJJJJ and all documentation supporting any Initial Notification or Notification of Compliance Status that the Permittee submitted.

(2) The Permittee must keep records to document conformance with the work practices, emission reduction measures, and management practices required by 40 CFR §63.11214 and §63.11223 as follows:

(a) Records must identify each boiler, the date of tune-up, the procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned.

(b) A copy of each energy assessment report.

Table IV – 2 **Powerhouse Boilers (POW)**	
	(c) Records of the occurrence and duration of each malfunction of the boiler, or of the associated air pollution control and monitoring equipment. (d) Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in 40 CFR §63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation. (e) Records must be in a form suitable and readily available for expeditious review. The Permittee must keep each record for five (5) years following the date of each recorded action. The Permittee must keep each record on-site or be accessible from a central location by computer or other means that instantly provide access at the site for at least two (2) years after the date of each recorded action. The Permittee may keep the records off site for the remaining three (3) years. **[Authority: 40 CFR §63.11225(c) and (d)]** E. <u>Operational Limitations</u> The Permittee shall maintain records of the operating schedules of POW-05 and POW-06. **[Authority: COMAR 26.11.03.06C].**
2.5	**<u>Reporting Requirements</u>:** A. <u>Visible Emissions Limitations</u> The Permittee shall report occurrences of visible emissions from boilers POW-01, POW-02, POW-05, and POW-06 in accordance with conditions number 4 (“Report of Excess Emissions and Deviations”), and number 9 (Compliance Certification report), of Section III – Plant Wide Conditions.

Table IV – 2
Powerhouse Boilers (POW)

B. Control of Sulfur Oxides
The Permittee shall make available to the Department upon request any records that the Permittee is required to maintain. **[Authority: COMAR 26.11.03.06C]**

C. Control of Nitrogen Oxides
The Permittee shall make available to the Department upon request any records that the Permittee is required to maintain. **[Authority: COMAR 26.11.03.06C]**

D. Control of HAP
The Permittee shall submit the following notifications and reports for POW-01 and POW-02:

(1) The Permittee must submit all of the notifications in 40 CFR §§63.7(b); 63.8(e) and (f); and 63.9(b) through (e), (g), and (h) that apply to the Permittee.

(2) The Permittee must prepare a biennial compliance report containing the following information:

(a) Company name and address.

(b) Statement by a responsible official, with the official's name, title, phone number, email address, and signature, certifying the truth, accuracy and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of 40 CFR 63, Subpart JJJJJJ. The notification must include the following certification of compliance, as applicable, and signed by a responsible official:

(i) "This facility complies with the requirements in 40 CFR §63.11223 to conduct a biennial tune-up of the boiler."

(ii) "This facility complies with the requirement in 40 CFR §§63.11214(d) and 63.11223(g) to minimize the boiler's time spent during startup and shutdown and to conduct

Table IV – 2 **Powerhouse Boilers (POW)**	
	startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available." (3) If the Permittee has switched fuels or made a physical change to the boiler and the fuel switch or change resulted in the applicability of a different subcategory within 40 CFR 63, Subpart JJJJJJ, or in the boiler switching out of 40 CFR 63, Subpart JJJJJJ due to a change to 100 percent natural gas, the Permittee must provide notice of the date upon which the Permittee made the change, within 30 days of the change. The notification must identify: (a) The name of the owner or operator of the affected source, the location of the source, the boiler that was changed and the date of the notice. (b) The date upon which the change occurred and a description of the change. **[Authority: 40 CFR §63.11225(a), (b), and (g)]** E. <u>Operational Limitations</u> The Permittee shall make available to the Department upon request any records that the Permittee is required to maintain. **[Authority: COMAR 26.11.03.06C]**

A permit shield shall cover the applicable requirements of the Clean Air Act that are listed in Table IV-2 for POW-01, POW-02, POW-05, and POW-06.

Table IV – 3 **Emergency Generators (500 hp or greater)**	
3.0	**<u>Emissions Unit Number(s)</u>** POW-08 (WRP-GEN2): 1,115 hp emergency generator fired by diesel fuel to supply back-up emergency power to the Water Reclamation Plant (WRP). (ARA Registration No. 510-0076-9-0991). SAC-136 (SAC-GEN2): 755 hp emergency generator fired by diesel fuel (ARA Registration No. 510-0076-9-0990) used to supply back-up

Table IV – 3 **Emergency Generators (500 hp or greater)**	
	emergency power in the FCC Plant (ARA Registration No. 510-0076-7-1644).
3.1	**Applicable Standards/Limits:** A. Visible Emissions Limitations (1) **COMAR 26.11.09.05E(2),** which states that "a person may not cause or permit the discharge of emissions from any engine, operating at idle, greater than 10 percent opacity." (2) **COMAR 26.11.09.05E(3),** which states that "a person may not cause or permit the discharge of emissions from any engine, operating at other than idle conditions, greater than 40 percent opacity." **Exceptions. COMAR 26.11.09.05E(4)** establishes the following: (a) Section E(2) does not apply for a period of 2 consecutive minutes after a period of idling of 15 consecutive minutes for the purpose of clearing the exhaust system. (b) Section E(2) does not apply to emissions resulting directly from cold engine start-up and warm-up for the following maximum periods: (i) Engines that are idled continuously when not in service: 30 minutes; and (ii) All other engines: 15 minutes. (c) Section E(2) and (3) do not apply while maintenance, repair, or testing is being performed by qualified mechanics. B. Control of Sulfur Oxides **COMAR 26.11.09.07A(2)(b)** which states that "a person may not burn, sell, or make available for sale any distillate fuel oils with a sulfur content by weight in excess of 0.3 percent." C. Control of Nitrogen Oxides **COMAR 26.11.09.08G(1)**, which requires that a person who operates fuel burning equipment with a capacity factor (as defined in 40 CFR §72.2) of 15 percent or less shall:

Table IV – 3 **Emergency Generators (500 hp or greater)**	
	(1) provide certification of the capacity factor of the equipment to the Department in writing; (2) for fuel-burning equipment that operates more than 500 hours during a calendar year, perform a combustion analysis and optimize combustion at least once annually; and (3) at least once every 3 years require each operator of the installation to attend an operator training program on combustion optimization that is sponsored by the Department, the EPA or equipment vendors. In accordance with COMAR 26.11.09.08B(5)(a), the equipment operator to be trained may be the person who maintains the equipment and makes the necessary adjustments for efficient operation. D. Control of HAP **40 CFR 63, Subparts A and ZZZZ** which specify general provisions and work practice and maintenance requirements for emergency generators at area sources of HAP.
3.2	**Testing Requirements:** A. Visible Emissions Limitations See Monitoring, Record Keeping and Reporting Requirements. B. Control of Sulfur Oxides See Monitoring, Record Keeping and Reporting Requirements. C. Control of Nitrogen Oxides If either POW-08 or SAC-136 operates more than 500 hours during a calendar year, the Permittee shall perform a combustion analysis and optimize combustion at least once annually per affected unit. **[Authority: COMAR 26.11.09.08G(1)(b)]** D. Control of HAP See Monitoring, Record Keeping, and Reporting Requirements.

Table IV – 3
Emergency Generators (500 hp or greater)

3.3 Monitoring Requirements:

A. Visible Emissions Limitations
The Permittee shall operate and maintain each emergency generator in a manner to prevent visible emissions. **[Authority: COMAR 26.11.03.06C]**

B. Control of Sulfur Oxides
The Permittee shall obtain a certification from the fuel supplier indicating that the oil complies with the sulfur content requirement for the fuel oil. **[Authority: COMAR 26.11.03.06C]**

C. Control of Nitrogen Oxides
See Testing, Record Keeping and Reporting Requirements.

D. Control of HAP
(1) The Permittee shall comply with the following requirements for each emergency generator:

(a) Change the oil and filter every 500 hours of operation or annually, whichever comes first;

(b) Inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first;

(c) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary; and

(d) Minimize the engine's time spent at idle during start-up and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.

[Authority: 40 CFR §63.6603(a), §63.6625(h), and Table 2d to 40 CFR 63, Subpart ZZZZ]

(2) If an emergency generator is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in Table 2d of 40 CFR 63, Subpart ZZZZ, or if performing the management practice on the required schedule would otherwise

Table IV – 3 **Emergency Generators (500 hp or greater)**	
	pose an unacceptable risk under Federal, State, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, State, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, State, or local law has abated. **[Authority: Footnote 2 to Table 2d of 40 CFR 63, Subpart ZZZZ]** (3) Each emergency generator shall be equipped with a non-resettable hour meter. **[Authority: 40 CFR §63.6625(f)]** (4) The Permittee must be in compliance with the emission limitations and operating limitations in 40 CFR 63, Subpart ZZZZ that apply to the engines at all times. **[Authority: 40 CFR §63.6605(a) and §63.6640(a)]** (5) At all times the Permittee must operate and maintain each emergency generator, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the Permittee to make any further efforts to reduce emissions if levels required by 40 CFR 63, Subpart ZZZZ have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Department which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. **[Authority: 40 CFR §63.6605(b)]** (6) The Permittee must operate and maintain each emergency generator according to the manufacturer's emission-related written instructions or the Permittee must develop their own maintenance plan which must 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. **[Authority: 40 CFR §63.6625(e), §63.6640(a), and Table 6 to 40 CFR 63, Subpart ZZZZ]**

Table IV – 3 **Emergency Generators (500 hp or greater)**	
	(7) The Permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Table 2d of 40 CFR 63, Subpart ZZZZ. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2d. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the Permittee is not required to change the oil. If any of the limits are exceeded, the Permittee must change the oil within 2 days of receiving the results of the analysis; if an engine is not in operation when the results of the analysis are received, the Permittee must change the oil within 2 business days or before commencing operation, whichever is later. The Permittee must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for each engine. The analysis program must be part of the maintenance plan for each engine. **[Authority: 40 CFR §63.6625(i)]** (8) The Permittee must operate each emergency generator according to the following requirements: (a) To be considered an emergency stationary RICE under 40 CFR 63, Subpart ZZZZ, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in 40 CFR §63.6640(f)(1) through (4), is prohibited. If you do not operate the emergency generator according to the requirements in 40 CFR §63.6640(f)(1) through and (4), the engine will not be considered an emergency engine under 40 CFR 63, Subpart ZZZZ and must meet all requirements for non-emergency engines. **[Authority: 40 CFR §63.6640(f)]**

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	(b) There is no time limit on the use of the emergency generator in emergency situations. **[Authority: 40 CFR §63.6640(f)(1)]** (c) The Permittee may operate the emergency generator for any combination of the following purposes for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by 40 CFR §63.6640(f)(3) and (f)(4) counts as part of the 100 hours per calendar year allowed by 40 CFR §63.6640(f)(2). **[Authority: 40 CFR §63.6640(f)(2)]** (i) The emergency generator 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 organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The Permittee may petition the Department 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 federal, state, or local standards require maintenance and testing of the emergency generator beyond 100 hours per calendar year. **[Authority: 40 CFR §63.6640(f)(2)(i)]** (d) Emergency stationary RICE located at area sources of HAP may be operated 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 paragraph (f)(2) of this section. **[Authority: 40 CFR §63.6640(f)(4)]**

Table IV – 3 **Emergency Generators (500 hp or greater)**	
	[Note: 40 CFR 63.6640(f)(3) does not apply to area sources of HAP and is not included in the applicable requirements for the emergency generators above.]
3.4	**Record Keeping Requirements:** A. Visible Emissions Limitations The Permittee shall maintain records of all maintenance/repairs performed and make them available to the Department upon request. **[Authority: COMAR 26.11.03.06C]** B. Control of Sulfur Oxides The Permittee shall retain fuel supplier certifications at the premises stating that the fuel is in compliance with the sulfur content requirement for the fuel oil. **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides The Permittee shall maintain records of the following information for POW-08 and SAC-136: (1) all required combustion analyses performed on POW-08 and SAC-136; and (2) required training of equipment operators concerning combustion optimization. Such records shall include the names of all trainees, the dates on which the training was administered, and identification of the concern that provided the training. **[Authority: COMAR 26.11.09.08G(1)(c) and (e) and COMAR 26.11.03.06C]** D. Control of HAP (1) The Permittee shall maintain records of the maintenance conducted on each emergency generator to demonstrate that the emergency generator was operated and maintained according to either the manufacturer's emission-related written instructions or the Permittee's own maintenance plan. **[Authority: 40 CFR §63.6655(e) and COMAR 26.11.03.06C]** (2) The Permittee shall maintain records of the hours of operation of each emergency generator that is recorded through the non-resettable hour meter. The Permittee must document how many

Table IV – 3 **Emergency Generators (500 hp or greater)**	
	hours are spent for emergency operation, including what classified the operation as emergency. **[Authority: 40 CFR §63.6655(f)]** (3) All records must be kept for at least five years and must be readily accessible in hard copy or electronic format, and readily available for expeditious review according to 40 CFR §63.10(b)(1). **[Authority: 40 CFR §63.6660(a), (b), and (c)]**
3.5	**Reporting Requirements:** A. Visible Emissions Limitations The Permittee shall make available to the Department upon request any records that the Permittee is required to maintain. The Permittee shall report incidents of visible emissions in accordance with permit condition 4, Section III, Plant Wide Conditions, "Report of Excess Emissions and Deviations." **[COMAR 26.11.03.06C]** B. Control of Sulfur Oxides The Permittee shall make available to the Department upon request any records that the Permittee is required to maintain. **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides The Permittee shall make available to the Department upon request any records that the Permittee is required to maintain. **[Authority: COMAR 26.11.03.06C]** D. Control of HAP The Permittee shall make available to the Department upon request any records that the Permittee is required to maintain. **[Authority: COMAR 26.11.03.06C]**

A permit shield shall cover the applicable requirements of the Clean Air Act that are listed in Table IV-3 for POW-08 and SAC-136.

Table IV – 4 **DCO**	
4.0	**Emissions Unit Number(s)** Emission units associated with the Technical Development Center Operations (DCO) Plant, ARA Registration No. 510-0076-7-0951. See Table IV-4A for a complete listing of emissions unit and emissions points associated with the DCO plant.
4.1	**Applicable Standards/Limits:** A. Visible Emissions Limitations (1) **COMAR 26.11.06.02C(2)**, which requires that a person not cause or permit the discharge of emissions from any installation or building, other than water in uncombined form, which is visible to human observers. **Exceptions. COMAR 26.11.06.02A(2)** establishes that "the visible emissions standards in §C of this regulation do not apply to emissions during start-up and process modifications or adjustments, or occasional cleaning of control equipment, if: (a) The visible emissions are not greater than 40 percent opacity; and (b) The visible emissions do not occur for more than 6 consecutive minutes in any 60 minute period." (2) **COMAR 26.11.09.05A(2)**, which requires that a person not cause or permit the discharge of emissions from any fuel burning equipment, other than water in uncombined form, which is visible to human observers. This regulation applies to the indirect-fire combustion unit associated with the Fluid Energy Mill (DCO-06A). Exceptions. **COMAR 26.11.09.05A(3)** establishes that Section A(2) does "not apply to emissions during load changing, soot blowing, start-up, or adjustments or occasional cleaning of control equipment if: (a) The visible emissions are not greater than 40 percent opacity; and (b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period."

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DCO

B. Control of Particulate Matter
COMAR 26.11.06.03B(2)(a), which requires that a person not cause or permit particulate matter to be discharged from any installation in excess of 0.03 gr/scfd (68.7 mg/dscm).

C. Control of Nitrogen Oxides
(1) **COMAR 26.11.09.08E**, which applies to the indirect-fire combustion unit associated with the Fluid Energy Mill (DCO-06A), and which requires that a person who operates fuel burning equipment with a rated heat input capacity of 100 MMBtu per hour or less:

(a) submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each installation;

(b) perform a combustion analysis for each affected installation at least once each year and optimize combustion based on the analysis; and

(c) at least once every 3 years require each operator of the installation to attend an operator training program concerning combustion optimization that is sponsored by the Department, the EPA or equipment vendors. In accordance with COMAR 26.11.09.08B(5)(a), the equipment operator to be trained may be the person who maintains the equipment and makes the necessary adjustments for efficient operation.

(2) **COMAR 26.11.09.08J**, which applies to the direct-fire combustion units associated with the ACM Mill (DCO-05, DCO-06, or DCO-07), the Aljet (DCO-05, DCO-06, or DCO-07), the Flash Dryer (DCO-26), the Spray Dryer (DCO-26), and the Bowen Spray Dryer (DCO-35), and which establishes that a person who owns or operates any installation other than fuel-burning equipment that causes NO_x emissions shall:

Table IV – 4 **DCO**	
	(a) maintain good operating practices as recommended by the equipment vendor to minimize NO_x emissions; (b) prepare and implement a written in-house training program for all operators of these installations that includes instruction with regard to good operating and maintenance practices for the particular installation; (c) maintain and make available to the Department upon request the written in-house operator training program; (d) burn only gas in each installation, where gas is available, during the period May 1 through September 30 of each year; and (e) maintain operator training attendance records for each operator on the site for at least 5 years and make these records available to the Department upon request.
4.2	**Testing Requirements:** A. Visible Emissions Limitations See Monitoring, Record Keeping and Reporting Requirements. B. Control of Particulate Matter See Monitoring, Record Keeping and Reporting Requirements. C. Control of Nitrogen Oxides The Permittee shall perform at least one combustion analysis per year on the indirect-fire combustion unit associated with the Fluid Energy Mill (DCO-06A), and shall optimize combustion in the unit in accordance with the findings of the combustion analysis. **[Authority: COMAR 26.11.09.08E(2)]**
4.3	**Monitoring Requirements:** A. Visible Emissions Limitations For each point of atmospheric discharge from each of the following installations, the Permittee shall conduct observations for visible emissions in accordance with Paragraph (2) of Section 1.1 of Table IV-1 at least once per day on any day that the installation operates:

Table IV – 4 **DCO**	
	(1) ACM Mill, Aljet, Turbo-screen, and Fluid Energy Mill process installations associated with emissions points DCO-05, DCO-06, and DCO-07; (2) Three (3) calciners associated with emissions point DCO-23; (3) Flash Dryer and Spray Dryer both associated with emissions point DCO-26; and (4) 30" Bowen Spray Dryer associated with emissions point DCO-35. **[Authority: COMAR 26.11.03.06C]** B. Control of Particulate Matter The Permittee shall prepare, implement, and revise as necessary operations and maintenance plans for all particulate emissions sources and air pollution control equipment associated with the DCO plant (DCO-03, DCO-05, DCO-06, DCO-07, DCO-12, DCO-15 through 18, DCO-21 through 23, DCO-26, DCO-35, DCO-42, DCO-46 through 47). The required operations and maintenance plans shall be developed and implemented in accordance with Section 1.3 of Table IV – 1. **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides The Permittee shall conduct annual inspections of all direct-fire combustion systems associated with the DCO plant, the ACM Mill (DCO-05, DCO-06, or DCO-07), the Aljet (DCO-05, DCO-06, or DCO-07), the Spray Dryer (DCO-26), and the Bowen Spray Dryer (DCO-35), and shall review pertinent operating logs and records to determine the compliance status of operations with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**
4.4	**Record Keeping Requirements:** A. Visible Emissions Limitations The Permittee shall maintain, in accordance with applicable requirements under Paragraph (2) of Section 1.1 of Table IV-1,

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DCO

records of all required observations for visible emissions. **[Authority: COMAR 26.11.03.06C]**

B. Control of Particulate Matter

The Permittee shall maintain written or printable electronic copies of all operations and maintenance plans required for particulate emissions sources and air pollution control equipment associated with the DCO plant (DCO-03, DCO-05, DCO-06, DCO-07, DCO-12, DCO-15 through 18, DCO-21 through 23, DCO-26, DCO-35, DCO-42, DCO-46 through 47). **[Authority: COMAR 26.11.03.06C]**

C. Control of Nitrogen Oxides

(1) For the indirect-fire combustion unit associated with the Fluid Energy Mill (DCO-06A) the Permittee shall maintain written or printable electronic records of:

(a) all required combustion analyses performed on the unit **[Authority: COMAR 26.11.09.08E(3) and COMAR 26.11.03.06C]**;

(b) required training of equipment operators concerning combustion optimization. Such records shall include the names of all trainees, the dates on which the training was administered, and identification of the concern that provided the training **[Authority: COMAR 26.11.09.08E(5) and COMAR 26.11.03.06C];** and

(c) the types of fuels burned on a daily basis. **[Authority: COMAR 26.11.09.08K]**

(2) For the direct-fire combustion units associated with the DCO plant, the ACM Mill (DCO-05, DCO-06, or DCO-07), the Aljet (DCO-05, DCO-06, or DCO-07), the Spray Dryer (DCO-26), and the Bowen Spray Dryer (DCO-35), the Permittee shall maintain written or printable electronic records of the following:

(a) good operating practices, as recommended by the vendor of the combustion units, to minimize NO_x emissions **[Authority: COMAR 26.11.03.06C]**;

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	(b) records regarding the required training program concerning NO_x minimization techniques for operators of the combustion units. These records shall include a written description of training program content, the date(s) on which the training was administered, and identification of all employees who attended the training **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**; (c) the types and amounts of fuels burned in the combustion units during the period May 1 through September 30 of each year **[Authority: COMAR 26.11.03.06C]**; and (d) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**
4.5	**Reporting Requirements:** A. Visible Emissions Limitations The Permittee shall report occurrences of visible emissions in accordance with conditions number 4 ("Report of Excess Emissions and Deviations"), and number 9 (Compliance Certification report), of Section III – Plant Wide Conditions. B. Control of Particulate Matter The Permittee shall make available to the Department upon request copies of any operations and maintenance plans required for particulate emissions sources and air pollution control equipment associated with the DCO plant (DCO-03, DCO-05, DCO-06, DCO-07, DCO-12, DCO-15 through 18, DCO-21 through 23, DCO-26, DCO-35, DCO-42, DCO-46 through 47). **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides (1) For the indirect-fire combustion unit associated with the Fluid Energy Mill (DCO-06A) the Permittee shall make available to the

Table IV – 4 **DCO**	
	Department upon request any records that the Permittee is required to maintain concerning: (a) combustion analyses performed on the unit **[Authority: COMAR 26.11.09.08E(3), and COMAR 26.11.03.06C]**; and (b) training of operators with regard to combustion optimization. **[Authority: COMAR 26.11.09.08E(5), and COMAR 26.11.03.06C]** (2) For the direct-fire combustion units associated with the DCO plant, the ACM Mill (DCO-05, DCO-06, or DCO-07), the Aljet (DCO-05, DCO-06, or DCO-07), the Spray Dryer (DCO-26), and the Bowen Spray Dryer (DCO-35), the Permittee shall make available to the Department upon request all records required to be established with regard to: (a) "good operating practices", as recommended by the vendor of the equipment, to minimize NO_x emissions from the combustion units **[Authority: COMAR 26.11.03.06C]**; (b) the required training program concerning NO_x minimization techniques for operators of the combustion units, and operator attendance of the program **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**; (c) the types and amounts of fuels burned during the period May 1 through September 30 of each year in the combustion units **[Authority: COMAR 26.11.03.06C]**; and (d) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**

A permit shield shall cover the applicable requirements of the Clean Air Act that are listed in Table IV-4 for the DCO Plant.

TABLE IV – 4A
List of Sources for the DCO Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
DCO-03	L-0603	Loading High Vacuum Unit	L-0603	Cartridge
DCO-04	L-3803	High Vent Room Vent (L-3803), Poly Lab Oven, and Electric Furnaces	L-5600	Scrubber (L-5600) on High Vent Room Vent. Carbon Absorber on Poly Lab Oven that then vents to the High Vent Room Vent.
DCO-05	L-5702 L-5810 L-5601 L-5602 L-5603	ACM Mill (direct fire), Aljet (direct fire), Turbo-screen, Fluid Energy Mill (indirect fire), Baghouse "A" (DCO-06), Baghouse "B" (DCO-05) and Baghouse "C" (DCO-07). The baghouses recover material in the vents from the ACM Mill, Aljet, Turbo-Screen and Fluid Energy Mill. DCO-06A is the combustion vent for the Fluid Energy Mill.	NA	NA
DCO-06			NA	NA
DCO-06A			NA	NA
DCO-07			NA	NA
DCO-12		Warehouse SMR mini V-blender, SMR large V-blender and Vac-u-max	L-3694	Cartridge
DCO-15		Calciner Area Environmental Booth	L-0602	Cartridge
DCO-16		Millroom Environmental Booth	L-0601	Cartridge
DCO-17		Warehouse Environmental Booth	L-0604	Cartridge
DCO-18		Poly Area Environmental Booth	L-6606	Cartridge
DCO-21	L-4947 L-4945 L-4246A L-4243 L-4242 L-4241	Small mixer L-4947 Large Mixer L-4945 Calciner L-4246A Muffle Calciner L-4243 Dryer L-4242 Muffle Calciner L-4241	L-4642	Cartridge
DCO-22	L-4941 L-4943	Mixers	L-4643	Cartridge

TABLE IV – 4A **List of Sources for the DCO Plant**				
Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
DCO-23	L-3801 L-3802 L-3804	3 Calciners (electrically heated)	L-3654 L-3655	Venturi Scrubber and Packed Tower Absorber 1 L-3654; Packed Tower Absorber 2 L-3655
DCO-26	L-2880 L-2800	Flash Dryer and Spray Dryer (both direct fire)	L-2650 L-2610 L-2680 L-2681	Scrubber Spray Dryer Baghouse Flash Dryer Baghouse HEPA filter
DCO-35	L-6804	30” Bowen Spray Dryer (direct fire)	L-6604	Cartridge
DCO-42		SMR Warehouse Environmental Booth	L-3696	Cartridge
DCO-46		South fugitive dust collector	L-0606	Baghouse
DCO-47		North fugitive dust collector	L-0605	Baghouse

Table IV – 5 **MAG and MGX**	
5.0	**<u>Emissions Unit Number(s)</u>** Emission units associated with the Magnapore and Magnapore Expansion (MAG & MGX) Plants, ARA Registration No. 510-0076-7-1024. See Table IV-5A for a complete listing of emissions unit and emissions points associated with the MAG & MGX plants.
5.1	**<u>Applicable Standards/Limits</u>:** A. <u>Visible Emissions Limitations</u> (1) **COMAR 26.11.06.02C(2)**, which requires that a person not cause or permit the discharge of emissions from any installation or building, other than water in uncombined form, which is visible to human observers. **Exceptions. COMAR 26.11.06.02A(2)** establishes that “the visible emissions standards in §C of this regulation do not apply to

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MAG and MGX

emissions during start-up and process modifications or adjustments, or occasional cleaning of control equipment, if:

(a) The visible emissions are not greater than 40 percent opacity; and

(b) The visible emissions do not occur for more than 6 consecutive minutes in any 60 minute period."

(2) **COMAR 26.11.09.05A(2)**, which requires that a person not cause or permit the discharge of emissions from any fuel burning equipment, other than water in uncombined form, which is visible to human observers. This regulation applies to the indirect-fire combustion unit associated with the Calciner K-854 (MAG-01).

Exceptions. **COMAR 26.11.09.05A(3)** establishes that Section A(2) does "not apply to emissions during load changing, soot blowing, start-up, or adjustments or occasional cleaning of control equipment if:

(a) The visible emissions are not greater than 40 percent opacity; and

(b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period."

B. Control of Particulate Matter

COMAR 26.11.06.03B(2)(a), which requires that a person not cause or permit particulate matter to be discharged from any installation in excess of 0.03 gr/scfd (68.7 mg/dscm).

C. Control of Nitrogen Oxides

(1) **COMAR 26.11.09.08E**, which applies to the indirect-fire combustion unit associated with the Calciner K-854 (MAG-01), and which requires that a person who operates fuel burning equipment with a rated heat input capacity of 100 MMBtu per hour or less:

(a) submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each installation;

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MAG and MGX

(b) perform a combustion analysis for each affected installation at least once each year and optimize combustion based on the analysis; and

(c) at least once every 3 years require each operator of the installation to attend an operator training program concerning combustion optimization that is sponsored by the Department, the EPA or equipment vendors. In accordance with COMAR 26.11.09.08B(5)(a), the equipment operator to be trained may be the person who maintains the equipment and makes the necessary adjustments for efficient operation.

(2) **COMAR 26.11.09.08J**, which applies to Thermal Oxidizers T-657 (MAG-04) and T-1657 (MGX-12), and which establishes that a person who owns or operates any installation other than fuel-burning equipment that causes NO_x emissions shall:

(a) maintain good operating practices as recommended by the equipment vendor to minimize NO_x emissions;

(b) prepare and implement a written in-house training program for all operators of these installations that includes instruction with regard to good operating and maintenance practices for the particular installation;

(c) maintain and make available to the Department upon request the written in-house operator training program;

(d) burn only gas in each installation, where gas is available, during the period May 1 through September 30 of each year; and

(e) maintain operator training attendance records for each operator on the site for at least 5 years and make these records available to the Department upon request.

Table IV – 5 **MAG and MGX**	
	D. Control of VOC (1) **COMAR 26.11.19.02I** which requires that the Permittee establish in writing and implement plant-wide "good operating practices" designed to minimize emissions of VOC. The specific requirements of this regulation are provided in Section 1.4 of Table IV-1. (2) **COMAR 26.11.19.16** which requires that the Permittee implement a VOC leak detection and repair program designed to minimize unintended emissions of VOC from process equipment and components, e.g., in-process vessels, storage tanks, pumps, compressors, valves, flanges and other pipeline fittings, pressure relief valves, process drains, and open-ended pipes. The specific requirements of this regulation are provided in Section 1.5 of Table IV-1. (3) **COMAR 26.11.19.30**, which establishes equipment standards and performance standards for organic and inorganic chemical manufacturing facilities. **COMAR 26.11.19.30D(1)** establishes that a person who owns or operates an organic chemical production installation or an inorganic chemical production installation at a premises that has total uncontrolled VOC emissions of 100 pounds or more per day shall duct each process vent and exhaust line from any installation with actual emissions of 20 pounds or more per day into a control device that has a VOC destruction or removal efficiency of at least 90 percent, overall. **Exceptions.** **COMAR 26.11.19.30D(4)** establishes that a person who owns or operates an organic chemical production installation and complies with §D(1) of this regulation and later cannot achieve compliance because of an unavoidable outage or malfunction of the primary control device shall either: (a) discontinue operation until the primary control device is returned to proper service; or (b) use a back-up control device that is approved by the Department. **COMAR 26.11.19.30D(5)** establishes that the back-up control device allowed under §D(4)(b) of this regulation may not be used more than 10 percent of the annual operating time of the affected installation during any calendar year unless a longer period is approved by the Department.

Table IV – 5 **MAG and MGX**	
	(4) **40 CFR, Part 64**, which establishes Compliance Assurance Monitoring (CAM) requirements for sources that (a) use control devices to comply with emissions standards for a regulated pollutant, and (b) that have a pre-control potential-to-emit equal to or greater than the amount identified as the major source level for the regulated pollutant. Thermal Oxidizers T-657 (MAG-04) and T-1657 (MGX-12) are subject to CAM requirements. A summary of the Permittee's CAM plan for the oxidizers and justification for the selection of the operating parameters to be monitored are provided in Appendix I to the Part 70 permit. (5) Operational Requirement: Exhaust gases from Calciner K-854 shall be vented through Thermal Oxidizer T-657 (MAG-04) before discharge to atmosphere, and the one-hour block average temperature of the combustion zone of Thermal Oxidizer T-657 shall be maintained at a minimum of 1400 °F whenever Calciner K-854 is in operation. **[Authority: 40 CFR, Part 64 and ARA Permit to Construct No. 510-0076-7-1024 issued March 19, 2012.]** (6) Operational Requirement: Exhaust gases from electrically heated Calciner K-1854 shall be vented through Thermal Oxidizer T-1657 (MGX-12) before discharge to atmosphere, and the one-hour block average temperature of the combustion zone of Thermal Oxidizer T-1657 shall be maintained at a minimum of 1400 °F whenever Calciner K-1854 is in operation. **[Authority: 40 CFR, Part 64 and ARA Permit to Construct No. 510-0076-7-1024 issued March 19, 2012.]** E. Control of HAP **40 CFR 63, Subparts A and VVVVVV** which specify general provisions and management practices and other requirements for chemical manufacturing process units (CMPU) in metal HAP service at Chemical Manufacturing Area Sources.
5.2	**Testing Requirements:** A. Visible Emissions Limitations See Monitoring, Record Keeping and Reporting Requirements. B. Control of Particulate Matter See Monitoring, Record Keeping and Reporting Requirements.

Table IV – 5 **MAG and MGX**	
	C. Control of Nitrogen Oxides The Permittee shall perform at least one combustion analysis per year on the indirect-fire combustion unit associated with the Calciner K-854 (MAG-01), and shall optimize combustion in the unit in accordance with the findings of the combustion analysis. **[Authority: COMAR 26.11.09.08E(2)]** D. Control of VOC See Monitoring, Record Keeping and Reporting Requirements. E. Control of HAP See Monitoring, Record Keeping, and Reporting Requirements.
5.3	**Monitoring Requirements:** A. Visible Emissions Limitations For each emissions point identified in Tables IV-5A that is associated with an air pollution control device or product recovery device that discharges to atmosphere, the Permittee shall conduct observations for visible emissions in accordance with Section 1.1 of Table IV-1. This requirement does not apply to emissions points associated with control devices that are used solely to control fumes from plant maintenance welding operations or to control emissions from vacuum systems used solely for housekeeping purposes. **[Authority: COMAR 26.11.03.06C]** B. Control of Particulate Matter The Permittee shall prepare, implement, and revise as necessary operations and maintenance plans for all particulate emissions sources and air pollution control equipment associated with the MAG & MGX plants (MAG-04, MAG-07, MAG-13, MAG-15, MGX-12, and MGX-22). The required operations and maintenance plans shall be developed and implemented in accordance with Section 1.3 of Table IV – 1. **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides The Permittee shall conduct annual inspections of all direct-fire combustion systems associated with Thermal Oxidizers T-657 (MAG-04) and T-1657 (MGX-12), and shall review pertinent operating logs and records to determine the compliance status of operations with

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MAG and MGX

regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**

D. Control of VOC

(1) The Permittee shall implement required "good operating practices" designed to minimize emissions of VOC from the MAG & MGX plants as specified in Section 1.4 of Table IV-1. **[Authority: COMAR 26.11.19.02I]**

(2) The Permittee shall inspect and repair detected VOC leaks in accordance with Section 1.5 of Table IV-1. **[Authority: COMAR 26.11.19.16]**

(3) The Permittee shall continuously monitor and record, in accordance with Section 1.2 of Table IV-1, the temperature of the combustion zone of each of Thermal Oxidizers T-657 and T-1657 whenever the oxidizer is being used to control emissions of VOC. **[Authority: ARA Permit to Construct No. 510-0076-7-1024 issued March 19, 2012.]**

(4) The Permittee shall comply with all applicable monitoring requirements specified in the Permittee's CAM plan for the oxidizers provided in Appendix I to the Part 70 permit. **[Authority: 40 CFR, Part 64]**

E. Control of HAP

(1) For each CMPU subject to the requirements of 40 CFR 63, Subpart VVVVVV, the Permittee shall comply with the following management practices: each process vessel must be equipped with a cover or lid that must be closed at all times when it is in metal HAP service, except for manual operations that require access, such as material addition and removal, inspection, sampling and cleaning. This requirement does not apply to process vessels containing only metal HAP that are in a liquid solution or other form that will not result in particulate emissions of metal HAP (e.g., metal HAP that is in ingot, paste, slurry, or moist pellet form or other form). **[Authority: 40 CFR §63.11495(a)(1)]**

Table IV – 5 **MAG and MGX**	
	(2) To demonstrate compliance with 40 CFR §63.11495(a)(1) and to determine that process vessels and equipment are sound and free of leaks, the Permittee must conduct inspections of process vessels and equipment for each CMPU in metal HAP service, as specified in 40 CFR §63.11495(a)(3)(i), (ii), (iv), and (v) as follows: (a) Inspections must be conducted at least quarterly. (b) For these inspections, detection methods incorporating sight, sound, or smell are acceptable. Indications of a leak identified using such methods constitute a leak unless you demonstrate that the indications of a leak are due to a condition other than loss of HAP. If indications of a leak are determined not to be HAP in one quarterly monitoring period, the Permittee must still perform the inspection and demonstration in the next quarterly monitoring period. (c) Inspections must be conducted while the subject CMPU is operating. (d) No inspection is required in a calendar quarter during which the subject CMPU does not operate for the entire calendar quarter and is not in metal HAP service. If the CMPU operates at all during a calendar quarter, an inspection is required. **[Authority: 40 CFR §63.11495(a)(3), (a)(3)(i), (ii), (iv), and (iv)]** (3) The Permittee must repair any leak within 15 calendar days after detection of the leak, or document the reason for any delay of repair. For the purposes of 40 CFR §63.11495(a)(4), a leak will be considered "repaired" if a condition is met as specified in 40 CFR §63.11495(a)(4)(i), (ii), or (iii) as follows: (a) The visual, audible, olfactory, or other indications of a leak to the atmosphere have been eliminated, or (b) No bubbles are observed at potential leak sites during a leak check using soap solution, or

Table IV – 5 **MAG and MGX**	
	(c) The system will hold a test pressure. **[Authority: 40 CFR §63.11495(a)(4) and (a)(4)(i) through (iii)]** (4) At all times, the Permittee must operate and maintain any affected CMPU, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Department, which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the CMPU. **[Authority: 40 CFR §63.11495(d)]**
5.4	**Record Keeping Requirements:** A. Visible Emissions Limitations The Permittee shall maintain, in accordance with applicable requirements under Section 1.1 of Table IV-1, records of all required observations for visible emissions. **[Authority: COMAR 26.11.03.06C]** B. Control of Particulate Matter The Permittee shall maintain written or printable electronic copies of all operations and maintenance plans required for particulate emissions sources and air pollution control equipment (MAG-04, MAG-07, MAG-13, MAG-15, MGX-12, and MGX-22). **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides (1) For the indirect-fire combustion unit associated with the Calciner K-854 (MAG-01) the Permittee shall maintain written or printable electronic records of: (a) all required combustion analyses performed on the unit **[Authority: COMAR 26.11.09.08E(3) and COMAR 26.11.03.06C]**; (b) required training of equipment operators concerning combustion optimization. Such records shall include

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MAG and MGX

the names of all trainees, the dates on which the training was administered, and identification of the concern that provided the training **[Authority: COMAR 26.11.09.08E(5) and COMAR 26.11.03.06C]**; and

(c) the types of fuels burned on a daily basis. **[Authority: COMAR 26.11.09.08K]**

(2) For the direct-fire combustion units associated with Thermal Oxidizers T-657 (MAG-04) and T-1657 (MGX-12) the Permittee shall maintain written or printable electronic records of the following:

(a) good operating practices, as recommended by the vendor of the combustion units, to minimize NO_x emissions **[Authority: COMAR 26.11.03.06C]**;

(b) records regarding the required training program concerning NO_x minimization techniques for operators of the combustion units. These records shall include a written description of training program content, the date(s) on which the training was administered, and identification of all employees who attended the training **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**;

(c) the types and amounts of fuels burned in the combustion units during the period May 1 through September 30 of each year **[Authority: COMAR 26.11.03.06C]**; and

(d) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of “good operating practices” as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**

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MAG and MGX

D. Control of VOC

(1) The Permittee shall maintain a written or printable electronic description of all "good operating practices" implemented to minimize emissions of VOC from the MAG & MGX plants. **[Authority: COMAR 26.11.19.02I and COMAR 26.11.03.06C]**

(2) The Permittee shall maintain records of VOC leak detection and repair activities as specified in Section 1.5 of Table IV-1. **[Authority: COMAR 26.11.19.16]**

(3) The Permittee shall maintain records of the following:

(a) all required recordation of the temperatures of the combustion zones of Thermal Oxidizers T-657 and T-1657; and

(b) all applicable record keeping requirements specified in the Permittee's CAM plan for the oxidizers provided in Appendix I to the Part 70 permit.

[Authority: 40 CFR, Part 64 and ARA Permit to Construct No. 510-0076-7-1024 issued March 19, 2012.]

E. Control of HAP

(1) The Permittee must maintain files of all information required by 40 CFR 63, Subpart VVVVVV for at least five (5) years following the date of each occurrence according to the requirements in 40 CFR §63.10(b)(1). If applicable, the Permittee must comply with the recordkeeping and reporting requirements of 40 CFR §63.10(b)(2)(iii) and (vi) through (xiv), and the applicable requirements specified in 40 CFR §63.11501(c)(1) as follows:

(a) The Permittee must keep records of the dates and results of each inspection event, the dates of equipment repairs, and, if applicable, the reasons for any delay in repair. **[Authority: 40 CFR §63.11495(a)(5) and §63.11501(c)(1)(i)]**

(b) If the Permittee's current estimate is that total uncontrolled metal HAP emissions from a CMPU subject to 40 CFR 63, Subpart VVVVVV are less than

Table IV – 5 **MAG and MGX**	
	400 lb/yr, then the Permittee must keep records of either the number of batches operated per month (batch vents) or the process operating hours (continuous vents). Also, the Permittee must reevaluate your total emissions before the Permittee makes any process or operational change that affects emissions of metal HAP. If projected emissions increase to 400 lb/yr or more, then the Permittee must be in compliance with one of the options for metal HAP process vents in Table 4 to 40 CFR 63, Subpart VVVVVV upon initiating operation under the new operating conditions. **[Authority: 40 CFR §63.11496a(f) and (f)(2) and §63.11501(c)(1)(v)]** (c) The Permittee must keep records of all emissions calculations including all recalculated emissions determinations. To determine the mass emission rate, the Permittee may use process knowledge, engineering assessment, or test data. **[Authority: 40 CFR §63.11496(f)(1) and §63.11501(c)(1)(v)]** (d) Records of the date, time, and duration of each malfunction of operation of process equipment, control devices, recovery devices, or continuous monitoring systems used to comply with 40 CFR 63, Subpart VVVVVV that causes a failure to meet a standard. The record must include a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over the standard, and a description of the method used to estimate the emissions. **[Authority: 40 CFR §63.11501(c)(1)(vii)]** (e) Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR §63.11495(d), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. **[Authority: §63.11501(c)(1)(viii)]**

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MAG and MGX

5.5 **Reporting Requirements:**

A. Visible Emissions Limitations
The Permittee shall report occurrences of visible emissions in accordance with conditions number 4 ("Report of Excess Emissions and Deviations"), and number 9 (Compliance Certification report), of Section III – Plant Wide Conditions.

B. Control of Particulate Matter
The Permittee shall make available to the Department upon request copies of any operations and maintenance plans required for particulate emissions sources and air pollution control equipment (MAG-04, MAG-07, MAG-13, MAG-15, MGX-12, and MGX-22). **[Authority: COMAR 26.11.03.06C]**

C. Control of Nitrogen Oxides
(1) For the indirect-fire combustion unit associated with Calciner K-854 (MAG-01) the Permittee shall make available to the Department upon request any records that the Permittee is required to maintain concerning:

(a) combustion analyses performed on the unit **[Authority: COMAR 26.11.09.08E(3), and COMAR 26.11.03.06C]**; and

(b) training of operators with regard to combustion optimization. **[Authority: COMAR 26.11.09.08E(5), and COMAR 26.11.03.06C]**

(2) For the direct-fire combustion units associated with Thermal Oxidizers T-657 (MAG-04) and T-1657 (MGX-12) the Permittee shall make available to the Department upon request all records required to be established with regard to:

(a) "good operating practices", as recommended by the vendor of the equipment, to minimize NO_x emissions from the combustion units **[Authority: COMAR 26.11.03.06C]**;

(b) the required training program concerning NO_x minimization techniques for operators of the

Table IV – 5
MAG and MGX

combustion units, and operator attendance of the program **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**;

(c) the types and amounts of fuels burned during the period May 1 through September 30 of each year in the combustion units **[Authority: COMAR 26.11.03.06C]**; and

(d) each inspection or maintenance activity including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**

D. Control of VOC
The Permittee shall report, in accordance with conditions number 4 ("Report of Excess Emissions and Deviations"), and number 9 (Compliance Certification report), of Section III – Plant Wide Conditions:

(1) deviations from "good operating practices" designed to minimize emissions of VOC;

(2) deviations from required VOC leak detection and repair activities;

(3) failure to maintain the minimum one-hour block average temperature of the thermal oxidizer combustion zone at 1400 °F when the oxidizer was being used to control emissions of VOC; and

(4) failure to comply with the requirements of the Permittee's CAM plan for the oxidizers provided in Appendix I to the Part 70 permit.

E. Control of HAP
The Permittee must submit semiannual compliance reports for semiannual periods during which the Permittee experienced any of the following events:

Table IV – 5 **MAG and MGX**	
	(1) Deviations. The Permittee must clearly identify any deviation from the requirements of 40 CFR 63, Subpart VVVVVV. (2) Delay of leak repair. The Permittee must provide the following information for each delay of leak repair beyond 15 days for any process equipment: information on the date the leak was identified, the reason for the delay in repair, and the date the leak was repaired. (3) Process change. The Permittee must report each process change that affects a compliance determination and submit a new certification of compliance with the applicable requirements in accordance with the procedures specified in 40 CFR §63.501(b). (4) If a malfunction occurred during the reporting period, the report must include the number of instances of malfunctions that caused emissions in excess of a standard. For each malfunction that caused emissions in excess of a standard, the report must include a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over the standard, and a description of the method used to estimate the emissions. The report must also include a description of actions the Permittee took during a malfunction of an affected source to minimize emissions in accordance with 40 CFR §63.11495(d), including actions taken to correct a malfunction**.** **[Authority: 40 CFR §63.501(d), (d)(1), (2), (3), (4) and (8)]**

A permit shield shall cover the applicable requirements of the Clean Air Act that are listed in Table IV-5 for the MAG & MGX Plants.

TABLE IV – 5A
List of Sources for the MAG and MGX Plants

Emission Point ID	Emission Unit			Air Pollution Control Equipment	
	ID	Description	Status	ID	Description
MAG-01	K-854	Calciner K-854 combustion unit *(indirect-fire)*		None	None
MAG-03	T-166 T-167 V-137 R-132A R-132B R-132C E-861	Tanks T-166 & T-167, Surge Tank V-137, Reactors R-132A, B & C, and Condenser E-861. The condenser recovers hexanol vented from the tanks and reactors.		None	None
MAG-04	K-854 F-154A&B F-154C&D	Calciner K-854 and Pneumafil® filters F-154A&B and C&D (parallel). The filters recover material vented from the calciner.		T-657	Thermal oxidizer, used for destruction of vapors in the vents from the Pneumafil® filters
MAG-05	T-467 F-467	Blender T-467 and Baghouse F-467. The baghouse is used for material recovery.		None	None
MAG-06	K-852 E-863A E-863B	Steam Dryer K-852, Tower Water Condenser E-863A and Chilled Water Condenser E-863B. The condensers recover hexanol vented from the dryer.		None	None
MAG-07	B-365 F-364	Central Vacuum Cleaner B-365 and Bag filter F-364. The bag filter is used for material recovery.		None	None
MAG-13	V-169 F-169	Calciner Feed Hopper V-169 and Cartridge F-169. The cartridge collector is used for material recovery.		None	None
MAG-15	V-1153 V-1154 V-1169 S-1652A S-1652B S-1652C S-1652D V-1164A V-1164B V-1164C V-1164D V-1163 F-1153 F-1155 F-1464A F-1464B F-1464C F-1464D F-1462 F-1469	Tank V-1153 and Cartridge F-1153; Hopper V-1169 and Cartridge F-1155; Bin V-1164A and Cartridge F-1464A; Bin V-1164B and Cartridge F-1464B; Bin V-1164C and Cartridge F-1464C; Bin V-1164D and Cartridge F-1164D; Silo V-1163 and Cartridge F-1462; Hopper V-1154 and Cartridge F-1155; and Screeners S-1652A, B, C & D. The cartridges recover material vented from the tanks and silos.		None	None

TABLE IV – 5A
List of Sources for the MAG and MGX Plants

Emission Point ID	Emission Unit			Air Pollution Control Equipment	
	ID	Description	Status	ID	Description
MAG-22	T-132 T-173 E-873	Hexanol Tanks T-132 and T-173, and Chilled Water Condenser E-873. The condenser recovers hexanol vented from the tanks.		None	None
MAG-24	MAG-GEN	8 hp Emergency Generator, included in Insignificant Activities in Section V		None	None
MGX-10	T-1129 T-1155 T-1166 T-1166A T-1167 T-1167A T-1137 R-132D R-132E E-1861	Tanks T-1129, T-1155, T-1166, T-1166 A, T-1167, T-1167A and T-1137; Reactors R-132D & E; and Chilled Water Condenser E-1861. The condenser recovers hexanol vented from the tanks and reactors.		None	None
MGX-12	K-1854 F-1154AB F-1154CD	Electric Calciner K-1854 and Pneumafil® filters F-1154AB & CD. The filters are used for material recovery.		T-1657	Thermal oxidizer, used for destruction of hexanol vapor in the vents from the Pneumafil® filters.
MGX-22	F-1364	Central Vacuum System and Cartridge F-1364. The cartridge collector is used for material recovery.		None	None
MGX-23	K-1852 E-1863A E-1863B	Steam Dryer 1852, Tower Water Condenser E-1863A and Chilled Water Condenser E-1863B (in series). The condensers recover hexanol vented from the dryer.		None	None
MGX-28	F-1170 T-1170	Vac-U-Max® Pneumatic Transfer System with internal Filter (F-1170) and Surge Tank (V-1170). (*The emission point is indoors but subject to 40 CFR Part 63 Subpart VVVVVV)*		None	None

Table IV – 6 **CAO**	
6.0	**Emissions Unit Number(s)** Emission units associated with the Catalyst Additives Operations (CAO) Plant, ARA Registration No. 510-0076-7-1076. See Table IV-6A for a complete listing of emissions unit and emissions points associated with the CAO plant.
6.1	**Applicable Standards/Limits:** A. Visible Emissions Limitations (1) **COMAR 26.11.06.02C(2)**, which requires that a person not cause or permit the discharge of emissions from any installation or building, other than water in uncombined form, which is visible to human observers. **Exceptions. COMAR 26.11.06.02A(2)** establishes that "the visible emissions standards in §C of this regulation do not apply to emissions during start-up and process modifications or adjustments, or occasional cleaning of control equipment, if: (a) The visible emissions are not greater than 40 percent opacity; and (b) The visible emissions do not occur for more than 6 consecutive minutes in any 60 minute period." (2) **COMAR 26.11.09.05A(2)**, which requires that a person not cause or permit the discharge of emissions from any fuel burning equipment, other than water in uncombined form, which is visible to human observers. This regulation applies to the indirect-fire combustion units associated with Calciner 806 (CAO-12 and CAO-13), Calciner 806A (CAO-15 and CAO-16), and Calciner 806B (CAO-18 through CAO-21). Exceptions. **COMAR 26.11.09.05A(3)** establishes that Section A(2) does "not apply to emissions during load changing, soot blowing, start-up, or adjustments or occasional cleaning of control equipment if: (a) The visible emissions are not greater than 40 percent opacity; and

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CAO

(b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period."

B. Control of Particulate Matter
COMAR 26.11.06.03B(2)(a), which requires that a person not cause or permit particulate matter to be discharged from any installation in excess of 0.03 gr/scfd (68.7 mg/dscm).

C. Control of Nitrogen Oxides
(1) **COMAR 26.11.09.08E**, which applies to the indirect-fire combustion units associated with Calciner 806 (CAO-12 and CAO-13), Calciner 806A (CAO-15 and CAO-16), and Calciner 806B (CAO-18 through CAO-21), and which requires that a person who operates fuel burning equipment with a rated heat input capacity of 100 MMBtu per hour or less:

(a) submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each installation;

(b) perform a combustion analysis for each affected installation at least once each year and optimize combustion based on the analysis; and

(c) at least once every 3 years require each operator of the installation to attend an operator training program concerning combustion optimization that is sponsored by the Department, the EPA or equipment vendors. In accordance with COMAR 26.11.09.08B(5)(a), the equipment operator to be trained may be the person who maintains the equipment and makes the necessary adjustments for efficient operation.

(2) **COMAR 26.11.09.08J**, which applies to the direct-fire combustion unit associated with Dryer 811 (CAO-43), and which establishes that a person who owns or operates any installation other than fuel-burning equipment that causes NO_x emissions shall:

Table IV – 6 **CAO**	
	(a) maintain good operating practices as recommended by the equipment vendor to minimize NO_x emissions; (b) prepare and implement a written in-house training program for all operators of these installations that includes instruction with regard to good operating and maintenance practices for the particular installation; (c) maintain and make available to the Department upon request the written in-house operator training program; (d) burn only gas in each installation, where gas is available, during the period May 1 through September 30 of each year; and (e) maintain operator training attendance records for each operator on the site for at least 5 years and make these records available to the Department upon request.
6.2	**Testing Requirements:** A. Visible Emissions Limitations See Monitoring, Record Keeping and Reporting Requirements. B. Control of Particulate Matter See Monitoring, Record Keeping and Reporting Requirements. C. Control of Nitrogen Oxides The Permittee shall perform at least one combustion analysis per year on the indirect-fire combustion units associated with Calciner 806 (CAO-12 and CAO-13), Calciner 806A (CAO-15 and CAO-16), and Calciner 806B (CAO-18 through CAO-21), and shall optimize combustion in the unit in accordance with the findings of the combustion analysis. **[Authority: COMAR 26.11.09.08E(2)]**
6.3	**Monitoring Requirements:** A. Visible Emissions Limitations For each emissions point identified in Table IV-6A that is associated with an air pollution control device or product recovery device that

Table IV – 6 **CAO**	
	discharges to atmosphere the Permittee shall conduct observations for visible emissions in accordance with Section 1.1 of Table IV-1. This requirement does not apply to emissions points associated with control devices that are used solely to control fumes from plant maintenance welding operations or to control emissions from vacuum systems used solely for housekeeping purposes. **[Authority: COMAR 26.11.03.06C]** B. Control of Particulate Matter The Permittee shall prepare, implement, and revise as necessary operations and maintenance plans for all particulate emissions sources and air pollution control equipment (CAO-14A, CAO-17A, CAO-43 through 46, CAO-48, CAO-49, CAO-51, CAO-54 through CAO-60, CAO-66 through CAO-68, and CAO-81 through CAO-83). The required operations and maintenance plans shall be developed and implemented in accordance with Section 1.3 of Table IV – 1. **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides The Permittee shall conduct annual inspections of the direct-fire combustion system associated with Dryer 811 (CAO-43) and shall review pertinent operating logs and records to determine the compliance status of operations with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**
6.4	**Record Keeping Requirements:** A. Visible Emissions Limitations The Permittee shall maintain, in accordance with applicable requirements under Section 1.1 of Table IV-1, records of all required observations for visible emissions. **[Authority: COMAR 26.11.03.06C]** B. Control of Particulate Matter The Permittee shall maintain written or printable electronic copies of all operations and maintenance plans required for particulate emissions sources and air pollution control equipment (CAO-14A, CAO-17A, CAO-43 through 46, CAO-48, CAO-49, CAO-51, CAO-54 through CAO-60, CAO-66 through CAO-68, and CAO-81 through CAO-83). **[Authority: COMAR 26.11.03.06C]**

Table IV – 6 **CAO**	
	C. Control of Nitrogen Oxides (1) For the indirect-fire combustion units associated with Calciner 806 (CAO-12 and CAO-13), Calciner 806A (CAO-15 and CAO-16), and Calciner 806B (CAO-18 through CAO-21), the Permittee shall maintain written or printable electronic records of: (a) all required combustion analyses performed on the unit **[Authority: COMAR 26.11.09.08E(3) and COMAR 26.11.03.06C]**; (b) required training of equipment operators concerning combustion optimization. Such records shall include the names of all trainees, the dates on which the training was administered, and identification of the concern that provided the training **[Authority: COMAR 26.11.09.08E(5) and COMAR 26.11.03.06C];** and (c) the types of fuels burned on a daily basis. **[Authority: COMAR 26.11.09.08K]** (2) For the direct-fire combustion units associated with Dryer 811 (CAO-43), the Permittee shall maintain written or printable electronic records of the following: (a) good operating practices, as recommended by the vendor of the combustion units, to minimize NO_x emissions **[Authority: COMAR 26.11.03.06C]**; (b) records regarding the required training program concerning NO_x minimization techniques for operators of the combustion units. These records shall include a written description of training program content, the date(s) on which the training was administered, and identification of all employees who attended the training **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**; (c) the types and amounts of fuels burned in the combustion units during the period May 1 through

Table IV – 6 **CAO**	
	September 30 of each year **[Authority: COMAR 26.11.03.06C]**; and (d) each inspection or maintenance activity including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**
6.5	**Reporting Requirements:** A. Visible Emissions Limitations The Permittee shall report occurrences of visible emissions in accordance with conditions number 4 ("Report of Excess Emissions and Deviations"), and number 9 (Compliance Certification report), of Section III – Plant Wide Conditions. B. Control of Particulate Matter The Permittee shall make available to the Department upon request copies of any operations and maintenance plans required for particulate emissions sources and air pollution control (CAO-14A, CAO-17A, CAO-43 through 46, CAO-48, CAO-49, CAO-51, CAO-54 through CAO-60, CAO-66 through CAO-68, and CAO-81 through CAO-83). **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides (1) For the indirect-fire combustion units associated with Calciner 806 (CAO-12 and CAO-13), Calciner 806A (CAO-15 and CAO-16), and Calciner 806B (CAO-18 through CAO-21), the Permittee shall make available to the Department upon request any records that the Permittee is required to maintain concerning: (a) combustion analyses performed on the unit **[Authority: COMAR 26.11.09.08E(3), and COMAR 26.11.03.06C]**; and (b) training of operators with regard to combustion optimization. **[Authority: COMAR 26.11.09.08E(5), and COMAR 26.11.03.06C]**

Table IV – 6 **CAO**	
	(2) For the direct-fire combustion units associated with Dryer 811 (CAO-43), the Permittee shall make available to the Department upon request all records required to be established with regard to: (a) "good operating practices", as recommended by the vendor of the equipment, to minimize NO_x emissions from the combustion units **[Authority: COMAR 26.11.03.06C]**; (b) the required training program concerning NO_x minimization techniques for operators of the combustion units, and operator attendance of the program **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**; (c) the types and amounts of fuels burned during the period May 1 through September 30 of each year in the combustion units **[Authority: COMAR 26.11.03.06C]**; and (d) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**

A permit shield shall cover the applicable requirements of the Clean Air Act that are listed in Table IV-6 for the CAO Plant.

TABLE IV – 6A
List of Sources for the CAO Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
CAO-12	806	Calciner 806 combustion flue gas vent (one of two) *(indirect-fired)*	None	None
CAO-13	806	Calciner 806 combustion flue gas vent (one of two) *(indirect-fired)*	None	None
CAO-14A	806 806A 606 606A	Calciners 806 and 806A, and Baghouses 606 and 606A. The baghouses are used for material recovery.	686	Packed Tower Absorber
CAO-15	806A	Calciner 806A combustion flue gas vent (one of two) *(indirect-fired)*	None	None
CAO-16	806A	Calciner 806A combustion flue gas vent (one of two) *(indirect-fired)*	None	None
CAO-17A	806B 606B	Calciner 806B and Baghouse 606B. The baghouse is used for material recovery.	687	Packed tower absorber
CAO-18	806B	Calciner 806B combustion flue gas vent (one of four) *(indirect-fired)*	None	None
CAO-19	806B	Calciner 806B combustion flue gas vent (one of four) *(indirect-fired)*	None	None
CAO-20	806B	Calciner 806B combustion flue gas vent (one of four) *(indirect-fired)*	None	None
CAO-21	806B	Calciner 806B combustion flue gas vent (one of four) *(indirect-fired)*	None	None
CAO-43	811 616 616A 616B	Dryer 811 and Baghouses 616, 616A, and 616B. The baghouses are used for material recovery. *(direct fired)*	None	None
CAO-44	498 698	Aireyor 498 from calciner to silo and Baghouse 698. The baghouse is used for material recovery.	None	None
CAO-45	130J 630J	Silo 130J and Baghouse 630J. The baghouse is used for material recovery.	None	None
CAO-46	130K 630K	Silo 130K and Baghouse 630K. The baghouse is used for material recovery.	None	None
CAO-48	130 630	Silo 130 and Baghouse 630. The baghouse is used for material recovery.	None	None
CAO-49	130A 630A	Silo 130A and Baghouse 630A. The baghouse is used for material recovery.	None	None

TABLE IV – 6A
List of Sources for the CAO Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
CAO-51	130C North 130C South 630C	Product Silo 130C North and South and Baghouse 630C. The baghouse is used for material recovery.	None	None
CAO-53	682 683	Ammonia Recovery Columns 682 and 683.	None	None
CAO-54	T-129 629 629A	Storage Silo T-129 and Baghouses 629 and 629A. The baghouses are used for material recovery.	None	None
CAO-55	633 634	Fugitive dust capture system for truck and railcar loading system and Bin Vents 633 and 634.	630G	Bin vents 633 and 634 exhaust to Baghouse 630G.
CAO-56	130B North 630BN	Silo 130B North and Baghouse 630BN. The baghouse is used for material recovery.	None	None
CAO-57	130B South 630BS	Silo 130B South and Baghouse 630BS. The baghouse is used for material recovery.	None	None
CAO-58	130L 630L	Silo 130L and Baghouse 630L. The baghouse is used for material recovery.	None	None
CAO-59	130M 630M	Silo 130M and Baghouse 630M. The baghouse is used for material recovery.	None	None
CAO-60	199A 699A	Silo 199A and Baghouse 699A. The baghouse is used for material recovery.	None	None
CAO-81	Truck/Railcar	Truck/RR Loading (portable system)	51602	Cartridge
CAO-82	199C	Calciner 806 Feed Silo 199C and Cartridge 699C. The cartridge is used for material recovery.	None	None
CAO-83	12103 62103	Tank 12103 and Cartridge 62103. The cartridge is used for material recovery.	None	None

Table IV – 7 **AEO**	
7.0	**Emissions Unit Number(s)** Emission units associated with the Automobile Emissions Operations (AEO) Plant, ARA Registration No. 510-0076-7-1077. See Table IV-7A for a complete listing of emissions unit and emissions points associated with the AEO plant.
7.1	**Applicable Standards/Limits:** A. Visible Emissions Limitations (1) **COMAR 26.11.06.02C(2)**, which requires that a person not cause or permit the discharge of emissions from any installation or building, other than water in uncombined form, which is visible to human observers. **Exceptions. COMAR 26.11.06.02A(2)** establishes that "the visible emissions standards in §C of this regulation do not apply to emissions during start-up and process modifications or adjustments, or occasional cleaning of control equipment, if: (a) The visible emissions are not greater than 40 percent opacity; and (b) The visible emissions do not occur for more than 6 consecutive minutes in any 60 minute period." (2) **COMAR 26.11.09.05A(2)**, which requires that a person not cause or permit the discharge of emissions from any fuel burning equipment, other than water in uncombined form, which is visible to human observers. This regulation applies to the indirect-fire combustion units associated with the Calciner K-1352 (AEO-05). Exceptions. **COMAR 26.11.09.05A(3)** establishes that Section A(2) does "not apply to emissions during load changing, soot blowing, start-up, or adjustments or occasional cleaning of control equipment if: (a) The visible emissions are not greater than 40 percent opacity; and (b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period."

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	B. Control of Particulate Matter **COMAR 26.11.06.03B(2)(a)**, which requires that a person not cause or permit particulate matter to be discharged from any installation in excess of 0.03 gr/scfd (68.7 mg/dscm). C. Control of Nitrogen Oxides (1) **COMAR 26.11.09.08E**, which applies to the to the indirect-fire combustion units associated with the Calciner K-1352 (AEO-05) and which requires that a person who operates fuel burning equipment with a rated heat input capacity of 100 MMBtu per hour or less: (a) submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each installation; (b) perform a combustion analysis for each affected installation at least once each year and optimize combustion based on the analysis; and (c) at least once every 3 years require each operator of the installation to attend an operator training program concerning combustion optimization that is sponsored by the Department, the EPA or equipment vendors. In accordance with COMAR 26.11.09.08B(5)(a), the equipment operator to be trained may be the person who maintains the equipment and makes the necessary adjustments for efficient operation. (2) **COMAR 26.11.09.08J**, which applies to all NO_x emissions sources that are direct-fire in the AEO plant, Flash Dryer H-620 (AEO-06), Dryer K-720 and Camet (AEO-11), Kiln II K-1502 & K-1201 (AEO-29), and SCR, Dryer K-2104, Kiln K-1205 & Kiln III K-2100 (AEO-82), and which establishes that a person who owns or operates any installation other than fuel-burning equipment that causes NO_x emissions shall:

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(a) maintain good operating practices as recommended by the equipment vendor to minimize NO_x emissions;

(b) prepare and implement a written in-house training program for all operators of these installations that includes instruction with regard to good operating and maintenance practices for the particular installation;

(c) maintain and make available to the Department upon request the written in-house operator training program;

(d) burn only gas in each installation, where gas is available, during the period May 1 through September 30 of each year; and

(e) maintain operator training attendance records for each operator on the site for at least 5 years and make these records available to the Department upon request.

(3) Operational Requirement: NO_x emissions from the Dryer K-2104, Kiln III K-2100, and Calciner Kiln K-1352 shall be exhausted through a Selective Catalytic Reducer (SCR) (AEO-82) that is operated so as to reduce NO_x emissions sufficiently to assure consistent compliance with all applicable NO_x standards and limits. **[Authority: ARA Permit to Construct No. 510-0076-7-1077 issued on June 7, 2018.]**

(4) **40 CFR, Part 64**, which establishes Compliance Assurance Monitoring (CAM) requirements for sources that (a) use control devices to comply with emissions standards for a regulated pollutant, and (b) that have a pre-control potential-to-emit equal to or greater than the amount identified as the major source level for the regulated pollutant. The facility utilizes a Selective Catalytic Reducer (SCR) to control NO_x emissions from AEO plant processes (AEO-82), and the SCR is subject to CAM requirements. A summary of the Permittee's CAM requirements for the SCR and justification for the selection of the operating parameters to be monitored are included in the tables provided in Appendix II to the Part 70 permit.

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	D. Control of HAP **40 CFR 63, Subparts A and VVVVVV** which specify general provisions and management practices and other requirements for chemical manufacturing process units (CMPU) in metal HAP service at Chemical Manufacturing Area Sources. E. Operational Requirement: The Permittee shall operate the batch mixing system only as back up when the continuous mixing system is not in operation. The batch mixing system and the continuous mixing system may not be operated simultaneously. **[Authority: ARA Permit to Construct No. 510-0076-7-1077 issued June 7, 2018.]**
7.2	**Testing Requirements:** A. Visible Emissions Limitations See Monitoring, Record Keeping and Reporting Requirements. B. Control of Particulate Matter See Monitoring, Record Keeping and Reporting Requirements. C. Control of Nitrogen Oxides (1) The Permittee shall perform at least one combustion analysis per year on the indirect-fire combustion units associated with Calciner K-1352 (AEO-05), and shall optimize combustion in the unit in accordance with the findings of the combustion analysis. **[Authority: COMAR 26.11.09.08E(2)]** (2) At least once during the term of this permit, the Permittee shall conduct stack tests to quantify emissions of NO_x from the AEO plant's Selective Catalytic Reducer (SCR) (AEO-82) when all affected units (i.e., units that cause emissions of NO_x that are controlled by the SCR) are operating within 10 percent of capacity. Prior to the required stack tests the Permittee shall submit to the Department for approval a stack test protocol that is prepared in accordance with applicable requirements under Section 1.6 of Table IV-1. **[Authority: COMAR 26.11.03.06C]** (3) The Permittee shall comply with all applicable testing requirements specified in the Permittee's CAM plan for the SCR provided in Appendix II to the Part 70 permit. **[Authority: 40 CFR, Part 64]**

Table IV – 7 **AEO**	
	D. Control of HAP See Monitoring, Record Keeping, and Reporting Requirements. E. Operational Requirement See Record Keeping and Reporting Requirements.
7.3	**Monitoring Requirements:** A. Visible Emissions Limitations For each emissions point identified in Tables IV-7A that is associated with an air pollution control device or product recovery device that discharges to atmosphere, the Permittee shall conduct observations for visible emissions in accordance with Section 1.1 of Table IV-1. This requirement does not apply to emissions points associated with control devices that are used solely to control fumes from plant maintenance welding operations or to control emissions from vacuum systems used solely for housekeeping purposes. **[Authority: COMAR 26.11.03.06C]** B. Control of Particulate Matter The Permittee shall prepare, implement, and revise as necessary operations and maintenance plans for all particulate emissions sources and air pollution control equipment (AEO-01, AEO-02A through -02D, AEO-06 through AEO-08, AEO-11, AEO-13, AEO-29, AEO-33, AEO-34, AEO-40, AEO-41, AEO-82, AEO-83, and AEO-85). The required operations and maintenance plans shall be developed and implemented in accordance with Section 1.3 of Table IV – 1. **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides (1) The Permittee shall conduct annual inspections of all direct-fire combustion systems and all emissions units that process nitrates, Flash Dryer H-620 (AEO-06), Dryer K-720 and Camet (AEO-11), Kiln II K-1502 & K-1201 (AEO-29), and SCR, Dryer K-2104, Kiln K-1205 & Kiln III K-2100 (AEO-82), and shall review pertinent operating logs and records to determine the compliance status of operations with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**

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	(2) The Permittee shall comply with all applicable monitoring requirements specified in the Permittee's CAM plan for the SCR provided in Appendix II to the Part 70 permit. **[Authority: 40 CFR, Part 64]** D. Control of HAP (1) For each CMPU subject to the requirements of 40 CFR 63, Subpart VVVVVV, the Permittee shall comply with the following management practices: each process vessel must be equipped with a cover or lid that must be closed at all times when it is in metal HAP service, except for manual operations that require access, such as material addition and removal, inspection, sampling and cleaning. This requirement does not apply to process vessels containing only metal HAP that are in a liquid solution or other form that will not result in particulate emissions of metal HAP (e.g., metal HAP that is in ingot, paste, slurry, or moist pellet form or other form). **[Authority: 40 CFR §63.11495(a)(1)]** (2) To demonstrate compliance with 40 CFR §63.11495(a)(1) and to determine that process vessels and equipment are sound and free of leaks, the Permittee must conduct inspections of process vessels and equipment for each CMPU in metal HAP service, as specified in 40 CFR §63.11495(a)(3)(i), (ii), (iv), and (v) as follows: (a) Inspections must be conducted at least quarterly. (b) For these inspections, detection methods incorporating sight, sound, or smell are acceptable. Indications of a leak identified using such methods constitute a leak unless you demonstrate that the indications of a leak are due to a condition other than loss of HAP. If indications of a leak are determined not to be HAP in one quarterly monitoring period, the Permittee must still perform the inspection and demonstration in the next quarterly monitoring period. (c) Inspections must be conducted while the subject CMPU is operating. (d) No inspection is required in a calendar quarter during which the subject CMPU does not operate for the

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	entire calendar quarter and is not in metal HAP service. If the CMPU operates at all during a calendar quarter, an inspection is required. **[Authority: 40 CFR §63.11495(a)(3), (a)(3)(i), (ii), (iv), and (iv)]** (3) The Permittee must repair any leak within 15 calendar days after detection of the leak, or document the reason for any delay of repair. For the purposes of 40 CFR §63.11495(a)(4), a leak will be considered "repaired" if a condition is met as specified in 40 CFR §63.11495(a)(4)(i), (ii), or (iii) as follows: (a) The visual, audible, olfactory, or other indications of a leak to the atmosphere have been eliminated, or (b) No bubbles are observed at potential leak sites during a leak check using soap solution, or (c) The system will hold a test pressure. **[Authority: 40 CFR §63.11495(a)(4) and (a)(4)(i) through (iii)]** (4) At all times, the Permittee must operate and maintain any affected CMPU, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Department, which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the CMPU. **[Authority: 40 CFR §63.11495(d)]** E. <u>Operational Requirement</u> See Record Keeping and Reporting Requirements.
7.4	**<u>Record Keeping Requirements</u>:** A. <u>Visible Emissions Limitations</u> The Permittee shall maintain, in accordance with applicable requirements under Section 1.1 of Table IV-1, records of all required

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observations for visible emissions. **[Authority: COMAR 26.11.03.06C]**

B. Control of Particulate Matter
The Permittee shall maintain written or printable electronic copies of all operations and maintenance plans required for particulate emissions sources and air pollution control equipment (AEO-01, AEO-02A through -02D, AEO-06 through AEO-08, AEO-11, AEO-13, AEO-29, AEO-33, AEO-34, AEO-40, AEO-41, AEO-82, AEO-83, and AEO-85). **[Authority: COMAR 26.11.03.06C]**

C. Control of Nitrogen Oxides
(1) For the indirect-fire combustion units associated with Calciner K-1352 (AEO-05) the Permittee shall maintain written or printable electronic records of:

(a) all required combustion analyses performed on the unit **[Authority: COMAR 26.11.09.08E(3) and COMAR 26.11.03.06C]**; and

(b) required training of equipment operators concerning combustion optimization. Such records shall include the names of all trainees, the dates on which the training was administered, and identification of the concern that provided the training **[Authority: COMAR 26.11.09.08E(5) and COMAR 26.11.03.06C];** and

(c) the types of fuels burned on a daily basis. **[Authority: COMAR 26.11.09.08K]**

(2) For the direct-fire combustion systems and all emissions units that process nitrates, Flash Dryer H-620 (AEO-06), Dryer K-720 and Camet (AEO-11), Kiln II K-1502 & K-1201 (AEO-29), and SCR, Dryer K-2104, Kiln K-1205 & Kiln III K-2100 (AEO-82), the Permittee shall maintain written or printable electronic records of the following:

(a) good operating practices, as recommended by the vendor of the combustion units, to minimize NO_x emissions **[Authority: COMAR 26.11.03.06C]**;

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(b) records regarding the required training program concerning NO_x minimization techniques for operators of the combustion units. These records shall include a written description of training program content, the date(s) on which the training was administered, and identification of all employees who attended the training **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**;

(c) the types and amounts of fuels burned in the combustion units during the period May 1 through September 30 of each year **[Authority: COMAR 26.11.03.06C]**; and

(d) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**

(3) The Permittee shall comply with all applicable record keeping requirements specified in the Permittee's CAM plan for the SCR provided in Appendix II to the Part 70 permit. **[Authority: 40 CFR, Part 64]**

D. Control of HAP

(1) The Permittee must maintain files of all information required by 40 CFR 63, Subpart VVVVVV for at least five (5) years following the date of each occurrence according to the requirements in 40 CFR §63.10(b)(1). If applicable, the Permittee must comply with the recordkeeping and reporting requirements of 40 CFR §63.10(b)(2)(iii) and (vi) through (xiv), and the applicable requirements specified in 40 CFR §63.11501(c)(1) as follows:

(a) The Permittee must keep records of the dates and results of each inspection event, the dates of equipment repairs, and, if applicable, the reasons for

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	any delay in repair. **[Authority: 40 CFR §63.11495(a)(5) and §63.11501(c)(1)(i)]** (b) If the Permittee's current estimate is that total uncontrolled metal HAP emissions from a CMPU subject to 40 CFR 63, Subpart VVVVVV are less than 400 lb/yr, then the Permittee must keep records of either the number of batches operated per month (batch vents) or the process operating hours (continuous vents). Also, the Permittee must reevaluate your total emissions before the Permittee makes any process or operational change that affects emissions of metal HAP. If projected emissions increase to 400 lb/yr or more, then the Permittee must be in compliance with one of the options for metal HAP process vents in Table 4 to 40 CFR 63, Subpart VVVVVV upon initiating operation under the new operating conditions. **[Authority: 40 CFR §63.11496a(f) and (f)(2) and §63.11501(c)(1)(v)]** (c) The Permittee must keep records of all emissions calculations including all recalculated emissions determinations. To determine the mass emission rate, the Permittee may use process knowledge, engineering assessment, or test data. **[Authority: 40 CFR §63.11496(f)(1) and §63.11501(c)(1)(v)]** (d) Records of the date, time, and duration of each malfunction of operation of process equipment, control devices, recovery devices, or continuous monitoring systems used to comply with 40 CFR 63, Subpart VVVVVV that causes a failure to meet a standard. The record must include a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over the standard, and a description of the method used to estimate the emissions. **[Authority: 40 CFR §63.11501(c)(1)(vii)]** (e) Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR §63.11495(d), including corrective actions to restore

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	malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. **[Authority: §63.11501(c)(1)(viii)]** E. Operational Requirement The Permittee shall maintain records of operating hours of the batch mixing system and the continuous mixing system to ensure that the systems are not operated simultaneously. **[Authority: COMAR 26.11.03.06C]**
7.5	**Reporting Requirements:** A. Visible Emissions Limitations The Permittee shall report occurrences of visible emissions in accordance with conditions number 4 ("Report of Excess Emissions and Deviations"), and number 9 (Compliance Certification report), of Section III – Plant Wide Conditions. B. Control of Particulate Matter The Permittee shall make available to the Department upon request copies of any operations and maintenance plans required for particulate emissions sources and air pollution control equipment (AEO-01, AEO-02A through -02D, AEO-06 through AEO-08, AEO-11, AEO-13, AEO-29, AEO-33, AEO-34, AEO-40, AEO-41, AEO-82, AEO-83, and AEO-85). **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides (1) For the indirect-fire combustion units associated with the Calciner K-1352 (AEO-05) the Permittee shall make available to the Department upon request any records that the Permittee is required to maintain concerning: (a) combustion analyses performed on the unit **[Authority: COMAR 26.11.09.08E(3), and COMAR 26.11.03.06C]**; and (b) training of operators with regard to combustion optimization. **[Authority: COMAR 26.11.09.08E(5), and COMAR 26.11.03.06C]** (2) For the direct-fire combustion systems and all emissions units that process nitrates, Flash Dryer H-620 (AEO-06), Dryer K-720 and

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Camet (AEO-11), Kiln II K-1502 & K-1201 (AEO-29), and SCR, Dryer K-2104, Kiln K-1205 & Kiln III K-2100 (AEO-82), the Permittee shall make available to the Department upon request all records required to be established with regard to:

(a) "good operating practices", as recommended by the vendor of the equipment, to minimize NO_x emissions from the combustion units **[Authority: COMAR 26.11.03.06C]**;

(b) the required training program concerning NO_x minimization techniques for operators of the combustion units, and operator attendance of the program **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**;

(c) the types and amounts of fuels burned during the period May 1 through September 30 of each year in the combustion units **[Authority: COMAR 26.11.03.06C]**; and

(d) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**

(4) The Permittee shall report, in accordance with conditions number 4 ("Report of Excess Emissions and Deviations"), and number 9 (Compliance Certification report), of Section III – Plant Wide Conditions, failure to comply with the requirements of the Permittee's CAM plan for the SCR provided in Appendix II to the Part 70 permit.

D. Control of HAP

The Permittee must submit semiannual compliance reports for semiannual periods during which the Permittee experienced any of the following events:

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(1) Deviations. The Permittee must clearly identify any deviation from the requirements of 40 CFR 63, Subpart VVVVVV.

(2) Delay of leak repair. The Permittee must provide the following information for each delay of leak repair beyond 15 days for any process equipment: information on the date the leak was identified, the reason for the delay in repair, and the date the leak was repaired.

(3) Process change. The Permittee must report each process change that affects a compliance determination and submit a new certification of compliance with the applicable requirements in accordance with the procedures specified in 40 CFR §63.501(b).

(4) If a malfunction occurred during the reporting period, the report must include the number of instances of malfunctions that caused emissions in excess of a standard. For each malfunction that caused emissions in excess of a standard, the report must include a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over the standard, and a description of the method used to estimate the emissions. The report must also include a description of actions the Permittee took during a malfunction of an affected source to minimize emissions in accordance with 40 CFR §63.11495(d), including actions taken to correct a malfunction**.**

[Authority: 40 CFR §63.501(d), (d)(1), (2), (3), (4) and (8)]

E. Operational Requirement

The Permittee shall make available to the Department upon request copies of all operating hour records required to demonstrate that the batch mixing system and the continuous mixing system are not operated simultaneously. **[Authority: COMAR 26.11.03.06C]**

A permit shield shall cover the applicable requirements of the Clean Air Act that are listed in Table IV-7 for the AEO Plant.

Table IV-7A
List of Sources for the AEO Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
AEO-01	V-502 F-501	Silo V-502 and Cartridge F-501 on Vacuum Unloading System. The cartridge is used for material recovery.	None	None
AEO-02A	V-502 F-502A	Silo V-502 and Cartridge F-502A. The cartridge is used for material recovery.	None	None
AEO-02B	V-502 F-502B	Silo V-502 and Cartridge F-502B. The cartridge is used for material recovery.	None	None
AEO-02C	V-502 F-502C	Silo V-502 and Cartridge F-502C. The cartridge is used for material recovery.	None	None
AEO-02D	V-502 F-502D	Silo V-502 and Cartridge F-502D. The cartridge is used for material recovery.	None	None
AEO-05	K-1352	Calciner K-1352 combustion flue gas vent *(indirect fired)*	None	None
AEO-06	H-620 F-620 F-621	Flash Dryer and Baghouses F-620 and F-621. The baghouses are used for material recovery. *(direct fired)*	None	None
AEO-07	V-603 F-603	Silo V-603 and Cartridge F-603. The cartridge is used for material recovery.	None	None
AEO-08	V-604 F-604	Blender V-604 and Cartridge F-604. The cartridge is used for material recovery.	None	None

Table IV-7A
List of Sources for the AEO Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
AEO-11	K-720, FC-710A FC-710B FC-710C FC-710D F-706 CN-001 T-710A T-710B T-710C T-710D T-707 T-601A T-601B T-711A T-711B T-713 T-607	Dryer K-720 (*direct fire*); Alumina Spheres Columns FC-710A, B, C & D; Separator F-706; Centrifuge CN-001; Tanks T-710A,B,C&D, T-707, T-601A&B, T-711A&B, T-713, and T-607	CAMET®	Catalytic convertor used to control NH_3 emissions *(direct fire)*
AEO-13	V-1101A V-1101B V-1101C V-1101D F-1101A F-1101B F-1101C F-1101D	Silos V-1101A-D and Baghouses F-1101A-D. The baghouses are used for material recovery.	None	None
AEO-18	V-1311A V-1311B F-1311A F-1311B	Test Bins V-1311A&B and Socks F-1311A&B. The socks are used for material recovery. (*The emission point is indoors but subject to 40 CFR Part 63 Subpart VVVVVV)*	None	None
AEO-20	V-1306 F-1310	Fines Bin V-1306 and Sock F-1310. The sock is used for material recovery. (*The emission point is indoors but subject to 40 CFR Part 63 Subpart VVVVVV)*	None	None

Table IV-7A
List of Sources for the AEO Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
AEO-29	K-1502 V-1251 K-1201 F-1452	Kiln II K-1502 Combustion Products and Sweep Air (*direct fire*), Tanks (indicated on process flow diagrams), Vessel V-1251, Kiln K-1201 Combustion Flue Gas Vent (*direct fire*), and Baghouse F-1452. The baghouse is used for material recovery.	None	None
AEO-33	V-630 F-630	Silo V-630 and Baghouse F-630. The baghouse is used for material recovery.	None	None
AEO-34	V-1101E F-1101E	Silo V-1101E and Baghouse F-1101E. The baghouse is used for material recovery.	None	None
AEO-40	V-1101F F-1101F	Silo V-1101F and Baghouse F-1101F. The baghouse is used for material recovery.	None	None
AEO-41	V-1101G F-1101G	Silo V-1101G and Baghouse F-1101G. The baghouse is used for material recovery.	None	None
AEO-82	K-2104 K-2100 K-1352 K-1206 F-5031 F-5032	Dryer K-2104 (*direct fire*), Kiln III K-2100 Combustion Flue Gas & Sweep Air (*direct fire*), Calciner Kiln K-1352 Sweep Air (*indirect fire*), Kiln I Cooler K-1206, and Baghouses F-5031(active) and F-5032 (idled). The baghouses are used for material recovery.	CC5001	SCR Reactor

Table IV-7A
List of Sources for the AEO Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
	V-1203 V-103A V-2006A V-2206B V-2006C V-2006D V-1118 V-1119 FD-1120 FD-1121 M-1123 M-1125 CV-1124 CV-1126 K-1205 V-4001A V-4001B V-4001C F-103A F-2006A F-2006B F-2006C F-2006D F-1118 F-1119 F-2008 F-1125 F-1455 V-2006A V-2006B	Tanks (indicated on process flow diagrams); Vessel V-1203; Silo V-103A and Baghouse F-103A; Vessels V-2006A, B, C & D and Baghouses F-2006A, B, C & D; Hopper V-1118 and Baghouse F-1118; Hopper V-1119 and Baghouse F-1119; Feeder FD-1120; Feeder FD-1121; Baghouse F-2008; Mixers M-1123 and M-1125; Screw Conveyors CV-1124 and CV-1126; Kiln I K-1205; Vessels V-4001A, B & C; and Baghouse F-1125. All sources and baghouses discharge to Baghouse 1455 and do not discharge through the SCR. All baghouses are used for material recovery.	None	None
AEO-83	CL1101	Intermodal Freight Container (Shipping Container) Loading Station. The station is equipped with a product collector for material recovery	None	None
AEO-85	V-630 F-631	Vessel and Baghouse F-631. The baghouse is used for material recovery.	None	None

Table IV – 8 **$SAC^{(1-100)}$**	
8.0	**Emissions Unit Number(s)** Emission units associated with the Silica Alumina Catalyst ($SAC^{(1-100)}$) Plant, ARA Registration No. 510-0076-7-1079. See Table IV-8A for a complete listing of emissions unit and emissions points associated with the ($SAC^{(1-100)}$) plant.
8.1	**Applicable Standards/Limits:** A. Visible Emissions Limitations **COMAR 26.11.06.02C(2)**, which requires that a person not cause or permit the discharge of emissions from any installation or building, other than water in uncombined form, which is visible to human observers. **Exceptions. COMAR 26.11.06.02A(2)** establishes that "the visible emissions standards in §C of this regulation do not apply to emissions during start-up and process modifications or adjustments, or occasional cleaning of control equipment, if: (1) The visible emissions are not greater than 40 percent opacity; and (2) The visible emissions do not occur for more than 6 consecutive minutes in any 60 minute period." B. Control of Particulate Matter **COMAR 26.11.06.03B(2)(a)**, which requires that a person not cause or permit particulate matter to be discharged from any installation in excess of 0.03 gr/scfd (68.7 mg/dscm).
8.2	**Testing Requirements:** A. Visible Emissions Limitations See Monitoring, Record Keeping and Reporting Requirements. B. Control of Particulate Matter See Monitoring, Record Keeping and Reporting Requirements.

Table IV – 8 **SAC(1-100)**	
8.3	**Monitoring Requirements:** A. Visible Emissions Limitations For each emissions point identified in Table IV-8A that is associated with an air pollution control device or product recovery device that discharges to atmosphere the Permittee shall conduct observations for visible emissions in accordance with Section 1.1 of Table IV-1. This requirement does not apply to emissions points associated with control devices that are used solely to control fumes from plant maintenance welding operations or to control emissions from vacuum systems used solely for housekeeping purposes. **[Authority: COMAR 26.11.03.06C]** B. Control of Particulate Matter The Permittee shall prepare, implement, and revise as necessary operations and maintenance plans for all particulate emissions sources and air pollution control equipment (SAC-11 through SAC-15, SAC-18 through SAC -21, SAC-26 through SAC-28, SAC-30 through SAC-33, SAC-35, and SAC-36). The required operations and maintenance plans shall be developed and implemented in accordance with Section 1.3 of Table IV – 1. **[Authority: COMAR 26.11.03.06C]**
8.4	**Record Keeping Requirements:** A. Visible Emissions Limitations The Permittee shall maintain, in accordance with applicable requirements under Section 1.1 of Table IV-1, records of all required observations for visible emissions. **[Authority: COMAR 26.11.03.06C]** B. Control of Particulate Matter The Permittee shall maintain written or printable electronic copies of all operations and maintenance plans required for particulate emissions sources and air pollution control equipment (SAC-11 through SAC-15, SAC-18 through SAC -21, SAC-26 through SAC-28, SAC-30 through SAC-33, SAC-35, and SAC-36). [**Authority: COMAR 26.11.03.06C]**

Table IV – 8 **SAC(1-100)**	
8.5	**Reporting Requirements:** A. Visible Emissions Limitations The Permittee shall report occurrences of visible emissions in accordance with conditions number 4 ("Report of Excess Emissions and Deviations"), and number 9 (Compliance Certification report), of Section III – Plant Wide Conditions. B. Control of Particulate Matter The Permittee shall make available to the Department upon request copies of any operations and maintenance plans required for particulate emissions sources and air pollution control equipment (SAC-11 through SAC-15, SAC-18 through SAC -21, SAC-26 through SAC-28, SAC-30 through SAC-33, SAC-35, and SAC-36). **[Authority: COMAR 26.11.03.06C]**

A permit shield shall cover the applicable requirements of the Clean Air Act that are listed in Table IV-8 for the (SAC(1-100)) Plant.

TABLE IV-8A
List of Sources for the SAC(1-100) Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
SAC-11	2101	CX Reactor with Demister. The demister is used for material recovery.	None	None
SAC-12	2102 2103	CX Reactors with Demister. The demister is used for material recovery.	None	None
SAC-13	130H 630H	Silo 130H and Baghouse 630H. The baghouse is used for material recovery.	None	None
SAC-14	130I 630I	Silo 130I and Baghouse 630I. The baghouse is used for material recovery.	None	None
SAC-15	130E 130F 630E	Silos 130E and 130F and Baghouse 630E. The baghouse is used for material recovery.	None	None
SAC-18	1615 1616	Classifier 1615 and Baghouse 1616. The baghouse is used for material recovery.	None	None

TABLE IV-8A
List of Sources for the SAC(1-100) Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
SAC-19	Truck loading 1630	Truck loading from Silos 130E and F and Baghouse 1630. The baghouse recovers material vented from truck loading.	None	None
SAC-20	1127 1128 1627	Silos 1127 and 1128 and Baghouse 1627. The baghouse is used for material recovery.	None	None
SAC-21	1123 1623	Silo 1123 and Baghouse 1623. The baghouse is used for material recovery.	None	None
SAC-22	1132	Tank 1132 (previously contained formic acid)	1633	Scrubber (idled)
SAC-23	1130	Mix Tank 1130 (previously contained formic acid)	1634	Scrubber (idled)
SAC-26	1140 1640	Base Silo 1140 and Cartridge 1640. The cartridge is used for material recovery.	None	None
SAC-27	1542	Dryer 1542 *(steam heated)*	1642	Baghouse
SAC-28	Truck loading 1645	Truck loading from Silo 1145 and Baghouse 1642. The baghouse recovers material from truck loading.	None	None
SAC-30		Impregnation Area Central Vacuum System	1646	Cartridge
SAC-31	14100 14600A	Silo 14100 and Cartridge 14600A. The cartridge is used for material recovery.	None	None
SAC-32	14101 14601	Silo 14101 and Cartridge 14601. The cartridge is used for material recovery.	None	None
SAC-33		Packaging area vacuum system	14605	Cartridge
SAC-35	14610 14104 14602	Screening Equipment 14610 & Blending Hopper 14104 and Cartridge 14602. The cartridge is used for material recovery.	None	None
SAC-36	14409 14608	Packaging Unit 14409 and Baghouse 14608. The baghouse is used for material recovery.	None	None

Table IV – 9 **FCC**	
9.0	**Emissions Unit Number(s)** Emission units associated with the Silica Alumina Catalyst – FCC (FCC) Plant, ARA Registration No. 510-0076-7-1644. See Table IV-9A for a complete listing of emissions unit and emissions points associated with the FCC plant. Note: EPA is evaluating the applicability of 40 CFR 60, Subpart UUU to the FCC Plant. If EPA determines that the requirements of the subpart do apply, this Title V – Part 70 Operating Permit must be revised to incorporate them.
9.1	**Applicable Standards/Limits:** A. Visible Emissions Limitations (1) **COMAR 26.11.06.02C(2)**, which requires that a person not cause or permit the discharge of emissions from any installation or building, other than water in uncombined form, which is visible to human observers. **Exceptions. COMAR 26.11.06.02A(2)** establishes that "the visible emissions standards in §C of this regulation do not apply to emissions during start-up and process modifications or adjustments, or occasional cleaning of control equipment, if: (a) The visible emissions are not greater than 40 percent opacity; and (b) The visible emissions do not occur for more than 6 consecutive minutes in any 60 minute period." (2) **COMAR 26.11.09.05A(2)**, which requires that a person not cause or permit the discharge of emissions from any fuel burning equipment, other than water in uncombined form, which is visible to human observers. This regulation applies to the indirect-fire combustion unit Calciner 56801 (SAC-115). Exceptions. **COMAR 26.11.09.05A(3)** establishes that Section A(2) does "not apply to emissions during load changing, soot blowing, start-up, or adjustments or occasional cleaning of control equipment if:

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(a) The visible emissions are not greater than 40 percent opacity; and

(b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period."

B. Control of Particulate Matter

(1) **COMAR 26.11.06.03B(2)(a)**, which requires that a person not cause or permit particulate matter to be discharged from any installation in excess of 0.03 gr/scfd (68.7 mg/dscm).

(2) Operational Requirement: The combined total of PM_{10} emissions from all of the following sources associated with the FCC plant shall not exceed 34.6 tons in any period of 12 consecutive months:

(a) Classifier 53604 (SAC-107);
(b) Spray Dryer 53802 (SAC-111);
(c) Dryer 55801 (SAC-115);
(d) Calciner 56801 (SAC-115);
(e) Hopper 52106 (SAC-101);
(f) Silo 51103 (SAC-102);
(g) Silo 51107 (SAC-102);
(h) Hopper 53106 (SAC-106); and
(i) Product Storage Silos A, B, C, D, E & F (SAC-117, 118, 119, 120, 126 & 127, respectively).

[Authority: ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]

(3) Operational Requirement: Unless the Permittee obtains from the Department written authorization otherwise, catalyst production rates for the FCC plant shall be limited in accordance with the following:

(a) For catalysts that are produced such that feed materials to each process drying unit (i.e., spray dryer, flash dryer, calciner) contain less than 40 weight percent solids, FCC plant production shall exceed neither 170 tons/day nor 60,000 tons in any period of 12 consecutive months.

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(b) For catalysts that are produced such that feed materials to each process (i.e., spray dryer, flash dryer, calciner) contain at least 40 weight percent solids, FCC plan production shall not exceed neither 220 tons/day nor 77,647 tons in any period of 12 consecutive months.

[Authority: PSD Approval No. 94-02 issued March 6, 2006 and ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]

(4) Operational Requirement: The concentration of PM_{10} in any exhaust gases discharged to atmosphere from the following installations shall not exceed 0.01 grains/scfd:

(a) Classifier 53604 (SAC-107);
(b) Spray Dryer 53802 (SAC-111);
(c) Dryer 55801 (SAC-115); and
(d) Calciner 56801 (SAC-115).

[Authority: PSD Approval No. 94-02 issued March 6, 2006 and ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]

(5) Operational Requirement: Particulate emissions from each of the following installations shall be controlled by an air pollution control system that includes at minimum a cyclone and venturi scrubber arrange in series, and the control system shall be designed, maintained, and operated to consistently remove at least 99.9% of all particulate before discharge to atmosphere:

(a) Spray Dryer 53802 (SAC-111);
(b) Dryer 55801 (SAC-115); and
(c) Calciner 56801 (SAC-115).

[Authority: PSD Approval No. 94-02 issued March 6, 2006 and ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]

(6) Operational Requirement: For the venturi scrubber that controls emissions from Spray Dryer 53802 (SAC-111), whenever the Spray Dryer is in operation the flow rate of scrubbing medium shall be maintained at a minimum of 800 gallons per minute, and the differential pressure across the throat of the venturi shall be

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maintained at a minimum of 15 inches of water. **[Authority: ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]**

(7) Operational Requirement: For the venturi scrubber that controls emissions from Dryer 55801 and Calciner 56801 (SAC-115), whenever either affected unit is in operation the flow rate of scrubbing medium shall be maintained at a minimum of 150 gallons per minute, and the differential pressure across the throat of the venturi shall be maintained at a minimum of 15 inches of water. **[Authority: ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]**

(8) Operational Requirement: Particulate emissions from each of the following installations shall be controlled by a fabric filter that is designed, maintained, and operated to consistently remove 99.9% of all particulate before discharge to atmosphere:

(a) Classifier 53604 (SAC-107);
(b) Hopper 52106 (SAC-101);
(c) Silo 51103 (SAC-102);
(d) Silo 51107 (SAC-102);
(e) Hopper 53106 (SAC-106); and
(f) Product Storage Silos A, B, C, D, E & F (SAC-117, 118, 119, 120, 126 &127, respectively).

[Authority: PSD Approval No. 94-02 issued March 6, 2006 and ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]

C. Control of Nitrogen Oxides

(1) **COMAR 26.11.09.08E**, which applies to the indirect-fire combustion unit associated with Calciner 56801 (SAC-115) and which requires that a person who operates fuel burning equipment with a rated heat input capacity of 100 MMBtu per hour or less:

(a) submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each installation;

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	(b) perform a combustion analysis for each affected installation at least once each year and optimize combustion based on the analysis; and (c) at least once every 3 years require each operator of the installation to attend an operator training program concerning combustion optimization that is sponsored by the Department, the EPA or equipment vendors. In accordance with COMAR 26.11.09.08B(5)(a), the equipment operator to be trained may be the person who maintains the equipment and makes the necessary adjustments for efficient operation. (2) **COMAR 26.11.09.08J**, which applies to the direct-fire combustion units associated with Spray Dryer 53802 (SAC-111) and Dryer 55801 (SAC-115), and which establishes that a person who owns or operates any installation other than fuel-burning equipment that causes NO_x emissions shall: (a) maintain good operating practices as recommended by the equipment vendor to minimize NO_x emissions; (b) prepare and implement a written in-house training program for all operators of these installations that includes instruction with regard to good operating and maintenance practices for the particular installation; (c) maintain and make available to the Department upon request the written in-house operator training program; (d) burn only gas in each installation, where gas is available, during the period May 1 through September 30 of each year; and (e) maintain operator training attendance records for each operator on the site for at least 5 years and make these records available to the Department upon request. (3) <u>Operational Requirement:</u> Spray Dryer 53802 (SAC-111), Dryer 55801 (SAC-115), and the indirect-fire combustion unit that fires

Table IV – 9 **FCC**	
	Calciner 56801 (SAC-115) shall be equipped with low NO_x (gas burners, and when operating shall burn only natural gas whenever natural gas is available, and shall burn only No. 2 fuel oil when natural gas is not available. **[Authority: PSD Approval No. 94-02 issued March 6, 2006 and ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]** (4) Operational Requirement: Combined total emissions of NO_x caused by operation of the FCC plant shall be less than 25 tons in all periods of 12 consecutive months. NO_x emissions caused by operation of the FCC plant shall include NO_x emissions generated by operation of facility's boilers to meet the steam demand of the FCC plant. **[Authority: PSD Approval No. 94-02 issued March 6, 2006 and ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]**
9.2	**Testing Requirements:** A. Visible Emissions Limitations See Monitoring, Record Keeping and Reporting Requirements. B. Control of Particulate Matter See Monitoring, Record Keeping and Reporting Requirements. C. Control of Nitrogen Oxides (1) The Permittee shall perform at least one combustion analysis per year on the indirect-fire combustion unit associated with Calciner 56801 (SAC-115) and shall optimize combustion in the unit in accordance with the findings of the combustion analysis. **[Authority: COMAR 26.11.09.08E(2)]** (2) The Permittee shall perform stack tests at least once every 24 months to determine NO_x emissions discharged to atmosphere from each of exhaust stacks SAC-111 and SAC-115, and at the time of each required stack test all affected units in the FCC plant shall be operating within 10 percent of capacity. Prior to the required stack tests the Permittee shall submit to the Department for approval a stack test protocol that is prepared in accordance with applicable requirements under Section 1.6 of Table IV-1. **[Authority: COMAR 26.11.03.06C]**

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9.3 Monitoring Requirements:

A. Visible Emissions Limitations
For each emissions point identified in Tables IV-9A that is associated with an air pollution control device or product recovery device that discharges to atmosphere, the Permittee shall conduct observations for visible emissions in accordance with Section 1.1 of Table IV-1. This requirement does not apply to emissions points associated with control devices that are used solely to control fumes from plant maintenance welding operations or to control emissions from vacuum systems used solely for housekeeping purposes. **[Authority: COMAR 26.11.03.06C]**

B. Control of Particulate Matter
(1) The Permittee shall prepare, implement, and revise as necessary operations and maintenance plans for all particulate emissions sources and air pollution control equipment (SAC-101, SAC-102, SAC-106, SAC-107, SAC-111, SAC-115, SAC-117 through 120, SAC-126, SAC-127, SAC-133, and SAC-134). The required operations and maintenance plans shall be developed and implemented in accordance with Section 1.3 of Table IV – 1. **[Authority: COMAR 26.11.03.06C]**

(2) The Permittee shall monitor FCC plant operations as necessary to determine total catalyst production and total PM_{10} emissions from the plant for each month of operation. **[Authority: COMAR 26.11.03.06C]**

(3) For each of the required venturi scrubbers that control emissions from Spray Dryer 53802 (SAC-111), Dryer 55801 (SAC-115), and Calciner 56801 (SAC-115), whenever affected units are in operation the Permittee shall continuously monitor and record the flow rate of scrubbing medium and the differential pressure across the throat of the venturi. **[Authority: ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]**

C. Control of Nitrogen Oxides
(1) The Permittee shall conduct annual inspections of all direct-fire combustion units associated with Spray Dryer 53802 (SAC-111) and Dryer 55801 (SAC-115) and shall review pertinent operating logs and records to determine the compliance status of operations

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	with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]** (2) Within 30 days of the end of each calendar month the Permittee shall determine the amount of facility-wide NO_x emissions caused by operation of the FCC plant for the month and for the most recent period of 12 consecutive months. **[Authority: COMAR 26.11.03.06C]**
9.4	**Record Keeping Requirements:** A. Visible Emissions Limitations The Permittee shall maintain, in accordance with applicable requirements under Section 1.1 of Table IV-1, records of all required observations for visible emissions. **[Authority: COMAR 26.11.03.06C]** B. Control of Particulate Matter (1) The Permittee shall maintain written or printable electronic copies of all operations and maintenance plans required for particulate emissions sources and air pollution control equipment (SAC-101, SAC-102, SAC-106, SAC-107, SAC-111, SAC-115, SAC-117 through 120, SAC-126, SAC-127, SAC-133, and SAC-134). **[Authority: COMAR 26.11.03.06C]** (2) The Permittee shall maintain records of the total emissions of PM_{10} from the FCC plant for each month of plant operation, and for all periods of 12 consecutive months. **[Authority: COMAR 26.11.03.06C]** (3) The Permittee shall maintain records of catalyst production in the FCC plant for each type of catalyst (e.g., silica sol, alumina sol) for each day, for each month, and for all periods of 12 consecutive months. **[Authority: COMAR 26.11.03.06C]** (4) The Permittee shall maintain records of design information sufficient to show that control equipment can be expected to comply with the performance requirements specified under Operational Requirements Table IV-1, Section 9.1(B)(4), (5), and (8) of this table. **[Authority: COMAR 26.11.03.06C]**

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(5) The Permittee shall maintain records of all required recordation of the scrubbing medium flow rate and the differential pressure across the throat of the venturi scrubbers required for control of emissions from Spray Dryer 53802 (SAC-111), Dryer 55801 (SAC-115), and Calciner 56801 (SAC-115). **[Authority: ARA Permit to Construct No. 520-0076-7-1644 issued December 20, 2017]**

C. Control of Nitrogen Oxides

(1) For the indirect-fire combustion unit associated with Calciner 56801 (SAC-115) the Permittee shall maintain written or printable electronic records of:

(a) all required combustion analyses performed on the unit **[Authority: COMAR 26.11.09.08E(3) and COMAR 26.11.03.06C]**; and

(b) required training of equipment operators concerning combustion optimization. Such records shall include the names of all trainees, the dates on which the training was administered, and identification of the concern that provided the training **[Authority: COMAR 26.11.09.08E(5) and COMAR 26.11.03.06C];** and

(c) the types of fuels burned on a daily basis. **[Authority: COMAR 26.11.09.08K]**

(2) For all direct-fire combustion units associated with Spray Dryer 53802 (SAC-111) and Dryer 55801 (SAC-115) the Permittee shall maintain written or printable electronic records of the following:

(a) good operating practices, as recommended by the vendor of the combustion units, to minimize NO_x emissions **[Authority: COMAR 26.11.03.06C]**;

(b) records regarding the required training program concerning NO_x minimization techniques for operators of the combustion units. These records shall include a written description of training program content, the date(s) on which the training was administered, and

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	identification of all employees who attended the training **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**; (c) the types and amounts of fuels burned in the combustion units during the period May 1 through September 30 of each year **[Authority: COMAR 26.11.03.06C]**; and (d) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]** (3) For Spray Dryer 53802 (SAC-111), Dryer 55801 (SAC-115) and the indirect-fire combustion unit associated with Calciner 56801 (SAC-115), the Permittee shall maintain written or printable electronic records that show that: (a) each of the units has been equipped with low NO_x burners; and (b) natural gas was not available during any period in which any of the units was fired with a fuel other than natural gas. **[Authority: COMAR 26.11.03.06C]** (4) The Permittee shall maintain records of all required determinations of facility-wide emissions of NO_x caused by operation of the FCC plant, the methods by which such determinations were made, and all data and assumptions used in the emissions calculations. **[Authority: COMAR 26.11.03.06C]**
9.5	**Reporting Requirements:** A. Visible Emissions Limitations The Permittee shall report occurrences of visible emissions in accordance with conditions number 4 ("Report of Excess Emissions and Deviations"), and number 9 (Compliance Certification report), of Section III – Plant Wide Conditions.

Table IV – 9
FCC

B. Control of Particulate Matter

The Permittee shall make available to the Department upon request:

(1) copies of any operations and maintenance plans required for particulate emissions sources and air pollution control equipment (SAC-101, SAC-102, SAC-106, SAC-107, SAC-111, SAC-115, SAC-117 through 120, SAC-126, SAC-127, SAC-133, and SAC-134);

(2) the combine total of PM_{10} emissions from all sources associated with the FCC plant for all periods of 12 consecutive months;

(3) the catalyst production rate in the FCC plant for each day of plant operations, and for all periods of 12 consecutive months;

(4) credible information that shows that the air pollution control systems and product recovery devices associated with Classifier 53604 (SAC-107), Spray Dryer 53802 (SAC-111), Dryer 55801 (SAC-115), and Calciner 56801 (SAC-115) are designed, maintained, and operated to reduce the concentration of PM_{10} in the exhaust gases to no more than 0.01 gr/scfd before discharge to atmosphere;

(5) credible information that shows that the air pollution control devices, product recovery devices, and systems associated with Classifier 53604 (SAC-107), Spray Dryer 53802 (SAC-111), Dryer 55801 (SAC-115), Calciner 56801 (SAC-115), Hopper 52106 (SAC-101), Silo 51103 (SAC-102), Silo 51107 (SAC-102), Hopper 53106 (SAC-106), and Product Storage Silos A, B, C, D, E & F (SAC-117, 118, 119, 120, 126, & 127, respectively) are designed, maintained, and operated to consistently achieve particulate control efficiencies of at least 99.9 percent. **[Authority: COMAR 26.11.03.06C]**

C. Control of Nitrogen Oxides

(1) For the indirect-fire combustion units associated with Calciner 56801 (SAC-115) the Permittee shall make available to the Department upon request any records that the Permittee is required to maintain concerning:

Table IV – 9 **FCC**	
	(a) combustion analyses performed on the unit **[Authority: COMAR 26.11.09.08E(3), and COMAR 26.11.03.06C]**; and (b) training of operators with regard to combustion optimization. **[Authority: COMAR 26.11.09.08E(5), and COMAR 26.11.03.06C]** (2) For all direct-fire combustion units associated with Spray Dryer 53802 (SAC-111) and Dryer 55801 (SAC-115) the Permittee shall make available to the Department upon request all records required to be established with regard to: (a) "good operating practices", as recommended by the vendor of the equipment, to minimize NO_x emissions from the combustion units **[Authority: COMAR 26.11.03.06C]**; (b) the required training program concerning NO_x minimization techniques for operators of the combustion units, and operator attendance of the program **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**; (c) the types and amounts of fuels burned during the period May 1 through September 30 of each year in the combustion units **[Authority: COMAR 26.11.03.06C]**; and (d) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]** (3) For Spray Dryer 53802 (SAC-111), Dryer 55801 (SAC-115) and the indirect-fire combustion unit associated with Calciner 56801 (SAC-115), the Permittee shall make available to the Department upon request records that show that:

Table IV – 9 **FCC**	
	(a) each of the units has been equipped with low NO_x burners; and (b) natural gas was not available during any period in which any of the units was fired with a fuel other than natural gas. **[Authority: COMAR 26.11.03.06C]** (4) The Permittee shall report to the Department, within 15 days of determination, facility-wide emissions of NO_x caused by operation of the FCC plant for any period of 12 consecutive month during which such emissions exceeded 25 tons. **[Authority: COMAR 26.11.03.06C]**

TABLE IV-9
List of Sources for the FCC Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
SAC-101	52106 52606	Hopper 52106 and Binvent 52606. Binvent used for material recovery.	None	None
SAC-102	51103 51104 51604 51603 51107 51607	Silo 51103, Baghouse 51603, alumina reslurry Tank 51104, Bin Vent 51604, Silo 51107 and Bin Vent 51607. Baghouse 51603 recovers material in the vent from Silo 51103, Bin Vent 51604 recovers material in the vent from the tank, Bin Vent 51607 recovers material in the vent from the Silo 51107.	None	None
SAC-106	53106 53606	Hopper 53106 and Binvent 53606. The bin vent is used for material recovery.	None	None
SAC-107	53604 53605	Classifier 53604 and Baghouse 53605. The baghouse is used for material recovery.	None	None

TABLE IV-9
List of Sources for the FCC Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
SAC-111	53802 53603 – 53603G	Spray Dryer 53802 and Spray Dryer Cyclones 53603 thru 53603G. The cyclones are used for material recovery.	53607 53610	Venturi Scrubber 53607 used to control PM emissions from Cyclones 53603 – 53603G, followed by Hot Water Generator HCl scrubber 53610.
SAC-115	56801 56601 55801 55602 55602A 54601 54310 54607 54313	Calciner 56801 and Cyclone 56601; Dryer 55801 and Cyclones 55602–55602A (2 units); Exchange Filter 54601; Vacuum Pump 54310; Exchange Filter 54607; Vacuum Pump 43313.	56602 56603 55603 55605	Calciner Scrubbers 56602 and 56603, Dryer Scrubber 55603, followed by Absorber 55605. The scrubbers control PM and HCl emissions from the calciner and dryer, and the absorber controls ammonia emissions from all sources.
SAC-117	51110 51610	Finished Product Silo A 51110 and Cartridge 51610. The cartridge is used for material recovery.	None	None
SAC-118	51111 51611	Finished Product Silo B 51111 and Cartridge 51611. The cartridge is used for material recovery.	None	None
SAC-119	51112 51612	Product Silo C 51112 and Cartridge 51612. The cartridge is used for material recovery.	None	None
SAC-120	51119 51619	Product Silo D 51119, RR and Truck Loading and Cartridge 51619. The cartridge is used for material recovery.	None	None
SAC-121	50104	HCl storage tank	50604	Packed tower water scrubber
SAC-123	50105	Ammonia storage tank	50605	Ammonia scrubber
SAC-125	58601 58602	Ammonium packed tower stripper 58601 and Ammonia absorber 58602. Both units are used for ammonia recovery.	None	None

TABLE IV-9 **List of Sources for the FCC Plant**				
Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
SAC-126	51122 51622	Product Silo E 51122 and Cartridge 51622. The cartridge is used for material recovery.	None	None
SAC-127	51129 51629	Product Silo F 51129 and Cartridge 51629. The cartridge is used for material recovery.	None	None
SAC-133	52157 52657	Rare Earth Hopper 52167 and Bin Vent 52657. The bin vent is used for material recovery.	None	None
SAC-134	52150 52650	Rare Earth Carbonate Silo 52150 and Cartridge 52650. The cartridge is used for material recovery.	None	None
SAC-135	SAC-GEN1	268 hp Emergency Generator included in Insignificant Activities in Section V	None	None
SAC-136	SAC-GEN2	755 hp Emergency Generator included as a separate emission unit in Table IV-3.	None	None

Table IV – 10 **ICO**	
10.0	**<u>Emissions Unit Number(s)</u>** Emission units associated with the Industrial Catalyst Operations (ICO) Plant, ARA Registration No. 510-0076-7-1094. See Table IV-10A for a complete listing of emissions unit and emissions points associated with the ICO plant.
10.1	**<u>Applicable Standards/Limits</u>:** A. <u>Visible Emissions Limitations</u> **COMAR 26.11.06.02C(2)**, which requires that a person not cause or permit the discharge of emissions from any installation or building, other than water in uncombined form, which is visible to human observers. **Exceptions. COMAR 26.11.06.02A(2)** establishes that "the visible emissions standards in §C of this regulation do not apply to

Table IV – 10
ICO

emissions during start-up and process modifications or adjustments, or occasional cleaning of control equipment, if:

(1) The visible emissions are not greater than 40 percent opacity; and

(2) The visible emissions do not occur for more than 6 consecutive minutes in any 60 minute period."

B. Control of Particulate Matter

COMAR 26.11.06.03B(2)(a), which requires that a person not cause or permit particulate matter to be discharged from any installation in excess of 0.03 gr/scfd (68.7 mg/dscm).

C. Control of Nitrogen Oxides

COMAR 26.11.09.08J, which applies to the direct-fire combustion units associated with the Dryers D-801 and D-8801 (ICO-20 and ICO-105, respectively) and which establishes that a person who owns or operates any installation other than fuel-burning equipment that causes NO_x emissions shall:

(1) maintain good operating practices as recommended by the equipment vendor to minimize NO_x emissions;

(2) prepare and implement a written in-house training program for all operators of these installations that includes instruction with regard to good operating and maintenance practices for the particular installation;

(3) maintain and make available to the Department upon request the written in-house operator training program;

(4) burn only gas in each installation, where gas is available, during the period May 1 through September 30 of each year; and

(5) maintain operator training attendance records for each operator on the site for at least 5 years and make these records available to the Department upon request.

Table IV – 10 **ICO**	
	D. Control of HAP **40 CFR 63, Subparts A and VVVVVV** which specify general provisions and management practices and other requirements for chemical manufacturing process units (CMPU) in metal HAP service at Chemical Manufacturing Area Sources.
10.2	**Testing Requirements:** A. Visible Emissions Limitations See Monitoring, Record Keeping and Reporting Requirements. B. Control of Particulate Matter See Monitoring, Record Keeping and Reporting Requirements. C. Control of Nitrogen Oxides See Monitoring, Record Keeping and Reporting Requirements. D. Control of HAP See Monitoring, Record Keeping, and Reporting Requirements.
10.3	**Monitoring Requirements:** A. Visible Emissions Limitations For each emission point identified in Table IV-10A that is associated with an air pollution control device or product recovery device that discharges to atmosphere the Permittee shall conduct observations for visible emissions in accordance with Section 1.1 of Table IV-1. This requirement does not apply to emissions points associated with control devices that are used solely to control fumes from plant maintenance welding operations or to control emissions from vacuum systems used solely for housekeeping purposes. **[Authority: COMAR 26.11.03.06C]** B. Control of Particulate Matter The Permittee shall prepare, implement, and revise as necessary operations and maintenance plans for all particulate emissions sources and air pollution control equipment (all emission points listed in Table IV-10A). The required operations and maintenance plans shall be developed and implemented in accordance with Section 1.3 of Table IV – 1. **[Authority: COMAR 26.11.03.06C]**

Table IV – 10 **ICO**	
	C. Control of Nitrogen Oxides The Permittee shall conduct annual inspections of all the direct-fire combustion units associated with the Dryers D-801 and D-8801 (ICO-20 and ICO-105, respectively), and shall review pertinent operating logs and records to determine the compliance status of operations with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]** D. Control of HAP (1) For each CMPU subject to the requirements of 40 CFR 63, Subpart VVVVVV, the Permittee shall comply with the following management practices: each process vessel must be equipped with a cover or lid that must be closed at all times when it is in metal HAP service, except for manual operations that require access, such as material addition and removal, inspection, sampling and cleaning. This requirement does not apply to process vessels containing only metal HAP that are in a liquid solution or other form that will not result in particulate emissions of metal HAP (e.g., metal HAP that is in ingot, paste, slurry, or moist pellet form or other form). **[Authority: 40 CFR §63.11495(a)(1)]** (2) To demonstrate compliance with 40 CFR §63.11495(a)(1) and to determine that process vessels and equipment are sound and free of leaks, the Permittee must conduct inspections of process vessels and equipment for each CMPU in metal HAP service, as specified in 40 CFR §63.11495(a)(3)(i), (ii), (iv), and (v) as follows: (a) Inspections must be conducted at least quarterly. (b) For these inspections, detection methods incorporating sight, sound, or smell are acceptable. Indications of a leak identified using such methods constitute a leak unless you demonstrate that the indications of a leak are due to a condition other than loss of HAP. If indications of a leak are determined not to be HAP in one quarterly monitoring period, the Permittee must still perform the inspection and demonstration in the next quarterly monitoring period.

Table IV – 10
ICO

(c) Inspections must be conducted while the subject CMPU is operating.

(d) No inspection is required in a calendar quarter during which the subject CMPU does not operate for the entire calendar quarter and is not in metal HAP service. If the CMPU operates at all during a calendar quarter, an inspection is required.

[Authority: 40 CFR §63.11495(a)(3), (a)(3)(i), (ii), (iv), and (iv)]

(3) The Permittee must repair any leak within 15 calendar days after detection of the leak, or document the reason for any delay of repair. For the purposes of 40 CFR §63.11495(a)(4), a leak will be considered "repaired" if a condition is met as specified in 40 CFR §63.11495(a)(4)(i), (ii), or (iii) as follows:

(a) The visual, audible, olfactory, or other indications of a leak to the atmosphere have been eliminated, or

(b) No bubbles are observed at potential leak sites during a leak check using soap solution, or

(c) The system will hold a test pressure.

[Authority: 40 CFR §63.11495(a)(4) and (a)(4)(i) through (iii)]

(4) At all times, the Permittee must operate and maintain any affected CMPU, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Department, which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the CMPU. **[Authority: 40 CFR §63.11495(d)]**

Table IV – 10 **ICO**	
10.4	**Record Keeping Requirements:** A. Visible Emissions Limitations The Permittee shall maintain, in accordance with applicable requirements under Section 1.1 of Table IV-1, records of all required observations for visible emissions. **[Authority: COMAR 26.11.03.06C]** B. Control of Particulate Matter The Permittee shall maintain written or printable electronic copies of all operations and maintenance plans required for particulate emissions sources and air pollution control equipment (all emission points listed in Table IV-10A). **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides For the direct-fire combustion units associated with the Dryers D-801 (ICO-20) and D-8801 (ICO-105) the Permittee shall maintain written or printable electronic records of the following: (1) good operating practices, as recommended by the vendor of the combustion units, to minimize NO_x emissions **[Authority: COMAR 26.11.03.06C]**; (2) records regarding the required training program concerning NO_x minimization techniques for operators of the combustion units. These records shall include a written description of training program content, the date(s) on which the training was administered, and identification of all employees who attended the training **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**; (3) the types and amounts of fuels burned in the combustion units during the period May 1 through September 30 of each year **[Authority: COMAR 26.11.03.06C]**; and (4) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**

Table IV – 10 **ICO**	
	D. Control of HAP (1) The Permittee must maintain files of all information required by 40 CFR 63, Subpart VVVVVV for at least five (5) years following the date of each occurrence according to the requirements in 40 CFR §63.10(b)(1). If applicable, the Permittee must comply with the recordkeeping and reporting requirements of 40 CFR §63.10(b)(2)(iii) and (vi) through (xiv), and the applicable requirements specified in 40 CFR §63.11501(c)(1) as follows: (a) The Permittee must keep records of the dates and results of each inspection event, the dates of equipment repairs, and, if applicable, the reasons for any delay in repair. **[Authority: 40 CFR §63.11495(a)(5) and §63.11501(c)(1)(i)]** (b) If the Permittee's current estimate is that total uncontrolled metal HAP emissions from a CMPU subject to 40 CFR 63, Subpart VVVVVV are less than 400 lb/yr, then the Permittee must keep records of either the number of batches operated per month (batch vents) or the process operating hours (continuous vents). Also, the Permittee must reevaluate your total emissions before the Permittee makes any process or operational change that affects emissions of metal HAP. If projected emissions increase to 400 lb/yr or more, then the Permittee must be in compliance with one of the options for metal HAP process vents in Table 4 to 40 CFR 63, Subpart VVVVVV upon initiating operation under the new operating conditions. **[Authority: 40 CFR §63.11496a(f) and (f)(2) and §63.11501(c)(1)(v)]** (c) The Permittee must keep records of all emissions calculations including all recalculated emissions determinations. To determine the mass emission rate, the Permittee may use process knowledge, engineering assessment, or test data. **[Authority: 40 CFR §63.11496(f)(1) and §63.11501(c)(1)(v)]**

Table IV – 10 **ICO**	
	(d) Records of the date, time, and duration of each malfunction of operation of process equipment, control devices, recovery devices, or continuous monitoring systems used to comply with 40 CFR 63, Subpart VVVVVV that causes a failure to meet a standard. The record must include a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over the standard, and a description of the method used to estimate the emissions. **[Authority: 40 CFR §63.11501(c)(1)(vii)]** (e) Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR §63.11495(d), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. **[Authority: §63.11501(c)(1)(viii)]**
10.5	**Reporting Requirements:** A. Visible Emissions Limitations The Permittee shall report occurrences of visible emissions in accordance with conditions number 4 ("Report of Excess Emissions and Deviations"), and number 9 (Compliance Certification report), of Section III – Plant Wide Conditions. B. Control of Particulate Matter The Permittee shall make available to the Department upon request copies of any operations and maintenance plans required for particulate emissions sources and air pollution control equipment (all emission points listed in Table IV-10A). **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides For the direct-fire combustion units associated with the Dryers D-801 (ICO-20) and D-8801 (ICO-105) the Permittee shall make available to the Department upon request all records required to be established with regard to:

Table IV – 10 **ICO**	
	(1) "good operating practices", as recommended by the vendor of the equipment, to minimize NO_x emissions from the combustion units **[Authority: COMAR 26.11.03.06C]**; (2) the required training program concerning NO_x minimization techniques for operators of the combustion units, and operator attendance of the program **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**; (3) the types and amounts of fuels burned during the period May 1 through September 30 of each year in the combustion units **[Authority: COMAR 26.11.03.06C]**; and (4) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]** D. <u>Control of HAP</u> The Permittee must submit semiannual compliance reports for semiannual periods during which the Permittee experienced any of the following events: (1) Deviations. The Permittee must clearly identify any deviation from the requirements of 40 CFR 63, Subpart VVVVVV. (2) Delay of leak repair. The Permittee must provide the following information for each delay of leak repair beyond 15 days for any process equipment: information on the date the leak was identified, the reason for the delay in repair, and the date the leak was repaired. (3) Process change. The Permittee must report each process change that affects a compliance determination and submit a new certification of compliance with the applicable requirements in accordance with the procedures specified in 40 CFR §63.501(b).

Table IV – 10 **ICO**	
	(4) If a malfunction occurred during the reporting period, the report must include the number of instances of malfunctions that caused emissions in excess of a standard. For each malfunction that caused emissions in excess of a standard, the report must include a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over the standard, and a description of the method used to estimate the emissions. The report must also include a description of actions the Permittee took during a malfunction of an affected source to minimize emissions in accordance with 40 CFR §63.11495(d), including actions taken to correct a malfunction**.** **[Authority: 40 CFR §63.501(d), (d)(1), (2), (3), (4) and (8)]**

A permit shield shall cover the applicable requirements of the Clean Air Act that are listed in Table IV-10 for the ICO Plant.

ABLE IV-10A
List of Sources for the ICO Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
ICO-20	D-801 BH-201	West Plant Spray Dryer D-801 and Baghouse BH-201. The baghouse is used for material recovery. (*direct-fired)*	None	None
ICO-22	M-705 BH-203	Classifier M-705 and Baghouse BH-203. The baghouse is used for material recovery.	None	None
ICO-46	NA	Fugitive dust collection from several units.	BH-204	Baghouse
ICO-50	B-317	Vacuum Cleaner	BH-217	Baghouse
ICO-52	V-115 BH-215	Vessel V-115 and Baghouse BH-215. The baghouse is used for material recovery.	None	None
ICO-53	S-704N BH-207N	Turbo Screen S-704N and Cartridge BH-207N. The cartridge collector is used for material recovery.	None	None
ICO-54	S-704S BH-207S	Turbo Screen S-704S and Cartridge BH-207S. The cartridge collector is used for material recovery.	None	None

ABLE IV-10A **List of Sources for the ICO Plant**				
Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
ICO-58	V-125 BH-120	Surge Vessel V-125 and Cartridge BH-120. The cartridge collector is used for material recovery. (*The emission point is indoors but subject to 40 CFR Part 63 Subpart VVVVVV)*	None	None
ICO-59	S-706N BH-206N	Product Drumming Station S-706N and Baghouse BH-206N. The baghouse is used for material recovery.	None	None
ICO-60	V-1101 BH-2209A BH-2209B	Hopper V-1101 and Cartridges BH-2209A&B. The cartridge collectors are used for material recovery.	None	None
ICO-65	Drum check weigh station BH-211	Drum Check Weigh Station and Cartridge BH-211. The cartridge collector is used for material recovery.	None	None
ICO-68	V-113 BH-213A	Sack Filler Surge Hopper V-113 and Bin Vent BH-213A. The bin vent collector is used for material recovery.	None	None
ICO-69	Sack filling operation BH-213B	Sack filling operation fugitive dust and Cartridge BH-213B. The cartridge is used for material recovery.	None	None
ICO-72	M-714 C-214 BH-214	Classifier M-714, Classifier Collection Cyclone C-214, and Cartridge BH-214. The cyclone and cartridge recover material in the vent from the classifier.	None	None
ICO-73	M-716 C-216 BH-216	Classifier M-716, Classifier Ultra Fine Cyclone C-216, and Cartridge BH-216. The cyclone and cartridge recover material in the vent from the classifier.	None	None
ICO-103	V-1102 BV-2202	Recycle Hopper V-1102 and Cartridge BV-2202. The cartridge collector is used for material recovery.	None	None
ICO-105	D-8801 BH-2201	Dryer D-8801 and Baghouse BH-2201. The baghouse recovers material in the vent from the dryer *(direct-fired).*	None	None

ABLE IV-10A **List of Sources for the ICO Plant**				
Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
ICO-106	V-1113 V-1103A V-1103B BV-2113	Surge Bin V-1113, Surge Hoppers V-1103A and V-1103B, and Cartridge BV-2113. The cartridge collector is used for material recovery from the surge bins and hoppers.	None	None
ICO-108	CL-7705	Classifier CL-7705	C-2705 BH-2705	Cyclone C-2705 Cartridge BH-2705
ICO-110	S-7704N BH-2207N	Screener S-7704N and Cartridge BH-2207N. The cartridge collector is used for material recovery.	None	None
ICO-111	S-7704S BH-2207S	Screener S-7704S and Cartridge BH-2207S. The cartridge collector is used for material recovery.	None	None
ICO-112	V-1106S BV-2206S	Course Sack Hopper V-1106S and Bin Vent BV-2206S. The bin vent collector is used for material recovery.	None	None
ICO-113	V-1125 BV-2125	Drumming Station Feed Vessel V-1125 and Bin Vent BV-2125. The bin vent is used for material recovery.	None	None
ICO-115	S-7706 BH-2206N	East Drum Filling System S-7706 and Cartridge BH-2206N. The cartridge collector is used for material recovery.	None	None
ICO-116	V-1103	Ultra Fines West Classifier V-1103.	BV-2203	Bin Vent
ICO-117	CL-7714 C-2714 BH-2214	Classifier CL-7714, Course Cyclone C-2714, and Cartridge BH-2214. The cyclone and cartridge recover material in the vent from the classifier.	None	None
ICO-122	V-1115 BV-2215	Turbo Screener Feed Vessel V-1115 and Cartridge BV-2215. The cartridge collector is used for material recovery.	None	None
ICO-123	V-1115A BV-2215A	Main Classifier Feed Vessel V-1115A and Cartridge BV-2215A. The cartridge collector is used for material recovery.	None	None
ICO-125	V-1117 BV-2217	Surge Bin V-1117 and Cartridge BV-2217. The cartridge collector is used for material recovery.	None	None

ABLE IV-10A **List of Sources for the ICO Plant**				
Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
ICO-126	V-399 BH-399	Silo V-399 and Cartridge BH-399. The cartridge collector is used for material recovery.	None	None
ICO-127	T-184	Silo T-184 and product collector, bin vent DC684	None	None
ICO-128	T-185	Silo T-185 and product collector, bin vent DC685	None	None

Table IV – 11 **SGO**	
11.0	**<u>Emissions Unit Number(s)</u>** Emission units associated with the Silica Gel Operations (SGO) Plant, ARA Registration No. 510-0076-7-1095 and the former High Pore Volume (HPV) Plant, ARA Registration No. 510-0076-7-1405. See Table IV-11A for a complete listing of emissions unit and emissions points associated with the SGO plant.
11.1	**<u>Applicable Standards/Limits</u>:** A. <u>Visible Emissions Limitations</u> (1) **COMAR 26.11.06.02C(2)**, which requires that a person not cause or permit the discharge of emissions from any installation or building, other than water in uncombined form, which is visible to human observers. **Exceptions. COMAR 26.11.06.02A(2)** establishes that "the visible emissions standards in §C of this regulation do not apply to emissions during start-up and process modifications or adjustments, or occasional cleaning of control equipment, if: (a) The visible emissions are not greater than 40 percent opacity; and (b) The visible emissions do not occur for more than 6 consecutive minutes in any 60 minute period."

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	(2) **COMAR 26.11.09.05A(2)**, which requires that a person not cause or permit the discharge of emissions from any fuel burning equipment, other than water in uncombined form, which is visible to human observers. This regulation applies to the indirect-fire combustion units associated with the Steam Superheater A (SGO-09), C-Mill Air Heater (SGO-22), K-11 Dryer/Activator (SGO-31), and B-mill Air Heater (SGO-65). Exceptions. **COMAR 26.11.09.05A(3)** establishes that Section A(2) does "not apply to emissions during load changing, soot blowing, start-up, or adjustments or occasional cleaning of control equipment if: (a) The visible emissions are not greater than 40 percent opacity; and (b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period." B. <u>Control of Particulate Matter</u> **COMAR 26.11.06.03B(2)(a)**, which requires that a person not cause or permit particulate matter to be discharged from any installation in excess of 0.03 gr/scfd (68.7 mg/dscm). C. <u>Control of Nitrogen Oxides</u> (1) **COMAR 26.11.09.08E**, which applies to the indirect-fire combustion units associated with the Steam Superheater A (SGO-09), C-Mill Air Heater (SGO-22), K-11 Dryer/Activator (SGO-31), and B-mill Air Heater (SGO-65) and which requires that a person who operates fuel burning equipment with a rated heat input capacity of 100 MMBtu per hour or less: (a) submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each installation; (b) perform a combustion analysis for each affected installation at least once each year and optimize combustion based on the analysis; and

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(c) at least once every 3 years require each operator of the installation to attend an operator training program concerning combustion optimization that is sponsored by the Department, the EPA or equipment vendors. In accordance with COMAR 26.11.09.08B(5)(a), the equipment operator to be trained may be the person who maintains the equipment and makes the necessary adjustments for efficient operation.

(2) **COMAR 26.11.09.08J**, which applies to the direct-fire combustion units associated with Dryer 1 (SGO-01; to be replaced by Turbo Dryer SGO-84), Dryer 2 (SGO-02; to be replaced by Turbo Dryer SGO-84), Conditioner 2803 (SGO-42; to be replaced by Turbo Dryer SGO-84), Turbo Dryer D-40824 (SGO-84), Mill 2760 (SGO-44), Flash Dryer 2832 (SGO-56), Surface Dryer D-5450 (SGO-78), Surface Dryer D-4417 (SGO-79), and Heater/Dryer D-834 (SGO-85, formerly HPV-01) which establishes that a person who owns or operates any installation other than fuel-burning equipment that causes NO_x emissions shall:

(a) maintain good operating practices as recommended by the equipment vendor to minimize NO_x emissions;

(b) prepare and implement a written in-house training program for all operators of these installations that includes instruction with regard to good operating and maintenance practices for the particular installation;

(c) maintain and make available to the Department upon request the written in-house operator training program;

(d) burn only gas in each installation, where gas is available, during the period May 1 through September 30 of each year; and

(e) maintain operator training attendance records for each operator on the site for at least 5 years and

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	make these records available to the Department upon request.
11.2	**<u>Testing Requirements</u>:** A. <u>Visible Emissions Limitations</u> See Monitoring, Record Keeping and Reporting Requirements. B. <u>Control of Particulate Matter</u> See Monitoring, Record Keeping and Reporting Requirements. C. <u>Control of Nitrogen Oxides</u> The Permittee shall perform at least one combustion analysis per year on the indirect-fire combustion units associated with the Steam Superheater A (SGO-09), C-Mill Air Heater (SGO-22), K-11 Dryer/Activator (SGO-31), and B-mill Air Heater (SGO-65) and shall optimize combustion in the unit in accordance with the findings of the combustion analysis. **[Authority: COMAR 26.11.09.08E(2)]**
11.3	**<u>Monitoring Requirements:</u>** A. <u>Visible Emissions Limitations</u> For each emissions point identified in Table IV-11A that is associated with an air pollution control device or product recovery device that discharges to atmosphere the Permittee shall conduct observations for visible emissions in accordance with Section 1.1 of Table IV-1. This requirement does not apply to emissions points associated with control devices that are used solely to control fumes from plant maintenance welding operations or to control emissions from vacuum systems used solely for housekeeping purposes. **[Authority: COMAR 26.11.03.06C]** B. <u>Control of Particulate Matter</u> The Permittee shall prepare, implement, and revise as necessary operations and maintenance plans for all particulate emissions sources and air pollution control equipment (SGO-07, SGO-08, SGO-11, SGO-21, SGO-25, SGO-32, SGO-34, SGO-37 through -44, SGO-

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	51, SGO-53, SGO-56, SGO-57, SGO-59, SGO-62, SGO-64, SGO-67, SGO-69, SGO-70, SGO-74, SGO-78, SGO-79, SGO-81, and SGO-83 through -94). The required operations and maintenance plans shall be developed and implemented in accordance with Section 1.3 of Table IV – 1. **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides The Permittee shall conduct annual inspections of all direct-fire combustion systems Dryer 1 (SGO-01; to be replaced by Turbo Dryer SGO-84), Dryer 2 (SGO-02; to be replaced by Turbo Dryer SGO-84), Conditioner 2803 (SGO-42; to be replaced by Turbo Dryer SGO-84), Turbo Dryer D-40824 (SGO-84), Mill 2760 (SGO-44), Flash Dryer 2832 (SGO-56), Surface Dryer D-5450 (SGO-78), Surface Dryer D-4417 (SGO-79), and Heater/Dryer D-834 (SGO-85, formerly HPV-01), and shall review pertinent operating logs and records to determine the compliance status of operations with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**
11.4	**Record Keeping Requirements:** A. Visible Emissions Limitations The Permittee shall maintain, in accordance with applicable requirements under Section 1.1 of Table IV-1, records of all required observations for visible emissions. **[Authority: COMAR 26.11.03.06C]** B. Control of Particulate Matter The Permittee shall maintain written or printable electronic copies of all operations and maintenance plans required for particulate emissions sources and air pollution control equipment (SGO-07, SGO-08, SGO-11, SGO-21, SGO-25, SGO-32, SGO-34, SGO-37 through -44, SGO-51, SGO-53, SGO-56, SGO-57, SGO-59, SGO-62, SGO-64, SGO-67, SGO-69, SGO-70, SGO-74, SGO-78, SGO-79, SGO-81, and SGO-83 through -94). **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides (1) For the indirect-fire combustion units associated with Steam Superheater A (SGO-09), C-Mill Air Heater (SGO-22), K-11

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	Dryer/Activator (SGO-31), and B-Mill Air Heater (SGO-65), the Permittee shall maintain written or printable electronic records of: (a) all required combustion analyses performed on the unit **[Authority: COMAR 26.11.09.08E(3) and COMAR 26.11.03.06C]**; and (b) required training of equipment operators concerning combustion optimization. Such records shall include the names of all trainees, the dates on which the training was administered, and identification of the concern that provided the training **[Authority: COMAR 26.11.09.08E(5) and COMAR 26.11.03.06C];** and (c) the types of fuels burned on a daily basis. **[Authority: COMAR 26.11.09.08K]** (2) For the direct-fire combustion units Dryer 1 (SGO-01; to be replaced by Turbo Dryer SGO-84), Dryer 2 (SGO-02; to be replaced by Turbo Dryer SGO-84), Conditioner 2803 (SGO-42; to be replaced by Turbo Dryer SGO-84), Turbo Dryer D-40824 (SGO-84), Mill 2760 (SGO-44), Flash Dryer 2832 (SGO-56), Surface Dryer D-5450 (SGO-78), Surface Dryer D-4417 (SGO-79), and Heater/Dryer D-834 (SGO-85, formerly HPV-01) the Permittee shall maintain written or printable electronic records of the following: (a) good operating practices, as recommended by the vendor of the combustion units, to minimize NO_x emissions **[Authority: COMAR 26.11.03.06C]**; (b) records regarding the required training program concerning NO_x minimization techniques for operators of the combustion units. These records shall include a written description of training program content, the date(s) on which the training was administered, and identification of all employees who attended the training **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**;

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	(c) the types and amounts of fuels burned in the combustion units during the period May 1 through September 30 of each year **[Authority: COMAR 26.11.03.06C]**; and (d) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**
11.5	**Reporting Requirements:** A. Visible Emissions Limitations The Permittee shall report occurrences of visible emissions in accordance with conditions number 4 ("Report of Excess Emissions and Deviations"), and number 9 (Compliance Certification report), of Section III – Plant Wide Conditions. B. Control of Particulate Matter The Permittee shall make available to the Department upon request copies of any operations and maintenance plans required for particulate emissions sources and air pollution control equipment (SGO-07, SGO-08, SGO-11, SGO-21, SGO-25, SGO-32, SGO-34, SGO-37 through -44, SGO-51, SGO-53, SGO-56, SGO-57, SGO-59, SGO-62, SGO-64, SGO-67, SGO-69, SGO-70, SGO-74, SGO-78, SGO-79, SGO-81, and SGO-83 through -94). **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides (1) For the indirect-fire combustion units associated with the Steam Superheater A (SGO-09), C-Mill Air Heater (SGO-22), K-11 Dryer/Activator (SGO-31), and B-mill Air Heater (SGO-65) the Permittee shall make available to the Department upon request any records that the Permittee is required to maintain concerning: (a) combustion analyses performed on the unit **[Authority: COMAR 26.11.09.08E(3), and COMAR 26.11.03.06C]**; and

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	(b) training of operators with regard to combustion optimization. **[Authority: COMAR 26.11.09.08E(5), and COMAR 26.11.03.06C]** (2) For the direct-fire combustion units Dryer 1 (SGO-01; to be replaced by Turbo Dryer SGO-84), Dryer 2 (SGO-02; to be replaced by Turbo Dryer SGO-84), Conditioner 2803 (SGO-42; to be replaced by Turbo Dryer SGO-84), Turbo Dryer D-40824 (SGO-84), Mill 2760 (SGO-44), Flash Dryer 2832 (SGO-56), Surface Dryer D-5450 (SGO-78), Surface Dryer D-4417 (SGO-79), and Heater/Dryer D-834 (SGO-85, formerly HPV-01) the Permittee shall make available to the Department upon request all records required to be established with regard to: (a) "good operating practices", as recommended by the vendor of the equipment, to minimize NO_x emissions from the combustion units **[Authority: COMAR 26.11.03.06C]**; (b) the required training program concerning NO_x minimization techniques for operators of the combustion units, and operator attendance of the program **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**; (c) the types and amounts of fuels burned during the period May 1 through September 30 of each year in the combustion units **[Authority: COMAR 26.11.03.06C]**; and (d) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**

A permit shield shall cover the applicable requirements of the Clean Air Act that are listed in Table IV-11 for the SGO Plant.

TABLE IV-11A
List of Sources for the SGO Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
SGO-01	D-2801	Dryer 1 combustion vent. To be replaced by turbo dryer SGO-84. *(direct-fired)*	None	None
SGO-02	D-2802	Dryer 2 combustion vent. To be replaced by turbo dryer SGO-84. *(direct-fired)*	None	None
SGO-07		Dryers/Toledo line fugitive pickup points as shown on plant drawings	2612	Baghouse
SGO-08		Spencer vacuum system for fugitive pickup points as shown on plant drawings	2664	Baghouse
SGO-09	2870	Steam Superheater A combustion flue gas vent *(indirect-fired)*	None	None
SGO-11		C-Mill Fines Collector	2670	Baghouse
SGO-21	2770 2680	A-Mill 2770 Collector and Baghouse 2680. Baghouse used for material recovery.	None	None
SGO-22	2890	C-Mill air heater combustion flue gas vent *(indirect-fired)*	None	None
SGO-25	2790 2690A	C-Mill 2790 and Baghouse 2690A. Baghouse used for material recovery.	None	None
SGO-31	2840	K-11 Dryer/Activator 2840 combustion flue gas vent *(indirect-fired)*	None	None
SGO-32	2840 2641	K-11 Dryer/Activator 2840 and Baghouse 2641. Baghouse used for material recovery.	None	None
SGO-34	2137 2637	Silo 2137 and Bin Vent 2637. Bin vent used for material recovery.	None	None
SGO-37	2181 2681	ACM Feed Hopper 2181 and Baghouse 2681. Baghouse used for material recovery.	None	None
SGO-38	2192 2692	C-Mill Feed Hopper 2192 and Baghouse 2692. Baghouse used for material recovery.	None	None
SGO-39	2645 2699	Specialty Sizing Equipment 2645 fugitive dust discharge and Cartridge 2699. Cartridge used for material recovery.	None	None

TABLE IV-11A
List of Sources for the SGO Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
SGO-40	2131 2618	Specialty Mill Feed Hopper 2131 and Baghouse 2618. Baghouse used for material recovery.	None	None
SGO-41	2749 2649	Specialty Equipment 2749 and Baghouse 2649. Baghouse used for material recovery.	None	None
SGO-42	2803 2638	Conditioner 2803 Sweep Air and Combustion Gas and Baghouse 2638.		
SGO-43	2741	Specialty Equipment 2741 and fugitive dust collector	2646	Cartridge
SGO-44	2760 2647	Mill 2760 and Cartridge 2647. The cartridge is used for material recovery. *(direct-fired)*	None	None
SGO-51	2131A	Roll Mill Feed Hopper 2131A.	2609	Cartridge
SGO-53	3653	Trash Drum Dumping Station Hopper #8 Warehouse.	3653	Cartridge
SGO-56	2832 2632	Flash Dryer 2832 and Combustion Flue Gas and Baghouse 2632. The baghouse is used for material recovery. *(direct-fired)*	None	None
SGO-57	2198 2698	Sack Loading Hopper 2198 Fugitive Dust and Cartridge 2698. The cartridge is used for material recovery.	None	None
SGO-59	143F 643F	Silo F (Tank 143F) and Cartridge 643F. The cartridge is used for material recovery.	None	None
SGO-62	3181 3681	Flash Dryer Feed Hopper 3181 and Cartridge 3681. The cartridge is used for material recovery.	None	None
SGO-64		Central vacuum cleaning system in #1 Warehouse.	3649	Cartridge
SGO-65	3890	B-Mill Air Heater 3890 Combustion Flue Gas Vent *(indirect-fire)*	None	None
SGO-67	3183 3683	Hopper 3183 and Cartridge 3683. The cartridge is used for material recovery.	None	None
SGO-69	143G 643G	Silo G (Tank 143G) and Cartridge 643G. The cartridge is used for material recovery.	None	None

TABLE IV-11A
List of Sources for the SGO Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
SGO-70	4192 4692	B-Mill Feed Hopper 4192 and Baghouse 4692. The baghouse is used for material recovery.	None	None
SGO-74	4790 4690	B-Mill 4790 Collector and Baghouse 4690. The baghouse is used for material recovery.	None	None
SGO-78	D-5450 5650	ACM Surface Dryer D-5450 and Baghouse 5650. The baghouse is used for material recovery.	None	None
SGO-79	D-4417 F-4618	Surface Dryer D-4417 and Baghouse F-4618. The baghouse is used for material recovery.	None	None
SGO-80	T-3121 T-3122 T-3124 F-3629	Silos T-3121, T-3122, T-3124, and Baghouse F-4631. The baghouse is used for material recovery.	None	None
SGO-81	T-4131 F-4631	Dry Base Silo T-4131 and Baghouse F-4631. The baghouse is used for material recovery.	None	None
SGO-83	T-4132 F-4632	Bulk Dent Silo T-4132 and Bin Vent F-4632. The bin vent is used for material recovery.	None	None
SGO-84	D-40824 F-40642	Turbo Dryer D-40824 and Baghouse F-40642. The baghouse is used for material recovery.	None	None
SGO-85 (formerly HPV-01)	D-834 633	Heater/Dryer D-834 and Baghouse 633. The baghouse is used for material recovery.	None	None
SGO-86 (formerly HPV-02)	643A	Silo A and Baghouse 643A. The baghouse is used for material recovery.	None	None
SGO-87 (formerly HPV-03)	643B	Silo B and Baghouse 643B. The baghouse is used for material recovery.	None	None
SGO-88 (formerly HPV-04)	643C	Silo C and Baghouse 643C. The baghouse is used for material recovery.	None	None
SGO-89 (formerly HPV-05)	643D	Silo D and Bin Vent 643D. The bin vent is used for material recovery.	None	None
SGO-90 (formerly HPV-06)	643E	Silo E and Bin Vent 643E. The bin vent is used for material recovery.	None	None

TABLE IV-11A
List of Sources for the SGO Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
SGO-91 (formerly HPV-07)	BM-534 F-637	Mixer BM-534 and Baghouse F-637. The baghouse is used for material recovery.	None	None
SGO-92 (formerly HPV-08)	T-134	Tank T-134 and sock used for material recovery.	None	None
SGO-93 (formerly HPV-09)	G-138 G-638	Recycle Hopper G-138 and Baghouse G-638. The baghouse is used for material recovery.	None	None
SGO-94 (formerly HPV-20)	5120 5121 5620	SMSG Bag Dumper 5120, Sack Dumper 5121 and Baghouse 5620. The baghouse is used for material recovery.	None	None

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12.0 **Emissions Unit Number(s)**

Emission units associated with the Specialty Catalyst Plant (SCP), ARA Registration No. 510-0076-7-1667. See Table IV-12A for a complete listing of emissions unit and emissions points associated with the SCP plant.

12.1 **Applicable Standards/Limits:**

A. Visible Emissions Limitations

COMAR 26.11.06.02C(2), which requires that a person not cause or permit the discharge of emissions from any installation or building, other than water in uncombined form, which is visible to human observers.

Exceptions. COMAR 26.11.06.02A(2) establishes that "the visible emissions standards in §C of this regulation do not apply to emissions during start-up and process modifications or adjustments, or occasional cleaning of control equipment, if:

(1) The visible emissions are not greater than 40 percent opacity; and

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	(2) The visible emissions do not occur for more than 6 consecutive minutes in any 60 minute period." B. Control of Particulate Matter **COMAR 26.11.06.03B(2)(a)**, which requires that a person not cause or permit particulate matter to be discharged from any installation in excess of 0.03 gr/scfd (68.7 mg/dscm). C. Control of Nitrogen Oxides **COMAR 26.11.09.08J**, which applies to the Thermal Oxidizer 90800 (SCP-06A; to be replaced by 90803) and which establishes that a person who owns or operates any installation other than fuel-burning equipment that causes NO_x emissions shall: (1) maintain good operating practices as recommended by the equipment vendor to minimize NO_x emissions; (2) prepare and implement a written in-house training program for all operators of these installations that includes instruction with regard to good operating and maintenance practices for the particular installation; (3) maintain and make available to the Department upon request the written in-house operator training program; (4) burn only gas in each installation, where gas is available, during the period May 1 through September 30 of each year; and (5) maintain operator training attendance records for each operator on the site for at least 5 years and make these records available to the Department upon request. D. Control of VOC (1) **COMAR 26.11.19.02I** which requires that the Permittee establish in writing and implement plant-wide "good operating practices" designed to minimize emissions of VOC. The specific requirements of this regulation are provided in Section 1.4 of Table IV-1.

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	(2) **COMAR 26.11.19.16** which requires that the Permittee implement a VOC leak detection and repair program designed to minimize unintended emissions of VOC from process equipment and components, e.g., in-process vessels, storage tanks, pumps, compressors, valves, flanges and other pipeline fittings, pressure relief valves, process drains, and open-ended pipes. The specific requirements of this regulation are provided in Section 1.5 of Table IV-1. (3) **COMAR 26.11.19.30**, which establishes equipment standards and performance standards for organic and inorganic chemical manufacturing facilities. **COMAR 26.11.19.30D(1)** establishes that a person who owns or operates an organic chemical production installation or an inorganic chemical production installation at a premises that has total uncontrolled VOC emissions of 100 pounds or more per day shall duct each process vent and exhaust line from any installation with actual emissions of 20 pounds or more per day into a control device that has a VOC destruction or removal efficiency of at least 90 percent, overall. **Exceptions.** **COMAR 26.11.19.30D(4)** establishes that a person who owns or operates an organic chemical production installation and complies with §D(1) of this regulation and later cannot achieve compliance because of an unavoidable outage or malfunction of the primary control device shall either: (a) discontinue operation until the primary control device is returned to proper service; or (b) use a back-up control device that is approved by the Department. **COMAR 26.11.19.30D(5)** establishes that the back-up control device allowed under §D(4)(b) of this regulation may not be used more than 10 percent of the annual operating time of the affected installation during any calendar year unless a longer period is approved by the Department. (4) **40 CFR, Part 64**, which establishes Compliance Assurance Monitoring (CAM) requirements for sources that (a) use control devices to comply with emissions standards for a regulated pollutant, and (b) that have a pre-control potential-to-emit equal to or greater than the amount identified as the major source level for

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	the regulated pollutant. SCP Thermal Oxidizer 90800 (SCP-06A; to be replaced by 90803) is subject to CAM requirements. A summary of the Permittee's CAM plan for the oxidizer and justification for the selection of the operating parameters to be monitored are provided in Appendix I to the Part 70 permit. (5) Operational Requirement: All non-fugitive sources of VOC associated with the SCP plant shall be exhausted through Thermal Oxidizer 90800 (SCP-06A; to be replaced by 90803) before discharge to atmosphere, and the one-hour block average temperature of the combustion zone of the Thermal Oxidizer 90800 (SCP-06A; to be replaced by 90803) shall be maintained at a minimum of 1450 °F whenever any affected emission source is in service. **[Authority: 40 CFR, Part 64 and ARA Permit to Construct No. 510-0076-7-1667 issued September 6, 2018.]**
12.2	**Testing Requirements:** A. Visible Emissions Limitations See Monitoring, Record Keeping and Reporting Requirements. B. Control of Particulate Matter See Monitoring, Record Keeping and Reporting Requirements. C. Control of Nitrogen Oxides See Monitoring, Record Keeping and Reporting Requirements. D. Control of VOC See Monitoring, Record Keeping and Reporting Requirements.
12.3	**Monitoring Requirements:** A. Visible Emissions Limitations For each emissions point identified in Tables IV-12A that is associated with an air pollution control device or product recovery device that discharges to atmosphere, the Permittee shall conduct observations for visible emissions in accordance with Section 1.1 of Table IV-1. This requirement does not apply to emissions points associated with control devices that are used solely to control fumes from plant maintenance welding operations or to control emissions

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from vacuum systems used solely for housekeeping purposes. **[Authority: COMAR 26.11.03.06C]**

B. Control of Particulate Matter
The Permittee shall prepare, implement, and revise as necessary operations and maintenance plans for all particulate emissions sources and air pollution control equipment (SCP-01D, SCP-02A, and SCP-02B). The required operations and maintenance plans shall be developed and implemented in accordance with Section 1.3 of Table IV – 1. **[Authority: COMAR 26.11.03.06C]**

C. Control of Nitrogen Oxides
The Permittee shall conduct annual inspections of the Thermal Oxidizer 90800 (SCP-06A; to be replaced by 90803) and shall review pertinent operating logs and records to determine the compliance status of operations with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**

D. Control of VOC
(1) The Permittee shall implement required "good operating practices" designed to minimize emissions of VOC from the SCP plant as specified in Section 1.4 of Table IV-1. **[Authority: COMAR 26.11.19.02I]**

(2) The Permittee shall repair detected VOC leaks in accordance with Section 1.5 of Table IV-1. **[Authority: COMAR 26.11.19.16]**

(3) The Permittee shall continuously monitor and record, in accordance with Section 1.2 of Table IV-1, the temperature of the combustion zone of thermal oxidizer 90800 (SCP-06A; to be replaced by 90803) whenever the oxidizer is being used to control emissions of VOC. **[Authority: ARA Permit to Construct No. 510-0076-7-1667 issued September 6, 2018.]**

(4) The Permittee shall comply with all applicable monitoring requirements specified in the Permittee's CAM plan for the oxidizer provided in Appendix I to the Part 70 permit. **[Authority: 40 CFR, Part 64]**

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12.4	**Record Keeping Requirements:** A. Visible Emissions Limitations The Permittee shall maintain, in accordance with applicable requirements under Section 1.1 of Table IV-1, records of all required observations for visible emissions. **[Authority: COMAR 26.11.03.06C]** B. Control of Particulate Matter The Permittee shall maintain written or printable electronic copies of all operations and maintenance plans required for particulate emissions sources and air pollution control equipment (SCP-01D, SCP-02A, and SCP-02B). **[Authority: COMAR 26.11.03.06C]** C. Control of Nitrogen Oxides For the Thermal Oxidizer 90800 (SCP-06A; to be replaced by 90803) the Permittee shall maintain written or printable electronic records of the following: (1) good operating practices, as recommended by the vendor of the combustion units, to minimize NO_x emissions **[Authority: COMAR 26.11.03.06C]**; (2) records regarding the required training program concerning NO_x minimization techniques for operators of the combustion units. These records shall include a written description of training program content, the date(s) on which the training was administered, and identification of all employees who attended the training **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**; (3) the types and amounts of fuels burned in the combustion units during the period May 1 through September 30 of each year **[Authority: COMAR 26.11.03.06C]**; and (4) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]**

Table IV – 12 **SCP**	
	D. Control of VOC (1) The Permittee shall maintain a written or printable electronic description of all "good operating practices" implemented to minimize emissions of VOC from the SCP plant. **[Authority: COMAR 26.11.19.02I and COMAR 26.11.03.06C]** (2) The Permittee shall maintain records of VOC leak detection and repair activities as specified in Section 1.5 of Table IV-1. **[Authority: COMAR 26.11.19.16]** (3) The Permittee shall maintain records of the following: (a) all required recordation of the temperature of the combustion zone of Thermal Oxidizer 90800 (SCP-06A; to be replaced by 90803); and (b) all applicable record keeping requirements specified in the Permittee's CAM plan for the oxidizer provided in Appendix I to the Part 70 permit. **[Authority: 40 CFR, Part 64 and ARA Permit to Construct No. 510-0076-7-1667 issued September 6, 2018.]**
12.5	**Reporting Requirements:** A. Visible Emissions Limitations The Permittee shall report occurrences of visible emissions in accordance with conditions number 4 ("Report of Excess Emissions and Deviations"), and number 9 (Compliance Certification report), of Section III – Plant Wide Conditions. B. Control of Particulate Matter The Permittee shall make available to the Department upon request copies of any operations and maintenance plans required for particulate emissions sources and air pollution control equipment (SCP-01D, SCP-02A, and SCP-02B). **[Authority: COMAR 26.11.03.06C]**

Table IV – 12 **SCP**	
	C. Control of Nitrogen Oxides For the Thermal Oxidizer 90800 (SCP-06A; to be replaced by 90803) the Permittee shall make available to the Department upon request all records required to be established with regard to: (1) "good operating practices", as recommended by the vendor of the equipment, to minimize NO_x emissions from the combustion units **[Authority: COMAR 26.11.03.06C]**; (2) the required training program concerning NO_x minimization techniques for operators of the combustion units, and operator attendance of the program **[Authority: COMAR 26.11.09.08J(3) & (5), and COMAR 26.11.03.06C]**; (3) the types and amounts of fuels burned during the period May 1 through September 30 of each year in the combustion units **[Authority: COMAR 26.11.03.06C]**; and (4) each inspection or maintenance activity, including pertinent operating logs and records, required to determine the compliance status of the combustion units with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. **[Authority: COMAR 26.11.03.06C]** D. Control of VOC The Permittee shall report, in accordance with conditions number 4 ("Report of Excess Emissions and Deviations"), and number 9 (Compliance Certification report), of Section III – Plant Wide Conditions: (1) deviations from "good operating practices" designed to minimize emissions of VOC; (2) deviations from required VOC leak detection and repair activities; (3) failure to maintain the minimum one-hour block average temperature of the thermal oxidizer combustion zone at 1400 °F when the oxidizer was being used to control emissions of VOC; and

Table IV – 12 **SCP**	
	(4) failure to comply with the requirements of the Permittee's CAM plan for the oxidizers provided in Appendix I to the Part 70 permit.

A permit shield shall cover the applicable requirements of the Clean Air Act that are listed in Table IV-12 for the SCP Plant.

TABLE IV-12A
List of Sources for the SCP Plant

Emission Point ID	Emission Unit		Air Pollution Control Equipment	
	ID	Description	ID	Description
SCP-01D	21102	Bag Dump Station 21102 and Cartridge. The cartridge is used for material recovery.	None	None
SCP-02A	21104 21301	Calciner Feed Hopper 21104 and Cartridge collector 21301. The cartridge is used for material recovery.	None	None
SCP-02B	21801 21608	Electric Calciner 21801 Sweep Air and Cartridge 21608. The cartridge is used for material recovery.	None	None
SCP-02C	42103 42402 42302	Silica Drum Unloading Station Vacuum Conveyor Vacuum Conveyor Blower	None	None
SCP-02D	42110 42407 42408 42802 42610 42303 42609 42309	Calciner Day Hopper LIW Feeder LIW Feeder Discharger Activator Calciner Screener Transport Pot Calciner Sweep Gas Baghouse Baghouse Fan The baghouse used for material recovery	None	None
SCP-16	SCP-GEN	8.9 hp Emergency Generator – included in the Insignificant Activities in Section V	None	None

SCP-06A	35108 35102 36114 80105 72701 72703 72710 72711 72712 24101 80110 36105 80101 36702 23110 23111 35107 36609 35105 35100 35103 23120 72120 72121 36701 80111 80106 36103 36104 D-80001 D-80002 80102 36303 80103 36121 36607 80211 80215 80217 36620 36303 72120 23107A&B 72210 72201A&B 72211A&B 72203A&B 72212A&B 23107 80214 70101 70108 70105 70103 70107 70100 70102 72306 72903 72904 72113 72114 72103 72702 72602 72206 72701 72907 72104 80102 90107 80110 80903/4	Al Alkyl Weigh Tank 35108; Alkyl Weigh Tank 35102; Blend Tank 36114; Bottoms Tank 80105; five (5) Chemical Reaction Vessels 72701, 72703, 72710, 72711 & 72712; Decant Storage 24101; Distillation Column 80110; DOT Tank 36105; Dry Solvent Storage Tank 80101; Dryer 36702; two (2) Metal Halide Weigh Tanks 23110 & 23111; Mg Alkyl Weigh tank 35107; Molecular Sieve 36609; portable Al Alkyl Tank 35105; portable Alkyl Tank 35100, portable Mg Alkyl Tank 35103; three (3) portable raw material vessels 23120, 72120 & 72121; Reactor Vent 36701; Reflux Tank 80111; Sample Pot 80106; two (2) Solvent Distillate Tanks 36103 & 36104; two (2) Solvent Dryers D-80001 & D-80002; Spent Solvent Storage Tank 80102; Vacuum Pump Discharge 36303; Virgin Solvent Storage Tank 80103; Sealant Knock Out Pot 36121; Solvent Drum Loading 36607; Cooler 80211; Column Vent Condenser 80215; Air Cooled Condenser 80217; Dust Collector 36620; Raw Material Portable Cylinders 23107A&B; Heat Transfer Fluid 72210, 72201A&B, 72211A&B, 72203A&B, 72212A&B; Metal Halide Cylinder 23107; Reboiler 80214; Refrigerated MAO Tank 70101; AI Alkyl Weigh Tank 70108; Portable AI Alkyl Tank 70105; Portable Alkyl Tank 70103; Alkyl Weigh Tank 70107; Portable Mg Alkyl Tank 70100; Mg Alkyl Weigh Tank 70102; Vacuum Pump 72306; Product Tote Bin 72903; Product Drum 72904; Silica Tote Bin 72113; Shipping Drum 72114; Dry Solvent Tank 72103; Dryer 72702; Cone Dryer Vent Filter 72602; Vacuum Pump Pre Condenser 72206; Reaction Vessel 72701; Vent Condenser 72907; Distillate Tank 72104; Process Spent Solvent Tank 80102; Knock Out Vessel for TOX 90107; Fresh Toluene Tank 80118; and Mole Sieves Solvent Dryers 80903/4	90800 (to be replaced by 90803)	Thermal Oxidizer, used for the destruction of VOC vapors from specified emission units

Table IV – 13 **CHP**	
13.0	**Emissions Unit Number(s)** CHP-01: Natural gas-fired Caterpillar G3520H combined heat and power unit equipped with an engine rated at 2,485 kilowatts (3,448 brake horsepower) equipped with selective catalytic reduction (SCR) and oxidation catalyst controls. (ARA Registration No. 510-0076-9-1365). CHP-02: Natural gas-fired Caterpillar G3520H combined heat and power unit equipped with an engine rated at 2,485 kilowatts (3,448 brake horsepower) equipped with selective catalytic reduction (SCR) and oxidation catalyst controls (ARA Registration No. 510-0076-9-1366).
13.1	**Applicable Standards/Limits:** A. Visible Emissions Limitations (1) **COMAR 26.11.09.05E(2),** which states that "a person may not cause or permit the discharge of emissions from any engine, operating at idle, greater than 10 percent opacity." (2) **COMAR 26.11.09.05E(3),** which states that "a person may not cause or permit the discharge of emissions from any engine, operating at other than idle conditions, greater than 40 percent opacity." **Exceptions. COMAR 26.11.09.05E(4)** establishes the following: (a) Section E(2) does not apply for a period of 2 consecutive minutes after a period of idling of 15 consecutive minutes for the purpose of clearing the exhaust system. (b) Section E(2) does not apply to emissions resulting directly from cold engine start-up and warm-up for the following maximum periods: (i) Engines that are idled continuously when not in service: 30 minutes; and (ii) All other engines: 15 minutes. (c) Section E(2) and (3) do not apply while maintenance, repair, or testing is being performed by qualified mechanics.

Table IV – 13
CHP

B. New Source Performance Standards

40 CFR 60, Subparts A and JJJJ which specifies general provisions, emission standards, and testing requirements for stationary spark ignition internal combustion engines.

(1) Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this subpart for their stationary SI ICE.

(a) NOx: 1.0 g/HP-hr OR 82 ppmvd at 15% O_2;

(b) CO: 2.0 g/HP-hr OR 270 ppmvd at 15% O_2; and

(c) VOC: 0.7 g/HP-hr OR 60 ppmvd at 15% O_2. **[Authority: 40 CFR §60.4233(e) and Table 1 to 40 CFR 60, Subpart JJJJ]**

(2) Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 over the entire life of the engine. . **[Authority: 40 CFR §60.4234]**

(3) Owners and operators of stationary SI natural gas fired engines may operate their engines using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the owners and operators are required to conduct a performance test to demonstrate compliance with the emission standards of §60.4233. **[Authority: 40 CFR §60.4243(e)]**

C. Control of HAP

The Permittee meets the requirements of 40 CFR, Part 63, Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart JJJJ for each CHP unit. No further requirements apply to the CHP units under 40 CFR Part 63, Subpart ZZZZ. **[Reference: 40 CFR §63.6590(c)]**

Table IV – 13 **CHP**	
13.2	**Testing Requirements:** A. Visible Emissions Limitations See Monitoring, Record Keeping and Reporting Requirements. B. New Source Performance Standards (1) For each CHP unit, within 180 days of initial startup of the unit, the Permittee shall conduct an initial performance test to demonstrate compliance. The Permittee shall conduct subsequent performance tests, for each CHP unit, every 8,760 hours or 3 years, whichever comes first. **[Authority: 40 CFR 60.8(a) and CFR §60.4243(b)(2)(iii)]** (2) Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in 40 CFR §60.8 and Table 2 of 40 CFR 60, Subpart JJJJ. **[Authority: 40 CFR §60.4244(a)]** (3) The Permittee may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in 40 CFR §60.8(c). If the CHP unit is non-operational, the Permittee does not need to startup the engine solely to conduct a performance test; however the Permittee must conduct the performance test immediately upon startup of the engine. **[Authority: 40 CFR §60.4244(b)]** (4) The Permittee must conduct three separate test runs for each performance test required by 40 CFR §60.4244, as specified in 40 CFR §60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour. **[Authority: 40 CFR §60.4244(c)]** (5) The Permittee shall determine compliance with applicable emission limitations using the procedures in 40 CFR §60.4244(d) through (g) or other methods approved by the Department. **[Authority: 40 CFR §60.4244(d) through (g)]**

Table IV – 13 **CHP**	
13.3	**Monitoring Requirements:** A. Visible Emissions Limitations The Permittee shall operate and maintain each CHP unit in a manner to prevent visible emissions. **[Authority: COMAR 26.11.03.06C]** B. New Source Performance Standards The Permittee shall keep a maintenance plan and records of conducted maintenance for each CHP unit engine and shall, to the extent practicable, maintain and operate each engine in a manner consistent with good air pollution control practice for minimizing emissions. **[Authority: 40 CFR §60.4243(b)(2)(iii)]**
13.4	**Record Keeping Requirements:** A. Visible Emissions Limitations The Permittee shall maintain records of all maintenance/repairs performed and make them available to the Department upon request. **[Authority: COMAR 26.11.03.06C]** B. New Source Performance Standards (1) The Permittee shall maintain records of all notifications submitted to comply with 40 CFR 60, Subpart JJJJ and all documentation supporting any notification. **[Authority: 40 CFR §60.4245(a)(1)]** (2) The Permittee shall maintain records of the required maintenance plan and all maintenance conducted on each engine. **[Authority: 40 CFR §60.4243(b)(2)(iii), 40 CFR §60.4245(a)(2), and COMAR 26.11.03.06C]** (3) The Permittee shall maintain documentation that each CHP unit meets the emission standards. **[Authority: 40 CFR §60.4245(a)(4)]** (4) The Permittee shall maintain annual records of total propane use and hours each unit operated using propane **[Authority: 40 CFR §60.4243(e)]** (5) The Permittee shall maintain records of all performance test results. **[Authority: COMAR 26.11.03.06C]**

Table IV – 13 **CHP**	
13.5	**Reporting Requirements:** A. Visible Emissions Limitations The Permittee shall make available to the Department upon request any records that the Permittee is required to maintain. The Permittee shall report incidents of visible emissions in accordance with permit condition 4, Section III, Plant Wide Conditions, "Report of Excess Emissions and Deviations." **[COMAR 26.11.03.06C]** B. New Source Performance Standards (1) For each CHP unit, the Permittee shall submit an initial notification within 30 days of installing the unit that includes the following information: (A) Name and address of the owner or operator; (B) The address of the affected source; (C) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement; (D) Emission control equipment; and (E) Fuel used. **[Authority: 40 CFR §60.7(a)(1) and 40 CFR §60.4245(c) and (c)(1) through (c)(5)]** (2) For each CHP unit, the Permittee shall submit a notification of the initial startup date of the unit within 15 days of the date. **[Authority: 40 CFR §60.7(a)(3)]** (3) At least 30 days prior to conducting each performance test, the Permittee shall provide written or electronic notification of the intended test dates and a test protocol for review and approval by the Department. **[Authority: COMAR 26.11.03.06C]** (4) The Permittee shall submit a copy of the test report to the Department for each performance test as conducted in 40 CFR 60.4244 within 60 days after the test has been completed. **[Authority: 40 CFR §60.4245(d)]**

A permit shield shall cover the applicable requirements of the Clean Air Act that are listed in Table IV-13 for CHP-01 and CHP-02.

SECTION V INSIGNIFICANT ACTIVITIES

This section provides a list of insignificant emissions units that were reported in the Title V permit application. The applicable Clean Air Act requirements, if any, are listed below the insignificant activity.

(1) No. 4 Fuel burning equipment using gaseous fuels or no. 1 or no. 2 fuel oil, and having a heat input less than 1,000,000 Btu (1.06 gigajoules) per hour;

The four (4) natural gas-fired heaters are subject to the following requirements:

COMAR 26.11.09.05A(2), which establishes that the Permittee may not cause or permit the discharge of emissions from any fuel burning equipment, other than water in an uncombined form, which is visible to human observers.

Exceptions: COMAR 26.11.09.05A(2) does not apply to emissions during load changing, soot blowing, start-up, or adjustments or occasional cleaning of control equipment if:

(A) The visible emissions are not greater than 40 percent opacity; and

(B) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period.

(2) No. 5 Stationary internal combustion engines with an output less than 500 brake horsepower (373 kilowatts) and which are not used to generate electricity for sale or for peak or load shaving;

The 208 horsepower fire pump emergency engine (POW-10, FPE1), the 240 horsepower fire pump emergency engine (POW-11, FPE2), the 268 horsepower emergency generator (SAC-135, SAC-GEN1), the 8 horsepower emergency generator (MAG-24, MAG-GEN), and the 8.9 horsepower emergency generator (SCP-16, SCP-GEN) are subject to the following requirements:

(A) COMAR 26.11.09.05E(2), Emissions During Idle Mode: The Permittee may not cause or permit the discharge of

emissions from any engine, operating at idle, greater than 10 percent opacity.

(B) COMAR 26.11.09.05E(3), Emissions During Operating Mode: The Permittee may not cause or permit the discharge of emissions from any engine, operating at other than idle conditions, greater than 40 percent opacity.

(C) Exceptions:

(i) COMAR 26.11.09.05E(2) does not apply for a period of 2 consecutive minutes after a period of idling of 15 consecutive minutes for the purpose of clearing the exhaust system.

(ii) COMAR 26.11.09.05E(2) does not apply to emissions resulting directly from cold engine start-up and warm-up for the following maximum periods:

(a) Engines that are idled continuously when not in service: 30 minutes
(b) all other engines: 15 minutes.

(iii) COMAR 26.11.09.05E(2) & (3) do not apply while maintenance, repair or testing is being performed by qualified mechanics.

(D) COMAR 26.11.36.03A, The owner or operator of an engine is subject to the requirements under 40 CFR 63 Subpart ZZZZ, as applicable.

(3) ✓ Space heaters utilizing direct heat transfer and used solely for comfort heat;

(4) ✓ Water cooling towers and water cooling ponds unless used for evaporative cooling of water from barometric jets or barometric condensers, or used in conjunction with an installation requiring a permit to operate;

(5) ✓ Equipment for drilling, carving, cutting, routing, turning, sawing, planing, spindle sanding, or disc sanding of wood or wood products;

(6) Containers, reservoirs, or tanks used exclusively for:

(a) ✓ Storage of butane, propane, or liquefied petroleum, or natural gas;

(b) No. 7 Storage of lubricating oils; and

(c) No. 2 Unheated storage of VOC with an initial boiling point of 300 °F (149 °C) or greater.

(7) ✓ First aid and emergency medical care provided at the facility, including related activities such as sterilization and medicine preparation used in support of a manufacturing or production process;

(8) ✓ Certain recreational equipment and activities, such as fireplaces, barbecue pits and cookers, fireworks displays, and kerosene fuel use;

(9) ✓ Comfort air conditioning subject to requirements of Title VI of the Clean Air Act;

(10) ✓ Natural draft hoods or natural draft ventilators that exhaust air pollutants into the ambient air from manufacturing/industrial or commercial processes;

(11) ✓ Laboratory fume hoods and vents;

(12) any other emissions unit, not listed in this section, with a potential to emit less than the “de minimus” levels listed in COMAR 26.11.02.10X (list and describe units):

No. 37 Building vents – DCO-01, DCO-27, MAG-09, MGX-21, CAO-22 through CAO-38C, SAC-16, SAC-29, SAC-34, SAC-151,

SAC-152, SAC-153, SAC-154, ICO-47, ICO-119, ICO-120, SGO-06, SGO-33, SCP-04A, AEO-53, AEO-54, and HPV-12

No. 9 Emergency relief vent/system – MAG-18, MAG-23, MGX-09, MGX-24, MGX-25, SCP-12, SCP-14, CAO-78, and CAO-79

No. 11 Tank vents – MGX-05, CAO-69, CAO-70, CAO-71, CAO-73, CAO-77, AEO-04, AEO-60, AEO-62, HPV-13, and HPV-21

No. 8 Vacuum pump vents – CAO-01, CAO-02, CAO-40, CAO-74, CAO-75, SAC-113, SAC-114, and HPV-10

No. 8 Assorted insignificant vents/sources – DCO-33, CAO-42A, CAO-63, CAO-76, AEO-06A, SGO-10, SGO-23, and HPV-14

No. 3 Maintenance shop welding – DCO-52, MAG-10, and SGO-49

SECTION VI STATE-ONLY ENFORCEABLE CONDITIONS

The Permittee is subject to the following State-only enforceable requirements:

1. Applicable Regulations:

   (A) COMAR 26.11.06.08 and 26.11.06.09, which generally prohibit the discharge of emissions beyond the property line in such a manner that a nuisance or air pollution is created.

   (B) COMAR 26.11.15.05, which requires that the Permittee implement "Best Available Control Technology for Toxics" (T – BACT) to control emissions of toxic air pollutants.

   (C) COMAR 26.11.15.06, which prohibits the discharge of toxic air pollutants to the extent that such emissions will unreasonably endanger human health

2. General Operating and Record Keeping and Reporting Conditions:

   (A) For each activity that qualifies as periodic testing, a change in raw materials or products, or relocation, reconfiguration, and installation of equipment allowed under Section IV, Table IV-1, 1.7, 1.8 and 1.9 of the permit, the Permittee shall also demonstrate compliance with COMAR 26.11.15.06 for the activity. Records of toxic air pollutant compliance demonstrations shall be kept and submitted as specified in Section IV, Table IV-1, 1.7, 1.8 and 1.9 of the permit.

   (B) The Permittee shall submit to the Department, by April 1 of each year during the term of this permit, a written certification of the results of an analysis of emissions of toxic air pollutants from the Permittee's facility during the previous calendar year. The analysis shall include either:

      (i) a statement that previously submitted compliance demonstrations for emissions of toxic air pollutants remain valid; or

      (ii) a revised compliance demonstration, developed in accordance with requirements included under COMAR 26.11.15 & 16, that accounts for changes in operations, analytical methods, emissions determinations, or other factors that have invalidated previous demonstrations.

3. DCO Plant (ARA Registration No. 510-0076-7-0951):

   (A) Before discharge to atmosphere, exhaust gases from the three (3) FCC calciners associated with emissions point DCO-23 shall be vented through a properly designed, maintained, and operated air pollution control system comprising a scrubbing system that includes a venturi scrubber and two (2) packed tower absorbers when necessary to ensure that emissions of gaseous toxic air pollutants do not exceed emissions levels specified in the facility's most recent valid air toxics compliance demonstration.

   (B) For the scrubber system that is used to control gaseous toxic air pollutants from the three (3) FCC calciners associated with emissions point DCO – 23, whenever operation of the scrubber system is required:

      (i) the differential pressure across the throat of the venturi shall be maintained at a minimum of 5 inches water column;

      (ii) the flow rate of scrubbing medium circulated through column 1 shall be maintained at a minimum of 5 gallons per minute;

      (iii) the flow rate of scrubbing medium circulated through column 2 shall be maintained at a minimum of 50 gallons per minute; and

      (iv) the pH of the scrubbing medium in the packed columns shall be maintained as necessary to ensure compliance with all applicable air toxics requirements.

   (C) Before discharge to atmosphere, exhaust gases from the Flash Dryer and Spray Dryer (both units associated with emissions point DCO-26) shall be vented through a properly designed, maintained, and operated air pollution control system comprising at minimum a baghouse, and:

      (i) a HEPA filter when necessary to ensure that emissions of particulate toxic air pollutants do not exceed emissions levels specified in the facility's most recent valid air toxics compliance demonstration; and

(ii) a scrubbing system that includes a venturi scrubber and a packed tower absorber when necessary to ensure that emissions of gaseous toxic air pollutants do not exceed emissions levels specified in the facility's most recent valid air toxics compliance demonstration.

(D) For the scrubber system that is used to control gaseous toxic air pollutants from the Flash Dryer and Spray Dryer associated with emissions point DCO – 26, whenever operation of the scrubber system is required:

(i) the flow rate of scrubbing medium to the venturi scrubber shall be maintained at a minimum of 10 gallons per minute;

(ii) the differential pressure across the throat of the venturi shall be maintained at a minimum of 20 inches water column;

(iii) the flow rate of scrubbing medium circulated through the packed column shall be maintained at a minimum of 50 gallons per minute; and

(iv) the pH of the scrubbing medium in the packed column shall be maintained as necessary to ensure compliance with all applicable air toxics requirements.

(E) For the scrubber system used to control emissions from the three (3) FCC calciners associated with emissions point DCO – 23, whenever operation of the scrubber system is required the Permittee shall monitor and record at least once per hour the differential pressure across the throat of the venturi, and the flow rate and pH of the scrubbing medium circulated through each packed tower.

(F) For the scrubber system used to control emissions from the Spray Dryer and Flash Dryer associated with emissions point DCO – 26, whenever operation of the scrubber system is required the Permittee shall monitor and record at least once per hour the flow rate of scrubbing medium to the venturi scrubber, the differential pressure across the throat of the venturi, and the flow rate and pH of the scrubbing medium circulated through the packed tower.

(G) The Permittee shall maintain for at least five (5) years, and shall make available to the Department upon request, the following records and information:

(i) for the scrubber system used to control emissions from the three (3) FCC calciners associated with emissions point DCO – 23, all required recordation of the differential pressure across the throat of the venturi, and the flow rate and pH of the scrubbing medium circulated through each of the packed towers;

(ii) for the scrubber system used to control emissions from the Spray Dryer and Flash Dryer associated with emissions point DCO – 26, all required recordation of the flow rate of scrubbing medium to the venturi scrubber, the differential pressure across the throat of the venturi, and the flow rate and pH of the scrubbing medium circulated through the packed tower;

(iii) information concerning processing of materials that qualify as toxic air pollutants (TAPs), including:

(a) the dates on which TAPs were processed in any of the FCC calciners associated with emissions point DCO – 23, in either the Spray Dryer or Flash Dryer associated with emissions point DCO – 26;

(b) identification of each TAP processed on each date, and the time period on each date during which each TAP was processed;

(c) the amount, in maximum pounds per hour, of each TAP processed on each date; and

(d) identification of the device or system used to control air emissions of each TAP processed.

[Reference: ARA Permit to Construct No. 510-7-0951 issued June 22, 2007]

4. CAO Plant (ARA Registration No. 510-0076-7-1076):

   (A) Whenever ammonia is present in exhaust gases from calciners 806, 806A or 806B, the exhaust gases shall be vented through either of chemical absorbers 686 or 687 (emissions points14A and 17A, respectively) before discharge to atmosphere.

   (B) Whenever chemical absorber 686 or 687 is being used to control emissions of ammonia, the unit(s) shall be operated such that the pH of the absorbing medium is not more than 5.0, and the flow rate of absorbing medium through the absorber is at least 80 gallons per minute.

   (C) The Permittee shall continuously monitor and record the pH and flow rate of the absorbing medium circulated through chemical absorbers 686 and 687 whenever these units are being used to control emissions of ammonia.

   (D) The Permittee shall maintain for at least five (5) years, and shall make available to the Department upon request: all required recordation of the pH and flow rate of the absorbing medium in chemical absorbers 686 and 687.

   [Reference: ARA Permit to Construct No. 510-0076-7-1076 issued May 28, 2013]

APPENDIX I
CAM Plan for Thermal Oxidizers

Background

A. Emissions Unit

Description: Magnapore (MAG) Plant, Magnapore Plant Expansion (MGX), and Specialty Catalyst Plant (SCP)

Identification: MAG-04, MGX-12, and SCP-06

Facility: W.R. Grace & Co. – CONN., Grace Curtis Bay Works

B. Applicable Regulation, Emission Limit, and Monitoring Requirement

Regulation Citation: COMAR 26.11.19.30D(1)

Regulated Pollutant (PSEU): VOC

Emission Standard: VOC reduction efficiency of at least 90 percent

Monitoring Requirements in Permit: Continuously monitor chamber temperature

C. Control Technology

Thermal Oxidizer

Monitoring Approach

The key elements of the monitoring approach are presented in the following table:

	Indicator No.1	Indicator No. 2
I. Indicator	Combustion Chamber Temperature	Work Practice
Measurement Approach	Combustion chamber temperature is monitored with a thermocouple.	Inspection and maintenance of the burner.
II. Indicator Range	For each of oxidizers T-657 (MAG-4) and T-1657 (MGX-12), an excursion is defined as a one-hour block average operating temperature of less than 1400 °F whenever the oxidizer is being used to control VOC. For oxidizer 90800 (SCP-6; to be replaced by 90803), an excursion is defined as a one-hour block average operating temperature of less than 1450 °F whenever the oxidizer is being used to control VOC. For each of oxidizers T-657, T-1657 and 90800 (to be replaced by 90803), low temperature interlocks will prevent start-up, or (if the process is already running) will shut down material feed to affected units when the oxidizer operating temperature falls below the requisite minimum temperature. High temperature interlocks also shut down material feed to affected units to prevent oxidizer damage when the oxidizer operating temperature exceeds a specified maximum. Excursions trigger an inspection, corrective action, and a reporting requirement.	An excursion is defined as failure to perform annual inspection.
III. Performance Criteria		
A. Data Representativeness	The sensor is located in the combustion chamber as an integral part of the combustor design.	N/A
B. Verification of Operational Status	N/A	N/A
C. QA/QC Practices and Criteria	Accuracy of the thermocouple will be verified by a redundant thermocouple probe installed. The temperature	N/A

	Indicator No.1	Indicator No. 2
	transmitters are calibrated at least once every six months.	
D. Monitoring Frequency	Monitored continuously	Annual inspection of the burner.
Data Collection Procedures	Recorded continuously on a recorder.	Record results of annual inspections.
Averaging Period	one-hour block average	N/A

MONITORING APPROACH JUSTIFICATION

Background

The facility manufactures multi-product specialty inorganic chemicals and operates several plants. The Magnapore Plant (MAG), Magnapore Plant Expansion (MGX), and Specialty Catalyst Plant (SCP) of these plants produce uncontrolled emissions of VOC that exceed the CAM significance trigger levels. Emissions from stacks MAG-04, MGX-12 and SCP-06 are discharged from the thermal oxidizers T-657, T-1657 and 90803 (to be replaced by 90803), respectively, to control VOC.

Rationale for Selection of Performance Indicators

The thermal oxidizer chamber temperature was selected because it is indicative of the incinerator operation (combustion occurring within the chamber). If the chamber temperature decreases significantly, complete combustion may not occur. Attachment 1 presents information from the literature on thermal oxidizer control efficiency as a function of temperature. It has been shown that the control efficiency achieved by a thermal oxidizer is a function of its operating temperature, or outlet temperature. By maintaining the operating temperature at or above a minimum, a level of control efficiency can be expected to be achieved.

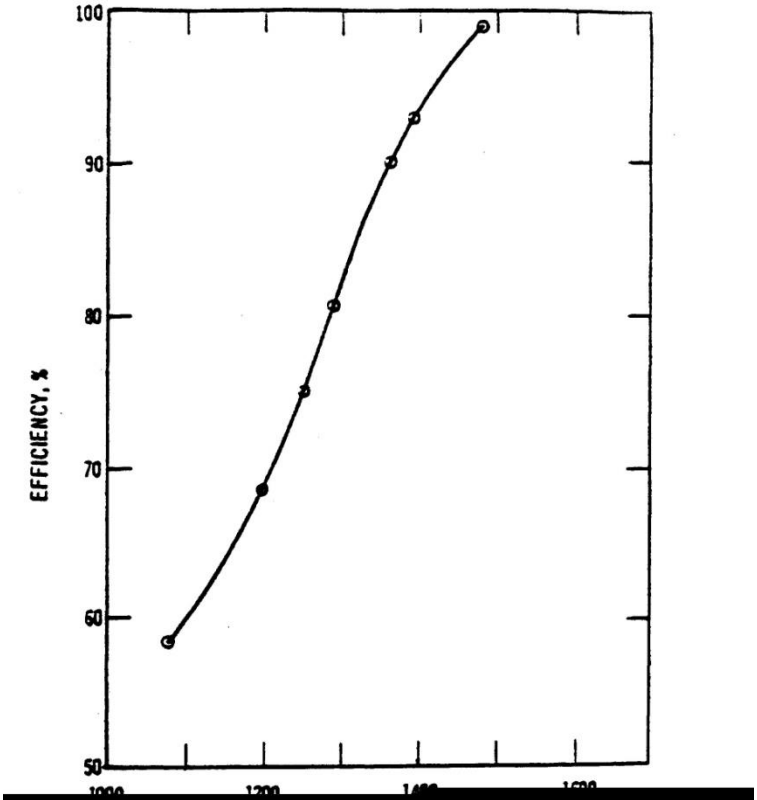
Combustion gas flow is not measured in any of the thermal oxidizers but their operation is self-limiting to prevent damage to the units and release of untreated VOC. The combustion air delivery systems are oversized for the oxidizers and are controlled by oxidizer outlet temperature. If VOC loading were to exceed design levels, causing an increase in combustion temperatures, the high temperature interlock would shut down the unit and VOC feed systems to prevent damage. If oxidizer combustion temperature were to drop below 1400°F, the low temperature interlock would shut down the unit and VOC feed systems to prevent operation below the required 90% destruction efficiency.

The work practice comprises of an annual inspection and tuning of the thermal oxidizer burner. This was selected because an inspection verifies equipment integrity and periodic tuning will maintain proper burner operation and efficiency.

Rationale for Selection of Indicator Level
The selected indicator range for the thermo oxidizers chamber temperature is "greater than 1400°F at all times." When an excursion occurs corrective action will be initiated, beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions will be documented and reported.

The Title V operating permit requires maintaining the chamber temperature at or above the minimum operating temperature of 1400°F. The Attachment 1 below indicates that a thermal oxidizer is expected to achieve 95 percent or greater destruction efficiency at this temperature. The permit requirement is 90 percent destruction efficiency. The thermal oxidizers installed by Grace have a 99.9 % VOC destruction efficiency. The thermal oxidizers employ a temperature controller that maintains the desired chamber temperature by using a natural gas-fired auxiliary burner; the temperature controller is set to maintain a temperature of at least 1400°F for Emissions Units MAG-04 and MGX-12, and 1450°F for Emissions Unit SCP-06.

The historical review indicates that chamber temperatures for all three thermal oxidizers are approximately 1600°F, greater than 1400°F. The higher the operating temperature, the more efficient the operation. The higher temperature also allows the unit to treat a greater mass flow of VOC.



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Attachment 1. Direct-flame afterburner efficiency as a function of temper
Air Pollution Engineering Manual, Chapter 5 - Control Equipment for Gases a

APPENDIX II
CAM Plan for Selective Catalytic Reduction

Background

A. Emissions Unit

Description: Automobile Emissions Operations (AEO) Plant (Hydro-processing Catalyst Plant)
Identification: AEO-82
Facility: W.R. Grace & Co. – CONN., Grace Curtis Bay Works

B. Applicable Regulation, Emission Limit, and Monitoring Requirement

Regulation Citation: COMAR 26.11.17, 40 CFR 64

Regulated Pollutant (PSEU): NO_x

Emission Standard: The NO_x emissions from controlled emissions units and the NO_x emissions increase from the modification to the AEO plant to add the continuous mixer system in 2012 have not triggered non-attainment New Source Review for the AEO plant.

C. Control Technology

Selective Catalytic Reduction.

Monitoring Approach

The key elements of the monitoring approach are presented in the following table:

	Indicator No.1	Indicator No. 2	Indicator No. 3
I. Indicator	Catalyst Bed Inlet Temperature	Catalyst activity	Pressure Differential Across Catalyst bed
Measurement Approach	Inlet temperature is measured using the computerized Distributed Control System (DCS) continuously.	Catalyst sampling and evaluation every two years to measure change in catalyst activity level	A differential pressure transmitter is used to measure differential pressure that is monitored using the DCS.
II. Indicator Range	An excursion is defined as operation of affected units when the one-hour	An excursion is defined as failure to perform	An excursion is defined as operation of affected units when

	Indicator No.1	Indicator No. 2	Indicator No. 3
	block average temperature of process exhaust gases at the inlet of the catalyst bed is less than 550°F. Excursions trigger an inspection, corrective action, and a reporting requirement.	biennial catalyst activity measurements	the three-hour block average differential pressure across the catalyst bed is greater than 12 inches of water column. Excursions trigger an inspection, corrective action, and a reporting requirement.
III. Performance Criteria			
A. Data Representativeness	Readings will be made at the control system.	N/A	Pressure gauges will be periodically calibrated
B. Verification of Operational Status	N/A	N/A	N/A
C. QA/QC Practices and Criteria	Catalyst Bed Inlet temperature probe is calibrated at least once every six months and calibration records maintained	N/A	Pressure gauges will be calibrated at least once every six months and calibration records maintained
D. Monitoring Frequency	Catalyst bed inlet temperature is monitored continuously	Biennial catalyst activity measurement	Pressure differential of Catalyst bed is monitored by DCS
Data Collection Procedures	DCS continuously records bed inlet temperature.	Results of catalyst activity testing are maintained at the facility.	Pressure differential across the Catalyst bed is continuously recorded.
Averaging Period	one-hour block average	N/A	three-hour block average

MONITORING APPROACH JUSTIFICATION

Background

The facility manufactures multi-product specialty inorganic chemicals and operates several plants. The Automobile Emissions Operations (AEO) Plant of these plants produces uncontrolled emissions of NO_x that exceed the CAM significance trigger levels. NO_x is controlled by Selective Catalytic Reducer unit.

Rationale for Selection of Performance Indicators

A. Catalyst bed inlet temperature: The temperature at the inlet to the catalyst bed provides a good indication of catalytic reduction performance because it indicates that the gas stream is at sufficient temperature to initiate reduction of NO_x on the catalyst. Too high of an inlet temperature (i.e., of the process gas stream) may cause NO_x generation in the SCR rather than NO_x reductions.

B. Catalyst activity: Catalyst deactivation will result in increases in NO_x emissions and NH_3 emissions (ammonia slip). Catalyst activity should be check periodically and/or the catalyst or portion of the catalyst should be replaced periodically to ensure reduction is occurring.

C. Pressure differential across the Catalyst bed: There is a high performance baghouse ahead of the SCR to prevent catalyst bed plugging or fouling. An increase in pressure differential over time may provide an indication that particulate matter (PM) is accumulating in the catalyst bed. Periodic maintenance and proper operation of the baghouse is necessary to prevent accumulation of PM in the Catalyst Bed.

Rationale for Selection of Indicator Level

Indicator No. 1: The Title V operating permit requires maintaining the SCR catalyst bed inlet temperature at or above the minimum operating temperature of 550°F. The computerized process control system has interlocks that stop ammonia flow to the SCR, stop material flow to the process sources, and alert the plant operator if the SCR inlet temperature is below 550°F or above 700°F. If the inlet temperature reaches 800ºF, interlocks shut down the SCR air heater to prevent damage to the catalyst.

Indicator No. 2: Catalyst activity evaluation provides valuable information on the performance potential of the system and the condition of the catalyst. Based on historical data at the Grace facility, the life of a new SCR catalyst bed has been approximately 8 years. At testing frequency of once every two years was chosen since significant loss of catalyst activity has not occurred within two years of initial installation. The SCR is equipped with six plugs in the catalyst bed that can be removed, providing enough plugs to cover the expected life of the catalyst. Grace will send a plug to the catalyst vendor for activity testing every two years, and will schedule catalyst replacement accordingly.

Indicator No. 3: The level chosen represents the pressure drop that would be just outside of the SCR Catalyst bed design criteria.

W.R. GRACE & CO. – CONN
GRACE CURTIS BAY WORKS
5500 CHEMICAL ROAD, BALTIMORE, MD 21226
PERMIT NO. 24-510-0076
PART 70 OPERATING PERMIT FACT SHEET

BACKGROUND

Name and address of owner/operator:

W. R. Grace & Co. – Conn.
Grace Curtis Bay Works
5500 Chemical Road
Baltimore, MD 21226 – 1698
Baltimore City, Maryland Air Quality Region III

Types of raw materials processed and final products manufactured:

W. R. Grace & Co. – Conn's Grace Curtis Bay Works (Grace) is a multi-product specialty inorganic chemicals manufacturing facility that includes several plants that operate independently. Products manufactured at the facility are either silica-based or alumina-based, and include molecular sieves, catalysts, and various grades of silica gel.

Types of Equipment:

The facility uses equipment typical of solids handling operations, e.g., calciners, dryers, crushers, grinders, belt conveyors, pneumatic conveyors, screening/classifying devices, storage silos, and fabric filters for product collection and air pollution control.

Primary SIC Code for the facility: 2819

The following table summarizes the actual emissions from Grace based on its Annual Emission Certification Reports:

Table 1: Actual Emissions

Year	NO_x (TPY)	SO_x (TPY)	PM_{10} (TPY)	CO (TPY)	VOC (TPY)	Total HAP (TPY)
2013	66.9	0.5	137.7	74.3	7.5	3.2
2014	74.4	1.2	136.9	84.0	6.1	3.0
2015	80.7	0.7	178.6	63.3	7.2	2.3
2016	74.4	0.7	188.9	68.8	4.5	3.1
2017	92.3	0.5	153.1	73.4	4.7	3.2

*In addition to hazardous air pollutants (HAP) as defined under Section 112(b) of the Clean Air Act, the facility also emits ammonia (NH_3), which is not a HAP under the federal definition, but is considered a Class II toxic air pollutant under Code of Maryland Regulations (COMAR) Chapters 26.11.15 and 16. The facility's NH_3 emissions ranged from 96 to 201 tons per year during the years 2013 through 2017.

The major source threshold for triggering Title V permitting requirements in Baltimore City is 25 tons per year for VOC, 25 tons for NO_x, and 100 tons per year for any other criteria pollutants and 10 tons for a single HAP or 25 tons per year for total HAP. Since the actual NO_x and PM_{10} emissions from the facility are greater than the major source thresholds for each pollutant, Grace is required to obtain a Title V – Part 70 Operating Permit under COMAR 26.11.03.01.

Grace's current Title V – Part 70 Operating Permit was issued on February 1, 2015 and expires on August 31, 2019. The renewal Title V – Part 70 Operating Permit will be issued to replace the current permit. The facility's Title V – Part 70 Operating Permit renewal application was received by the Department on August 28, 2018. An administrative completeness review was conducted and the application was deemed administratively complete. An administrative completeness letter was sent on September 13, 2018 granting Grace an application shield.

GREENHOUSE GAS (GHG) EMISSIONS

Grace emits the following greenhouse gases (GHGs) related to Clean Air Act requirements: carbon dioxide, methane, and nitrous oxide. These GHGs originate from fuel burning equipment at the premises. The facility has not triggered Prevention of Significant Deterioration (PSD) requirements for GHG emissions; therefore, there are no applicable GHG Clean Air Act requirements. While there may be no applicable requirements as a result of PSD, emission certifications reports for the years 2015, 2016, and 2017, showed that Grace is a major source (threshold: 100,000tpy CO_2e) for GHGs (see Table 3 shown below). The Permittee shall quantify facility wide GHGs emissions and report them in accordance with Section 3 of the Part 70 permit.

The following table summarizes the actual emissions from Grace based on its Annual Emission Certification Reports:

Table 3: Greenhouse Gases Emissions Summary

GHG	**Conversion factor**	**2015** tpy CO_2e	**2016** tpy CO_2e	**2017** tpy CO_2e
Carbon dioxide CO_2	1	91,849	99,496	104,853
Methane CH_4	25	49	53	313
Nitrous Oxide N_2O	300	63,870	104,910	468
Total GHG CO_{2eq}		**155,768**	**204,459**	**105, 634**

EMISSION UNIT IDENTIFICATION

Grace has identified the following emission units as being subject to Title V permitting requirements and having applicable requirements.

Table 2: Emission Unit Identification

Plant Name and General 3-Letter Designation	ARA Registration Number	General Process Description	Date of Initial Operation
Powerhouse Boilers (POW)	510-0076-5-0294 (POW-01)	125-MMBtu/hr boiler equipped with low NO_x burners & flue gas recirculation, and fired with natural gas or no. 2 oil	Pre 1968, upgraded 1994
	510-0076-5-0016 (POW-02)	60-MMBtu/hr boiler fired with natural gas or no. 2 oil	Pre 1968
	510-0076-5-1379 (POW-05)	rental boiler, less than 50 MMBtu/hr, equipped with low NO_x burners, and fired with natural gas only	1995
	510-0076-5-1679 (POW-06)	rental boiler, less than 100 MMBtu/hr, equipped with low NO_x burners and flue gas recirculation, fired with natural gas only; to be placed in service only when POW-01 is out of service for maintenance and repair	2004
Emergency Generators	510-0076-9-0991 (POW-08) (WRP-GEN2)	1,115 hp emergency generator fired by diesel fuel to supply back-up emergency power to the Water Reclamation Plant (WRP).	1987
	510-0076-9-0990 (SAC-136) (SAC-GEN2)	755 hp emergency generator fired by diesel fuel used to supply back-up emergency power in the FCC Plant (ARA Registration No. 510-0076-7-1644).	1996
Combined Heat and Power (CHP) Plant	510-0076-9-1365 (CHP-01)	Natural gas-fired Caterpillar G3520H combined heat and power unit equipped with an engine rated at 2,485 kilowatts (3,448 brake horsepower) equipped with selective catalytic reduction (SCR) and oxidation catalyst controls	2018
	510-0076-9-1366 (CHP-02)	Natural gas-fired Caterpillar G3520H combined heat and power unit equipped with an engine rated at 2,485 kilowatts (3,448 brake horsepower) equipped with selective catalytic reduction (SCR) and oxidation catalyst controls	
Technical Development Center Operations (DCO) Plant	510-0076-7-0951	Includes a variety of pilot scale installations used for product development. The installations are usually similar to the full scale installations used in the facility's production units.	1972

Plant Name and General 3-Letter Designation	ARA Registration Number	General Process Description	Date of Initial Operation
Magnapore and Magnapore Expansion (MAG and MGX) Plants	510-0076-7-1024	The MAG and MGX plants produce silica gel impregnated with titanium and chromium. Operations include mixing of raw materials, washing crude product with inorganic solutions to remove salts, azeotroping with solvent to remove water, drying in a dryer to remove excess solvent, recovery of solvent by distillation, sizing product with screens and grinders, calcining to remove residual solvent, homogenizing (blending), and packaging.	1980 for MAG and 1991 for MGX
Catalyst Additives Operations (CAO) Plant	510-0076-7-1076	The CAO plant produces molecular sieves that are either shipped in bulk or slurried for use in other plants at the facility. Operations include crystallization of a mixture of raw materials, washing the crystallized material to obtain a molecular sieve, recovering raw materials washed out during the initial washing step, washing the molecular sieve, stripping ammonia generated during this second washing step and converting the ammonia back to ammonium sulfate, drying the molecular sieve, recovering ammonia released during the drying step, and pneumatically conveying product to storage silos.	1940 (Est.)
Automobile Emissions Operations (AEO) Plant (This Plant is also referred to as the Hydroprocessing Catalyst Plant)	510-0076-7-1077	The AEO plant includes four (4) processes as follows: 1. Alumina process where raw materials are reacted to produce a dried powder product. 2. Spheres plant where material from the alumina process is formed into spheres and dried. 3. Spherical Hydroprocessing Plant where additional chemicals can be added to the spheres from the spheres plant. 4. Extruded Hydroprocessing Plant where additional chemicals are added to the material from the alumina process and formed into extrudates.	1973
Silica Alumina Catalyst Plant – CX & Additives ($SAC^{(1-100)}$) Plant	510-0076-7-1079	The $SAC^{(1-100)}$ plant includes 3 processes: 1. The production of an intermediate material known as CX-100, which is used as a raw material in some catalysts. 2. The production of zeolites used as raw material in some catalysts. 3. The production of catalysts.	1982

Plant Name and General 3-Letter Designation	ARA Registration Number	General Process Description	Date of Initial Operation
Silica Alumina Catalyst – FCC CAT (FCC) Plant (This plant is also referred to as the SAC(101-End) Plant)	510-0076-7-1644	Inorganic raw materials including a silicate, alumina, and clay are mixed and dried (some at higher temperatures than others) to form a catalyst product in the form of spherical particles. The spheres are washed, and some grades are further dried to aid processing. The product is again washed, and then subjected to a final drying step before being conveyed to a storage silo.	1994
Industrial Catalyst Operations (ICO) Plant (This plant is also referred to as the Polyolefin Plant or the Poly Plant.)	510-0076-7-1094	Silica gel, with or without chrome, is dried into catalysts or catalyst raw materials.	1950
Silica Gel Operations – K-1 Granular and Syloids (SGO) Plant	510-0076-7-1095	A silicate is mixed with sulfuric acid to produce a raw silica gel, which is washed to develop desired surface properties and to remove impurities. The washed product is dried, sized, and treated with various chemicals to obtain a final product.	1930 (Approx.)
Former High Pore Volume (HPV) silica gel operations – Sylox Plant	510-0076-7-1405	A silicate is mixed with carbon dioxide to produce silica gel, which is aged, washed to remove impurities, dried, and sized before packaging.	1985
Specialty Catalyst Plant (SCP) (This plant is also referred to as the Organo-Metallic Catalyst Plant or OMC Plant)	510-0076-7-1667	Silica gel is dried for use as a raw material or as an end product. Organic and inorganic materials are reacted in a reactor, and the resulting catalyst product is dried and packaged. The plant includes solvent recovery operations and a thermal oxidizer for control of VOC emissions.	1997

AN OVERVIEW OF THE PART 70 PERMIT

The Fact Sheet is an informational document. If there are any discrepancies between the Fact Sheet and the Part 70 permit, the Part 70 permit is the enforceable document.

Section I of the Part 70 Permit contains a brief description of the facility and an inventory list of the emissions units for which applicable requirements are identified in Section IV of the permit.

Section II of the Part 70 Permit contains the general requirements that relate to administrative permit actions. This section includes the procedures for renewing, amending, reopening, and transferring permits, the relationship to permits to construct and approvals, and the general duty to provide information and to comply with all applicable requirements.

Section III of the Part 70 Permit contains the general requirements for testing, record keeping and reporting; and requirements that affect the facility as a whole, such as open burning, air pollution episodes, particulate matter from construction and demolition activities, asbestos provisions, ozone depleting substance provisions, general conformity, and acid rain permit. This section includes the requirement to report excess emissions and deviations, to submit an annual emissions certification report and an annual compliance certification report, and results of sampling and testing.

Section IV of the Part 70 Permit identifies the emissions standards, emissions limitations, operational limitations, and work practices applicable to each emissions unit located at the facility. For each standard, limitation, and work practice, the permit identifies the basis upon which the Permittee will demonstrate compliance. The basis will include testing, monitoring, record keeping, and reporting requirements. The demonstration may include one or more of these methods.

Section V of the Part 70 Permit contains a list of insignificant activities. These activities emit very small quantities of regulated air pollutants and do not require a permit to construct or registration with the Department. For insignificant activities that are subject to a requirement under the Clean Air Act, the requirement is listed under the activity.

Section VI of the Part 70 Permit contains State-only enforceable requirements. Section VI identifies requirements that are not based on the Clean Air Act, but solely on Maryland air pollution regulations. These requirements generally relate

to the prevention of nuisances and implementation of Maryland's Air Toxics Program.

APPLICABILITY OF FEDERAL REGULATIONS

NSR Applicability

None of the Grace's plants is subject to NSR approval. However, two of the plants (AEO and FCC) are subject to NO_x emissions limits that are imposed in order to preclude applicability of New Source Review requirements.

PSD Applicability

Grace's FCC plant is subject to a PSD approval with regard to emissions of PM_{10}.

NSPS Applicability

40 CFR, Part 60, Subpart JJJJ for Stationary Spark Ignition Internal Combustion Engines applies to the two (2) Combined Heat and Power (CHP) units in the CHP plant.

Grace is currently **not** subject to any other NSPS requirements included under 40 CFR, Part 60.

The Department has determined that 40 CFR, Part 60, Subpart UUU (Calciners and Dryers at Mineral Processing Plants) does **not** apply to Grace. Grace uses two minerals, alumina and kaolin, that could be considered minerals subject to the requirements of Subpart UUU. With regard to alumina, Grace only uses synthetic alumina. Based on an EPA determination for a similar plant (UOP in Shreveport, Louisiana), EPA Region 6 determined that synthetic alumina was not considered a mineral subject to Subpart UUU requirements. Grace uses only synthetic alumina in their processing plants, and is therefore not subject to Subpart UUU for the processing of synthetic alumina.

With regard to the processing of kaolin, Grace operates one plant, the Silica Alumina Catalyst – FCC CAT (FCC) Plant (MDE ARA Registration No. 510-0076-7-1644), that processes kaolin that was constructed, modified, or reconstructed after April 23, 1986, the applicability date of Subpart UUU. The FCC Plant processes commercial kaolin as a raw material used in the production of industrial catalysts and other products. The FCC Plant does not process raw, mined kaolin, nor does it produce kaolin as a finished product.

The FCC Plant was permitted in 1994 under both an Air Quality Permit to Construct and federal Prevention of Significant Deterioration (PSD) Approval. Prior to issuing the Air Quality Permit to Construct and PSD Approval, the Department conducted a regulatory applicability analysis for the FCC Plant. The Department reviewed the requirements of Subpart UUU and the EPA publication "Calciners and Dryers

in Mineral Industries – Background Information for Proposed Standards" EPA 450/3-85-025a, October 1985) to determine EPA's intended scope for the Subpart UUU regulation. The background document with regard to kaolin processing and production specifically focuses only on sources that process and convert raw, mined kaolin clay into a finished kaolin product. The background document contains process flow diagrams and describes model facilities that are only related to the processing of raw kaolin to produce finished product kaolin. Downstream industries that use finished product kaolin are only included in the background document as examples of customers for the finished kaolin product after the kaolin processing covered by Subpart UUU is complete.

Based on this information, the Department determined that Subpart UUU does not apply to the FCC Plant, because Subpart UUU is intended to cover "mineral processors" and not users of processed minerals. The EPA is evaluating the applicability of 40 CFR 60, Subpart UUU to the Silica Alumina Catalyst – FCC CAT (FCC) Plant (ARA Registration No. 510-0076-7-1644). If EPA determines that the requirements of Subpart UUU do apply to the FCC Plant, the Title V – Part 70 Operating Permit must be revised to incorporate them.

40 CFR, Part 60, Subpart LL (Metallic Mineral Processing Plants) does **not** apply because Grace purchases previously processed materials and does not handle raw ores.

40 CFR, Part 60, Subpart Dc (Steam Generating Units) does **not** apply because Grace's permanent boilers were installed prior to the applicability date of the regulation, and Subpart Dc does not apply to temporary boilers.

NESHAP Part 61 Applicability
Grace is currently **not** subject to any NESHAP requirements included under 40 CFR, Part 61.

NESHAP Part 63 Applicability
Grace is not a major source of HAP emissions and therefore not subject to the requirements of any major HAP source federal regulation in 40 CFR, Part 63. As an area source of HAP emissions, Grace is subject to the following regulations:

40 CFR 63, Subpart ZZZZ for Stationary Internal Combustion Engines applies to the existing emergency generators at the facility as well as the two (2) CHP units in the CHP plant.

40 CFR, Part 63, Subpart JJJJJJ for Industrial, Commercial, and Institutional Boilers applies to the two (2) existing, permanent, natural gas and No. 2 fuel oil

fired boilers at the facility. Subpart JJJJJJ does not apply to the two (2) temporary boilers.

40 CFR, Part 63, Subpart VVVVVV for Chemical Manufacturing Area Sources applies to the Industrial Catalysts Operations (ICO) plant, the Magnapore and Magnapore Expansion (MAG & MGX) plants, and the Hydroprocessing (AEO) plant.

All applicable requirements of 40 CFR, Part 63, Subparts ZZZZ, JJJJJJ, and VVVVVV are included in the renewal permit. No other NESHAP requirements apply to Grace at this time.

CAM APPLICABILITY

Compliance Assurance Monitoring (CAM), as specified in 40 CFR, Part 64, applies to any emission unit at a Title V major source that meets all of the following criteria:

(1) The emission unit is subject to a federally enforceable emission limit or standard for a regulated pollutant;

(2) The emission unit uses a control device to achieve compliance with any such emission limitation or standard; and

(3) The emission unit has the potential to emit pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year required for a source to be classified as a major source and must not otherwise be exempt from CAM.

Grace operates four (4) control devices (three (3) thermal oxidizers and one (1) Selective Catalytic Reducer (SCR)) that are subject to CAM requirements. Each thermal oxidizer controls VOC emissions from installations that have a potential-to-emit (PTE) for VOC of more than 25 tons/year, which is the major source level for VOC emissions in Baltimore City. The SCR controls NO_x emissions from installations that have a PTE for NO_x of more than 25 tons/year, which is the major source level for NO_x emissions in Baltimore City.

In the Title V – Part 70 Operating Permit renewal CAM requirements for the thermal oxidizers are included in Appendix I for the Magnapore (MAG) & Magnapore Expansion (MGX) plants and Specialty Catalyst Plant (SCP). CAM requirements for the SCR unit are included in Appendix II for the Automotive Emissions Operations (AEO) plant, also referred to as the Hydroprocessing plant. The Permittee's complete CAM plans, including justification for selection

of operating parameters to be monitored, are also included in Appendix I and II to this fact sheet.

The Selective Catalytic Reduction (SCR) and oxidation catalyst controls for the two (2) Combined Heat and Power (CHP) units in the CHP plant are not subject to CAM requirements. The applicable emission standards set by 40 CFR, Part 60, Subpart JJJJ for Stationary Spark Ignition Internal Combustion Engines were promulgated after 1990 and are thus exempt from CAM applicability.

REGULATORY REVIEW/TECHNICAL REVIEW/COMPLIANCE METHODOLOGY

General Provisions – Table IV-1

Table IV-1 of the permit provides generally applicable provisions with regard to requirements for observations for visible emissions, continuous monitoring of operating parameters, preparation of operations and maintenance plans, implementation of good operating practices designed to minimize emissions of VOC, implementation of a VOC leak detection and repair program, stack testing, periodic testing conducted for product development, changes in raw materials and products, changes in equipment, limits on HAP emissions, and record keeping and reporting requirements. Provisions in this table may be superseded or modified by requirements in succeeding tables.

INDEX:

Changes from the Previous Title V – Part 70 Operating Permit

The following changes were made from the previous Title V – Part 70 Operating Permit:

No changes were made to this section of the permit.

Powerhouse Boilers

Table IV-2 - Emission Units POW-01, POW-02, POW-05 and POW-06

POW-01 and POW-02 are permanent natural gas or No. 2 oil fired boilers. The boilers were constructed prior to the applicability dates of 40 CFR 60, Subparts Db and Dc.

POW-01 and POW-02 are subject to the area source NESHAP requirements of 40 CFR 63, Subpart JJJJJJ.

POW-05 and POW-06 are temporary, rental natural gas fired boilers. POW-06 may be placed in service only when POW-01 is taken out of service for maintenance and repair. Temporary boilers are not subject to 40 CFR 60, Subpart Dc and temporary boilers and natural gas only boilers are not subject to the area source NESHAP requirements of 40 CFR 63, Subpart JJJJJJ.

A. Visible Emissions Limitations

COMAR 26.11.09.05A(2), which prohibits visible emissions from fuel burning equipment other than water in an uncombined form.

Exceptions. COMAR 26.11.09.05A(3) establishes that "Section A(2) does not apply to emissions during load changing, soot blowing, start-up, or adjustments or occasional cleaning of control equipment if (a) the visible emissions are not greater than 40 percent opacity; and (b) the visible emissions do not occur for more than 6 consecutive minutes in any 60 minute period."

Compliance Demonstration

The Permittee is required to make observations for visible emissions at least once per day on any day that either of the facility's permanent boilers burns No. 2 fuel oil. Each observation is to be made when No. 2 fuel oil is being combusted, and is to be made in accordance with the provisions of Paragraph (2) of Section 1.1 or
Table IV-1. The Permittee must report any incidences of excess visible emissions from any boiler.

Rationale for Periodic Monitoring Strategy

Visible emissions from properly operated and maintained boilers typically do not occur when burning gaseous fuels. Therefore, periodic visible emission observations are not required for any of the boilers when burning natural gas. When the facility burns No. 2 fuel oil, the potential for visible emissions will be greater. Daily observations for visible emissions for POW-01 and POW-02 when No. 2 fuel oil is being combusted will be sufficient to determine whether there is a problem with compliance with the no visible-emissions requirement. No observations for visible emissions are required for the rental boilers (POW-05 and POW-06) because they fire only natural gas.

B. Control of Sulfur Oxides

COMAR 26.11.09.07A(2)(b) which states that "a person may not burn, sell, or make available for sale any distillate fuel oils with a sulfur content by weight in excess of 0.3 percent.

Compliance Demonstration

The Permittee is required to obtain from fuel oil suppliers written certification that all No. 2 fuel oil received at the facility to be burned in POW-01 and POW-02 complies with the applicable standard. The Permittee is also required to retain for at least five (5) years, and to provide to the Department upon request, records of the written certifications.

Rationale for Periodic Monitoring Strategy

Fuel oil suppliers have access to fuel analyses that provide the sulfur content of the fuel oils that they sell. To have the Permittee analyze fuel samples would be redundant and unnecessarily burdensome. The fuel supplier's written certifications of compliance with applicable standards will provide an adequate demonstration of compliance.

C. Control of Nitrogen Oxides

(1) **COMAR 26.11.09.08D(1)(b)**, which requires that fuel burning equipment with a rated heat input capacity of less than 250 Million Btu per hour and greater than 100 Million Btu per hour (POW-01) shall meet the NO_x emission rates set forth in §B(1)(c) of the regulation. **COMAR 26.11.09.08B(1)(c)** requires that NO_x emissions from affected wall-fired units that burn gas and oil be not more than 0.25 pounds per million Btu of heat input.

(2) **COMAR 26.11.09.08E**, which requires that a person who operates fuel burning equipment with a rated heat input capacity of 100 MMBtu per hour or less (POW-02, POW-05, and POW-06):

(a) submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each installation;

(b) perform a combustion analysis for each affected installation at least once each year and optimize combustion based on the analysis; and

(c) at least once every 3 years require each operator of the installation to attend an operator training program on combustion optimization that is sponsored by the Department,

the EPA or equipment vendors. In accordance with COMAR 26.11.09.08B(5)(a), the equipment operator to be trained may be the person who maintains the equipment and makes the necessary adjustments for efficient operation.

Compliance Demonstration

For POW-01, the Permittee is required to conduct a stack emissions test at least once during the term of the permit to demonstrate compliance with the NO_x limit when burning No. 2 fuel oil. The Permittee must keep records of stack emissions test results, vendor recommendations with regard to maintenance of POW-01, and all maintenance performed on POW-01 to ensure that POW-01 is operated properly.

For POW-02, POW-05, and POW-06, the Permittee is required to conduct at least one (1) combustion analysis per year on POW-02 for each fuel burned, and that combustion in the boiler be optimized in accordance with the findings. The Permittee is also required to conduct a combustion analysis and optimization for POW-05 and POW-06 each year that the units are placed in service. The Permittee must keep records of required combustion analyses and of required training for each boiler operator.

Rationale for Periodic Monitoring Strategy:

POW-01 was stack tested on June 20, 2018 to demonstrate compliance with the NO_x emissions limit while using fuel oil. The test found a NO_x level of 0.131 lb/mmBTU, below the standard of 0.25 lb/mmBTU. As an older, existing boiler, at least one stack emissions test for POW-01 when burning No. 2 fuel oil should be required to demonstrate that the boiler is still in compliance with the NO_x emissions limit for the boiler. When burning natural gas, the boiler should not exceed the NO_x emissions limit and stack testing is not required. 40 CFR 63, Subpart JJJJJJ requires biennial tune-ups of POW-01 (see Control of HAP section) to ensure proper operation of the boiler. NO_x emissions will be verified by the stack emissions test and should remain consistent as long as POW-01 is properly operating and maintained.

For POW-02, POW-05, and POW-06, COMAR 26.11.09.08E outlines the requirements necessary to demonstrate compliance with the combustion analysis and operator training requirements. No additional periodic monitoring requirements are necessary to demonstrate compliance.

D. Control of HAP

40 CFR 63, Subparts A and JJJJJJ, which specify general provisions and work practice standards, emission reduction measures, and management

practices for control of HAP emissions for existing oil-fired boilers. This regulation applies to POW-01 and POW-02 only.

Compliance Demonstration

For existing oil-fired boilers installed on or before June 4, 2010 with a heat input capacity greater than 10 million Btu per hour that are not seasonal or limited use and are not equipped with an oxygen trim system, a one-time energy assessment and biennial performance tune-ups are required.

The energy assessment and an initial tune up were both required by March 21, 2014. The Permittee performed the required energy assessment for each boiler on March 5, 2014 and March 6, 2014. The Permittee already conducts annual tune-ups and has met the initial tune-up requirement for each boiler. The most recent tune-ups were conducted on September 20, 2018 (POW-01) when burning natural gas and December 5, 2018 (POW-02) when burning nature gas and fuel oil. Subsequent tune-ups are required every two years. The Permittee must also operate and maintain each boiler in a manner that minimizes emissions.

The Permittee submitted an initial notification to the Department on September 16, 2011. A Notification of Compliance Status is required to be submitted no later than July 19, 2014. The Permittee must also maintain records of the energy assessments and the tune-ups and prepare a compliance report every two years.

Rationale for Periodic Monitoring Strategy

40 CFR 63, Subpart JJJJJJ outlines the specific performance tune-up methods, procedures, and frequency and notification, record keeping and reporting requirements applicable to the boiler to demonstrate initial and continuous compliance with the subpart. No additional periodic monitoring is required.

E. Operational Limitations

(1) Unless the Permittee obtains from the Department written authorization otherwise, POW-06 shall be equipped with low NO_x burners and a flue gas recirculation system, and shall burn only natural gas. **[Authority: Permit to Construct No. 510-5-1679 issued November 30, 2004]**

(2) Except for brief periods, not to exceed 6 hours per period, during which the Permittee is preparing to either take POW-01 out of service or place it back into service, the Permittee shall not operate temporary boiler POW-06 when POW-01 is in operation. **[Authority: Permit to Construct No. 510-5-1679 issued November 30, 2004]**

Compliance Demonstration
POW-06 is equipped with low NO_x burners and a flue gas recirculation system as required. The Permittee shall maintain records of the operating schedule of POW-06 to demonstrate that POW-06 is only operated when POW-01 is out of service.

Rationale for Periodic Monitoring Strategy
POW-06 is equipped with low NO_x burners and a flue gas recirculation system as required. Operating records are sufficient to determine when POW-06 is operated.

Changes from the Previous Title V – Part 70 Operating Permit

The following changes were made from the previous Title V – Part 70 Operating Permit:

- Removed Condition D.1 of Table IV-2, Section 2.2
  Condition D.1 stated: By March 21, 2014, the Permittee must have a one-time energy assessment performed for POW-01 and POW-02 by a qualified energy assessor. **[Authority: 40 CFR §63.11196(a)(3), 40 CFR §63.11201(b), §63.11210(c) and (j), and Table 2, Item 16 to 40 CFR 63, Subpart JJJJJJ]**

  This condition was removed because the energy assessment requirement has been completed.

- Modified Condition D.2 of Table IV-2, Section 2.2
  Condition D.2 stated: The Permittee must demonstrate initial compliance and continuous compliance by conducting performance tune-ups of POW-01 and POW-02. The Permittee must conduct the tune-up while burning the type of fuel that provided the majority of the heat input to the boiler over the 12 months prior to the tune-up. The Permittee must conduct a tune-up of each boiler biennially. The initial tune-up must be conducted by March 21, 2014. Each biennial tune-up must be conducted no more than 25 months after the previous tune-up. **[Authority: 40 CFR §63.11196(a)(1), §63.11201(b) and (d), §63.11210(c) and (j), §63.11223(a) and (b), and Table 2, Item 4, of 40 CFR 63, Subpart JJJJJJ]**

  The references to initial compliance and initial tune-ups have been removed. Initial compliance by conducting initial tune-ups has been completed.

- Removed Condition D.2 of Table IV-2, Section 2.5
  Condition D.2 stated: An Initial Notification must be submitted no later than January 20, 2014.

The requirement to submit an Initial Notification has been completed and this condition has been removed.

- Removed Condition D.3 of Table IV-2, Section 2.5
  Condition D.3 stated: The Permittee must submit the Notification of Compliance Status no later than July 19, 2014.

  The requirement to submit the Notification of Compliance Status has been completed and this condition has been removed.

Emergency Generators 500 hp or greater)
Table IV-3 – Emission Units POW-08 and SAC-136

POW-08 and SAC-136 are compression ignition, diesel fired, emergency generators. The generators were installed prior to June 12, 2006 are considered existing emergency generators subject to the area source NESHAP requirements under 40 CFR 63, Subpart ZZZZ.

A. Visible Emissions Limitations

(1) **COMAR 26.11.09.05E(2),** which states that "a person may not cause or permit the discharge of emissions from any engine, operating at idle, greater than 10 percent opacity."

(2) **COMAR 26.11.09.05E(3),** which states that "a person may not cause or permit the discharge of emissions from any engine, operating at other than idle conditions, greater than 40 percent opacity."

Exceptions. COMAR 26.11.09.05E(4) establishes the following:

(a) Section E(2) does not apply for a period of 2 consecutive minutes after a period of idling of 15 consecutive minutes for the purpose of clearing the exhaust system.

(b) Section E(2) does not apply to emissions resulting directly from cold engine start-up and warm-up for the following maximum periods: (i) Engines that are idled continuously when not in service: 30 minutes; and (ii) All other engines: 15 minutes.

(c) Section E(2) and (3) do not apply while maintenance, repair, or testing is being performed by qualified mechanics.

Compliance Demonstration

The Permittee is required to properly operate and maintain each emergency generator in a manner to prevent visible emissions. The Permittee must keep records of all maintenance and repair activities for each emergency generator.

Rationale for Periodic Monitoring Strategy
Properly operated and maintained engines should not cause visible emissions in excess of the applicable standards. The Permittee shall report any incidents of excess visible emissions in accordance with permit condition 4, Section III, Plant Wide Conditions, "Report of Excess Emissions and Deviations." In addition, 40 CFR 63, Subpart ZZZZ requires additional work practice and maintenance requirements to ensure that the emergency generators are operated and maintained properly.

B. Control of Sulfur Oxides
COMAR 26.11.09.07A(2)(b) which states that "a person may not burn, sell, or make available for sale any distillate fuel oils with a sulfur content by weight in excess of 0.3 percent.

Compliance Demonstration
The Permittee is required to obtain from fuel oil suppliers written certification that all No. 2 fuel oil received at the facility to be burned in the emergency generators complies with the applicable standard. The Permittee is also required to retain for at least five (5) years, and to provide to the Department upon request, records of the written certifications.

Rationale for Periodic Monitoring Strategy
Fuel oil suppliers have access to fuel analyses that provide the sulfur content of the fuel oils that they sell. To have the Permittee analyze fuel samples would be redundant and unnecessarily burdensome. The fuel supplier's written certifications of compliance with applicable standards will provide an adequate demonstration of compliance.

C. Control of Nitrogen Oxides
COMAR 26.11.09.08G(1), which requires that a person who operates fuel burning equipment with a capacity factor (as defined in 40 CFR §72.2) of 15 percent or less shall:

(1) provide certification of the capacity factor of the equipment to the Department in writing;

(2) for fuel-burning equipment that operates more than 500 hours during a calendar year, perform a combustion analysis and optimize combustion at least once annually; and

(3) at least once every 3 years require each operator of the installation to attend an operator training program on combustion optimization that is sponsored by the Department, the EPA or equipment vendors. In accordance with COMAR 26.11.09.08B(5)(a), the equipment operator to be trained may be the person who maintains the equipment and makes the necessary adjustments for efficient operation.

Compliance Demonstration
If either POW-08 or SAC-136 operates more than 500 hours during a calendar year, the Permittee shall perform a combustion analysis and optimize combustion at least once annually per affected unit. The Permittee must keep records of required combustion analyses and of required training for each boiler operator.

Rationale for Periodic Monitoring Strategy:
COMAR 26.11.09.08G(1) outlines the requirements necessary to demonstrate compliance with the combustion analysis and operator training requirements. No additional periodic monitoring requirements are necessary to demonstrate compliance.

D. Control of HAP
40 CFR 63, Subparts A and ZZZZ which specify general provisions and work practice and maintenance requirements for emergency generators at area sources of HAP.

Compliance Demonstration
To meet the requirements of 40 CFR 63, Subpart ZZZZ, the Permittee is required to conduct periodic maintenance including oil and filter changes and inspections of the air cleaner and hoses and belts. The Permittee is also required to minimize time spent at idle during start-up and overall start-up time and operate and maintain each emergency generator in a manner consistent with safety and good air pollution control practices for minimizing emissions in accordance with manufacturer's specifications or the Permittee's own maintenance plan.

The emergency generators may only be operated for emergencies, maintenance and testing, and 50 hours of non-emergency purposes.

The Permittee shall maintain records of the maintenance conducted on each emergency generator to demonstrate that the emergency generator was operated and maintained according to either the manufacturer's emission-

related written instructions or the Permittee's own maintenance plan. The Permittee must document how many hours are spent for emergency operation, including what classified the operation as emergency.

Rationale for Periodic Monitoring Strategy
40 CFR 63, Subpart ZZZZ outlines the specific operating, maintenance, inspection, record keeping and reporting requirements applicable to the emergency generators to demonstrate initial and continuous compliance with the subpart.

Changes from the Previous Title V – Part 70 Operating Permit
The following changes were made from the previous Title V – Part 70 Operating Permit:

- Modified Conditions D.9 of Table IV-3, Section 3.3 and D.1 of Table IV-3, Section 3.5
  40 CFR 63.6640(f)(2)(ii) and (iii) were vacated by the U.S. Court of Appeals for the District of Columbia Circuit on May 1, 2015. References to these regulations have been removed from the permit.

- Modified Conditions D.9 of Table IV-3, Section 3.3
  40 CFR 63.6640(f)(4) was added to the permit. This regulation was previously prohibited by a state-only regulation, COMAR 26.11.36.03A(1), which has been rescinded.

Emissions Units in Table IV-4 through Table IV-12 - Control of Visible Emissions
All of the chemical manufacturing plants specified in Table IV-4 through Table IV-12 are subject to the following visible emissions limitation:

(1) **COMAR 26.11.06.02C(2)**, which requires that a person not cause or permit the discharge of emissions from any installation or building, other than water in uncombined form, which is visible to human observers.

Exceptions. COMAR 26.11.06.02A(2) establishes that "the visible emissions standards in §C of this regulation do not apply to emissions during start-up and process modifications or adjustments, or occasional cleaning of control equipment, if:

(a) The visible emissions are not greater than 40 percent opacity; and

(b) The visible emissions do not occur for more than 6 consecutive minutes in any 60 minute period."

The DCO, MAG & MGX, CAO, AEO, FCC, and SGO plants specified in Table IV-4 through Table IV-7, Table IV-9 and Table IV-11 are also subject to the following visible emissions limitation for fuel burning equipment:

(2) **COMAR 26.11.09.05A(2)**, which requires that a person not cause or permit the discharge of emissions from any fuel burning equipment, other than water in uncombined form, which is visible to human observers.

Exceptions. **COMAR 26.11.09.05A(3)** establishes that Section A(2) does "not apply to emissions during load changing, soot blowing, start-up, or adjustments or occasional cleaning of control equipment if:

(a) The visible emissions are not greater than 40 percent opacity; and

(b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period."

Compliance Demonstration

For the DCO plant, the Permittee is required to make individual observations for visible emissions from each DCO plant emission point specified in accordance with the provisions of Paragraph (2) of Section 1.1 of Table IV-1. For all other plants, the Permittee has the option to conduct area observations of multiple emissions points for visible emissions as specified in each plant's emission unit table and in accordance with Paragraph (3) of Section 1.1 of Table IV-1. The Permittee must report any incidences of excess visible emissions.

Rationale for Periodic Monitoring Strategy

The facility has hundreds of stacks that have the potential to emit visible emissions. To require the Permittee to observe each stack individually and confirm that the emissions unit(s) associated with the stack are operating at the time of the observation would not be practical. Daily area observations that include the emission points specified in each plant's emission unit table shall be conducted for all plants, except the DCO plant. The frequency of observation will ensure that each stack is observed at least once per day on any day that associated emissions units are operating, and should be sufficient to show whether there are any visible emissions problems. Operations at the facility that are not equipped with air pollution control devices have little or no potential for visible emissions, and have been exempted from requirements concerning regularly scheduled observations for visible emissions.

DCO plant operations, which are intermittent and irregularly scheduled, are not suitable for area observations. Therefore, the Permittee is required to conduct individual observations of each identified DCO stack (that has the potential for visible emissions) at least once per day on each day that associated emissions units operate.

Emissions Units in Table IV-4 through Table IV-12 - Control of Particulate Matter

All of the chemical manufacturing plants specified in Table IV-4 through Table IV-12 are subject to the following particulate matter emissions limitation:

COMAR 26.11.06.03B(2)(a), which requires that a person not cause or permit particulate matter to be discharged from any installation in excess of 0.03 gr/scfd (68.7 mg/dscm).

The FCC plant specified in Table IV-9 is also subject to the following additional particulate matter emissions limitations:

(1) Operational Requirement: The combined total of PM_{10} emissions from all of the following sources associated with the FCC plant shall not exceed 34.6 tons in any period of 12 consecutive minutes:
(a) Classifier 53604 (SAC-107);
(b) Spray Dryer 53802 (SAC-111);
(c) Dryer 55801 (SAC-115);
(d) Calciner 56801 (SAC-115);
(e) Hopper 52106 (SAC-101);
(f) Silo 51103 (SAC-102);
(g) Silo 51107 (SAC-102);
(h) Hopper 53106 (SAC-106); and
(i) Product Storage Silos A, B, C, D, E & F (SAC-117, 118, 119, 120, 126 & 127, respectively).
[Authority: ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]

(2) Operational Requirement: Unless the Permittee obtains from the Department written authorization otherwise, catalyst production rates for the FCC plant shall be limited in accordance with the following:

(a) For catalysts that are produced such that feed materials to each process drying unit (i.e., spray dryer, dryer, calciner) contain less than 40 weight percent solids, FCC plant production shall exceed

neither 170 tons/day nor 60,000 tons in any period of 12 consecutive months.

(b) For catalysts that are produced such that feed materials to each process (i.e., spray dryer, dryer, calciner) contain at least 40 weight percent solids, FCC plan production shall not exceed neither 220 tons/day nor 77,647 tons in any period of 12 consecutive months.

[Authority: PSD Approval No. 94-02 issued March 6, 2006 and ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]

(3) Operational Requirement: The concentration of PM_{10} in any exhaust gases discharged to atmosphere from the following installations shall not exceed 0.01 grains/scfd:

(a) Classifier 53604 (SAC-107);
(b) Spray Dryer 53802 (SAC-111);
(c) Dryer 55801 (SAC-115); and
(d) Calciner 56801 (SAC-115).

[Authority: PSD Approval No. 94-02 issued March 6, 2006 and ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]

(4) Operational Requirement: Particulate emissions from each of the following installations shall be controlled by an air pollution control system that includes at minimum a cyclone and venturi scrubber arrange in series, and the control system shall be designed, maintained, and operated to consistently remove at least 99.9% of all particulate before discharge to atmosphere:

(a) Spray Dryer 53802 (SAC-111);
(b) Dryer 55801 (SAC-115); and
(c) Calciner 56801 (SAC-115).

[Authority: PSD Approval No. 94-02 issued March 6, 2006 and ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]

(5) Operational Requirement: For the venturi scrubber that controls emissions from Spray Dryer 53802, whenever the Spray Dryer is in operation the flow rate of scrubbing medium shall be maintained at a minimum of 800 gallons per minute, and the differential pressure across the throat of the venturi shall be maintained at a minimum of 15 inches of water. **[Authority: ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]**

(6) Operational Requirement: For the venturi scrubber that controls emissions from Dryer 55801 and Calciner 56801, whenever either affected unit is in operation the flow rate of scrubbing medium shall be maintained at a minimum of 150 gallons per minute, and the differential pressure across the throat of the venturi shall be maintained at a minimum of 15 inches of water. **[Authority: ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]**

(7) Operational Requirement: Particulate emissions from each of the following installations shall be controlled by a fabric filter that is designed, maintained, and operated to consistently remove 99.9% of all particulate before discharge to atmosphere:

(a) Classifier 53604 (SAC-107);
(b) Hopper 52106 (SAC-101);
(c) Silo 51103 (SAC-102);
(d) Silo 51107 (SAC-102);
(e) Hopper 53106 (SAC-106); and
(f) Product Storage Silos A, B, C, D, E & F (SAC-117, 118, 119, 120, 126 &127, respectively).

[Authority: PSD Approval No. 94-02 issued March 6, 2006 and ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]

Compliance Demonstration

The Permittee is required to prepare and implement operations and maintenance plans that include procedures for the proper operation, maintenance, and troubleshooting of the fabric filters (including baghouses used for product collection) and other devices that control sources with the potential to cause particulate emissions in each plant. The operations and maintenance plans are also required to include documentation sufficient to demonstrate that each source of emissions can be expected to comply with all applicable limits and standards during normal operation.

Grace operates ten separate plants that require operations and maintenance plans for control of particulate matter emissions. Grace submitted current, non-confidential versions of the operating and maintenance plans for each affected plant as part of the facility's Title V – Part 70 Operating Permit renewal application. Complete plans containing confidential information are kept at the facility and must be made available to the Department upon request.

Due to the large number of required operations and maintenance plans that Grace is required to maintain, the plans are not included as part of the Title V – Part 70 Operating Permit as recommended by EPA. The Department has acknowledged

receipt of the current plans with the renewal application, and the plans are incorporated by reference.

For the additional particulate matter requirements for the FCC plant, the Permittee must keep records of total catalyst production and PM_{10} emissions from the plant for each month of operation and continuously monitor and record operating parameters to ensure proper operation of the venturi scrubbers.

Rationale for Periodic Monitoring Strategy
For the subject plants, the Permittee invariably uses fabric filter devices to control particulate emissions, and when properly designed, maintained, and operated, such devices have been shown to provide consistent and adequate particulate removal efficiencies. To require emissions testing of all sources would not be practical.

The practices and procedures to be included in the operations and maintenance plans will be sufficient to assure consistent compliance with particulate standards. Also, the required daily visible emissions observations will provide evidence as to whether there are any problems with particulate control strategies or equipment. Records of monitoring data and total catalyst production in the FCC plant are sufficient to demonstrate compliance with the operating parameter and catalyst production limits.

Emissions Units in Table IV-4 through Table IV-12 - Control of Nitrogen Oxides
The DCO, MAG & MGX, CAO, AEO, FCC, and SGO plants as specified in Table IV-4 through Table IV-7, Table IV-9, and Table IV-11 are subject to the following NO_x emissions limitation for indirect fired combustion units:

COMAR 26.11.09.08E, which requires that a person who operates fuel burning equipment with a rated heat input capacity of 100 MMBtu per hour or less:

(a) submit to the Department an identification of each affected installation, the rated heat input capacity of each installation, and the type of fuel burned in each installation;

(b) perform a combustion analysis for each affected installation at least once each year and optimize combustion based on the analysis; and

(c) at least once every 3 years require each operator of the installation to attend an operator training program concerning combustion optimization that is sponsored by the Department, the EPA or equipment vendors. In accordance with COMAR 26.11.09.08B(5)(a), the equipment operator to be trained may

be the person who maintains the equipment and makes the necessary adjustments for efficient operation.

Compliance Demonstration
The Permittee shall conduct at least one (1) combustion analysis per year on each of the affected combustion units and optimize combustion in accordance with the findings. The Permittee shall maintain records of the types of fuels burned on a daily basis, of required combustion analyses and of required training for each affected operator at the facility.

Rationale for Periodic Monitoring Strategy
The permit requirements with regard to COMAR 26.11.09.08E are simply straightforward reiterations of the requirements stated in the regulation. The Permittee is required to maintain records sufficient to allow a determination of compliance status with regard to the requirements.

The DCO, MAG & MGX, CAO, AEO, FCC, ICO, SGO, and SCP plants as specified in Table IV-4 through Table IV-7, and Table IV-9 through Table IV-12 are subject to the following NO_x emissions limitation for direct-fired combustion units and other sources of NO_x:

COMAR 26.11.09.08J which establishes that a person who owns or operates any installation other than fuel-burning equipment that causes NO_x emissions shall:

(a) maintain good operating practices as recommended by the equipment vendor to minimize NO_x emissions;

(b) prepare and implement a written in-house training program for all operators of these installations that includes instruction with regard to good operating and maintenance practices for the particular installation;

(c) maintain and make available to the Department upon request the written in-house operator training program;

(d) burn only gas in each installation, where gas is available, during the period May 1 through September 30 of each year; and

(e) maintain operator training attendance records for each operator on the site for at least 5 years and make these records available to the Department upon request.

Compliance Demonstration

The Permittee is required to conduct inspections of affected equipment, and review pertinent operating logs and records at least once per calendar year to determine the compliance status of operations with regard to implementation of "good operating practices" as recommended by equipment vendors to minimize NO_x emissions. The Permittee is also required to maintain:

(1) records of the types and amounts of fuels burned in the affected combustion unit during the period May 1 through September 30 of each year;

(2) written descriptions of good operating practices, as recommended by vendors of equipment, to minimize NO_x emissions from the affected combustion unit;

(3) records regarding the required training program concerning good operating and maintenance practices designed to minimize NO_x emissions. The records are to include a written description of the training program content, the date(s) on which the training was administered, and identification of all employees who attended the training; and

(4) records of each inspection or maintenance activity required to determine the compliance status of operations with regard to implementation of good operating practices designed to minimize emissions of NO_x.

Rationale for Periodic Monitoring Strategy

The permit requirements designed to demonstrate compliance with COMAR 26.11.09.08J are simply straightforward reiterations of the requirements stated in the regulation. Annual inspections of the affected equipment, and review of operations logs and other pertinent records will be sufficient to establish compliance status with regard to the requirements.

The AEO plant specified in Table IV-7 is subject to the following additional NO_x emissions limitations:

(1) Operational Requirement: NO_x emissions from the Dryer K-2104, Kiln III K-2100, and the Calciner Kiln K-1352 shall be exhausted through a Selective Catalytic Reducer (SCR) that is operated so as to reduce NO_x emissions sufficiently to assure consistent compliance with all applicable NO_x standards

and limits. **[Authority: ARA Permit to Construct No. 510-0076-7-1077 issued on June 7, 2018.]**

(2) **40 CFR, Part 64**, which establishes Compliance Assurance Monitoring (CAM) requirements for sources that (a) use control devices to comply with emissions standards for a regulated pollutant, and (b) that have a pre-control potential-to-emit equal to or greater than the amount identified as the major source level for the regulated pollutant. The facility utilizes a Selective Catalytic Reducer (SCR) to control NO_x emissions from AEO plant processes, and the SCR is subject to CAM requirements. A summary of the Permittee's CAM requirements for the SCR and justification for the selection of the operating parameters to be monitored are included in the tables provided in Appendix II to the Part 70 permit.

Compliance Demonstration
The Permittee is required to stack test to quantify NO_x emissions from the SCR once during the term of the permit. The Permittee is also required to determine total NO_x emissions from the AEO plant for each month of operation and for all periods of 12 consecutive months. The Permittee is also required to comply with an established CAM Plan for the plant's SCR unit that is used to reduce emissions of NO_x. The details of the CAM Plan for the SCR are included in Appendix II of the fact sheet.

Rationale for Periodic Monitoring Strategy
Stack emissions testing and compliance assurance monitoring of the NO_x control device ensures that NO_x emissions from the AEO plant will remain in compliance with all applicable NO_x emissions standards and limits.

The FCC plant specified in Table IV-9 is subject to the following additional NO_x emissions limitations:

(1) Operational Requirement: Spray Dryer 53802, Dryer 55801, and the indirect-fire combustion unit that fires Calciner 56801 shall be equipped with low NO_x (gas burners, and when operating shall burn only natural gas whenever natural gas is available, and shall burn only No. 2 fuel oil when natural gas is not available. **[Authority: PSD Approval No. 94-02 issued March 6, 2006 and ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]**

(2) Operational Requirement: Combined total emissions of NO_x caused by operation of the FCC plant shall be less than 25 tons in all periods of 12 consecutive months. NO_x emissions caused by operation of the FCC plant

shall include NO_x emissions generated by operation of facility's boilers to meet the steam demand of the FCC plant. **[Authority: PSD Approval No. 94-02 issued March 6, 2006 and ARA Permit to Construct No. 510-0076-7-1644 issued December 20, 2017]**

Compliance Demonstration

The Permittee shall perform stack tests at least once every 24 months to determine NO_x emissions discharged to atmosphere from each of exhaust stacks SAC-111 and SAC-115, which are the only emissions points for NO_x in the FCC plant. At the time of each required stack test all affected units in the FCC plant are required to be operating within 10 percent of capacity.

The Permittee is also required to determine total NO_x emissions caused by the FCC plant during each month of operation, and during all periods of 12 consecutive months. The determinations will include the amount NO_x generated by the boilers to meet the steam demand of the FCC plant.

Rationale for Periodic Monitoring Strategy

Stack emissions testing ensures that NO_x emissions from the FCC plant will remain in compliance with all applicable NO_x emissions standards and limits.

Emissions Units in Table IV-5 and Table IV-12 - Control of VOC

The MAG & MGX plants and the SCP plant specified in Table IV-5 and Table IV-12 are subject to the following VOC emissions limitations:

(1) **COMAR 26.11.19.02I** which requires that the Permittee establish in writing and implement plant-wide "good operating practices" designed to minimize emissions of VOC. The specific requirements of this regulation are provided in Section 1.4 of Table IV-1.

(2) **COMAR 26.11.19.16** which requires that the Permittee implement a VOC leak detection and repair program designed to minimize unintended emissions of VOC from process equipment and components, e.g., in-process vessels, storage tanks, pumps, compressors, valves, flanges and other pipeline fittings, pressure relief valves, process drains, and open-ended pipes. The specific requirements of this regulation are provided in Section 1.5 of Table IV-1.

(3) **COMAR 26.11.19.30**, which establishes equipment standards and performance standards for organic and inorganic chemical manufacturing facilities. **COMAR 26.11.19.30D(1)** establishes that a person who owns or operates an organic chemical production installation or an inorganic chemical production installation at a premises that has total uncontrolled VOC

emissions of 100 pounds or more per day shall duct each process vent and exhaust line from any installation with actual emissions of 20 pounds or more per day into a control device that has a VOC destruction or removal efficiency of at least 90 percent, overall.

Exceptions.
COMAR 26.11.19.30D(4) establishes that a person who owns or operates an organic chemical production installation and complies with §D(1) of this regulation and later cannot achieve compliance because of an unavoidable outage or malfunction of the primary control device shall either: (a) discontinue operation until the primary control device is returned to proper service; or (b) use a back-up control device that is approved by the Department.

COMAR 26.11.19.30D(5) establishes that the back-up control device allowed under §D(4)(b) of this regulation may not be used more than 10 percent of the annual operating time of the affected installation during any calendar year unless a longer period is approved by the Department.

For the MAG & MGX plants only:

(4) **40 CFR, Part 64**, which establishes Compliance Assurance Monitoring (CAM) requirements for sources that (a) use control devices to comply with emissions standards for a regulated pollutant, and (b) that have a pre-control potential-to-emit equal to or greater than the amount identified as the major source level for the regulated pollutant. Thermal oxidizers T-657 (emissions point MAG-04) and T-1657 (emissions point MGX-12) are subject to CAM requirements. A summary of the Permittee's CAM plan for the oxidizers and justification for the selection of the operating parameters to be monitored are provided in Appendix I to the Part 70 permit.

(5) Operational Requirement: Exhaust gases from calciner 854 shall be vented through thermal oxidizer T-657 (emissions point MAG-04) before discharge to atmosphere, and the one-hour block average temperature of the combustion zone of thermal oxidizer T-657 shall be maintained at a minimum of 1400 °F whenever calciner K-854 is in operation. **[Authority: 40 CFR, Part 64 and ARA Permit to Construct No. 510-0076-7-1024 issued March 19, 2012.]**

(6) Operational Requirement: Exhaust gases from electrically heated calciner 1854 shall be vented through thermal oxidizer T-1657 (emissions point MGX-12) before discharge to atmosphere, and the one-hour block average temperature of the combustion zone of thermal oxidizer T-1657 shall be maintained at a minimum of 1400 °F whenever calciner K-1854 is in

operation. **[Authority: 40 CFR, Part 64 and ARA Permit to Construct No. 510-0076-7-1024 issued March 19, 2012.]**

For the SCP plant only:

(7) **40 CFR, Part 64**, which establishes Compliance Assurance Monitoring (CAM) requirements for sources that (a) use control devices to comply with emissions standards for a regulated pollutant, and (b) that have a pre-control potential-to-emit equal to or greater than the amount identified as the major source level for the regulated pollutant. SCP thermal oxidizer 90800 (SCP-06A; to be replaced by 90803) is subject to CAM requirements. A summary of the Permittee's CAM plan for the oxidizer and justification for the selection of the operating parameters to be monitored are provided in Appendix I to the Part 70 permit.

(8) Operational Requirement: All non-fugitive sources of VOC associated with the SCP plant shall be exhausted through thermal oxidizer 90800 (to be replaced by 90803) before discharge to atmosphere, and the one-hour block average temperature of the combustion zone of the thermal oxidizer 90800 (to be replaced by 90803) shall be maintained at a minimum of 1450 °F whenever any affected emission source is in service. **[Authority: 40 CFR, Part 64 and ARA Permit to Construct No. 510-0076-7-1667 issued September 6, 2018.]**

Compliance Demonstration

For compliance with the requirements of COMAR 26.11.19.02I, the Permittee is required to implement "good operating practices" designed to minimize emissions of VOC from the MAG/MGX plants and the SCP, and to report deviations from such "good operating practices" in accordance with semi-annual deviation reporting requirements and annual compliance certification reporting requirements. For compliance with COMAR 26.11.19.16, the Permittee is required to inspect for leaks and repair detected leaks as specified in the regulation.

Both the MAG & MGX plants and the SCP plants use thermal oxidizers to comply with the VOC emissions reduction requirement of COMAR 26.11.19.30. The Permittee must comply with an established CAM plan for each oxidizer that specifies monitoring, record keeping, and maintenance requirements. A summary of the Permittee's CAM plan for the oxidizers are provided in Appendix I of the fact sheet.

Rationale for Periodic Monitoring Strategy

The compliance mechanisms for COMAR 26.11.19.02I and COMAR 26.11.19.16 are straightforward reiterations of regulatory requirements. Compliance assurance

monitoring is sufficient to demonstrate compliance with COMAR 26.11.19.30 for the MAG & MGX plants and the SCP plant.

Emissions Units in Table IV-5, Table IV-7 and Table IV-10 - Control of HAP

The MAG & MGX plants, the AEO plant, and the ICO plant specified in Table IV-5, Table IV-7, and Table IV-10 are subject to the following area source HAP regulation:

40 CFR 63, Subparts A and VVVVVV which specify general provisions and management practices and other requirements for chemical manufacturing process units (CMPU) in metal HAP service at Chemical Manufacturing Area Sources.

Compliance Demonstration

The MAG & MGX plants, the AEO plant, and the ICO plant process metal HAP subject to the requirements of 40 CFR 63, Subpart VVVVVV. Subpart VVVVVV requires all affected chemical manufacturing process units (CMPU) to be equipped with a cover or lid that must be closed at all times when it is in metal HAP service, except for manual operations that require access, such as material addition and removal, inspection, sampling and cleaning. The Permittee must conduct leak detection inspections of each CMPU and repair any leaks that are detected. Uncontrolled metal HAP emissions from each affected CMPU are less than 400 pounds per year therefore, the Permittee is currently not subject to any emissions limits in Subpart VVVVVV. The Permittee must keep records of all inspections and emissions calculations to continuously demonstrate that emissions limits do not apply.

Rationale for Periodic Monitoring Strategy

40 CFR 63, Subpart VVVVVV outlines the specific work practice, inspection, and record keeping requirements applicable to the MAG & MGX plants, the AEO plant, and the ICO plant to demonstrate continuous compliance with the subpart. No additional periodic monitoring is required.

Emissions Units in Table IV-4 through Table IV-12 - Changes from the Previous Title V – Part 70 Operating Permit

Table IV-4 – Technical Development Center Operations (DCO)

All applicable requirements from permits to construct issued after the last Title V – Part 70 Operating Permit was issued are included in the Title V – Part 70 Operating Permit renewal. The most recent permit to construct for the DCO plant was issued on June 22, 2007. The renewal permit does not include any applicable requirements for the sources that are no longer considered emissions points and

have been removed by the source. L-5701 and L5940 were removed by the facility and are removed from the List of Sources for the DCO Plant in the permit.

Table IV-5 – Magnapore and Magnapore Expansion (MAG and MGX) Plants
All applicable requirements from permits to construct issued after the last Title V – Part 70 Operating Permit was issued are included in the Title V – Part 70 Operating Permit renewal. The most recent permit to construct for the plant was issued on March 19, 2012 to increase production at the MGX plant. No changes were made to this section of the permit.

Table IV-6 – Catalyst Additives Operations (CAO) Plant
All applicable requirements from permits to construct issued after the last Title V – Part 70 Operating Permit was issued are included in the Title V – Part 70 Operating Permit renewal. The most recent permit to construct for the plant was issued on May 29, 2013 for a replacement dust collector for rail car loading and unloading operations. No changes were made to this section of the permit.

Table IV-8 – Automobile Emissions Operations (AEO) Plant
All applicable requirements from permits to construct issued after the last Title V – Part 70 Operating Permit was issued are included in the Title V – Part 70 Operating Permit renewal. The most recent permit to construct for the plant was issued on June 7, 2018 for the addition of a sand mill and holding tank. The following changes were made from the previous Title V – Part 70 Operating Permit:

- Added an intermodal freight container (shipping container) loading system equipped with a product collector (AEO-83) for material recovery.

- Added a 25-liter sand mill and a 60-gallon holding tank

Table IV-8 – Silica Alumina Catalyst Plant ($SAC^{(1\text{-}100)}$) Plant
All applicable requirements from permits to construct issued after the last Title V – Part 70 Operating Permit was issued are included in the Title V – Part 70 Operating Permit renewal. The most recent permit to construct for the plant was issued on March 1, 2007. No changes were made to this section of the permit.

Table IV-9 – FCC Plant
All applicable requirements from permits to construct issued after the last Title V – Part 70 Operating Permit was issued are included in the Title V – Part 70 Operating Permit renewal. The most recent permit to construct for the plant was issued on December 20, 2017 for the replacement of two (2) product collectors. The following changes were made from the previous Title V – Part 70 Operating Permit:

- Replaced two (2) product collector bin vents (SAC-101 and SAC-106) associated with hoppers.

- Replaced two (2) product collector bin vents (SAC-119 and SAC-120) associated with silos.

Table IV-10 Industrial Catalyst Operations (ICO) Plant

All applicable requirements from permits to construct issued after the last Title V – Part 70 Operating Permit was issued are included in the Title V – Part 70 Operating Permit renewal. The most recent permit to construct for the plant was issued on August 7, 2012 for a replacement classifier and efficiency improvement projects. The following changes were made from the previous Title V – Part 70 Operating Permit:

- Added two (2) silos with product collector bin vents (ICO-127 and ICO-128). Silos that were previously associated with decommissioned ZPO plant (ARA Registration No. (24-510-0076-7-1087).

Table IV-11 Silica Gel Operations (SGO) and former High Pore Volume (HPV) Plants

All applicable requirements from permits to construct issued after the last Title V – Part 70 Operating Permit was issued are included in the Title V – Part 70 Operating Permit renewal. The most recent permit to construct for the SGO plant was issued on February 2, 2016 for the replacement of a product collector and the most recent permit to construct for the HPV plant was issued on June 8, 2004. The following changes were made from the previous Title V – Part 70 Operating Permit:

- Installed one (1) bin vent fabric filter (F-3629) to replace the existing inside discharge product collector associated with silos T-3121, T-3122, T-3124 (SGO-80).

- Replaced B-Mill 4790 Collector and Baghouse 4690 (SGO-74).

- Replaced one (1) product collector bin vent 643E (SGO-90).

Table IV-12 – Specialty Catalyst Plant (SCP)

All applicable requirements from permits to construct issued after the last Title V – Part 70 Operating Permit was issued are included in the Title V – Part 70 Operating Permit renewal. The most recent permit to construct for the plant was issued on September 6, 2018 for the addition of a catalyst production line and replacement of the thermal oxidizer. The following changes were made from the previous Title V – Part 70 Operating Permit:

- The following equipment will be installed for silica preparation:

OMC Expansion Equipment – Silica Preparation	ID No.
Silica Drum Unloading Station	42103
Vacuum Conveyor	42402
Vacuum Conveyor Blower	42302
Calciner Day Hopper	42110
LIW Feeder	42407
LIW Feeder Discharger	42408
Activator Calciner	42802
Screener	42610
Transport Pot	42303
Calciner Sweep Gas Baghouse	42409
Baghouse Fan	42309

- The following equipment will be installed for catalyst production:

OMC Expansion Equipment – Catalyst Production	ID No.
Refrigerated MAO Tank – Zone 7	70101
Weigh Tank – Zone 6	70108
Portable Tank – Zone 6	70105
Portable Tank – Zone 5	70103
Weigh Tank – Zone 5	70107
Portable Tank – Zone 4	70100
Weigh Tank – Zone 4	70102
Vacuum Pump	72306
Product Tote Bin – Product Packaging	72903
Product Drum – Product Packaging	72904
Silica Tote Bin – Product Filling	72113
Shipping Drum – Product Filling	72114
Dry Solvent Tank	72103
Dryer	72702
Cone Dryer Vent Filter	72602
Vacuum Pump Pre Condenser	72206
Reaction Vessel	72701
Vent Condenser	72907
Distillate Tank	72104
Process Spent Solvent Tank	80102
Knock Out Vessel for TOX	90107

OMC Expansion Equipment – Catalyst Production	ID No.
Thermal Oxidizer	90803
Toluene Storage Tank	80118
Mole Sieves Solvent Dryers	80903

- Thermal oxidizer 90800 will be replaced with thermal oxidizer 90803 to accommodate additional production from the new catalyst production line.

Combined Heat and Power Plant
Table IV-13 – Emission Units CHP-01 and CHP-02

CHP-01 and CHP-02 are natural gas-fired Caterpillar G3520H combined heat and power unit equipped with an engine rated at 2,485 kilowatts (3,448 brake horsepower) equipped with selective catalytic reduction (SCR) and oxidation catalyst controls. The engines are subject to 40 CFR 60, Subpart JJJJ for Stationary Spark Ignition Internal Combustion Engines and 40 CFR 63, Subpart ZZZZ for Reciprocating Internal Combustion Engines. The units comply with 40 CFR 63, Subpart ZZZZ by complying with 40 CFR 60, Subpart JJJJ.

A. Visible Emissions Limitations

(1) **COMAR 26.11.09.05E(2),** which states that "a person may not cause or permit the discharge of emissions from any engine, operating at idle, greater than 10 percent opacity."

(2) **COMAR 26.11.09.05E(3),** which states that "a person may not cause or permit the discharge of emissions from any engine, operating at other than idle conditions, greater than 40 percent opacity."

Exceptions. COMAR 26.11.09.05E(4) establishes the following:

(a) Section E(2) does not apply for a period of 2 consecutive minutes after a period of idling of 15 consecutive minutes for the purpose of clearing the exhaust system.

(b) Section E(2) does not apply to emissions resulting directly from cold engine start-up and warm-up for the following maximum periods: (i) Engines that are idled continuously when not in service: 30 minutes; and (ii) All other engines: 15 minutes.

(c) Section E(2) and (3) do not apply while maintenance, repair, or testing is being performed by qualified mechanics.

Compliance Demonstration
The Permittee is required to properly operate and maintain each CHP unit in a manner to prevent visible emissions. The Permittee must keep records of all maintenance and repair activities for each CHP unit.

Rationale for Periodic Monitoring Strategy
Properly operated and maintained engines should not cause visible emissions in excess of the applicable standards. The Permittee shall report any incidents of excess visible emissions in accordance with permit condition 4, Section III, Plant Wide Conditions, "Report of Excess Emissions and Deviations." In addition, 40 CFR 60, Subpart JJJJ requires additional work practice and maintenance requirements to ensure that the emergency generators are operated and maintained properly.

B. New Source Performance Standards
40 CFR 60, Subparts A and JJJJ which specify general provisions, emissions standards, testing, work practice, and maintenance requirements for stationary spark ignition engines. The units comply with 40 CFR 63, Subpart ZZZZ by complying with 40 CFR 60, Subpart JJJJ.

Compliance Demonstration
To meet the requirements of 40 CFR 60, Subpart JJJJ, the Permittee is required to perform an initial stack test for demonstrating compliance with the emissions standards and conduct subsequent performance testing every 8760 hours or 3 years, whichever comes first. The Permittee is also required to keep a maintenance plan and records of conducted maintenance for each CHP unit engine and shall, to the extent practicable, maintain and operate each engine in a manner consistent with good air pollution control practice for minimizing emissions.

The Permittee shall maintain records of the maintenance plan and all maintenance conducted on the engine. The Permittee shall also keep records of all performance test results to demonstrate compliance with the emissions standards.

Rationale for Periodic Monitoring Strategy
40 CFR 60, Subpart JJJJ outlines the specific general provisions, emissions standards, testing, work practice, and maintenance requirements for stationary spark ignition engines to demonstrate initial and continuous compliance with the subpart.

COMPLIANCE SCHEDULE

Grace is currently in compliance with all applicable air quality regulations. or Discuss compliance plan and schedule when applicable.

TITLE IV – ACID RAIN

Not Applicable

TITLE VI – OZONE DEPLETING SUBSTANCES

Grace is not subject to Title VI requirements.

SECTION 112(r) – ACCIDENTAL RELEASE

Grace is subject to the requirements of Section 112(r) for potential accidental releases of titanium tetrachloride ($TiCl_4$), a raw material sometimes used in the facility's Specialty Catalyst Plant. The Permittee has submitted the required Risk Management Plan (RMP) to EPA.

PERMIT SHIELD

Grace requested that a permit shield be expressly included in the Permittee's Part 70 permit. Permit shields are granted on an emission unit by emission unit basis. If an emission unit is covered by a permit shield, a permit shield statement will follow the emission unit table in Section IV - Plant Specific Conditions of the permit. In this case, a permit shield was granted for each emission unit covered by the permit.

INSIGNIFICANT ACTIVITIES

This section provides a list of insignificant emissions units that were reported in the Title V permit application. The applicable Clean Air Act requirements, if any, are listed below the insignificant activity.

(1) No. 4 Fuel burning equipment using gaseous fuels or no. 1 or no. 2 fuel oil, and having a heat input less than 1,000,000 Btu (1.06 gigajoules) per hour;

The four (4) natural gas-fired heaters are subject to the following requirements:

COMAR 26.11.09.05A(2), which establishes that the Permittee may not cause or permit the discharge of emissions from any fuel burning equipment, other than water in an uncombined form, which is visible to human observers.

Exceptions: COMAR 26.11.09.05A(2) does not apply to emissions during load changing, soot blowing, start-up, or adjustments or occasional cleaning of control equipment if:

(a) The visible emissions are not greater than 40 percent opacity; and

(b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period.

(2) No. 5 Stationary internal combustion engines with an output less than 500 brake horsepower (373 kilowatts) and which are not used to generate electricity for sale or for peak or load shaving;

The 208 horsepower fire pump emergency engine (POW-10, FPE1), the 240 horsepower fire pump emergency engine (POW-11, FPE2), the 268 horsepower emergency generator (SAC-135, SAC-GEN1), the 8 horsepower emergency generator (MAG-24, MAG-GEN), and the 8.9 horsepower emergency generator (SCP-16, SCP-GEN) are subject to the following requirements:

(A) COMAR 26.11.09.05E(2), Emissions During Idle Mode: The Permittee may not cause or permit the discharge of emissions from any engine, operating at idle, greater than 10 percent opacity.

(B) COMAR 26.11.09.05E(3), Emissions During Operating Mode: The Permittee may not cause or permit the

discharge of emissions from any engine, operating at other than idle conditions, greater than 40 percent opacity.

(C) Exceptions:

(i) COMAR 26.11.09.05E(2) does not apply for a period of 2 consecutive minutes after a period of idling of 15 consecutive minutes for the purpose of clearing the exhaust system.

(ii) COMAR 26.11.09.05E(2) does not apply to emissions resulting directly from cold engine start-up and warm-up for the following maximum periods:

(a) Engines that are idled continuously when not in service: 30 minutes
(b) all other engines: 15 minutes.

(iii) COMAR 26.11.09.05E(2) & (3) do not apply while maintenance, repair or testing is being performed by qualified mechanics.

(D) COMAR 26.11.36.03A, The owner or operator of an engine is subject to the requirements under 40 CFR 63 Subpart ZZZZ, as applicable.

(3) ✓ Space heaters utilizing direct heat transfer and used solely for comfort heat;

(4) ✓ Water cooling towers and water cooling ponds unless used for evaporative cooling of water from barometric jets or barometric condensers, or used in conjunction with an installation requiring a permit to operate;

(5) ✓ Equipment for drilling, carving, cutting, routing, turning, sawing, planning, spindle sanding, or disc sanding of wood or wood products;

(6) Containers, reservoirs, or tanks used exclusively for:

(a) ✓ Storage of butane, propane, or liquefied petroleum, or natural gas;

(b) No. 7 Storage of lubricating oils; and

(c) No. 2 Unheated storage of VOC with an initial boiling point of 300 °F (149 °C) or greater.

(7) ✓ First aid and emergency medical care provided at the facility, including related activities such as sterilization and medicine preparation used in support of a manufacturing or production process;

(8) ✓ Certain recreational equipment and activities, such as fireplaces, barbecue pits and cookers, fireworks displays, and kerosene fuel use;

(9) ✓ Comfort air conditioning subject to requirements of Title VI of the Clean Air Act;

(10) ✓ Natural draft hoods or natural draft ventilators that exhaust air pollutants into the ambient air from manufacturing/industrial or commercial processes;

(11) ✓ Laboratory fume hoods and vents;

(12) any other emissions unit, not listed in this section, with a potential to emit less than the "de minimus" levels listed in COMAR 26.11.02.10X (list and describe units):

No. 37 Building vents – DCO-01, DCO-27, MAG-09, MGX-21, CAO-22 through CAO-38C, SAC-16, SAC-29, SAC-34, SAC-151, SAC-152, SAC-153, SAC-154, ICO-47, ICO-119, ICO-120, SGO-06, SGO-33, SCP-04A, AEO-53, AEO-54, and HPV-12

No. 9 Emergency relief vent/system – MAG-18, MAG-23, MGX-09, MGX-24, MGX-25, SCP-12, SCP-14, CAO-78, and CAO-79

No. 11 Tank vents – MGX-05, CAO-69, CAO-70, CAO-71, CAO-73, CAO-77, AEO-04, AEO-60, AEO-62, HPV-13, and HPV-21

No. 8 Vacuum pump vents – CAO-01, CAO-02, CAO-40, CAO-74, CAO-75, SAC-113, SAC-114, and HPV-10

No. 8 Assorted insignificant vents/sources – DCO-33, CAO-42A, CAO-63, CAO-76, AEO-06A, SGO-10, SGO-23, and HPV-14

No. 3 Maintenance shop welding – DCO-52, MAG-10, and SGO-49

STATE ONLY ENFORCEABLE REQUIREMENTS

This section of the permit contain state-only enforceable requirements. The requirements in this section will not be enforced by the U.S. Environmental Protection Agency. The requirements in this section are not subject to COMAR 26.11.03 10 - Public Petitions for Review to EPA Regarding Part 70 Permits.

1. Applicable Regulations:

   (A) COMAR 26.11.06.08 and 26.11.06.09, which generally prohibit the discharge of emissions beyond the property line in such a manner that a nuisance or air pollution is created.

   (B) COMAR 26.11.15.05, which requires that the Permittee implement "Best Available Control Technology for Toxics" (T – BACT) to control emissions of toxic air pollutants.

   (C) COMAR 26.11.15.06, which prohibits the discharge of toxic air pollutants to the extent that such emissions will unreasonably endanger human health

2. General Operating and Record Keeping and Reporting Conditions:

   (A) For each activity that qualifies as periodic testing, a change in raw materials or products, or relocation, reconfiguration, and installation of equipment allowed under Section IV, Table IV-1, 1.7, 1.8 and 1.9 of the permit, the Permittee shall also demonstrate compliance with COMAR 26.11.15.06 for the activity. Records of toxic air pollutant compliance demonstrations shall be kept and submitted as specified in Section IV, Table IV-1, 1.7, 1.8 and 1.9 of the permit.

   (B) The Permittee shall submit to the Department, by April 1 of each year during the term of this permit, a written certification of the results of an analysis of emissions of toxic air pollutants from the Permittee's facility during the previous calendar year. The analysis shall include either:

      (i) a statement that previously submitted compliance demonstrations for emissions of toxic air pollutants remain valid; or

      (ii) a revised compliance demonstration, developed in accordance with requirements included under COMAR

26.11.15 & 16, that accounts for changes in operations, analytical methods, emissions determinations, or other factors that have invalidated previous demonstrations.

3. DCO Plant (ARA Registration No. 510-0076-7-0951):

(A) Before discharge to atmosphere, exhaust gases from the three (3) FCC calciners associated with emissions point DCO-23 shall be vented through a properly designed, maintained, and operated air pollution control system comprising of a scrubbing system that includes a venturi scrubber and two (2) packed tower absorbers when necessary to ensure that emissions of gaseous toxic air pollutants do not exceed emissions levels specified in the facility's most recent valid air toxics compliance demonstration.

(B) For the scrubber system that is used to control gaseous toxic air pollutants from the three (3) FCC calciners associated with emissions point DCO – 23, whenever operation of the scrubber system is required:

(i) the differential pressure across the throat of the venturi shall be maintained at a minimum of 5 inches water column;

(ii) the flow rate of scrubbing medium circulated through column 1 shall be maintained at a minimum of 5 gallons per minute;

(iii) the flow rate of scrubbing medium circulated through column 2 shall be maintained at a minimum of 50 gallons per minute; and

(iv) the pH of the scrubbing medium in the packed columns shall be maintained as necessary to ensure compliance with all applicable air toxics requirements.

(C) Before discharge to atmosphere, exhaust gases from the Flash Dryer and Spray Dryer (both units associated with emissions point DCO-26) shall be vented through a properly designed, maintained, and operated air pollution control system comprising at minimum a baghouse, and:

(i) a HEPA filter when necessary to ensure that emissions of particulate toxic air pollutants do not exceed emissions

levels specified in the facility's most recent valid air toxics compliance demonstration; and

(ii) a scrubbing system that includes a venturi scrubber and a packed tower absorber when necessary to ensure that emissions of gaseous toxic air pollutants do not exceed emissions levels specified in the facility's most recent valid air toxics compliance demonstration.

(D) For the scrubber system that is used to control gaseous toxic air pollutants from the Flash Dryer and Spray Dryer associated with emissions point DCO – 26, whenever operation of the scrubber system is required:

(i) the flow rate of scrubbing medium to the venturi scrubber shall be maintained at a minimum of 10 gallons per minute;

(ii) the differential pressure across the throat of the venturi shall be maintained at a minimum of 20 inches water column;

(iii) the flow rate of scrubbing medium circulated through the packed column shall be maintained at a minimum of 50 gallons per minute; and

(iv) the pH of the scrubbing medium in the packed column shall be maintained as necessary to ensure compliance with all applicable air toxics requirements.

(E) For the scrubber system used to control emissions from the three (3) FCC calciners associated with emissions point DCO – 23, whenever operation of the scrubber system is required the Permittee shall monitor and record at least once per hour the differential pressure across the throat of the venturi, and the flow rate and pH of the scrubbing medium circulated through each packed tower.

(F) For the scrubber system used to control emissions from the Spray Dryer and Flash Dryer associated with emissions point DCO – 26, whenever operation of the scrubber system is required the Permittee shall monitor and record at least once per hour the flow rate of scrubbing medium to the venturi scrubber, the differential pressure across the throat of the venturi, and the flow rate and pH of the scrubbing medium circulated through the packed tower.

(G) The Permittee shall maintain for at least five (5) years, and shall make available to the Department upon request, the following records and information:

(i) for the scrubber system used to control emissions from the three (3) FCC calciners associated with emissions point DCO – 23, all required recordation of the differential pressure across the throat of the venturi, and the flow rate and pH of the scrubbing medium circulated through each of the packed towers;

(ii) for the scrubber system used to control emissions from the Spray Dryer and Flash Dryer associated with emissions point DCO – 26, all required recordation of the flow rate of scrubbing medium to the venturi scrubber, the differential pressure across the throat of the venturi, and the flow rate and pH of the scrubbing medium circulated through the packed tower;

(iii) information concerning processing of materials that qualify as toxic air pollutants (TAPs), including:

(a) the dates on which TAPs were processed in any of the FCC calciners associated with emissions point DCO – 23, in either the Spray Dryer or Flash Dryer associated with emissions point DCO – 26;

(b) identification of each TAP processed on each date, and the time period on each date during which each TAP was processed;

(c) the amount, in maximum pounds per hour, of each TAP processed on each date; and

(d) identification of the device or system used to control air emissions of each TAP processed.

[Reference: ARA Permit to Construct No. 510-7-0951 issued June 22, 2007]

4. CAO Plant (ARA Registration No. 510-0076-7-1076):

(A) Whenever ammonia is present in exhaust gases from calciners 806, 806A or 806B, the exhaust gases shall be vented through either of chemical absorbers 686 or 687 (emissions points14A and 17A, respectively) before discharge to atmosphere.

(B) Whenever chemical absorber 686 or 687 is being used to control emissions of ammonia, the unit(s) shall be operated such that the pH of the absorbing medium is not more than 5.0, and the flow rate of absorbing medium through the absorber is at least 80 gallons per minute.

(C) The Permittee shall continuously monitor and record the pH and flow rate of the absorbing medium circulated through chemical absorbers 686 and 687 whenever these units are being used to control emissions of ammonia.

(D) The Permittee shall maintain for at least five (5) years, and shall make available to the Department upon request: all required recordation of the pH and flow rate of the absorbing medium in chemical absorbers 686 and 687. **Reference: ARA Permit to Construct No. 510-0076-7-1076 issued May 28, 2013]**

APPENDIX I
CAM Plan for Thermal Oxidizers

Background

A. Emissions Unit

Description: Magnapore (MAG) Plant, Magnapore Plant Expansion (MGX), and Specialty Catalyst Plant (SCP)

Identification: MAG-04, MGX-12, and SCP-06

Facility: W.R. Grace & Co. – CONN., Grace Curtis Bay Works

B. Applicable Regulation, Emission Limit, and Monitoring Requirement

Regulation Citation: COMAR 26.11.19.30D(1)

Regulated Pollutant (PSEU): VOC

Emission Standard: VOC reduction efficiency of at least 90 percent

Monitoring Requirements in Permit: Continuously monitor chamber temperature

C. Control Technology

Thermal Oxidizer

Monitoring Approach

The key elements of the monitoring approach are presented in the following table:

	Indicator No.1	Indicator No. 2
I. Indicator	Combustion Chamber Temperature	Work Practice
Measurement Approach	Combustion chamber temperature is monitored with a thermocouple.	Inspection and maintenance of the burner.
II. Indicator Range	For each of oxidizers T-657 (MAG-4) and T-1657 (MGX-12), an excursion is defined as a one-hour block average operating temperature of less than 1400 °F whenever the oxidizer is being used to control VOC. For oxidizer 90800 (SCP-6; to be replaced by 90803), an excursion is defined as a one-hour block average operating temperature of less than 1450 °F whenever the oxidizer is being used to control VOC. For each of oxidizers T-657, T-1657 and 90800 (to be replaced by 90803), low temperature interlocks will prevent start-up, or (if the process is already running) will shut down material feed to affected units when the oxidizer operating temperature falls below the requisite minimum temperature. High temperature interlocks also shut down material feed to affected units to prevent oxidizer damage when the oxidizer operating temperature exceeds a specified maximum. Excursions trigger an inspection, corrective action, and a reporting requirement.	An excursion is defined as failure to perform annual inspection.
III. Performance Criteria		
A. Data Representativeness	The sensor is located in the combustion chamber as an integral part of the combustor design.	N/A
B. Verification of Operational Status	N/A	N/A
C. QA/QC Practices and Criteria	Accuracy of the thermocouple will be verified by a redundant thermocouple probe installed. The temperature transmitters are calibrated at least once every six months.	N/A

	Indicator No.1	Indicator No. 2
D. Monitoring Frequency	Monitored continuously	Annual inspection of the burner.
Data Collection Procedures	Recorded continuously on a recorder.	Record results of annual inspections.
Averaging Period	one-hour block average	N/A

MONITORING APPROACH JUSTIFICATION

Background

The facility manufactures multi-product specialty inorganic chemicals and operates several plants. The Magnapore Plant (MAG), Magnapore Plant Expansion (MGX), and Specialty Catalyst Plant (SCP) of these plants produce uncontrolled emissions of VOC that exceed the CAM significance trigger levels. Emissions from stacks MAG-04, MGX-12 and SCP-06 are discharged from the thermal oxidizers T-657, T-1657 and 90800 (to be replaced by 90803), respectively, to control VOC.

Rationale for Selection of Performance Indicators

The thermal oxidizer chamber temperature was selected because it is indicative of the incinerator operation (combustion occurring within the chamber). If the chamber temperature decreases significantly, complete combustion may not occur. Attachment 1 presents information from the literature on thermal oxidizer control efficiency as a function of temperature. It has been shown that the control efficiency achieved by a thermal oxidizer is a function of its operating temperature, or outlet temperature. By maintaining the operating temperature at or above a minimum, a level of control efficiency can be expected to be achieved.

Combustion gas flow is not measured in any of the thermal oxidizers but their operation is self-limiting to prevent damage to the units and release of untreated VOC. The combustion air delivery systems are oversized for the oxidizers and are controlled by oxidizer outlet temperature. If VOC loading were to exceed design levels, causing an increase in combustion temperatures, the high temperature interlock would shut down the unit and VOC feed systems to prevent damage. If oxidizer combustion temperature were to drop below 1400°F, the low temperature interlock would shut down the unit and VOC feed systems to prevent operation below the required 90% destruction efficiency.

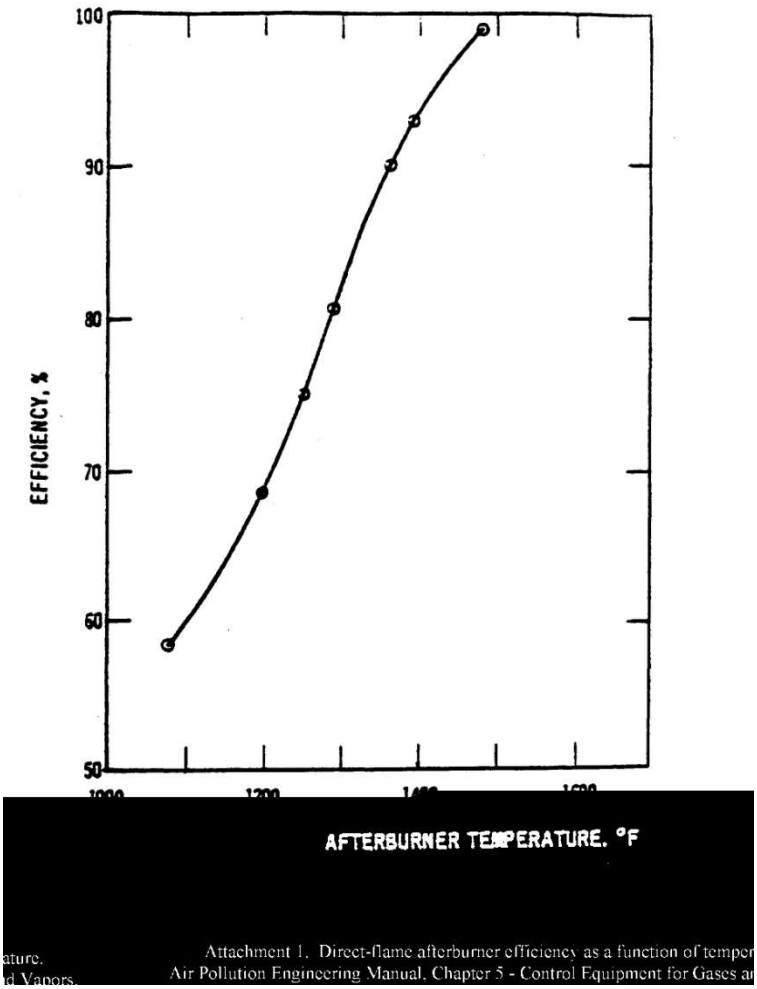
The work practice comprises of an annual inspection and tuning of the thermal oxidizer burner. This was selected because an inspection verifies equipment integrity and periodic tuning will maintain proper burner operation and efficiency.

Rationale for Selection of Indicator Level

The selected indicator range for the thermo oxidizers chamber temperature is "greater than 1400°F at all times." When an excursion occurs corrective action will be initiated, beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions will be documented and reported.

The Title V operating permit requires maintaining the chamber temperature at or above the minimum operating temperature of 1400°F. The Attachment 1 below indicates that a thermal oxidizer is expected to achieve 95 percent or greater destruction efficiency at this temperature. The permit requirement is 90 percent destruction efficiency. The thermal oxidizers installed by Grace have a 99.9 % VOC destruction efficiency. The thermal oxidizers employ a temperature controller that maintains the desired chamber temperature by using a natural gas-fired auxiliary burner; the temperature controller is set to maintain a temperature of at least 1400°F for Emissions Units MAG-04 and MGX-12, and 1450°F for Emissions Unit SCP-06.

The historical review indicates that chamber temperatures for all three thermal oxidizers are approximately 1600°F, greater than 1400°F. The higher the operating temperature, the more efficient the operation. The higher temperature also allows the unit to treat a greater mass flow of VOC.



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Attachment 1. Direct-flame afterburner efficiency as a function of temper
Air Pollution Engineering Manual, Chapter 5 - Control Equipment for Gases a

APPENDIX II
CAM Plan for Selective Catalytic Reduction

Background

A. Emissions Unit

Description: Automobile Emissions Operations (AEO) Plant (Hydro-processing Catalyst Plant)
Identification: AEO-82
Facility: W.R. Grace & Co. – CONN., Grace Curtis Bay Works

B. Applicable Regulation, Emission Limit, and Monitoring Requirement

Regulation Citation: COMAR 26.11.17, 40 CFR 64

Regulated Pollutant (PSEU): NO_x

Emission Standard: The NO_x emissions from controlled emissions units and the NO_x emissions increase from the modification to the AEO plant to add the continuous mixer system in 2012 have not triggered non-attainment New Source Review for the AEO plant.

C. Control Technology

Selective Catalytic Reduction.

Monitoring Approach

The key elements of the monitoring approach are presented in the following table:

	Indicator No.1	Indicator No. 2	Indicator No. 3
I. Indicator	Catalyst Bed Inlet Temperature	Catalyst activity	Pressure Differential Across Catalyst bed
Measurement Approach	Inlet temperature is measured using the computerized Distributed Control System (DCS) continuously.	Catalyst sampling and evaluation every two years to measure change in catalyst activity level	A differential pressure transmitter is used to measure differential pressure that is monitored using the DCS.
II. Indicator Range	An excursion is defined as operation of affected units when the one-hour	An excursion is defined as failure to perform	An excursion is defined as operation of affected units when

	Indicator No.1	Indicator No. 2	Indicator No. 3
	block average temperature of process exhaust gases at the inlet of the catalyst bed is less than 550°F. Excursions trigger an inspection, corrective action, and a reporting requirement.	biennial catalyst activity measurements	the three-hour block average differential pressure across the catalyst bed is greater than 12 inches of water column. Excursions trigger an inspection, corrective action, and a reporting requirement.
III. Performance Criteria			
A. Data Representativeness	Readings will be made at the control system.	N/A	Pressure gauges will be periodically calibrated
B. Verification of Operational Status	N/A	N/A	N/A
C. QA/QC Practices and Criteria	Catalyst Bed Inlet temperature probe is calibrated at least once every six months and calibration records maintained	N/A	Pressure gauges will be calibrated at least once every six months and calibration records maintained
D. Monitoring Frequency	Catalyst bed inlet temperature is monitored continuously	Biennial catalyst activity measurement	Pressure differential of Catalyst bed is monitored by DCS
Data Collection Procedures	DCS continuously records bed inlet temperature.	Results of catalyst activity testing are maintained at the facility.	Pressure differential across the Catalyst bed is continuously recorded.
Averaging Period	one-hour block average	N/A	three-hour block average

MONITORING APPROACH JUSTIFICATION

Background

The facility manufactures multi-product specialty inorganic chemicals and operates several plants. The Automobile Emissions Operations (AEO) Plant of these plants produces uncontrolled emissions of NO_x that exceed the CAM significance trigger levels. NO_x is controlled by Selective Catalytic Reducer unit.

Rationale for Selection of Performance Indicators

A. Catalyst bed inlet temperature: The temperature at the inlet to the catalyst bed provides a good indication of catalytic reduction performance because it indicates that the gas stream is at sufficient temperature to initiate reduction of NO_x on the catalyst. Too high of an inlet temperature (i.e., of the process gas stream) may cause NO_x generation in the SCR rather than NO_x reductions.

B. Catalyst activity: Catalyst deactivation will result in increases in NO_x emissions and NH_3 emissions (ammonia slip). Catalyst activity should be check periodically and/or the catalyst or portion of the catalyst should be replaced periodically to ensure reduction is occurring.

C. Pressure differential across the Catalyst bed: There is a high performance baghouse ahead of the SCR to prevent catalyst bed plugging or fouling. An increase in pressure differential over time may provide an indication that particulate matter (PM) is accumulating in the catalyst bed. Periodic maintenance and proper operation of the baghouse is necessary to prevent accumulation of PM in the Catalyst Bed.

Rationale for Selection of Indicator Level

Indicator No. 1: The Title V operating permit requires maintaining the SCR catalyst bed inlet temperature at or above the minimum operating temperature of 550°F. The computerized process control system has interlocks that stop ammonia flow to the SCR, stop material flow to the process sources, and alert the plant operator if the SCR inlet temperature is below 550°F or above 700°F. If the inlet temperature reaches 800°F, interlocks shut down the SCR air heater to prevent damage to the catalyst.

Indicator No. 2: Catalyst activity evaluation provides valuable information on the performance potential of the system and the condition of the catalyst. Based on historical data at the Grace facility, the life of a new SCR catalyst bed has been approximately 8 years. At testing frequency of once every two years was chosen since significant loss of catalyst activity has not occurred within two years of initial installation. The SCR is equipped with six plugs in the catalyst bed that can be removed, providing enough plugs to cover the expected life of the catalyst. Grace will send a plug to the catalyst vendor for activity testing every two years, and will schedule catalyst replacement accordingly.

Indicator No. 3: The level chosen represents the pressure drop that would be just outside of the SCR Catalyst bed design criteria.