ASCEND
PERFORMANCE MATERIALS

Hand Delivered

February 11, 2011

Mr. Rick Bradburn
Air Program Administrator
Department of Environmental Protection
160 Governmental Center
Pensacola, FL 32502-5794

Re: Air Construction Permit Application

Dear Mr. Bradburn:

Attached are 4 copies of an air permit application reflecting proposed increased production for our adipic acid unit and several related processes. Also enclosed is a separate envelope with calculations that contain confidential business information.

This project is of critical importance to Ascend. We will be pleased to meet with you and members of your staff to review any questions concerning the application. If any additional information can be provided, please contact Roy Noble at (850) 968-8721 or Jim Schulze at (850) 968-7565.

Sincerely,

Timothy N. Montgomery
Chemicals & Utilities Plant Manager

Enclosures

P. O. Box 97 · Gonzalez, FL 32560

REPORT

AIR PERMIT APPLICATION FOR AREA II ADIPIC ACID – 1080 MAR

Ascend Performance Materials LLC
Pensacola Plant

Submitted To: Ascend Performance Materials LLC
3000 Old Chemstrand Road
Cantonment, FL 32533

Submitted By: Golder Associates Inc.
5100 W. Lemon Street, Suite 208
Tampa, FL 33609 USA

Distribution: 4 Copies – Ascend Performance Materials LLC
4 Copies – FDEP
1 Copy – Golder Associates Inc.

February 2011

Project No. 10389657

A world of capabilities delivered locally

Golder Associates

Table of Contents

APPLICATION FORMS

ATTACHMENT A

List of Tables

Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit:

- For any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

Air Operation Permit – Use this form to apply for:

- An initial federally enforceable state air operation permit (FESOP); or
- An initial, revised, or renewal Title V air operation permit.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: **Ascend Performance Materials LLC**	
2. Site Name: **Pensacola Plant**	
3. Facility Identification Number: **0330040**	
4. Facility Location... Street Address or Other Locator: **3000 Old Chemstrand Road** City: **Cantonment** County: **Escambia** Zip Code: **32533**	
5. Relocatable Facility? ☐ Yes ☒ No	6. Existing Title V Permitted Facility? ☒ Yes ☐ No

Application Contact

1. Application Contact Name: **Jim Schulze**
2. Application Contact Mailing Address... Organization/Firm: **Ascend Performance Materials LLC** Street Address: **P.O. Box 97** City: **Gonzalez** State: **FL** Zip Code: **32560-0097**
3. Application Contact Telephone Numbers... Telephone: (**850**) **968-7565** ext. Fax: (**850**) **968 - 7220**
4. Application Contact E-mail Address: **jkschu@ascendmaterials.com**

Application Processing Information (DEP Use) 0330040 - 036 - AC

1. Date of Receipt of Application:	3. PSD Number (if applicable):
2. Project Number(s):	4. Siting Number (if applicable):

APPLICATION INFORMATION

Purpose of Application

This application for air permit is being submitted to obtain: (Check one)

Air Construction Permit

[X] Air construction permit.

[ ] Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).

[ ] Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

Air Operation Permit

[ ] Initial Title V air operation permit.

[ ] Title V air operation permit revision.

[ ] Title V air operation permit renewal.

[ ] Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.

[ ] Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

[ ] Air construction permit and Title V permit revision, incorporating the proposed project.

[ ] Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

[ ] I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

Ascend is submitting this permit application to increase the permitted annual capacity for adipic acid production from 990 million pounds adipic acid (MAR) (Permit No. 0330040-035-AC) to 1,080 MAR based on a 12-month rolling total. Ascend proposes to install new equipment and upgrade existing equipment to achieve new adipic production rate.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
002	Area II Adipic Acid/TRU/SCR II	AC1B	NA
020	Cyclohexane Oxidation Process	AC1B	NA
042	Nitric Acid Plant	AC1B	NA
088 and 089	Area 480 KA and Area 480 KA Fugitives	AC1E	NA
081	Continuous Nylon Polymerization Lines	AC1C	NA
082	Batch Nylon Polymerization Lines	AC1C	NA
	Therminol Vaporizer No. 9	AC1E	NA
	Hydrogen Generating Plant No. 2	AC1D	NA
	Area II Adipic Acid – 1080 MAR Project Fugitive Emissions	AC1F	NA

Application Processing Fee

Check one: ☐ Attached - Amount: $_____ ☒ Not Applicable

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name :
   Timothy N. Montgomery, Chemical & Utilities Plant Manager

2. Owner/Authorized Representative Mailing Address...
   Organization/Firm: **Ascend Performance Materials LLC**
   Street Address: **P.O. Box 97**
   City: **Gonzalez** State: **FL** Zip Code: **32560-0097**

3. Owner/Authorized Representative Telephone Numbers...
   Telephone: **(850) 968 - 7114** ext. Fax: **(850) 968 - 7220**

4. Owner/Authorized Representative E-mail Address: **tnmont@ascendmaterials.com**

5. Owner/Authorized Representative Statement:

   I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.

   Signature 2/14/11 Date

APPLICATION INFORMATION

Application Responsible Official Certification

Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1. Application Responsible Official Name:

2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):

- ☐ For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.
- ☐ For a partnership or sole proprietorship, a general partner or the proprietor, respectively.
- ☐ For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.
- ☐ The designated representative at an Acid Rain source or CAIR source.

3. Application Responsible Official Mailing Address...
Organization/Firm:
Street Address:
City: State: Zip Code:

4. Application Responsible Official Telephone Numbers...
Telephone: ( ) - ext. Fax: ( ) -

5. Application Responsible Official E-mail Address:

6. Application Responsible Official Certification:

I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.

Signature Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: **Kennard F. Kosky**
   Registration Number: **14996**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Golder Associates Inc.****
   Street Address: **6026 NW 1st Place**
   City: **Gainesville** State: **FL** Zip Code: **32607**
3. Professional Engineer Telephone Numbers...
   Telephone: **(352) 336-5600** ext.**21156** Fax: **(352) 336-6603**
4. Professional Engineer Email Address: **kkosky@golder.com**
5. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.

(4) If the purpose of this application is to obtain an air construction permit (check here ☒, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here ☐, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here ☐, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Signature 2/10/11
Date

(seal)

* Attach any exception to certification statement.
** Board of Professional Engineers Certificate of Authorization #00001670

Project No. 10389657

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone **16** East (km) **476** North (km) **3385**		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) **30/35/56** Longitude (DD/MM/SS) **87/15/01**	
3. Governmental Facility Code: **O**	4. Facility Status Code: **A**	5. Facility Major Group SIC Code: **28**	6. Facility SIC(s): **2869**
7. Facility Comment :			

Facility Contact

1. Facility Contact Name: **Jim Schulze**
2. Facility Contact Mailing Address... Organization/Firm: **Ascend Performance Materials LLC** Street Address: **P.O. Box 97** City: **Gonzalez** State: **FL** Zip Code: **32560-0097**
3. Facility Contact Telephone Numbers: Telephone: **(850) 968-7565** ext. Fax: **(850) 968-7220**
4. Facility Contact E-mail Address: **jkschu@ascendmaterials.com**

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: ( ) - ext. Fax: ( ) -
4. Facility Primary Responsible Official E-mail Address:

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a "major source" and a "synthetic minor source."

1. ☐ Small Business Stationary Source	☐ Unknown
2. ☐ Synthetic Non-Title V Source	
3. ☒ Title V Source	
4. ☒ Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. ☐ Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. ☒ Major Source of Hazardous Air Pollutants (HAPs)	
7. ☐ Synthetic Minor Source of HAPs	
8. ☒ One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. ☐ One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. ☒ One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. ☐ Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:	

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
PM	A	N
PM_{10}	A	N
NO_x	A	N
SO_2	A	N
CO	A	N
VOC	A	N
HAP	A	N

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility-Wide Cap [Y or N]? (all units)	3. Emissions Unit ID's Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

7. Facility-Wide or Multi-Unit Emissions Cap Comment:
Not Applicable

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **APM-FI-C1** [ ] Previously Submitted, Date:_____

2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **See EU Sections** [ ] Previously Submitted, Date:_

3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID:**APM-FI-C3** [ ] Previously Submitted, Date:_____

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location:
   [ ] Attached, Document ID:_____ [X] Not Applicable (existing permitted facility)

2. Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL):
   [X] Attached, Document ID: **Attachment A**

3. Rule Applicability Analysis:
   [X] Attached, Document ID: **Attachment A**

4. List of Exempt Emissions Units:
   [ ] Attached, Document ID:_____ [X] Not Applicable (no exempt units at facility)

5. Fugitive Emissions Identification:
   [ ] Attached, Document ID:_____ [X] Not Applicable

6. Air Quality Analysis (Rule 62-212.400(7), F.A.C.):
   [ ] Attached, Document ID:_____ [X] Not Applicable

7. Source Impact Analysis (Rule 62-212.400(5), F.A.C.):
   [ ] Attached, Document ID:_____ [X] Not Applicable

8. Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.):
   [ ] Attached, Document ID:_____ [X] Not Applicable

9. Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.):
   [ ] Attached, Document ID:_____ [X] Not Applicable

10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.):
    [ ] Attached, Document ID:_____ [X] Not Applicable

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for FESOP Applications – N/A

1. List of Exempt Emissions Units:
   ☐ Attached, Document ID:_____ ☐ Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications – N/A

1. List of Insignificant Activities: (Required for initial/renewal applications only)
   ☐ Attached, Document ID:_____ ☐ Not Applicable (revision application)

2. Identification of Applicable Requirements: (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought)
   ☐ Attached, Document ID:_____
   ☐ Not Applicable (revision application with no change in applicable requirements)

3. Compliance Report and Plan: (Required for all initial/revision/renewal applications)
   ☐ Attached, Document ID:_____
   Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.

4. List of Equipment/Activities Regulated under Title VI: (If applicable, required for initial/renewal applications only)
   ☐ Attached, Document ID:_____
   ☐ Equipment/Activities Onsite but Not Required to be Individually Listed
   ☐ Not Applicable

5. Verification of Risk Management Plan Submission to EPA: (If applicable, required for initial/renewal applications only)
   ☐ Attached, Document ID:_____ ☐ Not Applicable

6. Requested Changes to Current Title V Air Operation Permit:
   ☐ Attached, Document ID:_____ ☐ Not Applicable

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Facilities Subject to Acid Rain, CAIR, or Hg Budget Program – N/A

1. Acid Rain Program Forms:

   Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Not Applicable (not an Acid Rain source)

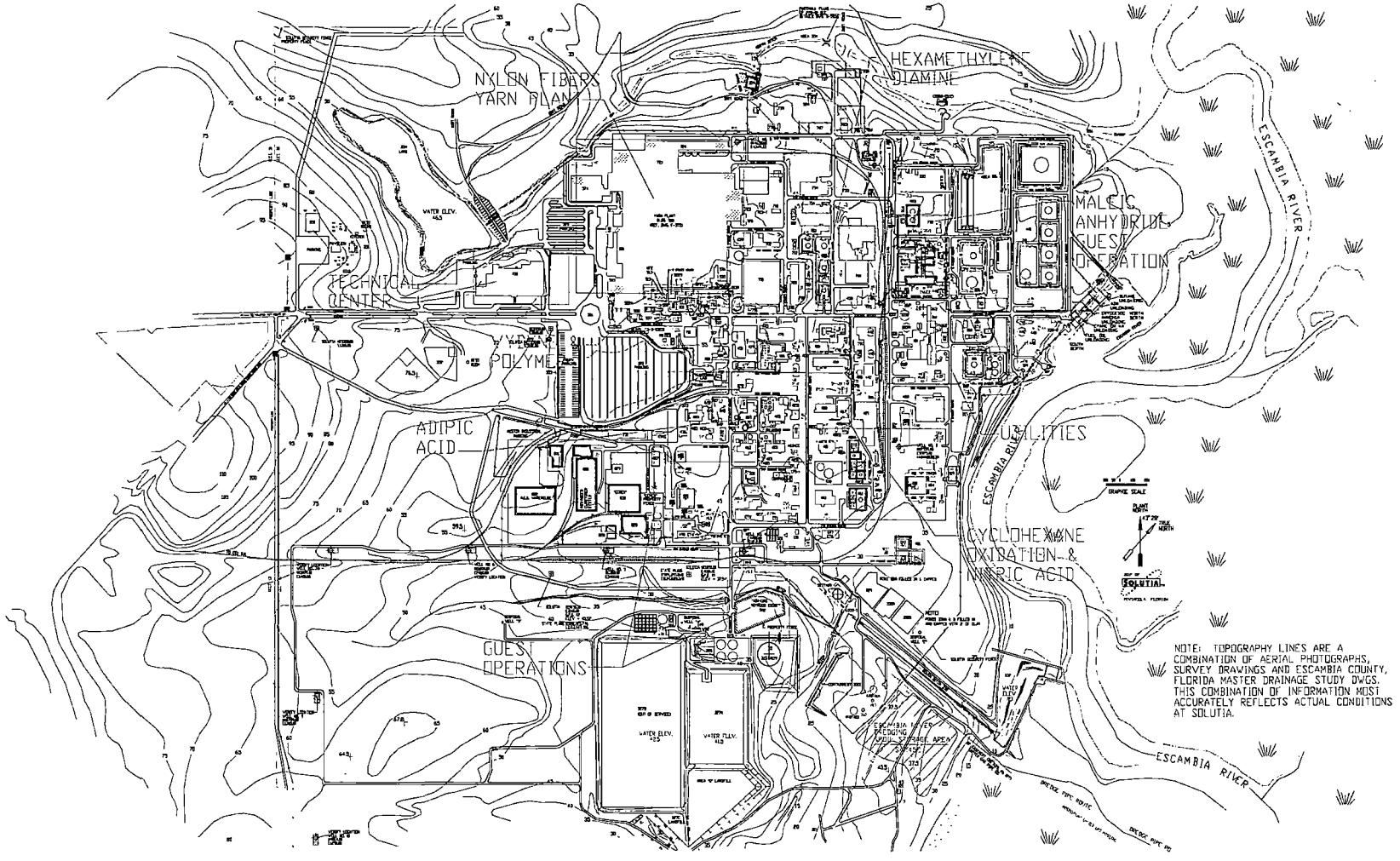
   Phase II NO_X Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Not Applicable

   New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Not Applicable

2. CAIR Part (DEP Form No. 62-210.900(1)(b)):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Not Applicable (not a CAIR source)

Additional Requirements Comment

FORM ATTACHMENTS



ATTACHMENT APM-FI-C1
Facility Plot Plan

Source: Golder, 2010.

Golder Associates

ATTACHMENT APM-FI-C3
Precautions to Prevent Emissions of Unconfined Particulate Matter

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Reasonable precaution for control of unconfined emissions of particulate matter will be taken as appropriate and practical for activities such as vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrial related activities such as loading, unloading, storing or handling. Such precautions may include the following:

1. Paving and maintenance of roads, parking areas and yards;
2. Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing;
3. Application of asphalt, water, oil, chemicals or other dust suppressants to unpaved roads, yards, open stockpiles and similar emission units;
4. Removal of particulate matter from roads and other paved areas under the control of Ascend to prevent re-entrainment, and from building or work areas to prevent particulate from becoming airborne;
5. Landscaping or planting of vegetation;
6. Use of hoods, fans, filters and similar equipment to contain, capture and/or vent particulate matter;
7. Confining abrasive blasting where possible; and
8. Enclosure or covering of conveyor systems.

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

EMISSIONS UNIT INFORMATION
Section [1]
EU 002 – Area II Adipic Acid

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

☒ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

☐ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

☒ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Area II Adipic Acid Process Equipment/Product Synthesis/Refining/Raw Material Recovery

3. Emissions Unit Identification Number:
EU 002 (Area II Adipic Acid)

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:
A			**28**

8. Federal Program Applicability: (Check all that apply)

☐ Acid Rain Unit ☐ CAIR Unit

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:

Ascend is proposing to increase production from 990 MAR to 1,080 MAR adipic acid through several addition and/or modification projects, which are described in detail in Attachment A.

EMISSIONS UNIT INFORMATION
Section [1]
EU 002 – Area II Adipic Acid

Emissions Unit Control Equipment/Method: Control **1** of **3**

1. Control Equipment/Method Description: **Thermal Reduction Unit (TRU)**
2. Control Device or Method Code: **027/131**

Emissions Unit Control Equipment/Method: Control **2** of **3**

1. Control Equipment/Method Description: **Selective Non-Catalytic Reduction (SNCR)**
2. Control Device or Method Code: **107**

Emissions Unit Control Equipment/Method: Control **3** of **3**

1. Control Equipment/Method Description: **Backup Selective Catalytic Reduction (SCR)**
2. Control Device or Method Code: **139**

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **123,000 lbs KA feed per hour**	
2. Maximum Production Rate: **1,080,000,000 lbs Adipic Acid per year**	
3. Maximum Heat Input Rate: million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	**7** days/week
52 weeks/year	**8,760** hours/year
6. Operating Capacity/Schedule Comment:	
KA = Cyclohexanone/Cyclohexanol Mixture	

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **EU002**		2. Emission Point Type Code: **2**
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **Nitric acid reaction and Cyclohexane oxidation off-gas are burned in the TRU.**		
5. Discharge Type Code: **V**	6. Stack Height: **85** feet	7. Exit Diameter: **7** feet
8. Exit Temperature: **434**°F	9. Actual Volumetric Flow Rate: **98,000** acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet
13. Emission Point UTM Coordinates... Zone: **17** East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)
15. Emission Point Comment: **Based on September 28, 2010 Engineering Test. Stack discharge parameters may change with the addition of SNCR control technology.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment **1** of **1**

1. Segment Description (Process/Fuel Type): **Industrial Processes; Chemical Manufacturing; Adipic Acid; Adipic Acid Refining**		
2. Source Classification Code (SCC): **3-01-001-05**	3. SCC Units: **Tons of Product**	
4. Maximum Hourly Rate:	5. Maximum Annual Rate: **540,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **1,080,000,000 lbs /yr / 2000 lb/ton = 540,000 tons per yr**		

Segment Description and Rate: Segment __ of __

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
CO			NS
NO_x	027/131	107	EL
VOC	131		NS
PM			NS
PM10			NS

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – *POTENTIAL/ESTIMATED FUGITIVE EMISSIONS*

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **NOx**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour **610** tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **500 ppm 30-day rolling average** Reference: **Permit 0330040-035-AC**	7. Emissions Method Code: **1**
8.a. Baseline Actual Emissions (if required): **524.9** tons/year	8.b. Baseline 24-month Period: From: **1/1/02** To: **12/31/03**
9.a. Projected Actual Emissions (if required): **610** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years
10. Calculation of Emissions: **Baseline emissions do not include demand growth, see Attachment A, Table 1 for complete baseline, demand growth and projected actual emissions comparison.**	
11. Potential, Fugitive, and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 3

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **500 ppm 30-day rolling average**	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: **NOx continuous monitoring system**	
6. Allowable Emissions Comment (Description of Operating Method): **Permit No. 0330040-035-AC.**	

Allowable Emissions Allowable Emissions 2 of 3

1. Basis for Allowable Emissions Code: **ESCPSD**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **610 TPY based on 12-month rolling total**	4. Equivalent Allowable Emissions: lb/hour **610** tons/year
5. Method of Compliance: **NOx continuous monitoring system**	
6. Allowable Emissions Comment (Description of Operating Method): **Permit No. 0330040-035-AC.**	

Allowable Emissions Allowable Emissions 3 of 3

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **1,302 lb of NO/ 1,996 lb of NO2, per Event**	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method): **Event is equal to startup, shutdown, or malfunction and may not exceed 2 hours in any 24-hour period. Rules 62-4.160(2) and 62-210.700(1), F.A.C.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS .

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **CO**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **11.6** tons/year	8.b. Baseline 24-month Period: From: **1/1/03** To: **12/31/04**
9.a. Projected Actual Emissions (if required): **17.40** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years
10. Calculation of Emissions: **Baseline emissions do not include demand growth, see Attachment A, Table 1 for complete baseline, demand growth and projected actual emissions comparison.**	
11. Potential, Fugitive, and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **VOC**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **34.2** tons/year	8.b. Baseline 24-month Period: From: **1/1/04** To: **12/31/05**
9.a. Projected Actual Emissions (if required): **55.62** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years
10. Calculation of Emissions: **Baseline emissions do not include demand growth, see Attachment A, Table 1 for complete baseline, demand growth and projected actual emissions comparison.**	
11. Potential, Fugitive, and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **PM/PM10**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **19.04** tons/year	8.b. Baseline 24-month Period: From: **1/1/03** To: **12/31/04**
9.a. Projected Actual Emissions (if required): **28.3** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years
10. Calculation of Emissions: **Baseline emissions do not include demand growth, see Attachment A, Table 1 for complete baseline, demand growth and projected actual emissions comparison.**	
11. Potential, Fugitive, and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: **VE20**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **20** % Exceptional Conditions: **100** % Maximum Period of Excess Opacity Allowed: **60** min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment: **F.A.C. 62-210.700 (1)**	

Visible Emissions Limitation: Visible Emissions Limitation ____ of ____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: __ % Maximum Period of Excess Opacity Allowed: __min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 1 of 1

1. Parameter Code: **EM**	2. Pollutant(s): **NO_x**
3. CMS Requirement:	☐ Rule ☒ Other
4. Monitor Information... Manufacturer: **TECO** Model Number: **42C**	Serial Number:
5. Installation Date:	6. Performance Specification Test Date: **3/9/2010**
7. Continuous Monitor Comment: **TRU/SCR I Serial Number: 42C63868-341** **SCR II Serial Number: 42C63866-342**	

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

EMISSIONS UNIT INFORMATION
Section [1]
EU 002 – Area II Adipic Acid

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☒ Attached, Document ID: **APM-EU1-I1** ☐ Previously Submitted, Date _____

2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☒ Attached, Document ID: **APM-FUEL** ☐ Previously Submitted, Date _____

3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☒ Attached, Document ID: **APM-EU1-I3** ☐ Previously Submitted, Date _____

4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: ☐ Previously Submitted, Date _____
☒ Not Applicable (construction application)

5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: ☐ Previously Submitted, Date _____
☒ Not Applicable

6. Compliance Demonstration Reports/Records:
☐ Attached, Document ID: _____
Test Date(s)/Pollutant(s) Tested: _____
☐ Previously Submitted, Date: _____
Test Date(s)/Pollutant(s) Tested: _____
☐ To be Submitted, Date (if known): _____
Test Date(s)/Pollutant(s) Tested: _____
☒ Not Applicable
Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute:
☐ Attached, Document ID: _____ ☒ Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications – N/A

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☒ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☒ Not Applicable

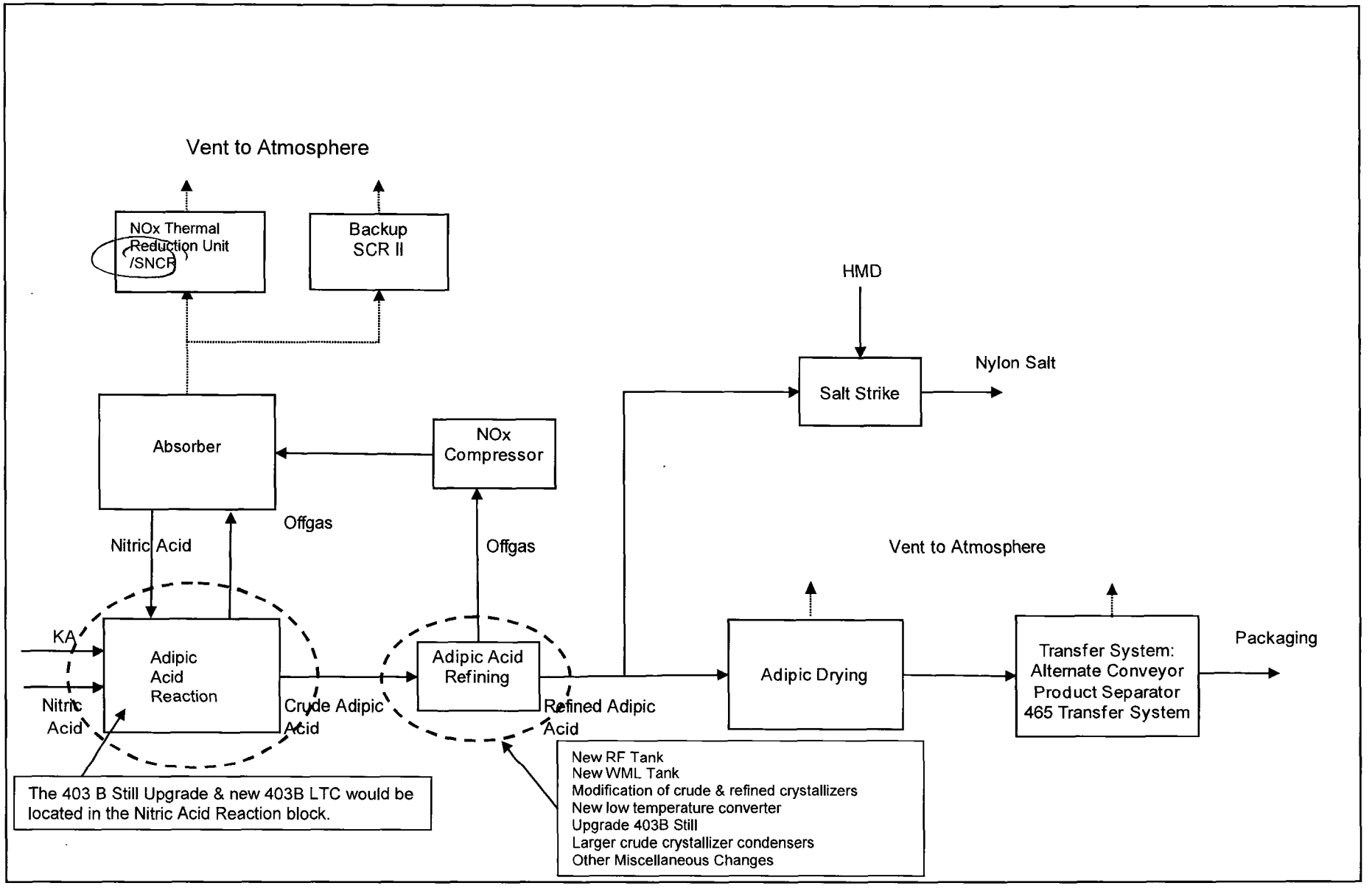
Additional Requirements for Title V Air Operation Permit Applications – N/A

1. Identification of Applicable Requirements: ☐ Attached, Document ID: ☐ Not Applicable
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: ☐ Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: ☐ Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ ☐ Not Applicable

Additional Requirements Comment

FORM ATTACHMENTS

ATTACHMENT APM-EU1-I1
Adipic Acid Process Flow Diagram



ATTACHMENT APM-FUEL
Fuel Analysis or Specification

Gulf South Pipeline Company, LP
Houston, Texas
CHROMATOGRAPH REPORT
for 08/10

09/01/10 10:04:25
PAGE 1

Sulfur Content

Chromatograph ID: 002417

Chromatograph Name: Solutia - Pensacola

Day	CO2	N2	Grav	BTU	Methane	Ethane	Propane	Ibutane	Nbutane	Ipentan	Npentan	C6
1	1.1327	0.6246	0.5811	1015.9679	96.1809	1.7087	0.2049	0.0288	0.0400	0.0148	0.0121	0.0319
2	1.0874	0.5677	0.5795	1016.3257	96.4639	1.5697	0.1790	0.0291	0.0369	0.0146	0.0116	0.0326
3	1.1831	0.6023	0.5805	1015.1542	96.3439	1.6176	0.1605	0.0247	0.0307	0.0128	0.0102	0.0307
4	1.0756	0.5708	0.5787	1015.2526	96.5287	1.5356	0.1565	0.0237	0.0293	0.0124	0.0097	0.0289
5	1.1243	0.5777	0.5795	1015.5956	96.4166	1.5621	0.1687	0.0256	0.0324	0.0135	0.0109	0.0340
6	1.1686	0.5871	0.5798	1015.2004	96.4032	1.5707	0.1627	0.0255	0.0324	0.0132	0.0104	0.0298
7	1.1825	0.5961	0.5801	1015.1321	96.3984	1.5952	0.1548	0.0247	0.0319	0.0134	0.0107	0.0303
8	1.2372	0.6401	0.5816	1015.2289	96.1008	1.7241	0.1711	0.0268	0.0342	0.0142	0.0112	0.0311
9	1.3286	0.6277	0.5840	1016.1456	95.8314	1.8902	0.1877	0.0305	0.0376	0.0158	0.0118	0.0343
10	1.2552	0.6071	0.5821	1015.7938	96.1166	1.7392	0.1813	0.0290	0.0360	0.0154	0.0119	0.0345
11	1.1699	0.6084	0.5807	1015.2771	96.3123	1.6126	0.1668	0.0282	0.0357	0.0157	0.0125	0.0385
12	1.2451	0.6283	0.5823	1015.8972	96.0295	1.7350	0.1813	0.0296	0.0372	0.0157	0.0122	0.0378
13	1.2578	0.6435	0.5827	1015.6261	96.0833	1.7612	0.1846	0.0309	0.0374	0.0157	0.0120	0.0364
14	1.2949	0.6795	0.5837	1015.2221	95.8093	1.8584	0.1860	0.0306	0.0378	0.0148	0.0110	0.0310
15	1.3326	0.6949	0.5853	1016.7560	95.5716	1.9449	0.2359	0.0448	0.0476	0.0178	0.0125	0.0326
16	1.3787	0.7569	0.5857	1015.3522	95.5278	1.9553	0.2212	0.0390	0.0439	0.0168	0.0127	0.0342
17	1.3409	0.7540	0.5860	1016.8376	95.4991	2.0275	0.2244	0.0380	0.0433	0.0164	0.0124	0.0351
18	1.2373	0.7165	0.5830	1014.7401	95.8502	1.8204	0.1803	0.0269	0.0343	0.0133	0.0107	0.0298
19	1.2141	0.6854	0.5825	1014.9667	95.9400	1.7994	0.1807	0.0258	0.0322	0.0128	0.0100	0.0275
20	1.1964	0.6480	0.5819	1015.2917	96.0196	1.7517	0.1848	0.0258	0.0325	0.0133	0.0104	0.0286
21	1.1890	0.6593	0.5811	1014.6858	96.1640	1.7094	0.1754	0.0249	0.0316	0.0127	0.0102	0.0286
22	1.2300	0.6411	0.5811	1014.2721	96.1881	1.6749	0.1652	0.0254	0.0306	0.0132	0.0102	0.0300
23	1.2477	0.5284	0.5808	1014.6876	96.2708	1.7035	0.1476	0.0231	0.0255	0.0118	0.0088	0.0277
24	1.2287	0.5170	0.5801	1014.9194	96.3552	1.7109	0.1419	0.0196	0.0229	0.0105	0.0081	0.0254
25	1.1533	0.5597	0.5812	1016.3820	96.1026	1.9023	0.1621	0.0222	0.0266	0.0110	0.0085	0.0249
26	1.2315	0.6526	0.5837	1016.8977	95.7568	2.0097	0.1927	0.0272	0.0349	0.0135	0.0105	0.0295
27	1.1962	0.6519	0.5828	1016.5111	95.8789	2.0153	0.1931	0.0256	0.0322	0.0128	0.0101	0.0284
28	1.1450	0.6163	0.5833	1019.2628	95.7916	2.0927	0.2262	0.0272	0.0346	0.0131	0.0104	0.0272
29	1.1077	0.6318	0.5813	1016.1537	96.1321	1.8020	0.1827	0.0247	0.0311	0.0131	0.0105	0.0287
30	1.1809	0.5243	0.5812	1016.0638	96.4000	1.6072	0.1947	0.0313	0.0373	0.0172	0.0133	0.0390
31	1.1513	0.5227	0.5801	1016.0387	96.4000	1.6712	0.1779	0.0285	0.0334	0.0150	0.0115	0.0349

Avg: 1.2098 0.6233 0.5819 1015.7303
Remarks:

ATTACHMENT APM-FUEL
Fuel Analysis or Specification (Continued)

Methods of Operation – Used Oil

Boilers Nos. 4, 5, and 6 are permitted to burn on-specification used oil. On-specification used oil is defined as used oil that meets the specifications of 40 CFR 279 - Standards for the Management of Used Oil, listed below. The owner shall maintain records to demonstrate that each shipment of used oil meets the specifications of 40 CFR 279. "Off specification" used oil shall not be burned. Used oil which fails to comply with any of these specification levels is considered "off-specification" used oil.

CONSTITUENT/PROPERTY	ALLOWABLE LEVEL
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Total Halogens	1000 ppm maximum
Flash point	100°F minimum

Methods of Operation – Supplemental Fuels

Supplemental fuels shall be sampled with results submitted with the application for permit renewals. Supplemental fuels not analyzed upon permit renewals will not be authorized for burning. The resumption of burning of these supplemental fuels requires an analysis provided to the Department seven days prior to use and Department approval. [Rules 62-4.070, 62-4.160(2) and 62-213.440(1), F.A.C.; 40 CFR 279.11; Application 0330040-034-AC]

Fuel Oil Barge Analysis

Date	API Grav	Viscosity	Sulfur	Flash Point	Pour Point	Ash	Water	Sediment	BS & W	Vanadium	Sodium	Asphal- tenes				
Delivered	**@ 60F**	SSF @ 122F	**wt %**	**F**	**F**	**wt %**	**vol%**	**wt%**	**wt %**	**ppm**	**ppm**	**wt %**	**Spec Gr**	**Lb/bbl**	**Btu/lb**	**Mbtu/bbl**
3/16/07	-1.7	71.51	2.02	160	32	0.050	0.20	0.05	0.25	2.7	3.1	3.22	1.090	381.9	17,617	6.727
3/24/07	-1.7	71.51	2.02	160	32	0.050	0.20	0.05	0.25	2.7	3.1	3.22	1.090	381.9	17,617	6.727
4/4/07	-1.7	71.51	2.02	160	32	0.050	0.20	0.05	0.25	2.7	3.1		1.090	381.9	17,617	6.727
4/22/07	0.0	77.72	2.22	200	21.2	0.059	0.30	0.02	0.32	44	8.6	3.3	1.076	376.9	17,683	6.665
4/27/07	7.4	67.36	2.66	+200	10.4	0.024	0.05	0.02	0.07	22	20	2.4	1.019	356.8	18,114	6.464
4/28/07	7.4	67.36	2.66	+200	10.4	0.024	0.05	0.02	0.07	22	20	2.4	1.019	356.8	18,114	6.464
5/14/07	4.6	52.25	2.85	+200	15.8	0.061	0.05	0.08	0.13	13	20	1.3	1.040	364.2	17,921	6.527
12/12/08	2.5	36.31	1.90	186	32	0.045	0.05	0.02	0.07	3.6	32	2.97	1.056	369.9	17,934	6.633
1/2/09	3.3	27.26	0.91	194	26.6	0.035	0.05	0.03	0.08	3.5	56	0.38	1.050	367.7	18,125	6.664
8/13/09	8.4	62.45	1.14	180	21.2	0.039	0.05	0.03	0.08	14	19	2.98	1.011	354.3	18,386	6.514

Intertek

Report of Analysis

INTERIM

Client: Ascend Performance Materials, LLC
Job Location: Mobile, AL, USA
Vessel: Submitted Sample
Our Reference Number: US290-0012718
Lab Reference Number: 2010-MOBL-000575

Client Reference Number:
Mike Grissett

Description	Method	Test	Result	Units
KATT Oil 24-Aug-2010	**WKAT 8-24-10 Ascend**			
2010-MOBL-000575-001	ASTM D482	Average Ash	0.004	Wt %
	ASTM D4294	Sulfur Content	0.0221	Wt %
	ITM 1051	Arsenic	192	ppb Wt
		Cadmium	236	ppb Wt
		Lead	288	ppb Wt
		Chromium	2310	ppb Wt
	ASTM D4629	Nitrogen	14	mg/kg
	UOP 779	Chloride	< 1	ppm Wt
	ASTM D93	Procedure Used	B	
		Corrected Flash Point	>230	°F
	ASTM D240	Gross BTU - LB	13247	BTU/lb
	ASTM D5291	Carbon Content	64.90	Wt %
	ASTM D1298	Density @ 15°C	1005.1	kg/m³

Signed: _____ Date: _____

Intertek
Thomas Veals, Laboratory Technician

109 Sutherland drive, Chicksaw, AL 36611 USA
Tel.: +1(251) 457-8751 Fax.: +1(251) 457-0382

Intertek

Report of Analysis

Client: Ascend Performance Materials, LLC
Job Location: Mobile, AL, USA
Our Reference Number: US290-0012718

Client Reference Number:
Mike Grissett

Sample ID: 2010-MOBL-000575-001
Sample Designated As: KATT Oil
Vessel/Location: Submitted Sample
Representing: WKAT 8-24-10 Ascend

Date Taken: 24-August-2010
Date Submitted: 07-September-2010
Date Tested: 09-September-2010
Drawn By: Client

Method	Test	Result	Units
ASTM D482	Ash from Petroleum Products		
	Average Ash	0.004	Wt %
ASTM D4294	Sulfur Content in Petroleum Products by ED-XRF		
	Sulfur Content	0.0221	Wt %
ITM 1051	Metals in Organic Matrix by ICP-MS		
	Arsenic	192	ppb Wt
	Cadmium	236	ppb Wt
	Lead	288	ppb Wt
	Chromium	2310	ppb Wt
ASTM D4629	Trace Nitrogen in Liquid Petroleum Hydrocarbons		
	Nitrogen	14	mg/kg
UOP 779	Chloride in Petroleum Distillates by Microcoulometry		
	Chloride	< 1	ppm Wt
ASTM D93	Pensky-Martens Closed Cup Flash Point		
	Procedure Used	B	
	Corrected Flash Point	>230	°F
ASTM D240	Heat of Combustion by Bomb Calorimeter		
	Gross BTU - LB	13247	BTU/lb
ASTM D5291	Instrumental Determination of Carbon, Hydrogen and Nitrogen		
	Carbon Content	64.90	Wt %
ASTM D1298	Density, Relative Density, or API Gravity by Hydrometer Method		
	Density @ 15°C	1005.1	kg/m³

Signed: _____ Date: _____

Intertek
James Herring, Laboratory Manager

109 Sutherland drive, Chicksaw, AL 36611 USA
Tel.: +1(251) 457-8751 Fax.: +1(251) 457-0382

Intertek

Report of Analysis

Client: Ascend Performance Materials, LLC
Job Location: Mobile, AL, USA
Our Reference Number: US290-0012948

Client Reference Number:
NONE

Sample ID: 2010-MOBL-000662-001
Sample Designated As: Heavy Residue
Vessel/Location: SUBMITTED P2K HEAVY RESIDUE
Representing: P2K Heavy Residue Ascend

Date Taken: 08-September-2010
Date Submitted: 23-September-2010
Date Tested: 25-September-2010
Drawn By: Client

Method	Test	Result	Units
ASTM D482	Ash from Petroleum Products		
	Average Ash	0.001	Wt %
ASTM D4294	Sulfur Content in Petroleum Products by ED-XRF		
	[1] Sulfur Content	0.0130	Wt %
ITM 1051	Metals in Organic Matrix by ICP-MS		
	Arsenic	3	ppb Wt
	Cadmium	< 5	ppb Wt
	Lead	11	ppb Wt
	Chromium	17	ppb Wt
ASTM D4629	Trace Nitrogen in Liquid Petroleum Hydrocarbons		
	Nitrogen	0.4	mg/kg
UOP 779 MOD	Chloride in Petroleum Distillates by Microcoulometry		
	Total Chloride Content	< 1.0	ppm
ASTM D93	Pensky-Martens Closed Cup Flash Point		
	Procedure Used	A	
	Corrected Flash Point	>230	°F
ASTM D240	Heat of Combustion by Bomb Calorimeter		
	Gross BTU - LB	16971	BTU/lb
ASTM D1298	Density, Relative Density, or API Gravity by Hydrometer Method		
	API Gravity @ 60 °F	14.0	°API
	Density at 15 degrees C	983.4	kg/m³

[1] *Out of Scope of the Method*

Signed: _____ Date: _____

Intertek
James Herring, Laboratory Manager

109 Sutherland drive, Chicksaw, AL 36611 USA
Tel.: +1(251) 457-8751 Fax.: +1(251) 457-0382

ATTACHMENT APM-EU1-I3
Detailed Description of Control Equipment

The John Zink flame reduction process or NO_x Thermal Reduction Unit (TRU) uses a reducing atmosphere to control the release of NO_x to the atmosphere.

The off-gas from the Adipic Acid Area enters the furnace along with the fuel, which is natural gas or ethane-rich gas. The NO_x is reduced to NO and N_2 at high temperatures in the furnace towers. Next, the gas enters the quench chamber which is used to cool the gas prior to the re-oxidation chamber, so the NO and N_2 will not convert back to NO_x and NO. The off-gas from the cyclohexane oxidatoin process enters at the quench chamber as a temperature controller as well as to be reoxidized in the re-oxidation chamber.

The re-oxidation chamber's function is to re-oxidize any excess fuel prior to combustion in the boiler. After the boiler, a portion of the gas stream is recycled back to furnace tower #1 and the quench chamber for temperature control. The remaining gas is vented to the atmosphere.

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

EMISSIONS UNIT INFORMATION
Section [2]
Cyclohexane Oxidation Process

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Cyclohexane Oxidation Process

3. Emissions Unit Identification Number: **020**

4. Emissions Unit Status Code: **A**	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: **2869**

8. Federal Program Applicability: (Check all that apply)

[ ] Acid Rain Unit

[ ] CAIR Unit

9. Package Unit:
Manufacturer: **Turner Envirologic** Model Number:

10. Generator Nameplate Rating:

11. Emissions Unit Comment: **Cyclohexane is oxidized with air in two high-pressure reactor trains. Emissions are VOC and CO. Ascend proposes to reduce VOC emissions from 4 tanks and 2 centrifuges through the routing of the LP scrubbers to the HP scrubbers off gas header controlled by the TRU. Details of the projects are presented in Attachment A. These emissions will be vented to atmosphere during TRU outage.**

EMISSIONS UNIT INFORMATION
Section [2]
Cyclohexane Oxidation Process

Emissions Unit Control Equipment/Method: Control 1 of 3

1. Control Equipment/Method Description: **Two high-pressure and low-pressure scrubbers**
2. Control Device or Method Code: **124, and 125**

Emissions Unit Control Equipment/Method: Control 2 of 3

1. Control Equipment/Method Description: **NOx thermal reduction unit (TRU) of EU002**
2. Control Device or Method Code: **027/131**

Emissions Unit Control Equipment/Method: Control 3 of 3

1. Control Equipment/Method Description: **OBUD thermal oxidizer (used during periods when the TRU is not operating).**
2. Control Device or Method Code: **131**

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **82,000 lb/hr**	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: hours/day weeks/year	 days/week hours/year
6. Operating Capacity/Schedule Comment: **The maximum permitted process rate is 82,000 lb/hr process air.**	

EMISSIONS UNIT INFORMATION
Section [2]
Cyclohexane Oxidation Process

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **EU020**	2. Emission Point Type Code: **2**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **Cyclohexane oxidation off-gases are burned in the TRU or OBUD.**		
5. Discharge Type Code: **V**	6. Stack Height: **85 feet**	7. Exit Diameter: **7 feet**
8. Exit Temperature: 434 **°F**	9. Actual Volumetric Flow Rate: **98,000 acfm**	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: **Stack parameters based on September 28, 2010 engineering test. VOC and CO emissions are controlled by TRU. When TRU is down VOC and CO emissions are controlled by OBUD. Parameters above are for TRU.** **Stack parameters for OBUD: 50 ft stack height; 5.5 ft stack diameter; 1,300 °F and 59,000 acfm. Venting to high pressure scrubbers occurs during change from TRU to OBUD.**		

EMISSIONS UNIT INFORMATION
Section [2]
Cyclohexane Oxidation Process

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment **1** **of** **1**

1. Segment Description (Process/Fuel Type): **Industrial Processes; Chemical Manufacturing; Fuel Fired Equipment; Natural Gas**		
2. Source Classification Code (SCC): **3-01-900-13**	3. SCC Units: **Million Cubic Feet Processed**	
4. Maximum Hourly Rate: **0.0059**	5. Maximum Annual Rate: **51.68**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **1020**[1]
10. Segment Comment: **Information provided for the OBUD. Intermittent operation, to be used as a back-up device when the existing TRU goes down. Maximum annual rate based on 8,760 hr/yr.**		

Segment Description and Rate: Segment __ of __

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

[1] The natural gas heat content has ranged from 1010 Btu/cuft to 1040 Btu/cuft based on supplier data.

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
CO	**027/131**		**EL**
VOC	**124/125, 027/131**		**EL**
HAPs	**027/131**		**WP**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **CO**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour **360.1** tons/year	4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **335** tons/year	8.b. Baseline 24-month Period: From: **1/1/2003** To: **1/1/2004**
9.a. Projected Actual Emissions (if required): **215.64** tons/year	9.b. Projected Monitoring Period: [ ] 5 years [x] 10 years
10. Calculation of Emissions: **Baseline emissions do not include demand growth, see Attachment A, Table 1 for complete baseline, demand growth and projected actual emissions comparison.**	
11. Potential, Fugitive, and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions **1 of 1**

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **28.1 lb/hr based on 24-hour average (OBUD only)**	4. Equivalent Allowable Emissions: **28.1** lb/hour **123.0** tons/year
5. Method of Compliance: **EPA Method 10**	
6. Allowable Emissions Comment (Description of Operating Method): **Per Title V Permit 0330040-029-AV emission limitations are from the backup thermal oxidizer (OBUD) only.**	

Allowable Emissions Allowable Emissions **of**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **VOC**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour **110.4** tons/year	4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **101.7** tons/year	8.b. Baseline 24-month Period: From: **1/1/2004** To: **12/31/2005**
9.a. Projected Actual Emissions (if required): **78.1** tons/year	9.b. Projected Monitoring Period: [ ] 5 years [x] 10 years

10. Calculation of Emissions:

Baseline emissions do not include demand growth, see Attachment A, Table 1 for complete baseline, demand growth and projected actual emissions comparison.

11. Potential, Fugitive, and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions **1** of **1**

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **10.4 lb/hr based on 24-hour average (OBUD only)**	4. Equivalent Allowable Emissions: **10.4** lb/hour **45.5** tons/year
5. Method of Compliance: **EPA Method 25A**	
6. Allowable Emissions Comment (Description of Operating Method): **Per Title V Permit 0330040-029-AV emission limitations are from the backup thermal oxidizer (OBUD) only.**	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation **1** of **1**

1. Visible Emissions Subtype: **VE05**	2. Basis for Allowable Opacity: [x] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: **5 %** Exceptional Conditions: **20 %** Maximum Period of Excess Opacity Allowed: **3** min/hour	
4. Method of Compliance: **EPA Method 9**	
5. Visible Emissions Comment: **Rule 62-296.401(1)(a), F.A.C. and 0330040-029-AV**	

Visible Emissions Limitation: Visible Emissions Limitation __ of ___

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: [ ] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor **1 of 4**

1. Parameter Code: **OTHER**	2. Pollutant(s): **Thermal Oxidizer Temperature**
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **When process gases are being controlled by the backup thermal oxidizer, a minimum temperature of 1,300 degrees Fahrenheit shall be maintained. Temperature shall be monitored and recorded continuously per Title V Permit No. 0330040-029-AV.**	

Continuous Monitoring System: Continuous Monitor **2 of 4**

1. Parameter Code: **OTHER**	2. Pollutant(s): **KA Recovery Column**
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **Monitor and record hourly-average sump temperature on an hourly basis (average °C/hr). In addition, applicable monitoring and recording devices shall be operated and maintained as per 40 CFR 60 Subpart NNN regulations to monitor the operation of the condenser per Title V Permit No. 0330040-029-AV.**	

EMISSIONS UNIT INFORMATION
Section [2]
Cyclohexane Oxidation Process

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor **3 of 4**

1. Parameter Code: **OTHER**	2. Pollutant(s): **Process Air Rate**
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **Monitor and record total process air rate on an hourly basis (lbs/hr air) per Title V Permit No. 0330040-029-AV.**	

Continuous Monitoring System: Continuous Monitor **4 of 4**

1. Parameter Code: **FLOW**	2. Pollutant(s): **High-pressure Scrubber oil flow rate**
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **Monitor and record high-pressure scrubber oil flow rate on an hourly basis (lbs/hr oil) per Title V Permit No. 0330040-029-AV.**	

EMISSIONS UNIT INFORMATION
Section [2]
Cyclohexane Oxidation Process

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **APM-EU2-I1** [ ] Previously Submitted, Date _____

2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _

3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **APM-EU2-I3** [ ] Previously Submitted, Date _____

4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _____
   [X] Not Applicable (construction application)

5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _____
   [X] Not Applicable

6. Compliance Demonstration Reports/Records:
   [ ] Attached, Document ID:
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [X] Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute:
   [ ] Attached, Document ID: _____ [X] Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications – N/A

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☐ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☐ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☐ Not Applicable

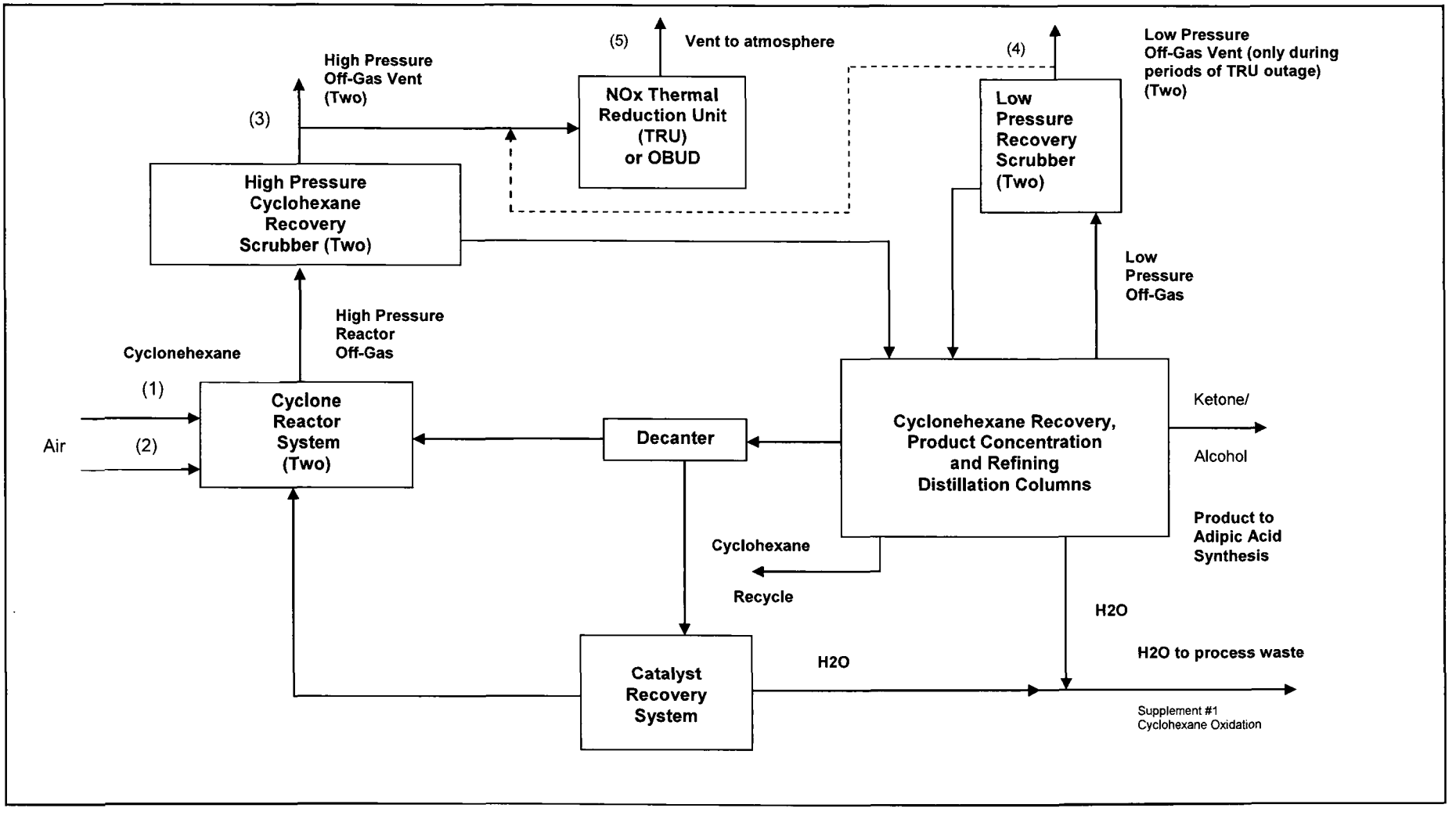
Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements: ☐ Attached, Document ID:
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: ☒ Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: _____ ☒ Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements Comment

FORM ATTACHMENTS

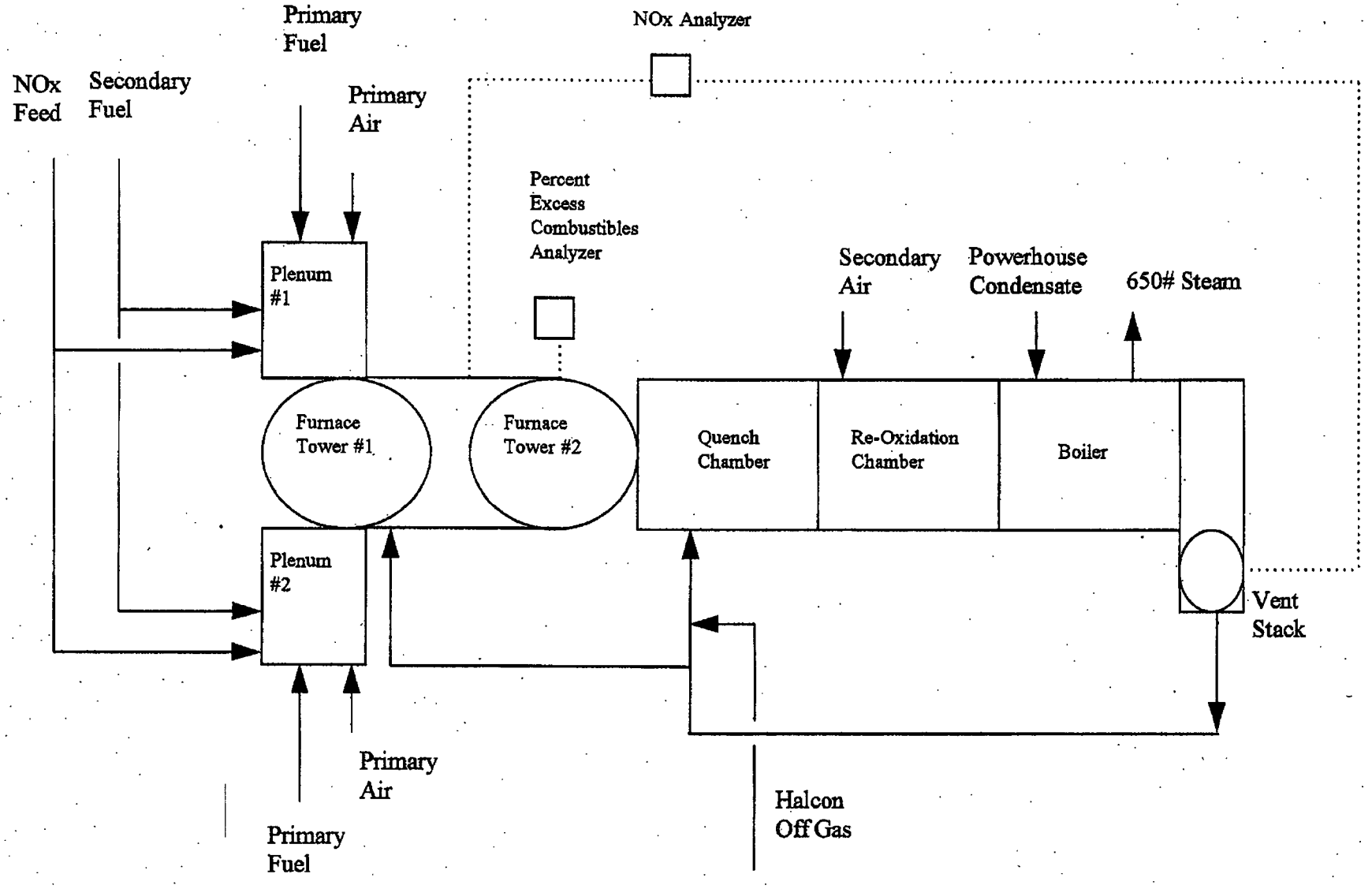
ATTACHMENT APM-EU2-I1
Cyclohexane Oxidation Process Flow Diagram



ATTACHMENT APM-EU2-I3
Detailed Description of Control Equipment

The cyclohexane oxidation process utilizes a John Zink flame reduction process or NOx Thermal Reduction Unit (TRU) with reducing atmosphere to control the release of NOx to the atmosphere. The process has a back up control device (OBUD) that consists of a combustion chamber designed to accommodate the gas stream and allow proper mixing for combustion and destruction. This chamber incorporates a primary mixing chamber and two(2) nozzle mix burners. The burners are designed to fire natural gas to supplement the heat provided in the waste gas stream, and provide mixing and turbulence.

Thermal Reduction Unit, Building 331



III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

EMISSIONS UNIT INFORMATION
Section [3]
Nitric Acid Plant

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

[x] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

[x] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Nitric Acid Plant

3. Emissions Unit Identification Number: **042**

4. Emissions Unit Status Code: **A**	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: **28**

8. Federal Program Applicability: (Check all that apply)

[ ] Acid Rain Unit

[ ] CAIR Unit

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:
Ascend proposes to install a new air compressor to ensure operation of the Nitric Acid Plant at maximum capacity year round. In addition, Ascend proposes to install a new nitric acid rail car unloading facility. These projects are described in more detail in Attachment A, and are proposed to support the production of 1080 MAR Adipic Acid.

EMISSIONS UNIT INFORMATION
Section [3]
Nitric Acid Plant

Emissions Unit Control Equipment/Method: Control 1 of 2

1. Control Equipment/Method Description: **Selective Catalytic Reduction (SCR)**
2. Control Device or Method Code: **139**

Emissions Unit Control Equipment/Method: Control 2 of 2

1. Control Equipment/Method Description: **Absorber Column**
2. Control Device or Method Code: **51**

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

B. EMISSIONS UNIT CAPACITY INFORMATION
(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate: **1,500 tons of 100% nitric acid produced per day.**	
3. Maximum Heat Input Rate: million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	7 days/week
52 weeks/year	**8,760** hours/year
6. Operating Capacity/Schedule Comment:	

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **EU042**	2. Emission Point Type Code: **1**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **130 feet**	7. Exit Diameter: **5 feet**
8. Exit Temperature: **354 °F**	9. Actual Volumetric Flow Rate: **145,319 acfm**	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: **Stack parameters based on stack test dated December 7, 2010.**		

EMISSIONS UNIT INFORMATION
Section [3]
Nitric Acid Plant

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment **1** of **1**

1. Segment Description (Process/Fuel Type): **Industrial Processes; Chemical Manufacturing; Nitric Acid; Absorber Tail Gas (Post-1970)**		
2. Source Classification Code (SCC): **3-01-013-02**	3. SCC Units: **Tons of Product**	
4. Maximum Hourly Rate: **N/A**	5. Maximum Annual Rate: **547,500**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Maximum annual rate based on 1,500 tons of 100% nitric acid produced per day. Max annual = 1500 TPD x 365 days/yr = 547,500 TPY**		

Segment Description and Rate: Segment __ of __

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
NOx	**139**	**51**	**EL**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **NOx**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour **310** tons/year	4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **3 lb per ton 100% Nitric Acid** Reference: **Title V Permit 0330040-029-AV; 40 CFR 60.72(a)(1)**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **316.7** tons/year	8.b. Baseline 24-month Period: From:**1/1/2002** To:**12/31/2003**
9.a. Projected Actual Emissions (if required): **310** tons/year	9.b. Projected Monitoring Period: [ ] 5 years [x] 10 years

10. Calculation of Emissions:

Baseline emissions do not include demand growth, see Attachment A, Table 1 for complete baseline, demand growth and projected actual emissions comparison.

11. Potential, Fugitive, and Actual Emissions Comment:

Potential emissions based on requested limit of 310 TPY.

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions **1 of 3**

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
Allowable Emissions and Units: **3 lb per ton 100% Nitric Acid**	4. Equivalent Allowable Emissions: lb/hour **310** tons/year
5. Method of Compliance: **NOx CEM**	
6. Allowable Emissions Comment (Description of Operating Method): ***A limit of 3 lb per ton 100% Nitric Acid is allowed under 40 CFR 60.72(a)(1).***	

Allowable Emissions Allowable Emissions **2 of 3**

1. Basis for Allowable Emissions Code: **ESPSD**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **310 tons per year**	4. Equivalent Allowable Emissions: lb/hour **310** tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method): **Emissions based on projected actual emissions of 310 TPY.**	

Allowable Emissions Allowable Emissions **3 of 3**

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **643.5 lb of NO/ 594 lb of NO_2, per Event**	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method): **Event is equal to startup, shutdown, or malfunction and may not exceed 3 hours in any 24-hour period. 40 CFR 60.73(e), Rule 62-210.700(1), F.A.C.**	

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation **1 of 1**

1. Visible Emissions Subtype: **VE10**	2. Basis for Allowable Opacity: [x] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: **10%** Exceptional Conditions: **100 %** Maximum Period of Excess Opacity Allowed: **60 min/hour**	
4. Method of Compliance: **EPA Method 9**	
5. Visible Emissions Comment: **Title V Permit No. 0330040-029-AV**	

Visible Emissions Limitation: Visible Emissions Limitation __ of ___

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: [ ] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

EMISSIONS UNIT INFORMATION
Section [3]
Nitric Acid Plant

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor **1 of 1**

1. Parameter Code: **EM**	2. Pollutant(s): **NOx**
3. CMS Requirement:	[x] Rule [ ] Other
4. Monitor Information... Manufacturer: **Thermo** Model Number: **42CHL**	Serial Number: **42CHL-62250-334**
5. Installation Date: **9/15/2001**	6. Performance Specification Test Date: **3/10/2010**
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor ___ of ___

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule [ ] Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

EMISSIONS UNIT INFORMATION
Section [3]
Nitric Acid Plant

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **APM-EU3-I1** [ ] Previously Submitted, Date _____

2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _

3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **APM-EU2-I3** [ ] Previously Submitted, Date _____

4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _ [ ] Previously Submitted, Date ____
   [X] Not Applicable (construction application)

5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _ [ ] Previously Submitted, Date ____
   [X] Not Applicable

6. Compliance Demonstration Reports/Records:
   [ ] Attached, Document ID:
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] To be Submitted, Date (if known):_____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [X] Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute:
   [ ] Attached, Document ID: _____ [X] Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications – N/A

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☐ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☐ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☐ Not Applicable

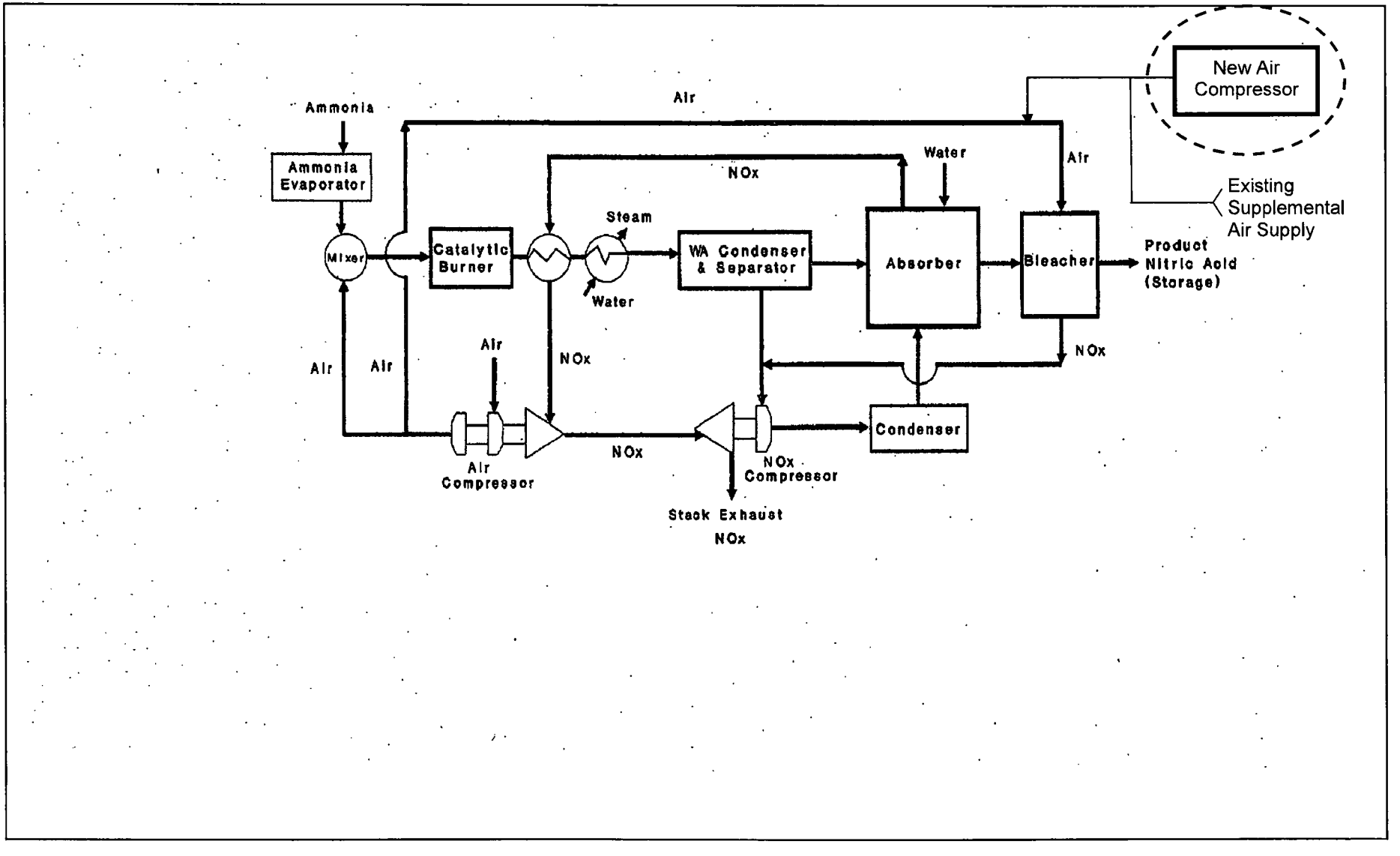
Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements: ☐ Attached, Document ID:
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: _____ ☒ Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements Comment

FORM ATTACHMENTS

ATTACHMENT APM-EU3-I1
Nitric Acid Plant Process Flow Diagram



III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

EMISSIONS UNIT INFORMATION
Section [4]
Area 480 KA

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Area 480 KA and Area 480 KA Fugitive Emissions

3. Emissions Unit Identification Number: **088 and 089**

4. Emissions Unit Status Code: **A**	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: **28**

8. Federal Program Applicability: (Check all that apply)

[ ] Acid Rain Unit

[ ] CAIR Unit

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:
Ascend proposes to improve KA column overheads cooling and railcar unloading times to facilitate operation of the process at the maximum operational rate of 54,795 lb/hr of KA mixture. See Attachment A for more detailed project descriptions.

EMISSIONS UNIT INFORMATION
Section [4]
Area 480 KA

Emissions Unit Control Equipment/Method: Control **1** of **1**

1. Control Equipment/Method Description: **Flare and backup flare**
2. Control Device or Method Code: **023**

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **54,795 lb/hr of KA mixture**	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	**7** days/week
52 weeks/year	**8,760** hours/year
6. Operating Capacity/Schedule Comment:	

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **EU088**	2. Emission Point Type Code: **1**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **Flare**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **60 feet**	7. Exit Diameter: **2 feet**
8. Exit Temperature:	9. Actual Volumetric Flow Rate:	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: Feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment **1** of **1**

1. Segment Description (Process/Fuel Type): **Industrial Processes; Chemical Manufacturing; Fuel Fired Equipment; Natural Gas Flares**		
2. Source Classification Code (SCC): **3-01-900-23**	3. SCC Units: **Million Cubic Feet Processed**	
4. Maximum Hourly Rate: **0.00294**	5. Maximum Annual Rate: **25.76**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **1020**
10. Segment Comment: **Based on 3 MMBtu/hr and 8,760 hrs/yr.**		

Segment Description and Rate: Segment __ of __

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
VOC	**023**		**NS**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **VOC**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): **0** tons/year	8.b. Baseline 24-month Period: From: **1/1/2004** To: **12/31/2005**
9.a. Projected Actual Emissions (if required): **5.10** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years
10. Calculation of Emissions:	
11. Potential, Fugitive, and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation __ of ____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

Visible Emissions Limitation: Visible Emissions Limitation __ of ____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor __ of __

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor ___ of ___

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **APM-EU4-I1** [ ] Previously Submitted, Date _____

2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _

3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **APM-EU4-I3** [ ] Previously Submitted, Date _____

4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _ [ ] Previously Submitted, Date ____
   [X] Not Applicable (construction application)

5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _ [ ] Previously Submitted, Date ____
   [X] Not Applicable

6. Compliance Demonstration Reports/Records:
   [ ] Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] To be Submitted, Date (if known):_____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [X] Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute:
   [ ] Attached, Document ID: _____ [X] Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications – N/A

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☐ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☐ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☐ Not Applicable

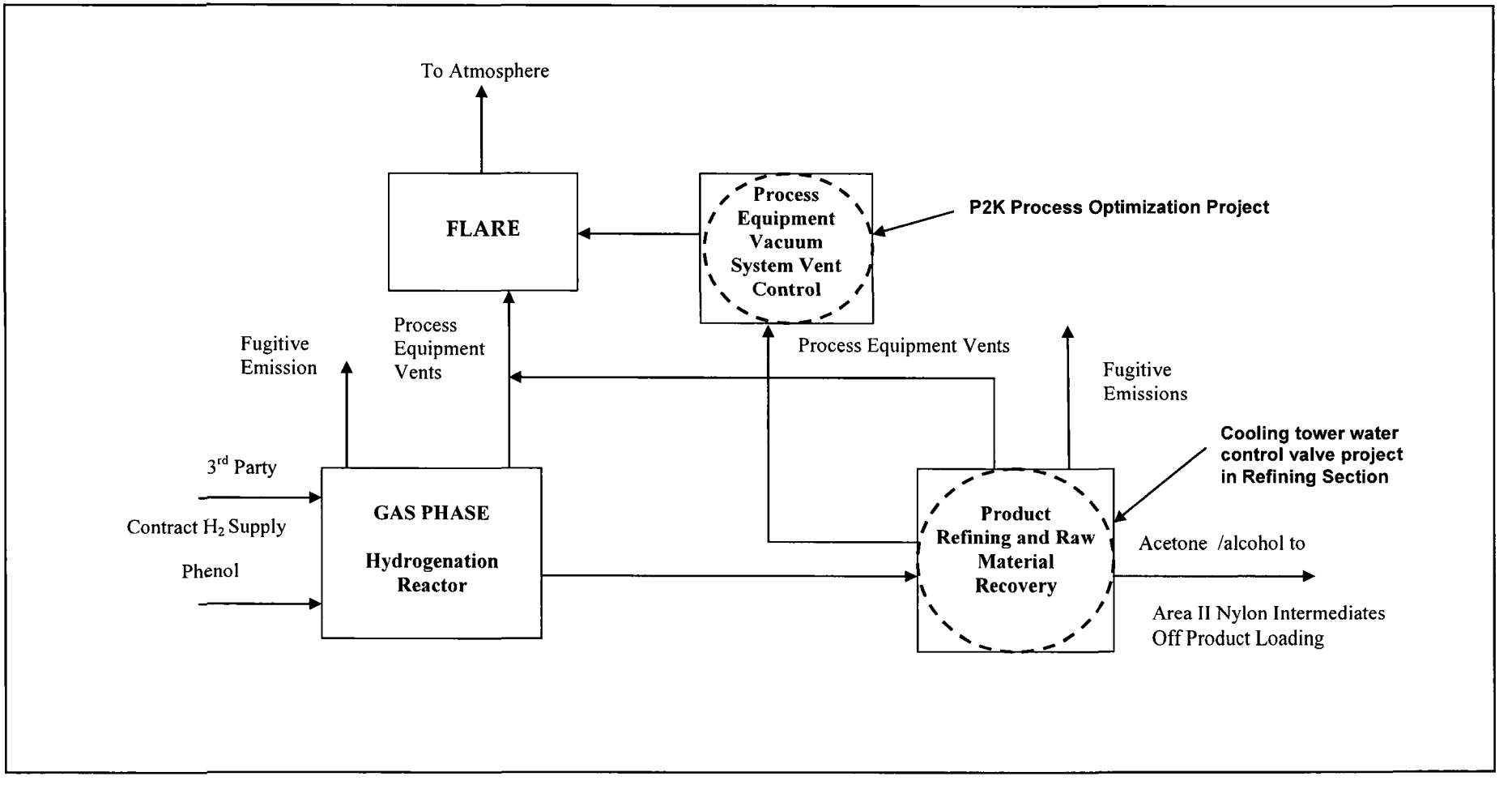
Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements: ☐ Attached, Document ID:
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ [x] Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: _____ [x] Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ [x] Not Applicable

Additional Requirements Comment

FORM ATTACHMENTS

ATTACHMENT APM-EU4-I1
Area 480 KA Expansion Process Flow Diagram



ATTACHMENT APM-EU4-I3

Control Unit Description

Fully Enclosed Flare (Model FEF)

General Description The FEF is a completely enclosed flare in which combustion occurs inside an insulated flare stack and under a controlled environment. Enclosed combustion ensures that all smoke, flame, and noise are imperceptible in sensitive areas. The FEF consists of the following components: flare burner, enclosed stack, combustion air controls, control panel, and optional items.

Burner and Pilot The FEF Burner is the most advanced burner available in the industry today. Its design allows for high destruction efficiency and low emissions. The NOX and CO emission rates meet or exceed the requirements of most regulatory agencies (i.e. SCAQMD). Its large surface area allows for an unusually high turn down ratio. This design allows for efficient combustion in either forced draft or natural draft configurations. Our compact, fuel efficient electronic pilots provide trouble-free reliable ignition

Enclosed Stack The enclosed stack is built in modules to allow for ease of shipment and installation. It is insulated with up to 4" of high temperature refractory (2200°F). The stack is sized based on flow rate to ensure a minimum of .6 seconds residence time for reduced emissions. The stack is coated with a high temperature paint system.

Combustion Air Controls The FEF can be designed to operate as either a natural draft or forced draft system. The natural draft system has the lowest operating costs and simplest design. In the system the air is controlled using a set of opposed blade air louvers that open or close as required to produce a constant temperature. The forced draft design utilizes a blower system to control the temperature. This system is ideal where high winds may cause a reverse flow in a natural draft system, thereby extinguishing the flame.

Control Panel The FEF Control Panel can be supplied as a NEMA 4X or NEMA 7 Enclosure. Temperature controls, safety systems, remote start / stop, and alarms are standard items. Flow measurement and recording are available, as is remote telemetry.

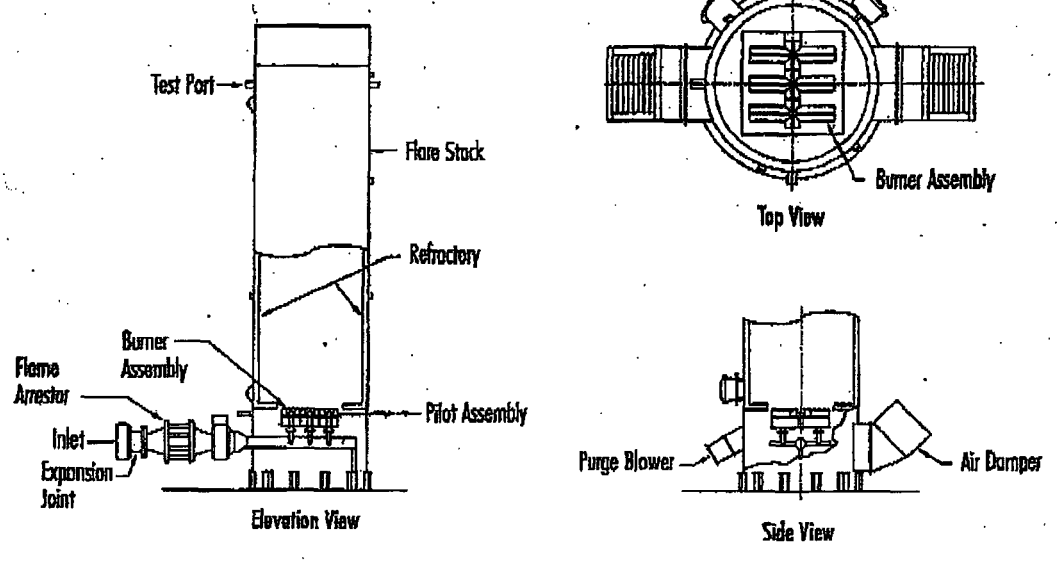
Optional Items Flare Industries offers the following optional items:

- Back pressure control valve
- Flame arrestor
- Flame trap assembly
- Battery back-up
- Temperature chart recorder
- Emission monitoring systems
- Complete turnkey installation
- Bio-gas flow measurement
- Skid mounted

Design Features

Feature	Benefit
Controlled combustion environment	Increased destruction efficiency
Natural draft design	Low operating costs
No visible flame	"Good Neighbor" policy
Operates at less than 4" w.c	No gas boosters needed
Low noise	"Good Neighbor" policy
8 to 1 turndown ratio (optional; 15 to 1)	Good performance under varying operating conditions
Smokeless operation	Meets U.S. and international requirements
Fully automated	Reduced personnel requirements
Destruction efficiency	99.5% meets U.S. and international emission standards
Low NOX emissions	< .06 lb\MMbtu (0.11 kg/MMkcal)
Low CO emissions	< .11 Lb\MMbtu (0.2 kg/MMkcal)
Skid mounted option	Reduced installation costs
Modular construction	Reduced installation costs
Multi-fuel pilot	Operates on propane, natural gas or bio-gas
Low maintenance design	Lower operating costs

Fully Enclosed Flare



Specifications Model	Inlet Size in. (mm)	Max Heat Release MMbtu/hr.(MMkcal/hr)	Flow Rate SCFM (m^3/hr)	Turn Down Ratio	Retention Time sec.
FEF-2	3 (76)	2.5 (0.63)	75 (127)	8 : 1	0.6
FEF-5	4 (101)	5.0 (1.26)	160 (272)	8 : 1	0.6
FEF-10	6 (152)	10.0 (2.52)	320 (543)	8 : 1	0.6
FEF-18	8 (203)	18.0 (4.54)	650 (1,104)	8 : 1	0.6
FEF-21	10 (254)	21.0 (5.3)	1,000 (1,698)	8 : 1	0.6
FEF-58	12 (305)	58.0 (14.6)	2,000 (3,396)	8 : 1	0.6
FEF-110	14 (355)	110.0 (27.7)	4,500 (7,641)	8 : 1	0.6
FEF-175	16 (406)	175.0 (44.1)	6,000 (10,200)	8 : 1	0.6

Burner Material :	Stainless Steel
Pilot Material :	Stainless Steel
Stack Material:	Carbon Steel
Process Connection:	ANSI 150 lb. Flange
Turn Down Ratio:	8 : 1
Operating temperature:	1400-1700°F (760-927°C)
NOX Emissions:	.06 lb./MMbtu (0.11 kg/MMkcal)
CO Emissions:	.11 lb./MMbtu (0.2 kg/MMkcal)
Visible Emissions:	None
Destruction efficiency:	>99.5%

Steam Assisted Flares

General Description Steam assisted flares are designed to dispose of heavier waste gases which have a greater tendency to smoke. In order to prevent incomplete combustion, steam is injected into the waste stream using peripheral steam rings, center steam spargers, and /or inner induction tubes. The injection of steam has two principal effects:

- ▼ High pressure steam flows cause turbulence in the waste stream which improves mixing and therefore improves combustion efficiency.
- ▼ Additional air is induced into the waste gas providing the oxygen necessary for augmented smokeless capacity.

Steam flares are normally used in applications where the customer has high pressure steam available on site.

Advantages

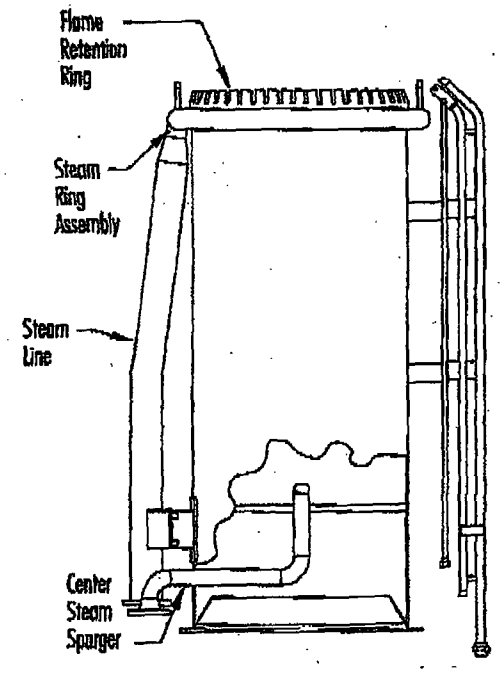
- ▼ Lower maintenance costs
- ▼ Higher smokeless capacity due to steam injection
- ▼ Stable, reliable combustion due to flame retention ring
- ▼ High smokeless flow rate
- ▼ Longer tip life due to steam cooling effect

SA Model

- ▼ External circumferential steam injection stabilizes the flame and entrains air, ensuring efficient combustion

SAI Model

- ▼ External circumferential steam injection stabilizes the flame and and entrains air; ensuring efficient combustion
- ▼ Internal induction tubes with venturi inlets for improved air inspiration
- ▼ Higher smokeless capacity
- ▼ Reduced noise at a given capacity



SA Model Steam Assisted Flare

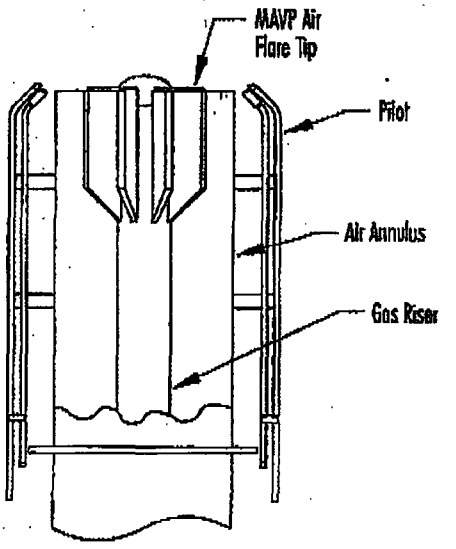
Principal Applications

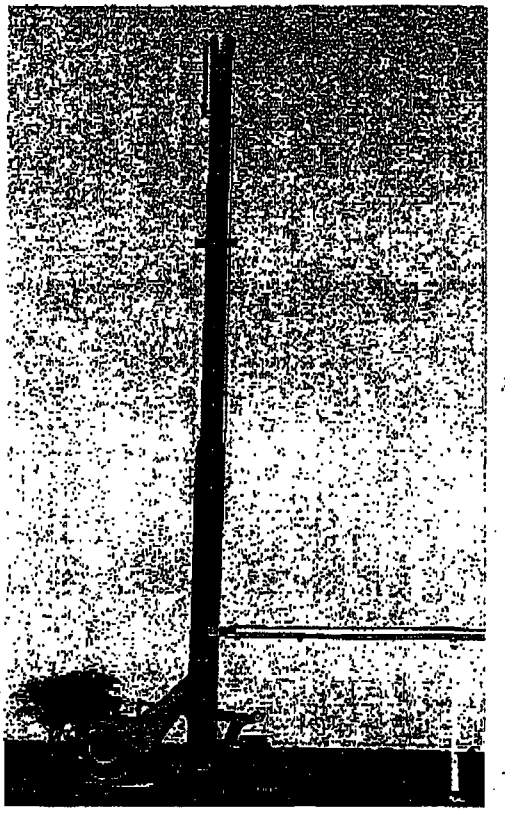
- ▼ Petroleum refining
- ▼ Petroleum production
- ▼ Chemical processing
- ▼ Food processing
- ▼ Municipal waste disposal
- ▼ Bio-gas disposal

Specifications

Dimensions:	
Length:	6'-0" (1.8 m)
Diameter:	4"-84" (0.1-2.13 m)
Materials:	
Upper Section:	304, 316, 310 SS, Incolloy 800H (*options*)
Dynamic seal:	304 SS

Air Assisted Flare





Freestanding Air Flare System. Corpus Christi, U.S.A.

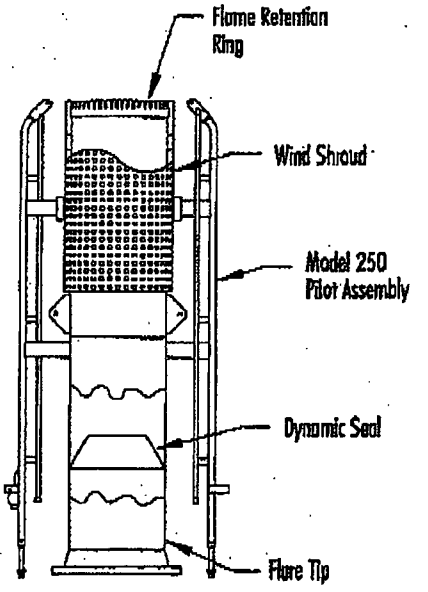
Design Features

- High alloy material construction in the heat affected zone
- Flame retention ring to stabilize combustion
- Velocity/Dynamic seal to reduce purge gas expenses and prevent flashback
- Wide range of diameters
- High alloy wind shield (optional)

Specifications

Dimensions:	
Length:	10'-0" (3m)
Diameter:	4"-84" (0.1m-2.13m)
Materials:	
Upper Section:	304, 316, 310 SS, Incolloy 800H (options)
Lower Section:	Carbon Steel
Retention ring:	310 SS
Dynamic seal:	304 SS
Windshield:	310 SS

Utility Flare



III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

EMISSIONS UNIT INFORMATION
Section [5]
Continuous and Batch Nylon Polymerization Lines

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Continuous and batch nylon polymerization production lines.

3. Emissions Unit Identification Number: **081, and 082**

4. Emissions Unit Status Code: **A**	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: **28**

8. Federal Program Applicability: (Check all that apply)

[ ] Acid Rain Unit

[ ] CAIR Unit

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:
Ascend is proposing several projects for the Continuous and Batch Nylon Polymerization Lines to support 1080 MAR Adipic Acid Production. Elutriators will be installed to control PM emissions. High efficiency air filter and baghouse vacuum will be installed to control PM emissions from the nylon extruder. See Attachment A for detailed project descriptions.

EMISSIONS UNIT INFORMATION
Section [5]
Continuous and Batch Nylon Polymerization Lines

Emissions Unit Control Equipment/Method: Control **1** of **1**

1. Control Equipment/Method Description: **Tray-Type Gas Adsorption Column**
2. Control Device or Method Code: **051**

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: **24** hours/day **52** weeks/year	**7** days/week **8,760** hours/year
6. Operating Capacity/Schedule Comment:	

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:	2. Emission Point Type Code: **3**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **Distillation column controls emissions from continuous polymerization evaporator and pre-reactors and from batch polymer evaporator and autoclaves.**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **45 feet**	7. Exit Diameter: **2 feet**
8. Exit Temperature: **212 °F**	9. Actual Volumetric Flow Rate: **16,920 acfm**	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:		

EMISSIONS UNIT INFORMATION
Section [5]
Continuous and Batch Nylon Polymerization Lines

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): **Nylon 6,6 manufacturing** **Industrial Processes; Chemical Manufacturing; Synthetic Organic Fiber Manufacturing; Nylon 6,6: Controlled**		
2. Source Classification Code (SCC): **3-01-024-06**	3. SCC Units: **Tons Fiber Produced**	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Individual CP line processing rates do not apply.**		

Segment Description and Rate: Segment __ of __

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
VOC	**051**		**EL**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **VOC**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour **130.5** tons/year	4. Synthetically Limited? ☐ Yes [x] No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **715 lb/day as rolling average** Reference: **Title V Permit No. 0330040-029-AV**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **48.82** tons/year	8.b. Baseline 24-month Period: From:**1/1/2004** To: **12/31/2005**
9.a. Projected Actual Emissions (if required): **81.9** tons/year	9.b. Projected Monitoring Period: ☐ 5 years [x] 10 years

10. Calculation of Emissions:

715 lb/day (365 day rolling average) x 365 days/yr x 1 ton/ 2000 lb = 130.5 TPY

Baseline emissions do not include demand growth, see Attachment A, Table 1 for complete baseline, demand growth and projected actual emissions comparison.

11. Potential, Fugitive, and Actual Emissions Comment:

Potential emissions include emissions from EUs 081 and 082.

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions **1** of **1**

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **715 lb/day as rolling average (365 days)**	4. Equivalent Allowable Emissions: lb/hour **130.5** tons/year
5. Method of Compliance: **VOC emissions testing shall be conducted biennially (every two years) using the Yarn Plant Emissions Sampling Protocol.**	
6. Allowable Emissions Comment (Description of Operating Method): **Allowable emissions include emissions from EU 081 and 082.**	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation **1** of **1**

1. Visible Emissions Subtype: **VE20**	2. Basis for Allowable Opacity: [x] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: **20 %** Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **EPA Method 9**	
5. Visible Emissions Comment: **Rule 62-296.320(4)(b)1.&4., F.A.C.**	

Visible Emissions Limitation: Visible Emissions Limitation __ of ____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: [ ] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor **1** of **1**

1. Parameter Code: **OTHER**	2. Pollutant(s): **Off gas HMDA concentrations**
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **Maintaining a minimum acceptable column reflux flow of 5,000 lb/hr hourly average per Title V Permit No. 0330040-029-AV.**	

Continuous Monitoring System: Continuous Monitor of

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

EMISSIONS UNIT INFORMATION
Section [5]
Continuous and Batch Nylon Polymerization Lines

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **APM-EU5-I1** [ ] Previously Submitted, Date _____

2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _

3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: __ [ ] Previously Submitted, Date _____

4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _ [ ] Previously Submitted, Date _____
   [X] Not Applicable (construction application)

5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _____
   [X] Not Applicable

6. Compliance Demonstration Reports/Records:
   [ ] Attached, Document ID:
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] To be Submitted, Date (if known):_____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [X] Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute:
   [ ] Attached, Document ID: _____ [X] Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications – N/A

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☐ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☐ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☐ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

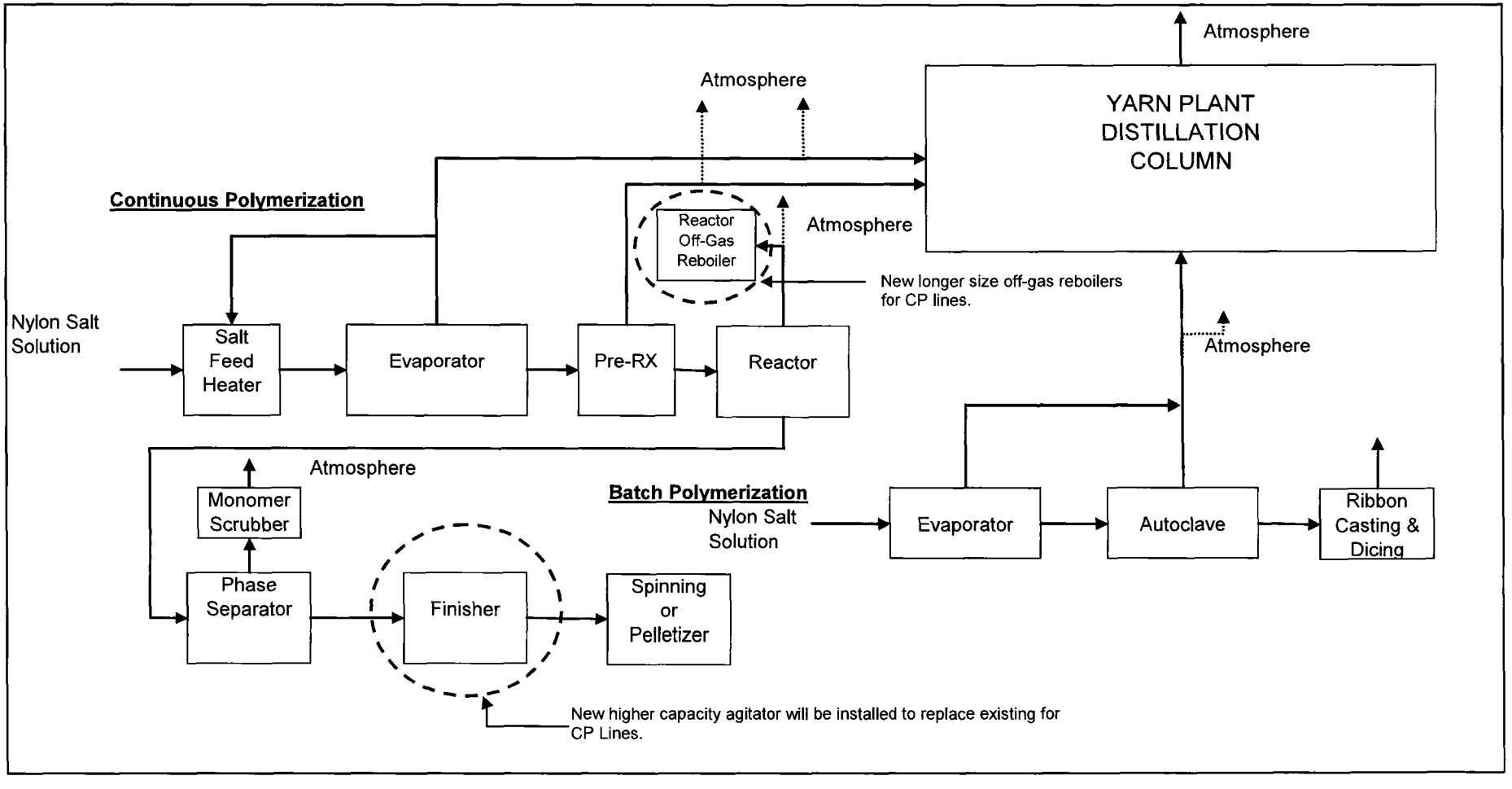
1. Identification of Applicable Requirements: ☐ Attached, Document ID:
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ [x] Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: _____ [x] Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ [x] Not Applicable

Additional Requirements Comment

FORM ATTACHMENTS

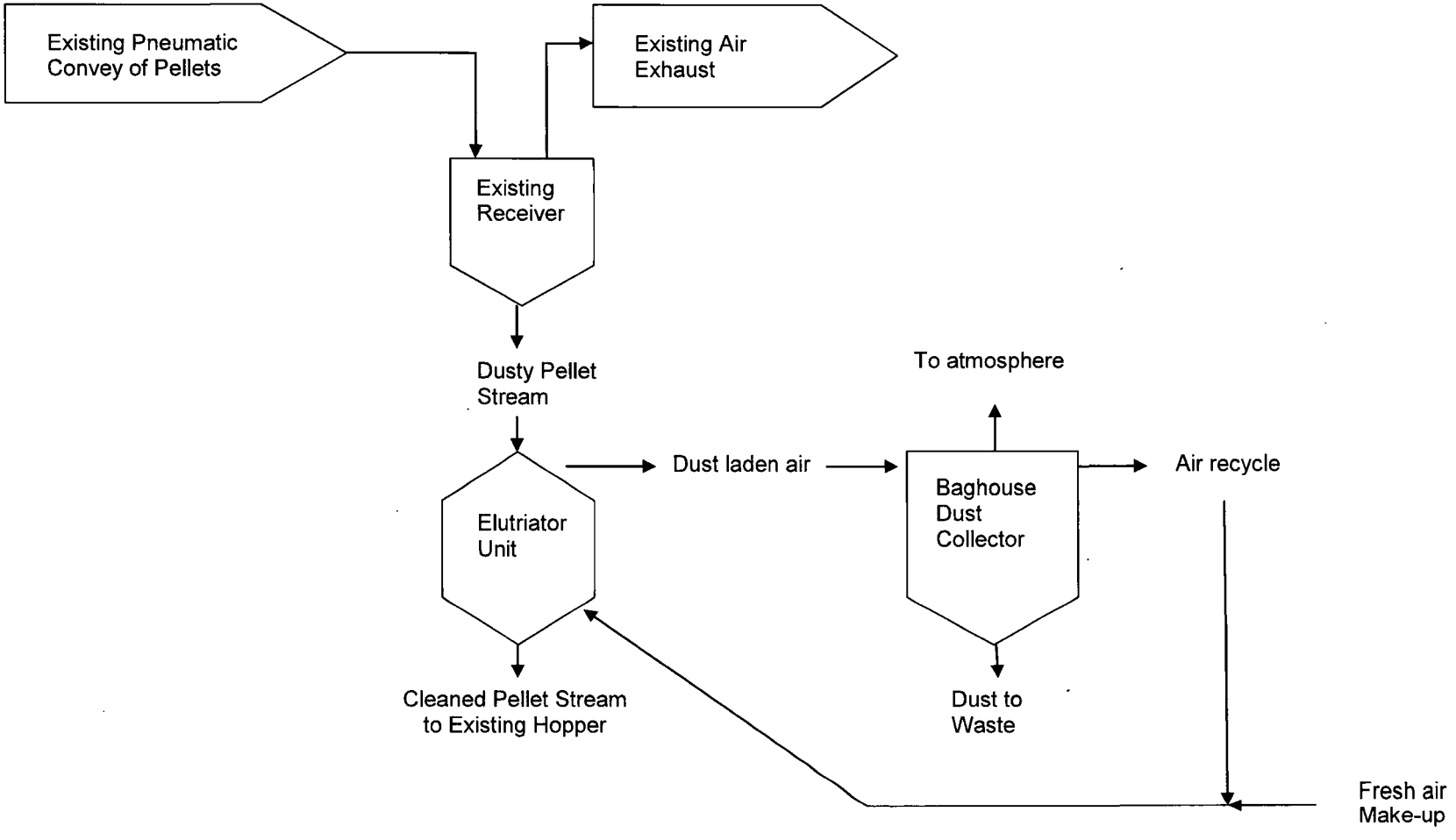
ATTACHMENT APM-EU5-I1
Continuous/Batch Polymerization Process Flow Diagram

Emission Units 081 and 082



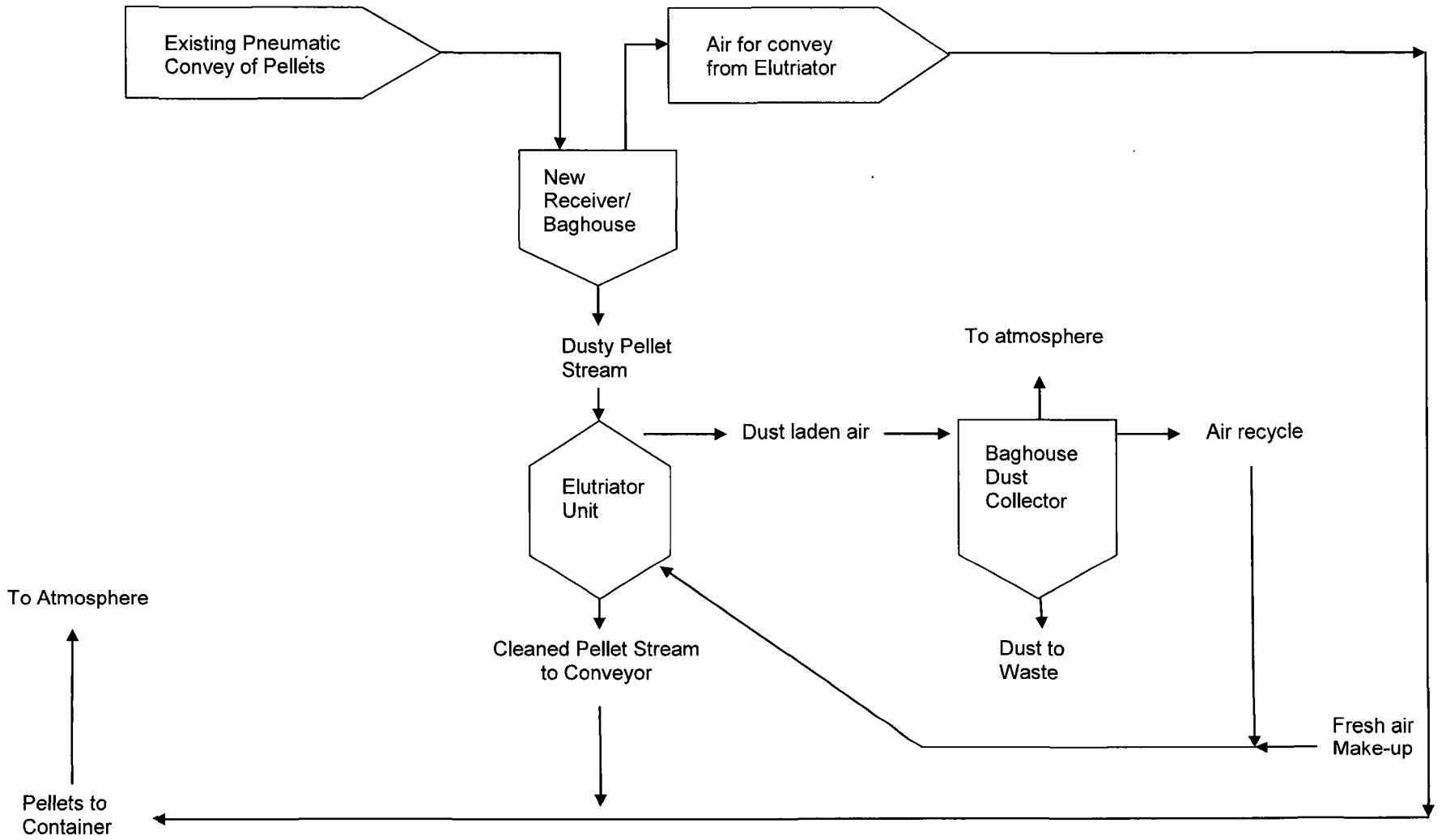
ATTACHMENT APM-EU5-I1
Emission Units 081 and 082

Elutriator & Dust Collector With Gravity Pellet Discharge – Six Total



ATTACHMENT APM-EU5-I1
Emission Units 081 and 082

Elutriator & Dust Collector With Pneumatic Discharge – Two Total



III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

EMISSIONS UNIT INFORMATION
Section [6]
Therminol Vaporizers No. 9

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Therminol Vaporizer No. 9

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code: **C**	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: **28**

8. Federal Program Applicability: (Check all that apply)

[ ] Acid Rain Unit

[ ] CAIR Unit

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment: **Ascend proposes to install a new Therminol Vaporizer No. 9 for reliability and energy optimization.**

EMISSIONS UNIT INFORMATION
Section [6]
Therminol Vaporizers No. 9

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: **55.6 million Btu/hr**	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: **24** hours/day **52** weeks/year	**7** days/week **8,760** hours/year
6. Operating Capacity/Schedule Comment: **New Therminol Vaporizer installation purpose is to increase reliability and efficiency of the Yarn Utility process.** **The maximum total heat input for all existing 8 vaporizers (EU005, EU007-011, EU 013 and EU075) as stated in Operating Permit No. 0330040-029-AV will remain at 136 million Btu/hr. No proposed changes will occur to the existing vaporizers.**	

EMISSIONS UNIT INFORMATION
Section [6]
Therminol Vaporizers No. 9

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:	2. Emission Point Type Code: **1**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **Therminol Vaporizer No. 9**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **TBD** feet	7. Exit Diameter: **TBD** feet
8. Exit Temperature: **TBD** °F	9. Actual Volumetric Flow Rate: **TBD** acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: **TBD = To be determined. Project currently under engineering review.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment **1** of **2**

1. Segment Description (Process/Fuel Type): **Natural Gas Combustion.**		
2. Source Classification Code (SCC): **3-01-900-13**	3. SCC Units: **MMcuft Burned**	
4. Maximum Hourly Rate: **0.055**	5. Maximum Annual Rate: **477.5**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **1020**
10. Segment Comment:		

Segment Description and Rate: Segment __ of __

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

EMISSIONS UNIT INFORMATION
Section [6]
Therminol Vaporizers No. 9

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
NO_x			**NS**
PM			**NS**
CO			**NS**
VOC			**NS**
SO_2			**NS**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **NO_x**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **2.7** lb/hour **11.94** tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **50 lb/MMft^3** Reference: **AP 42 Factor**	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): **11.94** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years

10. Calculation of Emissions:

55.6 MMBtu/hr/1020 Btu/ft^3 x 8760 hr/yr = 477.5 MMft^3/yr Natural Gas Burned

NO_x = 50 lbs/MMft^3 x 477.5 MMft^3/yr/2000 lb/ton = 11.9 tons/year

11. Potential, Fugitive, and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **0.414** lb/hour **1.815** tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **7.6 lb/MMft^3** Reference: **AP 42 Factor**	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): **1.815** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

55.6 MMBtu/hr/1020 BTU/ft^3 x 8760 hr/yr = 477.5 MMft^3/yr Natural Gas Burned

PM = 7.6 lbs/MMft^3 x 477.5 MMft^3/yr/2000 lb/ton = 1.815 tons/year

11. Potential, Fugitive, and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **CO**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **4.58** lb/hour **20** tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **84 lb/MMft^3** Reference: **AP 42 Factor**	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): **20.06** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years

10. Calculation of Emissions:

55.6 MMBtu/hr/1020 Btu/ft^3 x 8760 hr/yr = 477.5 MMft^3/yr Natural Gas Burned

CO = 84 lbs/MMft^3 x 477.5 MMft^3/yr/2000 lb/ton = 20 tons/year

11. Potential, Fugitive, and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **VOC**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **0.3** lb/hour **1.31** tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **5.5 lb/MMft^3** Reference: **AP 42 Factor**	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): **1.31** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years

10. Calculation of Emissions:

55.6 MMBtu/hr/1020 Btu/ft^3 x 8760 hr/yr = 477.5 MMft^3/yr Natural Gas Burned

VOC = 5.5 lbs/MMft^3 x 477.5 MMft^3/yr/2000 lb/ton = 1.31 tons/year

11. Potential, Fugitive, and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **SO_2**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **0.033** lb/hour **0.14** tons/year	4. Synthetically Limited? ☐ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.6 lb/MMft^3** Reference: **AP 42 Factor**	7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): **0.14** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years

10. Calculation of Emissions:

55.6 MMBtu/hr/1020 Btu/ft^3 x 8760 hr/yr = 477.5 MMft^3/yr Natural Gas Burned

SO_2 = 0.6 lbs/MMft^3 x 477.5 MMft^3/yr/2000 lb/ton = 0.14 tons/year

11. Potential, Fugitive, and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation **1** of **2**

1. Visible Emissions Subtype: **VE10**	2. Basis for Allowable Opacity: ☐ Rule ☒ Other
3. Allowable Opacity: Normal Conditions: **10 %** Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **EPA test method 9**	
5. Visible Emissions Comment: **Rule 62-297.620(4), F.A.C.**	

Visible Emissions Limitation: Visible Emissions Limitation **2** of **2**

1. Visible Emissions Subtype: **VE99**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: **100 %** Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **None**	
5. Visible Emissions Comment: **Rule 62-210.700(1), F.A.C. allowed for 2 hours (120 minutes) per 24 hours for startup, shutdown and malfunction.**	

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor ___ of ___

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor ___ of ___

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

EMISSIONS UNIT INFORMATION
Section [6]
Therminol Vaporizers No. 9

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **APM-EU6-I1** [ ] Previously Submitted, Date _____

2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **APM-FUEL** [ ] Previously Submitted, Date _____

3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: **N/A** [ ] Previously Submitted, Date _____

4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: _____ [ ] Previously Submitted, Date _____
   [ ] Not Applicable (construction application)

5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: _____ [ ] Previously Submitted, Date _____
   [ ] Not Applicable

6. Compliance Demonstration Reports/Records:
   [ ] Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [X] Not Applicable

   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute:
   [ ] Attached, Document ID: _____ [X] Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications – N/A

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☐ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☐ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☐ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

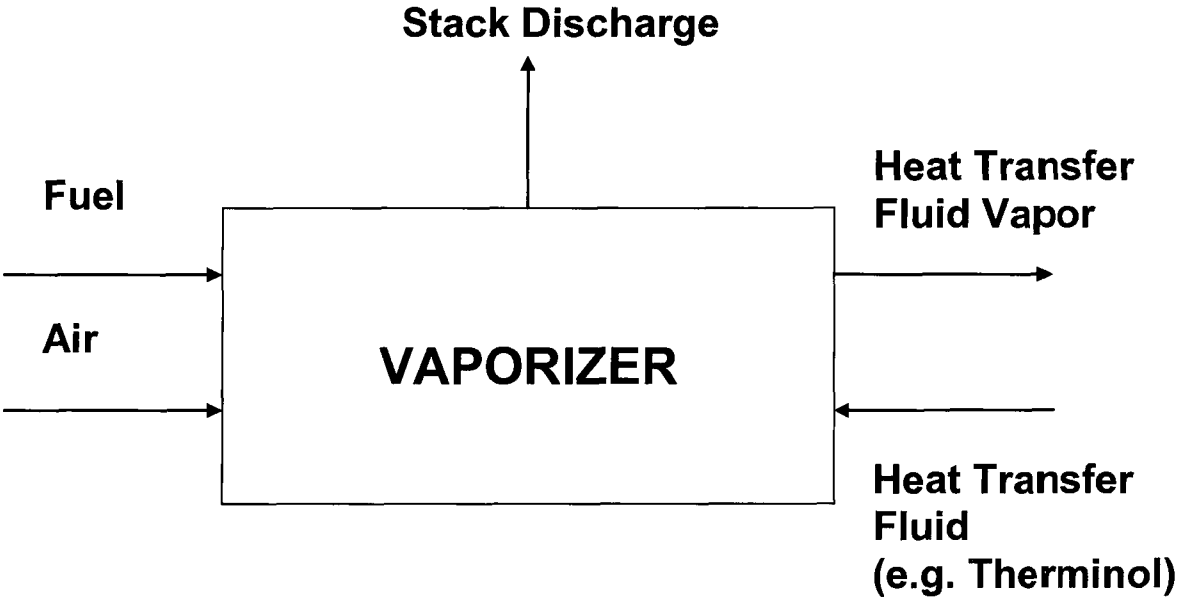
1. Identification of Applicable Requirements: ☐ Attached, Document ID: ☒ Not Applicable
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: ☒ Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements Comment

FORM ATTACHMENTS

ATTACHMENT APM-EU6-I1
Process Flow Diagram

Vaporizers No. 9



III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

EMISSIONS UNIT INFORMATION
Section [7]
Hydrogen Generating Plant No. 2

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Hydrogen Generating Facility, Plant No. 2

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code: **C**	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: **28**

8. Federal Program Applicability: (Check all that apply)

[ ] Acid Rain Unit

[ ] CAIR Unit

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:
Ascend proposes to construct a new Hydrogen Plant. Hydrogen is used in the production of hexamethylene diamine and other nylon intermediates chemicals. The gas is then heated in the reformer fueled by natural gas and purge gas.

EMISSIONS UNIT INFORMATION
Section [7]
Hydrogen Generating Plant No. 2

Emissions Unit Control Equipment/Method: Control **1** of **2**

1. Control Equipment/Method Description: **Low NOx Burner**
2. Control Device or Method Code: **205**

Emissions Unit Control Equipment/Method: Control **2** of **2**

1. Control Equipment/Method Description: **Flare**
2. Control Device or Method Code: **023**

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: **171 million Btu/hr**	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	**7** days/week
52 weeks/year	**8,760** hours/year
6. Operating Capacity/Schedule Comment:	

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:	2. Emission Point Type Code: **1**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **TPD feet**	7. Exit Diameter: **TBD feet**
8. Exit Temperature: **TBD °F**	9. Actual Volumetric Flow Rate: **TBD acfm**	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: **TBD = To be determined. Project currently under engineering review.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment **1** of **2**

1. Segment Description (Process/Fuel Type): **Natural Gas**		
2. Source Classification Code (SCC): **3-01-900-03**	3. SCC Units: **Million Cubic Feet**	
4. Maximum Hourly Rate: **0.168**	5. Maximum Annual Rate: **1,471**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **1020**[1]
10. Segment Comment: **171.3 MMBtu/hr / 1,020 MMBtu/MMcuft = 0.168 MMcuft/hr** **0.168 MMcuft/hr x 8,760 hr/yr = 1,471 MMcuft/yr**		

Segment Description and Rate: Segment **2** of **2**

1. Segment Description (Process/Fuel Type): **Purge Gas**		
2. Source Classification Code (SCC): **3-01-900-04**	3. SCC Units: **Million Cubic Feet**	
4. Maximum Hourly Rate: **0.612**	5. Maximum Annual Rate: **5,359**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **280**
10. Segment Comment: **171.3 MMBtu/hr / 280 MMBtu/MMcuft = 0.612 MMcuft/hr** **0.612 MMcuft/hr x 8,760 hr/yr = 5,359 MMcuft/yr**		

[1] The natural gas heat content has ranged from 1010 Btu/cuft to 1040 Btu/cuft based on supplier data.

EMISSIONS UNIT INFORMATION
Section [7]
Hydrogen Generating Plant No. 2

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
NOx	**205**		**NS**
CO			**NS**
PM_{10}			**NS**
SO_2			**NS**
VOC			**NS**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **NOx**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **8.57** lb/hour **37.53** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.05 lb/MMBtu** Reference: **Vendor Data**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **0** tons/year	8.b. Baseline 24-month Period: From:**NA** To:**NA**
9.a. Projected Actual Emissions (if required): **37.53** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years
10. Calculation of Emissions: **See Report Table 6.**	
11. Potential, Fugitive, and Actual Emissions Comment: **Emission provided for SMR Stack. See Attachment A, Table 6 for Flare Emissions**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **CO**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **2.57** lb/hour **11.26** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.015 lb/MMBtu** Reference: **Vendor Data**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **0** tons/year	8.b. Baseline 24-month Period: From: **NA** To: **NA**
9.a. Projected Actual Emissions (if required): **11.26** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years
10. Calculation of Emissions: **See Report Table 6.**	
11. Potential, Fugitive, and Actual Emissions Comment: **Emission provided for SMR Stack. See Attachment A, Table 6 for Flare Emissions**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **PM/PM10**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **1.3** lb/hour **5.67** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.0076 lb/MMBtu** Reference: **Vendor Data, AP-42 Section 1.4, 1070 Btu per scf**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **0** tons/year	8.b. Baseline 24-month Period: From:**NA** To:**NA**
9.a. Projected Actual Emissions (if required): **5.67** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years
10. Calculation of Emissions: **See Report Table 6.**	
11. Potential, Fugitive, and Actual Emissions Comment: **Emission provided for SMR Stack. See Attachment A, Table 6 for Flare Emissions**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **SO_2**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **0.35** lb/hour **1.52** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.0020 lb/MMBtu** Reference: **Vendor Data, Material Balance, 3 gr S per 100 scf**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **0** tons/year	8.b. Baseline 24-month Period: From: **NA** To: **NA**
9.a. Projected Actual Emissions (if required): **1.52** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years
10. Calculation of Emissions: **See Report Table 6.**	
11. Potential, Fugitive, and Actual Emissions Comment: **Emission provided for SMR Stack. See Attachment A, Table 6 for Flare Emissions**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **VOC**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **0.94** lb/hour **4.11** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.0055 lb/MMBtu** Reference: **Vendor Data, AP-42 (7/98 edition)**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **0** tons/year	8.b. Baseline 24-month Period: From: **NA** To: **NA**
9.a. Projected Actual Emissions (if required): **4.11** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years
10. Calculation of Emissions: **See Report Table 6.**	
11. Potential, Fugitive, and Actual Emissions Comment: **Emission provided for SMR Stack. See Attachment A, Table 6 for Flare Emissions**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation **1 of 1**

1. Visible Emissions Subtype: **VE20**	2. Basis for Allowable Opacity: [x] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: **20 %** Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **EPA Method 9**	
5. Visible Emissions Comment: **Rule 62-296.320(4)(b)1.&4., F.A.C.**	

Visible Emissions Limitation: Visible Emissions Limitation __ of ____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: [ ] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor ___ of ___

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor ___ of ___

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

EMISSIONS UNIT INFORMATION
Section [7]
Hydrogen Generating Plant No. 2

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **APM-EU7-I1** [ ] Previously Submitted, Date _____

2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **APM-FUEL** [ ] Previously Submitted, Date _____

3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _____

4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _____
   [X] Not Applicable (construction application)

5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _____
   [X] Not Applicable

6. Compliance Demonstration Reports/Records:
   [ ] Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   [ ] Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   [ ] To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   [X] Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute:
   [ ] Attached, Document ID: _____ [X] Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications – N/A

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☐ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☐ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☐ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

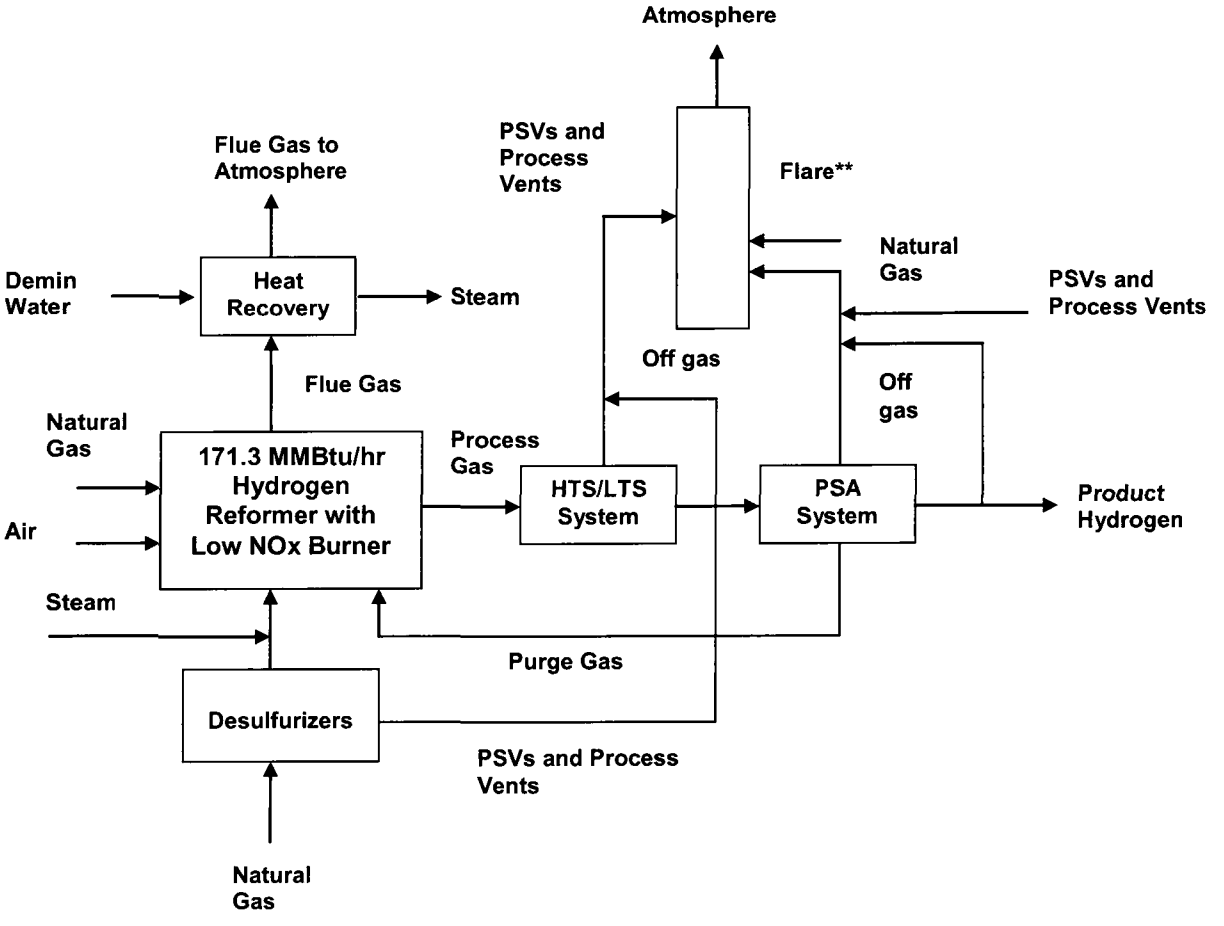
1. Identification of Applicable Requirements: [X] Attached, Document ID: _____
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ [X] Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: _____ [X] Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ [X] Not Applicable

Additional Requirements Comment

FORM ATTACHMENTS

ATTACHMENT APM-EU7-I1
Process Flow Diagram

Hydrogen Generating Plant



*New plant will most likely not have LTS Rx.

**Flare will we used to collect and dispose of combustible gases vented during SSM events.

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

EMISSIONS UNIT INFORMATION
Section [8]
Area II Adipic Acid – 1080 MAR Project Fugitive Emission

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

[x] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[x] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Area II Adipic Acid – 1080 MAR Project Fugitive Emission

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code: **C**	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: **28**

8. Federal Program Applicability: (Check all that apply)

[ ] Acid Rain Unit

[ ] CAIR Unit

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:
Ascend proposes a new emission unit be assigned to the new fugitive emissions sources associated with 1080 MAR Adipic Acid (see Report Table 3).

EMISSIONS UNIT INFORMATION
Section [8]
Area II Adipic Acid – 1080 MAR Project Fugitive Emission

Emissions Unit Control Equipment/Method: Control __ of __

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control __ of __

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control __ of __

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control __ of __

1. Control Equipment/Method Description:
2. Control Device or Method Code:

B. EMISSIONS UNIT CAPACITY INFORMATION
(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate:	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: **24** hours/day **52** weeks/year	**7** days/week **8,760** hours/year
6. Operating Capacity/Schedule Comment:	

EMISSIONS UNIT INFORMATION
Section [8]
Area II Adipic Acid – 1080 MAR Project Fugitive Emission

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:	2. Emission Point Type Code: **4**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **Equipment Leaks**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **F**	6. Stack Height:	7. Exit Diameter:
8. Exit Temperature: **77**	9. Actual Volumetric Flow Rate:	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment __ of _

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

Segment Description and Rate: Segment __ of _

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

EMISSIONS UNIT INFORMATION
Section [8]
Area II Adipic Acid – 1080 MAR Project Fugitive Emission

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
VOC			**NS**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: **VOC**	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour **0.182** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **See Report Table 3** Reference: **USEPA, Protocol for Equipment Leak Emission Estimates, November 1995, Ascend Data.**	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **0** tons/year	8.b. Baseline 24-month Period: From:**NA** To:**NA**
9.a. Projected Actual Emissions (if required): **0.182** tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☒ 10 years
10. Calculation of Emissions:	
11. Potential, Fugitive, and Actual Emissions Comment:	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

EMISSIONS UNIT INFORMATION
Section [8]
Area II Adipic Acid – 1080 MAR Project Fugitive Emission

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation __ of ____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

Visible Emissions Limitation: Visible Emissions Limitation __ of ____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor ___ of ___

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor ___ of ___

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

EMISSIONS UNIT INFORMATION
Section [8]
Area II Adipic Acid – 1080 MAR Project Fugitive Emission

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **APM-EU1-I1** [ ] Previously Submitted, Date _____

2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _____

3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _____

4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _____
   [X] Not Applicable (construction application)

5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _____
   [X] Not Applicable

6. Compliance Demonstration Reports/Records:
   [ ] Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [X] Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute:
   [ ] Attached, Document ID: _____ [X] Not Applicable

EMISSIONS UNIT INFORMATION
Section [8]
Area II Adipic Acid – 1080 MAR Project Fugitive Emission

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications – N/A

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☐ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☐ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☐ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements: ☒ Attached, Document ID: **See Report**__
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: _____ ☒ Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements Comment

40 CFR Subpart A and VV.

1.0 INTRODUCTION

Ascend Performance Materials LLC (Ascend) owns and operates a nylon and intermediate chemical manufacturing facility located in Cantonment, Florida. This plant is approximately 20 kilometers (km) north of Pensacola on the Escambia River. Various chemicals, including adipic acid, nylon fibers, nylon resins, hexamethylene diamine, and maleic anhydride, are manufactured at the facility. The Pensacola plant is a major facility because the facility is one of the 28 listed sources and potential emissions of at least one regulated pollutant exceeds 100 tons per year (TPY). For minor modifications to a major facility, prevention of significant deterioration (PSD) does not apply for an increase in projected actual emissions not exceeding baseline plus the PSD significant emission rates.

Ascend is submitting this permit application to increase the permitted annual capacity for adipic acid production from 990 million pounds adipic acid (MAR) to 1,080 MAR based on a 12-month rolling total.

1.1 Background

1.1.1 Recent Permitting Actions

Ascend has recently been issued two permits for separate increases in adipic acid production. On August 13, 2010 the Department issued a minor modification construction Permit No. 0330040-034-AC, authorizing adipic production at an annual rate of 930 MAR. On January 4th, 2011, Ascend was issued a minor modification construction permit, Permit No. 0330040-035-AC, authorizing adipic acid production at an annual rate of 990 MAR. In support of adipic acid production at a rate of 990 MAR, Permit 0330040-035-AC also authorized the increase of KA feed rate from 92,000 lbs/hr to 98,000 lbs/hr. As stated in the permit, Permit 0330040-035-AC supersedes Permit 0330040-034-AC.

→ 123,020 lb/hr

1.1.2 Adipic Acid Production Process

Adipic acid production has two downstream product routes from which Ascend balances based on product demand. A portion of the adipic acid production is sent to dryers and shipped/sold as dry product to support a segment of customer demand, while the remainder of adipic acid production is further processed into nylon salt for use in the manufacture of nylon polymers. With greater emphasis on minimizing equipment down-time and enhanced management of the unit operation cycle times associated with the process, Ascend is capable of achieving the currently permitted 990 MAR adipic acid. Ascend will achieve a production rate of 1,080 MAR adipic acid through a number of facility changes and enhancements that are described in detail within this application.

2.0 PROJECT DESCRIPTION

Ascend is proposing to increase the permitted annual capacity for adipic acid production from 990 million pounds adipic acid (MAR) to 1,080 MAR based on a 12 month rolling total. In Adipic Acid, Area II (Emission Unit (EU) 002), a ketone and alcohol mixture (KA, cyclohexanone/cyclohexanol) is oxidized with nitric acid to produce an Adipic Acid solution. The solution is refined by chilling due to vacuum evaporation, forming Adipic Acid crystals at the bottom of the process vessel. The resulting slurry is centrifuged to remove water and form a wet cake. The wet cake is re-dissolved in pure water and the purified Adipic Acid solution is sent to the downstream Nylon Salt Strike or Drying and Product Loading operations.

Ascend is proposing to accomplish 1,080 MAR adipic acid through several projects, which are identified below, categorized by the corresponding affected emission unit:

- Area II – Adipic Acid (EU 002)
    - Increased storage capacity of Refined Crystallizer Feed (RCF) and Water Mother Liquor (WML) (Increases emissions);
    - Modification to Crude crystallizer(s);
    - Modification to Refine crystallizer(s);
    - Conversion of one existing Refine crystallizer to a Crude crystallizer (Increases fugitive emissions);
    - New Refine crystallizer (Increases fugitive emissions);
    - New large low temperature converter for the 403B train (Increases fugitive emissions);
    - Crude crystallizers condenser modification;
    - Upgrades to the 403B still (Increases fugitive emissions); and
    - New selective non-catalytic reduction (SNCR) system (Reduces emissions).
- New Therminol Vaporizer No. 9 (New Emission Unit) (Increases emissions)
- Nitric Acid Plant (EU 042)
    - New air compressor; and
    - Railcar unloading facility.
- New Hydrogen Plant (New EU) (Increases emissions)
- Cyclohexane Oxidation Process (Halcon) (EU 020)
    - Halcon tank vent recovery (VOC reduction) (Reduces emissions); and
    - Routing of LP scrubber off-gas to HP scrubber (VOC reduction) (Reduces Emissions).
- Area 480 KA (EU 088)
    - Process Optimization; and
    - Barge loading improvement (Increases fugitive emissions).
- Nylon Polymerization (EU 081/082)

- Improvement of existing finisher agitator on CP Lines;
- Increase polymerization capacity on CP Lines;
- Install 8 new elutriators (Increase emissions);
- Install side stream fed melt extruder (Increase emissions);
- SSP dryer OEE improvement; and
- Transition of CP Lines 18 and 21 to pelletizing lines.

- Utilities
  - New Cooling Tower (Increases emissions);
  - Modification of Cooling Towers (Increases emissions); and
  - Reduction of Fuel Oil Combustion (Reduces emissions).

In order to avoid PSD review, the 1080 MAR project includes several projects, listed above, that will result in a decrease of emissions. NOx emissions will be reduced primarily through the Nitric SCR optimization that will be achieved through increased ammonia injection. PM emission reduction will be achieved with the reduction of fuel oil firing in the boilers. VOC emissions reductions will occur in the Halcon process area by venting 4 tanks, 2 centrifuges and the LP Scrubbers to additional controls.

Detailed descriptions of the identified projects are presented in the following sections. Sections 2.1 through 2.7 presents a detailed description of each project related to increasing the adipic acid production to 1080 MAR. Sections 3.1 through 3.7 presents a description of the emissions impacts for each project. The descriptions of each project and emissions are presented in the same order.

2.1 Area II – Adipic Acid (EU 002)

2.1.1 Increase storage capacity of Refined Crystallizer Feed and WML

Ascend is proposing to install two new storage tanks – RCF Storage Tank No. 2 and WML Tank No. 2. These tanks will increase Operating Equipment Effectiveness (%OEE) of both the crude and refine crystallizer processing steps within adipic acid production. Currently there are 7 crudes crystallizers and 6 refine crystallizers, which require defrosting every 7-30 days of operation. During the shutdown to defrost, due to lack of storage, the production during this time is lost and cannot be recovered. The installation of the new tanks and associated pumps, and circulation tank heater, will increase storage capacity and will allow crude or refine crystallizers to be defrosted without losing production of adipic acid.

2.1.2 Crude Crystallizer(s) Modification

The facility currently has 7 crude crystallizers within adipic acid production. The proposed project will improve the percentage of on-stream-time (OST) of the existing crude crystallizers by increasing time

between defrosts by minimizing fouling. The circulation flow rate on the existing crude crystallizer circulation pumps will be increased by increasing the pump speed and impeller size. Increasing the circulation flow on the crystallizers will lower the saturation rate in the vaporizer and therefore minimize fouling in the vaporizer. As a result, the need to defrost will also be lower.

The goal of this project is to increase production of wet adipic acid as a result of increased time between defrosts, a reduction in annual downtime. The project will include the following improvements for the 7 crude crystallizers:

- Installation of variable speed drive pumps for increased circulation flow;
- Installation of a larger circulation pump motors;
- Increased circulation pump impeller angle;
- Removal of the existing tracing and insulation on the vaporizer and replacement with new/improved tracing and new insulation;
- Installation of monitoring cameras on all vaporizers;
- Installation of flow meters to measure/monitor circulation flow rate;
- Installation of continuous condenser flush piping and controls;
- Installation of "Gamma-Jet" for in-situ vaporizer cleaning;
- Replacement of existing crude feed pumps with larger capacity pumps; and
- Other miscellaneous optimizations.

2.1.3 Refine Crystallizer(s) Modification

The facility currently has 5 refine crystallizers and one Urethane Grade Adipic (UGA) crystallizer within the adipic acid process. The proposed project will improve the percentage of annual on-stream-time (OST) of these crystallizers by increasing time between defrosts. The circulation flow rate on the existing crude crystallizer circulation pumps will be increased by increasing the pump speed and impeller size. Increasing the circulation flow on the crystallizers will lower the saturation rate in the vaporizer and therefore minimize fouling in the vaporizer. As a result, the need to defrost will also be lower.

The project will include the following improvements for the 4 Refine and the UGA crystallizers:

- Installation of variable speed drive pumps for increased circulation flow;
- Installation of larger circulation pump motors;
- Increase circulation pump impeller angle to provide increased flow;
- Removal of the existing tracing and insulation on the vaporizer and replacement with new/improved tracing and new insulation;
- Installation of monitoring cameras on all vaporizers;
- Installation of flow meters to measure/monitor circulation flow rate;

- Addition of improved level indication on the suspension tank;
- Feed piping modifications for improved mixing;
- Improved WML Overflow Weir, relocated to centrifuge down-comer location; and
- Other miscellaneous optimizations.

2.1.4 Conversion of One Existing Refine Crystallizers to a Crude Crystallizer

Ascend proposes to convert an existing Refine Crystallizer to a Crude Crystallizer to increase crude crystallization capacity. No increase in dry capacity is anticipated due to this project. The project will include:

- Increasing the height of the existing vaporizer approximately 3 feet ;
- Replacing the existing single stage centrifuge with a new 2-stage centrifuge; and
- Modifying the existing suspension tank.

In addition, modifications of ductwork and new piping will be required. Following is a list of new equipment for the project:

- Crude slurry pumps;
- Inclined screen thickener;
- 2-Stage crude centrifuge;
- Adipic solution tank;
- NML separator;
- Solution water heater;
- Adipic solution and separator pumps;
- Wet cake screw conveyor;
- Cake splitter;
- Crude feed / NML heat exchanger; and
- Other miscellaneous ancillary components.

2.1.5 New Refine Crystallizer

Ascend proposes to install a new Refine Crystallizer in a new building. No increase in dryer capacity will result from this project. The following items will be included in the project:

- New crystallizer system similar to the existing crystallizer in building 485.
- New building for crystallizer.

In addition, new pumps, water heater, condenser, and screw conveyor will be needed for the project.

2.1.6 New Low Temperature Converter

Ascend is proposing to install a new large Low Temperature Converter (LTC) No. 3 in the 403B converter train in Building 403 in support of operation at a higher cyclohexanone/cyclohexanol (KA) feed rate. The facility currently has 4 converter trains and 3 (trains 403A, 463A, and 463B) are already equipped with a large LTC before two smaller LTCs. Converter train 403B currently has only two small LTCs.

This project will also include ancillary equipment as well as add/modify the Bleacher/Off Gas vessels & ancillary equipment to compensate for the addition of the larger LTC.

2.1.7 Crude Crystallizers Condenser Modification

As mentioned previously, the facility currently has 7 crude crystallizers within the adipic acid process. Ascend is proposing to modify the condensers of these crystallizers to improve capacity by providing greater surface area. The project will replace the existing crude crystallizer vertical condensers with approximately 50-percent bigger condensers. Increasing the condenser heat transfer area will allow the crude crystallizers to run at a higher rate necessary to achieve the proposed 1080 MAR adipic acid production rate.

As part of this project, Ascend may also add a new heat exchanger between the Nitric Mother Liquor (NML) Separator Effluent and the Crude Crystallizer Feed streams. The heat exchanger will lower the crude feed temperature by 5-10° C, which would reduce the condensing load requirement. The size requirement of the crude crystallizer condenser will be lower and the heat exchanger will increase the temperature of the NML Separator Effluent. As a result, the amount of steam required for preheating the NML Separator Effluent prior to the next process step will be reduced.

2.1.8 Upgrade 403B Still

The proposed project will increase the current capacity of the 403B still to accommodate the proposed increase in adipic acid production. The facility currently has 3 still systems in the distillation process, two of which are double effect stills (463C&A and 463D&B). The 403B still is a single effect still with one distillation column.

The project will include the addition/modification of the ancillary equipment of the existing 403B still to allow for higher throughput that may include increasing reboiler/condensing capacity as well as the necessary ancillary equipment/piping systems. Feed and tails pumps may also be included in the project.

2.1.9 New Selective Non-Catalytic Reduction (SNCR) System

Ascend proposes to replace the existing selective catalytic reduction (SCR) system associated with the TRU and install a selective non-catalytic reduction (SNCR) system. The goal of the project is to ensure control of NO_x emissions as well as improve on-stream reliability.

The operating cost of the existing SCR system is high as the catalyst needs frequent change-out and replacement several times per year due to fouling. Additionally, the SCR catalyst reduces control efficiency as fouling builds up over time. The SNCR system does not need a catalyst and converts NO_x in the gas stream to nitrogen and water vapor at temperatures between 1800°F and 1900 °F in the presence of a reagent. SNCR uses reagent ammonia (NH3) to convert the NOx in a flue gas to nitrogen and water vapor. The reactions are as follows:

$$4NH_3 + 4NO + O_2 = 4N_2 + 6H_2O$$

$$4NH_3 + 2NO_2 + O_2 = 3N_2 + 6H_2O$$

The selected John Zink SNCR system is a well proven and predictable system achieving a high degree of temperature uniformity in flue gases. John Zink ensures good uniformity of temperature by performing the SNCR reaction in a location that does not have exposure to radiation from the flame or heat removal by downstream heat recovery unit. Uniformity of the temperature is critical to achieving a predictable SNCR performance since the SNCR process is effective only in a narrow range of temperatures.

The project will involve modification to the existing TRU design with the new SNCR installed in the middle before the heat recovery section in order to achieve the correct temperature profile. Flue gases will exit the TRU and enter the SNCR vessel around a temperature of 1800 °F. The SNCR system will include a vessel that is well insulated and has sufficient residence time to complete the SNCR reaction after the injection of the reagent. The reagent is injected in four radial distributed locations at a choke in the SNCR vessel. The choke accelerates the flow of the combustion gases and causes them to mix well with the reagent being injected.

The project will also include an ammonia delivery system for aqueous ammonia, which is required to support the function of the SNCR. The delivery system will include a small storage tank followed by a pump, and piping for the aqueous ammonia solution to flow to the injectors in the choke of the SNCR vessel.

The existing TRU stack will not be changed as a result of this project. No increase in adipic acid production capacity will be generated by this project.

2.2 New Therminol Vaporizer No. 9 (New Emission Unit)

A new 55.6 million Btu/hr, Therminol Vaporizer No. 9 will be added to the Yarn Plant Utilities Area in Building 500. The vapor produced by the Vaporizers is used to provide heat to polymer processing vessels. New therminol vaporizer installation purpose is to increase reliability and efficiency of the Yarn Utilities processes. This new Vaporizer will be similar to the existing Vaporizer No. 8. It will be operated remotely from the existing Therminol Control Room.

2.3 Nitric Acid Plant (EU 042)

2.3.1 Nitric Acid Plant New Air Compressor

The Nitric Acid Plant (EU 042) currently uses 3 rental electric air compressors that supply air for nitric acid production. Ascend proposes to install a new electric centrifugal compressor in Building 408, which will generate up to 50 thousand pounds per hour (kpph) of compressed air and eliminate the need for the rental compressors. The compressed air will be primarily provided to the Nitric Acid plant to ensure operation at its maximum rate year round. The nitric acid plant is currently limited to a maximum capacity of 1,500 tons per day, which will not be exceeded.

2.3.2 Nitric Acid Plant Railcar Unloading Facility

A new railcar unloading facility for nitric acid will be installed. The facility currently has only truck unloading facility for nitric acid. The current loading/unloading facility at Building 442 will be extended to accommodate new nitric unloading facility.

The project will include complete surface grading for the foundation to support the unloading structure. A railcar pan will be placed underneath the tracks. Nitric acid from the railcars will be pumped using two centrifugal pumps, one will be installed as spare.

2.4 New Hydrogen Plant (New Emission Unit)

Ascend proposes to build a new hydrogen plant with capacity up to 171 million BTU per hour steam methane reformer (SMR) hydrogen generating plant to meet the need for additional adipic acid production. Hydrogen is used in the production of hexamethylene diamine and other nylon intermediate chemicals. The facility currently has one hydrogen generating plant (EU 049). Cooling water for the plant will be supplied by the existing cooling tower at the facility associated with the existing hydrogen plant.

The precise business arrangement for the new hydrogen plant has not been finalized and Ascend may elect to have another owner and/or operator of the capital assests comprising this emission unit. Nonetheless, emissions from this project are accounted for as part of Ascend's operations.

2.5 Cyclohexane Oxidation Process (Halcon) (EU 020)

2.5.1 Halcon Tank Vent Recovery

This project proposes to recover off-gas from 4 tanks and 2 centrifuges in the crystallization area of Bldg 481 (BML tank, A Slurry Tank, B Slurry Tank and Flasher Condensate Tank) and send to the Low Pressure (LP) scrubbers in Building 401/461. The tank off-gas is nitrogen, cyclohexane and other VOC's.

2.5.2 Routing of LP Scrubbers Off-Gas to HP Scrubbers

This project proposes to route off-gas from the 401/461 LP scrubbers to the High Pressure (HP) scrubbers off-gas header in Building 401 and 461, which is ultimately controlled by the TRU in Area II.

The pressure at the LP scrubber vent is near atmospheric. The pressure of the LP scrubber off-gas will be raised in order to inject the gas stream into the HP scrubber off-gas headers which run at a higher pressure. A separator will be installed in the LP scrubber off-gas line to knock out any liquids. One main and one spare compressor will be installed. Off-gas from the LP scrubbers may be vented to the atmosphere during periods when the OBUD is online.

2.6 Area 480 KA (EU 088)

2.6.1 Area 480 KA (P2K) Process Optimization

Ascend proposes minor upgrades to P2K processing equipment, including but not limited to cooling water exchangers, cooling water piping modifications, pump upgrades, and instrumentation/valve trim modifications. These changes will not impact the maximum production rate of KA mixture. These efforts will include, for example, the installation of heat transfer enhancing inserts in cooling water condensers and/or other miscellaneous changes that will enhance cooling water utilization allowing greater reliability and energy efficiency at all production rates.

This effort will include installation of heat transfer enhancing inserts in the KA column condenser and other miscellaneous changes that will enhance cooling water utilization allowing greater reliability and energy efficiency at all production rates.

2.6.2 Area 480 KA Barge Loading Improvement

A new barge loading system will be installed to decrease loading times and improve accounting accuracies of P2K and Halcon KA materials that are periodically sold and shipped off site.

This project will add two new 800 gallon per minute (gpm) in-line centrifugal pumps, one on the discharge line from the P2K product tank, with the other on the Halcon product tank. A mixing eductor will be

installed in each tank to allow thorough mixing of the tank contents prior to be loaded into a barge. A new transfer line with a Custody Transfer flow meter will also be installed.

2.7 Nylon Polymerization (EU 081/082)

2.7.1 Improvement of Existing Finisher Agitator on CP Lines

This project will replace existing finisher agitator with higher finishing capacity agitator on both continuous polymerization (CP) line finishers. The higher capacity agitator will increase production of finished products for sale.

2.7.2 Increase Polymerization Rates on CP Lines

This project will increase the polymerization rates of CP Lines by installing the necessary equipment and/or improving the controls to increase water removal from the nylon salt in the evaporator and improving polymer finishing efficiency. The polymer finishing efficiency will be increased with the installation of higher capacity finisher agitators.

The following equipment will be added:

- Centrifugal booster pumps with strainers and new steam letdown station;
- Two pumps, two in-line strainers, new valves and flanges;
- Larger size reactor off-gas reboiler to replace the existing;
- Higher capacity finisher agitators to replace the existing; and
- Other miscellaneous equipment and/or optimizations.

2.7.3 Install 8 New Elutriators

Ascend proposes to install a total of eight new elutriators. Six of the elutriators will discharge pellets by gravity, and two will discharge to pneumatic conveyors. To minimize air exhaust, 90% of the air used for cleaning pellets will be recycled, and the fresh air make-up volume is expected to be less than 10% of the total circulation rate. Two new dilute phase pneumatic conveyors will be installed for conveying product to storage silos.

The following equipment will be added:

- Eight elutriators;
- Associated equipment including dust collectors, rotary valves, blowers, air coolers, and piping;
- Two new pneumatic conveyors with associated blowers, rotary valves, and piping;
- One 20 HP air blower and three 1.5 HP rotary valves for each elutriator; and
- One 100 HP air blower for each pneumatic conveyor.

2.7.4 Install Side Stream Fed Melt Extruder

This project will install a side stream fed melt extruder that combines Nylon 6,6 melt with various other materials such as fiberglass and/or inorganic additives commonly known as Compounded Nylon 6,6 products. The purpose of the project is to enhance the final products performance.

The following equipment will be added:

- A new twin screw extruder with multiple feeders for mixing extenders and additives into Nylon 6,6 polymer taken as a side stream off an operating CP Line.
- A vacuum conveyor to transport the product to multiple loading stations.
- A High Efficiency Air Filter (HEAF) to collect particulates off the new unit's die, pelletizer and extruder vacuum pump.
- A baghouse to clean air prior to vacuum pump and atmospheric discharge.
- Valves and flanges in the new transfer line to the extruder to handle therminol.
- Two new vacuum pumps with one as back up.
- One new pump to circulate the cooling water.
- Other miscellaneous equipment.

2.7.5 SSP Dryer OEE Improvement

This project will improve the Solid State Polymerization (SSP) dryer OEE by modifying equipment, adding auxiliaries and changing process cycle. Currently, two of the three dryers in bldg 509 are therminol filled/heated and capable of running high temperature SSP (225 deg C) RV-building processes. This project proposes to convert one high temp unit to heating-only service, while modifying or adding a vessel for cooling duty alone. This project will improve the duration of the batch process resulting in annual increased throughput and subsequently improving energy efficiency.

The project will add a 300 ft^3 holding bin under an existing high temp unit and convert it to a heat-only machine. A low temperature (water filled/steam heated) bin will be installed, which will be dedicated to perform cooling-only service, running in tandem with the heat-only machine.

2.7.6 Transition of CP Lines 18 and 21 to Pelletizing Lines

Ascend proposes to transition CP Line 21 to a pelletizing line by merging the polymer melt stream with the CP22/23 polymer stream for pelletizing of all three CP lines in the CP 22/23 pelletizer. The additional production volume would be handled in the CP22/23 pelletizer and downstream handling system with minimal changes. Ascend also proposes to transition CP Line 18 to a pelletizing line by merging polymer melt stream with the existing CP 16/17 polymer stream for pelletizing all three CP lines in the CP 16/17 pelletizer.

This project will require melt piping and diverter valves to merge these polymer melt streams as described above. Minor additives supply lines will also be required in order to produce the required formulation.

2.7.7 Improved Chiller Efficiency

The 500 Bldg Absorption Chillers are now used to condense the evaporator off gas, but they operate at very low capacity because this vent gas steam is too low in pressure. This project will use medium pressure steam from the 10 CP reactor off gas reboilers as motive steam to boost this evaporator vent steam pressure using a Thermo compressor. This compressor is a large steam eductor similar in design to a vacuum jet. Since the reactor off gas reboiler steam is clean steam any excess steam not needed for the Thermo compressor will be used to replace low pressure powerhouse generated steam. The next impact of this project would be to increase the chilled water production without increasing plant steam usage. The frequency of unplanned venting of reactor off gas will be reduced since the new header will uncouple these reboilers from the higher pressure evaporator supply steam.

2.8 Utilities

The project may increase the capacity of utility systems to provide adequate and reliable supply of utilities to all areas of the site. The utility systems that may increase capacity include: compressed air, chilled water, well water, de-mineralized and pure water, nitrogen, and electricity distribution. These systems do not have air emissions.

2.8.1 New Cooling Tower

Ascend proposes to install a new 20,000 gpm cooling tower, which will be located near the existing cooling towers. Particulate matter emissions from the proposed cooling tower will be controlled by a drift eliminator with a maximum drift rate of 0.001%.

2.8.2 Modification of Cooling Towers 1, 2, 3, 4, and 6

To meet the increasing cooling water demand related to the proposed expansion project, Ascend is proposing to increase the total capacity of the existing cooling towers 1, 2, 3, 4, and 6 by 10,000 gpm with an estimated 9,000 gpm will be increased on cooling towers 1, 2, 3, and 4 and 1,000 gpm will be increased on cooling tower 6.

This project will add new pumps at the existing cooling towers to increase pumping capacity and reliability. Variable speed drives will be added to improve control of pressure and levels in the cooling towers. The existing towers may also be modified by replacing fill with higher efficiency fill in order to add cooling capacity. Additional distribution piping may be added or existing piping may be modified to accommodate the increased capacity.

The project may modify the existing tower fans to accommodate the increased capacity or may add additional cells. The existing cooling towers are equipped with drift eliminators, which will be used to control particulate matter emissions.

2.8.3 Reduction of Fuel Oil Combustion

In order to reduce PM emission increases below the PSD threshold, Ascend proposes to reduce the fuel oil limit established with the 990 MAR permit (Permit 0330040-035-AC) by 150,000 MMBtu/yr resulting in a new limit of 3,289,781 MMBtu/yr for Boilers Nos. 4, 5 and 6. Ascend proposes to offset the fuel oil with natural gas and keep the overall heat input equal to the current limit defined in Permit 0330040-035-AC and equal to 16,374,276 MMBtu/yr.

3.0 EMISSION EVALUATIONS

As was acknowledged in Permit No. 0330040-034-AC and Permit No. 0330040-035-AC, the emission calculations presented to demonstrate PSD regulatory applicability employ the comparison of baseline actual emissions to projected actual emissions methodology including a demand growth production rate equivalent to 850 MAR per 62-210.200(250)(c) F.A.C. for all regulated pollutants. Projects to support 1,080 MAR will require physical and/or operational changes to the following emissions units:

- Area II – Adipic Acid (EU 002) & Adipic Acid Fugitive Emissions (EU 090);
- New emission unit – Vaporizer No. 9 (New EU);
- Nitric Acid Plant (EU 042);
- New emission unit – New Hydrogen Plant (New Emission Unit);
- Cyclohexane Oxidation Process, Halcon (EU 020);
- Area 480 KA (EU 088); and
- Nylon Polymerization (EU 081/082).

FDEP air construction application forms for each of these units are included with this application. The detailed emission calculations for this project are included in Table 1. Also, presented in Table 1 are the total emission increases and PSD applicability comparison for the project. All pollutants remain below PSD review thresholds. An emission evaluation discussion for each of the proposed changes associated with the project follows.

3.1 Area II – Adipic Acid

Adipic Acid solution is produced when a ketone and alcohol mixture (KA, cyclohexanone/cyclohexanol) is oxidized with nitric acid. Emissions from EU 002 result from the reaction/refining operations and consist of NO_x, CO, VOC and PM. Control systems including thermal reduction unit (TRU/SCR I) to reduce CO, VOC and NOx and SCR II (Backup SCR) to reduce emissions of NO_x are currently utilized.

Ascend is proposing to increase the permitted annual capacity for adipic acid production from 990 million pounds adipic acid (MAR) to 1,080 MAR based on a 12-month rolling total. The currently permitted maximum operating rate of 98,000 lbs/hr KA will be increased to maximum operating rate of 123,000 lbs/hr KA.

Overall, adipic acid process off-gas flow to the thermal reduction unit (TRU) will increase as a result of the additional adipic acid produced annually. No increase in dry adipic acid capacity will be generated by this permit application. Improvements to the NOx Collection Header as required will be implemented. The adipic process is currently set up to maximize dry adipic production with the current limitation of dryer

capacities. This permit application does not affect maximum dryer capacity. A summary of the specific Area II projects proposed with this permit application follow.

3.1.1 Increase Storage Capacity of Refined Crystallizer Feed and WML

The project will result in minor emissions of VOCs. The new RCF and WML storage tanks will each vent to the atmosphere. The emissions as a result of the new RCF and WML storage tanks are accounted for in the Adipic Acid Refining Tanks emissions as shown in Table 2.

The new tanks will also include installation of associated pumps, flanges, piping, valves, and RCF circulation heaters. These new components result in new fugitive emission points. The tanks should not be subject to NSPS, Subpart Kb requirements due to the low vapor pressure of organics. Table 3, presents the detailed emission estimates of the new fugitive sources associated with the RCF and WML project as well as the other new fugitive emission sources of the Area II projects described in the following sections. Ascend proposes a new emission unit be assigned to the new fugitive emissions sources associated with 1080 MAR Adipic Acid (Table 3). Subsequently, a FDEP Emission Unit Form is included in this application for a new emission unit. The establishment of these sources as an emission unit will establish the clear distinction of these sources for reporting emissions in the future as part of the 1080 MAR project.

3.1.2 Crude Crystallizer Modification

This project will not increase the size of the Crystallizer's condenser, or solid/liquid separation equipment. This project will not modify or install any new emission control equipment. The project contributes to the proposed adipic acid production rate increase to a rate of 1,080 MAR while not generating any additional or new source of emissions related to the specific equipment of the proposed modification. Emissions are controlled through the TRU and/or Backup SCR and outlined in Tables 1 and 2.

3.1.3 Refine Crystallizer Modification

The project will slightly increase instantaneous emissions from the refine crystallizer modifications. The project will reduce the frequency of crystallizer shut-down, clean-outs (defrosts), and start-ups. As such, the project contributes to the proposed adipic acid production rate increase to a rate of 1,080 MAR.

This project will not modify or install any new emission control equipment. No new process piping will be required. There will be no increase in dry adipic acid capacity. As such, the project will not generate any additional or new source of emissions. Any production rate related changes in emissions are reflected in Tables 1 and 2.

3.1.4 Conversion of One Existing Refine Crystallizer to a Crude Crystallizer

Ascend proposes to convert one of the existing refine crystallizers to a crude crystallizer. A minimal increase in fugitive VOC emissions is expected due to additional valves and flanges in new process piping. These additional fugitive sources are included in Table 3 emission estimates. Any production rate related changes in emissions are reflected in Tables 1 and 2.

3.1.5 New Refine Crystallizer

Ascend proposes to install a new refine crystallizer in a new building. There will be an increase in the off-gas flow to the TRU as a result of the new crystallizer. A minimal increase in fugitive VOC emissions is expected due to additional valves and flanges in new process piping. These additional fugitive sources are included in Table 3 emission estimates. Any production rate related changes in emissions are reflected in Tables 1 and 2.

3.1.6 New Low Temperature Converter

The project will include installation of associated flanges, piping, valves. After these changes, the 403B train will be capable of operating at a higher cyclohexanone/cyclohexanol (KA) feed rate. This project will not modify or install any new emission control equipment. These additional fugitive sources are included in Table 3 emission estimates. Any production rate related changes in emissions are reflected in Tables 1 and 2.

3.1.7 Crude Crystallizers Condenser Modifications

Process piping changes will be required to provide increased cooling water supply to each condenser, and in some cases, larger condensers will be installed. As such, the project contributes to the proposed adipic acid production rate increase to a rate of 1,080 MAR while not generating any additional or new source of emissions related to the specific equipment of the proposed modification. Any production rate related changes in emissions are reflected in Tables 1 and 2.

3.1.8 Upgrade 403B Still

If required, the proposed project will increase the current capacity of the 403B still to accommodate the proposed increase in adipic acid production. This project will not modify or install any new emission control equipment. All potential emission sources for NOx and VOC are currently connected to the off-gas collection system which is directed to the existing TRU system. A minimal increase in fugitive VOC emissions is expected due to additional valves and flanges in new process piping. These additional fugitive sources are included in Table 3 emission estimates. Any production related changes in emissions are reflected in Tables 1 and 2.

3.1.9 New Selective Non-Catalytic Reduction (SNCR) System

The goal of the project is to obtain NO_X control reliability greater than the existing SCR system. The SNCR system will be utilized to maintain EU 002 NOx emissions less than 610 TPY. NOx emissions will be controlled to the currently permitted levels with the replacement of the existing SCR system associated with the TRU with a SNCR system. Tables 1 and 2 present post-project NOx Emissions set equal to 610 TPY.

Ascend proposes to maintain an annual emission limit on NO_x from EU 002 equal to 610 TPY, on a 12-month rolling total, to avoid a Prevention of Significant Deterioration (PSD) significant increase in emissions. No change is proposed to the NO_x concentration limit of 500 ppm, on a 30-day rolling average.

3.2 New Therminol Vaporizer No. 9 (New Emission Unit)

The proposed Vaporizer No. 9 will burn only natural gas and will be subject to the requirements of 40 CFR 60 Subpart Dc. Air emissions will occur from this new emission unit. Low-NO_X burners will be used to control NOx emissions. This new unit has been added to Table 1.

The installation will also include two new primary Therminol condensate return pumps to recycle the condensed primary Therminol back to the new vaporizer, valves, flanges, and required piping. Fugitive emissions associated with the vaporizer are included in Table 1. Detailed emission calculations of Vaporizer No. 9 are provided in Table 4. Detailed estimates of fugitive emissions are provided in Table 5. The fugitive emissions associated with the new Therminol Vaporizer are a result of valves, flanges and required piping, are not subject to any specific regulation, and based on the level of emissions represent a new insignificant emission source.

3.3 Nitric Acid Plant (EU 042)

3.3.1 Nitric Acid Plant New Air Compressor

Ascend expects that the new air compressor will increase on-site nitric acid production and reduce the quantity of nitric acid currently purchased from outside. NO_X emissions from the nitric acid plant are currently controlled by an SCR system and are limited to 360 tons per year. In order to avoid increased NOx emissions above the PSD review threshold, the ammonia injection to the SCR will be increased to ensure that the NO_X emissions remain below projected actual of 310 TPY.

3.3.2 Nitric Acid Plant Railcar Unloading Facility

The nitric acid loading fumes from the railcars will be vented to the Building 420 nitric acid storage tanks. Any fumes from the tanks are vacuumed into the NO_X Collection system and ultimately destroyed in the TRU. As such, the project contributes to the proposed adipic acid production rate increase to a rate of

1,080 MAR while not generating any additional or new source of emissions related to the specific equipment of the proposed modification.

3.4 New Hydrogen Plant

The reformer for the proposed hydrogen plant will be rated at 171.3 million Btu/hr and will be fired by natural gas and purge gas. Low NO_X burners will be used to control NO_X emissions from the reformer and good combustion practice will be used to control CO emissions. The purge gas is sulfur free and therefore, SO_2 emissions will result from natural gas firing only. Pipeline quality natural gas with low sulfur content will be used.

The proposed hydrogen plant will include a flare system, which will be used to combust flammable vent gases from the plant during periods of starup, shutdown or malfunction. These are off gases collected from the plant vents and pressure relief valves and process waste gas not used in the reformer.

The proposed flare will have two continuous pilots fueled by pipeline quality natural gas. Emissions for the new Hydrogen Plant and flare are provided in Table 1, with emission estimates (from a potential vendor) provided in Table 6.

3.5 Cyclohexane Oxidation Process (Halcon) (EU 020)

3.5.1 Halcon Tank Vent Recovery

VOC emissions will be reduced by an estimated 13.35 TPY as a result of routing the Halcon tank vents to the Low Pressure (LP) scrubbers in Building 401/461. The LP scrubbers off-gas will be routed through the HP scrubbers to the TRU. The emission reductions as a result of this project are included in Table 1 and presented in detail in Table 12.

3.5.2 Routing of LP Scrubbers Off-Gas to HP Scrubbers

This project will reduce VOC emissions by an estimated 12.36 TPY by routing off-gas from the 401/461 LP scrubbers in Building 401 and 461 to the High Pressure (HP) scrubbers off-gas header which is controlled by the TRU in Area II. When the OBUD is online, the off-gas will be routed to the atmosphere. The emission reductions as a result of this project are included in Table 1 and presented in detail in Table 12.

3.6 Area 480 KA (EU 088)

3.6.1 Area 480 KA (P2K) Process Optimization

The current flow to the flare will not change as a result of the project. Projected P2K emissions are presented in Table 7.

3.6.2 Area 480 KA Barge Loading Improvement

No new tanks will be added by this project. Fugitive emissions associated with new valves and other related piping equipment is presented in Table 8. The production capabilities of Halcon and P2K KA will not be increased by this project.

Ascend proposes a new insignificant emission unit be assigned to the new fugitive emissions sources associated with KA Barge Loading Improvement (Table 8). The establishment of these sources as an insignificant emission unit will establish the clear distinction of these sources for reporting emissions in the future as part of the 1080 MAR project. These components associated with barge loading should not be subject the HON regulation or NSPS Subpart VV.

3.7 Nylon Polymerization (EU 081/082)

3.7.1 Improvement of Existing Finisher Agitator on CP Lines

VOC emissions associated with EU 081/082 are based upon the maximum proposed production rate for nylon and associated projected actual emissions. These calculations are presented in Table 1 and associated tables.

3.7.2 Increase Polymerization Rates on CP Lines

VOC emissions associated with EU 081/082 are based upon the maximum proposed production rate for nylon and associated projected actual emissions. These calculations are presented in Table 1 and associated tables.

3.7.3 Install 8 New Elutriators

The project will increase particulate matter emissions. Emissions from the elutriators will be controlled by dust collectors with exhaust air maximum dust loading of 0.01 grains per dry actual cubic foot. New stacks will be added on each of the eight elutriators. The diameter of the exhaust stacks will be 12" or less, and exhaust flow will be 400 cfm for each stack.

Air exhausted from the termination point of pneumatic conveying is expected to contain particulate at a level of 0.003 grains per cubic foot based on TRC Test Report 39596-001 conducted on 4/16/2003. Emissions are provided in Table 9. The elutriators will be new insignificant emission sources for the facility. However, the emissions are included for the project and included in Table 1.

3.7.4 Install Side Stream Fed Melt Extruder

The project will increase particulate matter emissions. New stacks will be installed for the HEAF filter and for the convey vacuum pump. The HEAF filter stack will be 60 ft above grade with a diameter of 6 inch. The convey vacuum pump stack will be 60 ft above grade with a diameter of 3 inch. Exhaust flow rates

for the HEAF filter and the vacuum pump stacks are 3000 scfm and 1500 scfm, respectively. Emissions are provided in Table 10. The extruder will be a new insignificant emission sources for the facility. However, the emissions are included for the project and included in Table 1.

3.7.5 SSP Dryer OEE Improvement

Once this improvement project is completed, Ascend will be able to produce more high-RV Nylon 6,6 product offsetting standard-RV Nylon 6,6. There will be no net change in production as a result of this project and therefore no emission increases.

3.7.6 Transition of CP Lines 18 and 21 to Pelletizing Lines

The additional production volume would to be handled in the CP22/23 pelletizer with the transition of CP 21 and CP 16/17 pelletizer with the transition of CP 18. Particulate matter emissions for pelletizers are based upon maximum air flow volumes and grain loading, and such estimates do not change as a result of the transition of additional molten polymer.

3.7.7 Improved Chiller Efficiency

There are no emission changes as a result of the improved chiller efficiency project.

3.8 Utilities

3.8.1 New Cooling Tower

The new cooling tower will be designed with a drift elimination rate of 0.001% and will result in estimate PM10 emissions equal to 0.48 TPY, See Table 13.

3.8.2 Modification of Cooling Towers 1, 2, 3, 4, and 6

Increasing the total capacity of the existing cooling towers 1, 2, 3, 4, and 6 by 10,000 gpm will result in increase PM10 emissions. As shown in Table 13, the increase in PM10 emissions from cooling towers 1, 2, 3, 4, and 6 is estimated to be 0.48 TPY.

3.8.3 Reduction of Fuel Oil Combustion

Ascend proposes to incorporate a reduction of fuel oil firing by 150,000 MMBtu/yr which will result in a reduction of projected actual emissions. The emission reductions are presented in Table 11.

4.0 Rule Applicability

EU 002, Area II Adipic Acid Expansion, is subject to the following New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations:

Applicable Federal Regulations:

- NSPS Title 40 of the Code of Federal Regulation (40 CFR) 60 Subpart A, General Provisions.
- NSPS 40 CFR 60 Subpart VV, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemical Manufacturing Industry.
- NSPS 40 CFR 60 Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.
- NSPS 40 CFR 60 Subpart RRR, Standards of Performance for Volatile Organic Compound Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes.
- NSPS 40 CFR 60 Subpart NNN, Standards of Performance of Volatile Organic Compounds (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations:
    - 60.660 Applicability and designation of affected facility.
    - 60.661 Definitions.
    - 60.662 Standards.
    - 60.663 Monitoring of emissions and operations.
    - 60.664 Test methods and procedures.
    - 60.665 Reporting and recordkeeping requirements.
    - 60.666 Reconstruction.
    - 60.667 Chemicals affected by subpart NNN.
    - 60.668 Delegation of authority.
- NESHAP 40 CFR 63, Subpart FFFF, National Emission Standards for Miscellaneous Organic Manufacturing.

The Project will meet the requirements of the applicable NSPS/NESHAP regulations.

4.1.1 PSD Review

Under federal and State of Florida PSD review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and a pre-construction permit issued. EPA has approved Florida's State Implementation Plan (SIP), which contains PSD regulations; therefore, PSD approval authority has been granted to the FDEP.

In 2006, Florida adopted the Federal NSR/PSD reform promulgated on 12/31/2002. The following is taken from the Florida Administrative Code.

"F.A.C. 62-210.200 (248) *"Projected Actual Emissions"* – The maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a PSD pollutant in any one of the 5 years following the date the unit resumes regular operation after the project, or in any one of the 10 years following that date, if the project involves increasing the emissions unit's design capacity or its potential to emit that PSD pollutant and full utilization of the unit would result in a significant emissions increase or a significant net emissions increase at the major stationary source. One year is one 12-month period. In determining the projected actual emissions, the Department:

(a) Shall consider all relevant information, including historical operational data, the company's own representations, the company's expected business activity and the company's highest projections of business activity, the company's filings with the State or Federal regulatory authorities, and compliance plans or orders, including consent orders; and

(b) Shall include fugitive emissions to the extent quantifiable and emissions associated with startups and shutdowns; and

(c) Shall exclude that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions and that are also unrelated to the particular project including any increased utilization due to product demand growth; or

(d) In lieu of using the method set out in paragraphs (a) through (c) above, may be directed by the owner or operator to use the emissions unit's potential to emit, in tons per year."

The PSD applicability analysis based on past actual and future projected actual emissions is presented in Table 1. There are no project emission increases of regulated pollutants above PSD "significance" levels. Additionally, this project is not linked or enabled with other projects in the contemporaneous period. Thus, no contemporaneous credible increases or decreases are necessary to be considered. The project is therefore not a major modification under PSD regulations since the difference between baseline actual emissions including consideration of demand growth and projected actual emissions do not exceed the significant emission levels.

Table 1. Revised PSD Applicability Analysis - Adipic Acid 1080 MAR Project.

Source		Baseline Emissions (TPY)					Post-Project Emissions: Projected Emissions (TPY) up to 1080 MAR					Baseline Emissions plus Demand Growth: Projected Emissions (TPY) up to 850 MAR					Project Emission Increase (Post-Project minus Baseline Emissions plus Demand Growth) (TPY)				
		CO	NOX	PM/PM10	SO2	VOC	CO	NOX	PM/PM10	SO2	VOC	CO	NOX	PM/PM10	SO2	VOC	CO	NOX	PM/PM10	SO2	VOC
Adipic Acid (Synthesis & Refining) (EU-002)	2001	9.184	333.4	16.114																	
	2002	12.386	518.4	18.404				610.00					610.00					0.00			
	2003	13.072	531.4	18.305			20.37	610.00	28.53			16.03	610.00	22.45			4.34	0.00	6.08		
	2004	10.152	425.3	19.77		33.56	14.42		28.08		55.62	11.35		22.10		37.51	3.07		5.98		18.10
	2005	11.684	506.8	18.516		34.77					55.62					41.89					13.73
	2006	11.452	522.4	18.41																	
	2007	12.536	506.9	20.985																	
	2008	12.248	445.06	17.749																	
	2009	9.786	398.5	14.574																	
Adipic Acid New Fugitive Emissions (New Emission Unit)	*No Baseline Emissions - New fugitive emissions points*										0.02					0.00					0.02
Nitric Acid Unit (EU-042)	2001		265.8																		
	2002		318.04					310.00					355.72					-45.72			
	2003		315.3					310.00					356.29					-46.29			
	2004		300.78																		
	2005		337.95																		
	2006		316.53																		
	2007		332.38																		
	2008		261.82																		
	2009		255.9																		
Halcon Unit (EU-020)	2001	274	1.19	0.02	0.01	84.09589															
	2002	317	1.37	0.026	0.008267	97.09517		1.56					1.56					0.00			
	2003	321	1.39	0.026	0.008382	98.4393	215.64	1.56	0.03	0.01		215.64	1.56	0.03	0.01		0.00	0.00	0.00	0.00	
	2004	349	1.51	0.028	0.009099	106.8612	215.64		0.03	0.01	78.09	215.64		0.03	0.01	103.80	0.00		0.00	0.00	-25.71
	2005	312	1.35	0.025	0.008136	95.55187					78.09					103.80					-25.71
	2006	306	1.324	0.025	0.008	93.9543															
	2007	198	2.111	0.04	0.013	93															
	2008	97	0.608	0.0116	0.004	49															
	2009	80	1.106	0.021	0.007	57															
Halcon Tank Vent Recovery	Included in Baseline Data of Halcon Unit (EU-020) above.										Included in EU 020					Included in EU 020					
Halcon LP Scrubbers Off-Gas to HP Scrubbers	Included in Baseline Data of Halcon Unit (EU-020) above.										Included in EU 020					Included in EU 020					
Area 480 (P2K) (EU-088)	2001	0.796	7.581	0.569		0.946															
	2002	0.092	0.876	0.066		0.013		4.38					4.38					0.00			
	2003						0.46	4.38	0.33			0.46	4.38	0.33			0.00	0.00	0.00		
	2004						0.46		0.33		5.10	0.46		0.33		0.94	0.00		0.00		4.16
	2005										5.10					0.94					4.16
	2006	0.126	1.197	0.09		3.492															
	2007	0.229	2.176	0.163		8.793															
	2008	0.244	2.325	0.174		6.966															
	2009	0.25	2.384	0.179		3.631															
P2K New Fugitive Emissions (New Insignificant Emission)	No Baseline Emissions - New fugitive emissions points										0.007					0.00					0.007
Hydrogen Unit (EU-049)	2001	0.285	26.223	2.362		1.134															
	2002	0.276	25.354	2.283		1.096		41.33					41.33					0.00			
	2003	0.272	25.026	2.254		1.082	0.41	37.64	3.39			0.41	37.64	3.39			0.00	0.00	0.00		
	2004	0.355	32.679	2.9431		1.413	0.45		3.72		1.79	0.45		3.72		1.79	0.00		0.00		0.00
	2005	0.337	30.999	2.792		1.34					1.79					1.79					0.00
	2006	0.315	29.014	2.613		1.254															
	2007	0.42	38.686	3.484		1.672															
	2008	0.339	31.337	2.81		2.375															
	2009	0.229	21.135	1.895		1.602															
New Hydrogen Plant (New Emission Unit including Flare)	No Baseline Emissions - New Emission Unit						12.22	37.53	5.67	1.52	4.11	0.00	0.00	0.00	0.00	0.00	12.22	37.53	5.67	1.52	4.11
New Hydrogen Plant Flare	No Baseline Emissions - New Emission Unit						0.04	0.02	0.003	0.0003	0.0024	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.00	0.00	0.00
HMD (EU-040/041)	2001					15.491															
	2002					16.603															
	2003					15.934															
	2004					15.687					21.00					19.68					1.33
	2005					16.435					23.61					22.11					1.49
	2006					15.881															
	2007					16.099															
	2008					14.114															
	2009					9.876															
DME																					
	2001					3.56															
	2002					3.99															
	2003					3.98															
	2004					4.1					5.01					4.58					0.43
	2005					3.78					4.98					4.55					0.43
	2006					3.67															
	2007					3.32															
	2008					2.95															
	2009					1.79															

Source		Baseline Emissions (TPY) CO	NOX	PM/PM10	SO2	VOC	Post-Project Emissions: Projected Emissions (TPY) up to 1080 MAR CO	NOX	PM/PM10	SO2	VOC	Baseline Emissions plus Demand Growth: Projected Emissions (TPY) up to 850 MAR CO	NOX	PM/PM10	SO2	VOC	Project Emission Increase (Post-Project minus Baseline Emissions plus Demand Growth) (TPY) CO	NOX	PM/PM10	SO2	VOC
Nylon	2001					45.12															
(EU081/082)	2002					45.12															
	2003					49.61															
	2004					49.61					81.01					63.61					17.40
	2005					48.03					82.69					64.93					17.76
	2006					44.62															
	2007					43.33															
	2008					27.98															
	2009					27.98															
Nylon Extruder (New Insignificant Emission Unit)	No Baseline Emissions - New Insignificant Emission Unit								0.92		0.75	0.00	0.00	0.00	0.00	0.00			0.92		0.75
Nylon Elutriators and Conveying (New Insignificant Emission Unit)	No Baseline Emissions - New Insignificant Emission Unit								1.77			0.00	0.00	0.00	0.00	0.00			1.77		
Vaporizer No. 1	2001	2.134	2.540	0.048	0.015	0.140															
	2002	3.331	3.966	0.075	0.024	0.218		58.40					50.70					7.70			
	2003	3.056	3.639	0.069	0.022	0.200	49.06	58.40	1.11	0.35		42.59	50.70	0.96	0.30		6.47	7.70	0.15	0.05	
	2004	2.881	3.430	0.065	0.021	0.189	49.06		1.11	0.35	3.21	42.59		0.96	0.30	2.79	6.47		0.15	0.05	0.42
	2005	2.768	3.296	0.063	0.020	0.181					3.21					2.79					0.42
	2006	2.752	3.276	0.062	0.020	0.180															
	2007	2.169	2.582	0.049	0.015	0.142															
	2008	2.196	2.614	0.050	0.016	0.144															
	2009	0.000	0.000	0.000	0.000	0.000															
Vaporizer No. 2	2001	1.138	1.355	0.026	0.008	0.075															
	2002	2.882	3.431	0.065	0.021	0.189															
	2003	2.085	2.483	0.047	0.015	0.137															
	2004	2.793	3.325	0.063	0.020	0.183															
	2005	2.730	3.250	0.062	0.020	0.179															
	2006	2.747	3.271	0.062	0.020	0.180															
	2007	1.814	2.160	0.041	0.013	0.119															
	2008	2.244	2.671	0.051	0.016	0.147															
	2009	1.614	1.922	0.037	0.012	0.106															
Vaporizer No. 3	2001	2.675	3.185	0.061	0.019	0.175															
	2002	3.195	3.804	0.072	0.023	0.209															
	2003	2.686	3.198	0.061	0.019	0.176															
	2004	2.768	3.295	0.063	0.020	0.181															
	2005	2.755	3.280	0.062	0.020	0.180															
	2006	2.727	3.246	0.062	0.019	0.179															
	2007	3.119	3.713	0.071	0.022	0.204															
	2008	2.769	3.297	0.063	0.020	0.181															
	2009	0.569	0.678	0.013	0.004	0.037															
Vaporizer No. 4	2001	3.331	3.965	0.075	0.024	0.218															
	2002	3.615	4.303	0.082	0.026	0.237															
	2003	3.507	4.176	0.079	0.025	0.230															
	2004	3.851	4.585	0.087	0.028	0.252															
	2005	3.831	4.561	0.087	0.027	0.251															
	2006	3.794	4.517	0.086	0.027	0.248															
	2007	3.015	3.589	0.068	0.022	0.197															
	2008	3.094	3.683	0.070	0.022	0.203															
	2009	2.993	3.563	0.068	0.021	0.196															
Vaporizer No. 5	2001	4.355	5.185	0.099	0.031	0.285															
	2002	4.653	5.540	0.105	0.033	0.305															
	2003	4.334	5.160	0.098	0.031	0.284															
	2004	4.368	5.200	0.099	0.031	0.286															
	2005	3.807	4.532	0.086	0.027	0.249															
	2006	3.830	4.560	0.087	0.027	0.251															
	2007	3.186	3.793	0.072	0.023	0.209															
	2008	2.906	3.460	0.066	0.021	0.190															
	2009	1.696	2.019	0.038	0.012	0.111															
Vaporizer No. 6	2001	2.822	3.360	0.064	0.020	0.185															
	2002	3.339	3.975	0.076	0.024	0.219															
	2003	2.581	3.073	0.058	0.018	0.169															
	2004	2.617	3.115	0.059	0.019	0.171															
	2005	2.042	2.431	0.046	0.015	0.134															
	2006	2.060	2.452	0.047	0.015	0.135															
	2007	1.516	1.805	0.034	0.011	0.099															
	2008	1.811	2.156	0.041	0.013	0.119															
	2009	1.621	1.930	0.037	0.012	0.106															
Vaporizer No. 7	2001	5.536	6.590	0.125	0.040	0.362															
	2002	6.410	7.631	0.145	0.046	0.420															
	2003	6.199	7.380	0.140	0.044	0.406															
	2004	5.825	6.935	0.132	0.042	0.381															
	2005	5.975	7.114	0.135	0.043	0.391															
	2006	6.009	7.153	0.136	0.043	0.393															
	2007	3.677	4.377	0.083	0.026	0.241															
	2008	3.669	4.368	0.083	0.026	0.240															
	2009	1.738	2.069	0.039	0.012	0.114															
Vaporizer No. 8	2001	4.691	5.585	0.106	0.034	0.307															
	2002	4.798	5.712	0.109	0.034	0.314															
	2003	5.309	6.320	0.120	0.038	0.348															
	2004	6.119	7.285	0.138	0.044	0.401															
	2005	6.794	8.088	0.154	0.049	0.445															
	2006	6.833	8.135	0.155	0.049	0.447															

Emissions from Vaporizers Grouped

Source		Baseline Emissions (TPY) CO	NOX	PM/PM10	SO2	VOC	Post-Project Emissions Projected Emissions (TPY) up to 1080 MAR CO	NOX	PM/PM10	SO2	VOC	Baseline Emissions plus Demand Growth Projected Emissions (TPY) up to 850 MAR CO	NOX	PM/PM10	SO2	VOC	Project Emission Increase (Post-Project minus Baseline Emissions plus Demand Growth) (TPY) CO	NOX	PM/PM10	SO2	VOC
	2007	7.216	8.590	0.163	0.052	0.472															
	2008	6.660	7.929	0.151	0.048	0.436															
	2009	6.211	7.394	0.140	0.044	0.407															
Vaporizer No. 9 (Therminol)	No Baseline Emissions - New Emission Unit						20.06	11.94	1.81	0.14	1.31	0.00	0.00	0.00	0.00	0.00	20.06	11.94	1.81	0.14	1.31
Vaporizer Fugitive Emissions (New Insignificant Emission Unit)											0.035					0.00					0.035
Adipic Drying																					
Bepex Dryer	2001			0.215																	
EU-060	2002			0.285																	
	2003			0.33					0.54					0.46					0.08		
	2004			0.285					0.54					0.47					0.08		
	2005			0.31																	
	2006			0.35																	
	2007			0.36																	
	2008			0.32																	
	2009			0.358																	
405A Dryer	2001			2.206																	
EU-061	2002			1.641																	
	2003			2.7					9.00					6.49					2.51		
	2004			4.04					9.00					6.48					2.52		
	2005			2.54																	
	2006			4.03																	
	2007			4.75																	
	2008			2.61																	
	2009			4.276																	
405B Dryer																					
EU-062	2001			1.765																	
	2002			1.245																	
	2003			2.123					9.05					6.61					2.44		
	2004			4.1					9.05					6.60					2.45		
	2005			2.87																	
	2006			4.24																	
	2007			5.39																	
	2008			3.8																	
	2009			4.278																	
465A Dryer																					
EU-063	2001			4.545																	
	2002			5.159																	
	2003			4.136					11.19					8.29					2.89		
	2004			5.07					11.19					8.30					2.89		
	2005			2.99																	
	2006			5.27																	
	2007			7.31																	
	2008			6.83																	
	2009			6.454																	
465B Dryer																					
EU-064	2001			4.593																	
	2002			4.581																	
	2003			3.584					11.46					8.48					2.98		
	2004			5.05					11.46					8.47					2.99		
	2005			4.1																	
	2006			6.47																	
	2007			8.85																	
	2008			5.97																	
	2009			6.504																	
Niro Dryer																					
EU-079	2001			0.297																	
	2002			0.377																	
	2003			0.335					0.63					0.41					0.22		
	2004			0.355					0.63					0.41					0.22		
	2005			0.36																	
	2006			0.54																	
	2007			0.57																	
	2008			0.47																	
	2009			0.489																	
Bulk Loading #1																					
EU-050	2001			6																	
	2002			6.984																	
	2003			6.945					2.47					17.33					-14.86		
	2004			11.09					2.47					17.33					-14.86		
	2005			7.47																	
	2006			11.05																	
	2007			10.44																	
	2008			9.52																	
	2009			1.71																	
Bulk Loading #2																					
EU-051	2001			0.082																	
	2002			0.096																	
	2003			0.101					0.29					0.27					0.02		
	2004			0.096					0.29					0.27					0.02		
	2005			0.106																	

Source		Baseline Emissions (TPY)					Post-Project Emissions: Projected Emissions (TPY) up to 1080 MAR					Baseline Emissions plus Demand Growth: Projected Emissions (TPY) up to 850 MAR					Project Emission Increase (Post-Project minus Baseline Emissions plus Demand Growth) (TPY)				
		CO	NOX	PM/PM10	SO2	VOC	CO	NOX	PM/PM10	SO2	VOC	CO	NOX	PM/PM10	SO2	VOC	CO	NOX	PM/PM10	SO2	VOC
	2006			0.125																	
	2007			0.119																	
	2008			0.109																	
	2009			0.102																	
Building 373 Loading EU-080																					
	2001			0.010																	
	2002			0.012																	
	2003			0.011					0.01					0.01					0.00		
	2004			0.012					0.01					0.01					0.00		
	2005			0.012																	
	2006			0.013																	
	2007			0.013																	
	2008			0.011																	
	2009			0.011																	
Building 465 Boxing/Bagging EU-045																					
	2001			0.038																	
	2002			0.038																	
	2003			0.042					0.05					0.06					-0.01		
	2004			0.048					0.05					0.06					-0.01		
	2005			0.038																	
	2006			0.048																	
	2007			0.071																	
	2008			0.049																	
	2009			0.049																	
Cooling Tower 1, 2, 3, 4 and 6 Modification (Existing Insignificant Emission Unit)	2003			4.96					5.51					4.96					0.55		
	2004			5.27					5.51					5.27							
New Cooling Tower (New Insignificant Emission Unit)	No Baseline Emissions - New Insignificant Emissions								0.48					0.00					0.48		
							Emissions from Powerhouse Grouped														
Boiler 4 (EU-014)	2001	26.1	342.435	7.67	18.61	2.99															
	2002	26.9	349.652	6.78	0.39	2.903		1398.34					1374.76					23.58			
	2003	24.7	267.611	73.39	1045.88	4.341	210.25	1119.63	347.44	4616.49		206.91	1101.39	352.82	4646.32		3.34	18.24	-5.38	-29.82	
	2004	21.148	160.015	72.798	1045.181	3.84	250.06		325.60	4531.67	63.06	245.96		331.40	4561.49	64.12	4.11		-5.80	-29.82	-1.06
	2005	18.09	127.9	72.117	939.216	3.875					60.84					61.94					-1.10
	2006	11.528	84.044	20.683	211.253	2.399															
	2007	10.114	73.188	15.456	143.146	2.156															
	2008	10.065	71.135	10.25	127.112	2.382															
	2009	9.304	69.093	4.784	9.111	2.301															
Boiler 5 (EU-015)	2001	20.313	231.717	229.547	811.966	3.717															
	2002	24.658	322.311	200.49	188.262	3.377															
	2003	21.718	216.989	88.81	1302.24	4.48															
	2004	19.048	130.185	82.69	1261.218	4.369															
	2005	19.475	136.565	79.919	1046.301	4.242															
	2006	16.572	127.081	22.376	195.652	3.039															
	2007	16.696	126.653	27.782	250.664	3.137															
	2008	16.502	127.308	12.127	92.99	4.344															
	2009	11.383	92.282	5.748	3.767	3.171															
Boiler 6 (EU-016)	2001	16.78	222.114	18.922	166.488	2.542															
	2002	20.663	277.532	15.046	127.328	3.02															
	2003	18.19	182.083	82.69	1252.197	4.354															
	2004	15.965	103.152	77.139	1202.073	4.049															
	2005	17.469	114.132	75.25	1010.395	4.38															
	2006	7.956	55.559	8.31	75.649	1.855															
	2007	8.947	60.917	20.649	218.242	2.147															
	2008	7.703	54.484	2.985	10.178	1.768															
	2009	5.167	36.593	1.686	0.449	1.184															
Boiler 7 (EU-004)	2001	12.56	13.211	11.791	0.227	1.698															
	2002	8.69	14.072	12.559	0.261	1.808															
	2003	8.69	14.954	13.346	0.28	1.922															
	2004	14.213	11.511	5.959	0.286	4.446															
	2005	8.7	10.959	5.673	0.27	4.266															
	2006	9.67	11.308	5.833	0.275	3.765															
	2007	12.56	10.784	7.204	0.243	3.884															
	2008	5.98	11.443	7.644	0.211	4.122															
	2009	2.5	7.662	5.118	0.166	2.76															
Boiler 8 (EU-003)	2001	11.64	17.661	4.884	0.216	9.191															
	2002	9.41	14.376	5.491	0.244	10.397															
	2003	9.41	14.003	5.349	0.244	10.313															
	2004	13.892	13.47	5.634	0.264	4.207															
	2005	8.7	13.302	5.564	0.256	4.145															
	2006	9.82	13.11	5.466	0.243	3.493															
	2007	12.8	9.633	7.146	0.237	3.853															
	2008	6.13	10.676	7.92	0.239	4.271															
	2009	2.51	7.677	5.695	0.208	3.071															
Boiler 9	2001																				

Source		Baseline Emissions (TPY) CO	NOX	PM/PM10	SO2	VOC
(EU-099)	2002					
	2003					
	2004					
	2005					
	2006					
	2007	8.07	14.04	1.72	1.968	1.376
	2008	12.67	23.48	2.094	2.427	1.675
	2009	9.16	13.26	1.58	1.849	1.264
Cogen	2001	93.344	191.356	12.501	10.226	11.001
(EU-032)	2002	101.847	208.787	13.64	11.157	12.003
	2003	78.029	159.958	10.501	8.589	9.196
	2004	105.444	219.263	11.39	9.316	28.544
	2005	92.555	192.478	9.998	8.178	25.055
	2006	65.019	197.425	9.892	8.091	18.766
	2007	58.811	178.583	8.888	7.27	16.974
	2008	24.964	75.805	3.822	3.126	7.205
	2009	54.057	164.148	8.358	6.836	15.602

Baseline Emissions Average 24-Month Periods		CO	NOX	PM/PM10	SO2	VOC
	2001 - 2002	522.92	1886.79	310.34	667.91	
	2002 - 2003	539.37	1926.63	305.79	1968.76	
	2003 - 2004	552.46	1599.59	312.43	3564.11	
	2004 - 2005	549.69	1472.02	300.27	3261.71 *	255.30
	2005 - 2006	494.52	1452.29	208.94	1748.12 *	
	2006 - 2007	417.28	1391.13	139.25	556.68	
	2007 - 2008	292.04	1266.16	124.91	429.22	
	2008 - 2009	209.99	1117.49	86.05	129.49	
		552.46	1926.63	312.43	3564.11	255.30

* VOC Emissions include Adipic Acid Synthesis and Refining.
New VOC emissions were calculated for Baseline Years 2004-2005

	Post-Project Emissions: Projected Emissions (TPY) up to 1080 MAR CO	NOX	PM/PM10	SO2	VOC	Baseline Emissions plus Demand Growth: Projected Emissions (TPY) up to 850 MAR CO	NOX	PM/PM10	SO2	VOC	Project Emission Increase (Post-Project minus Baseline Emissions plus Demand Growth) (TPY) CO	NOX	PM/PM10	SO2	VOC
2001															
2002		1398.34					1374.76					23.58			
2003	210.25	1219.35	398.12	4616.49		206.91	1193.41	406.21	4646.32		3.34	25.94	-8.08	-29.82	
2004	299.53		380.78	4532.02	63.06	288.95		389.43	4561.80	64.12	10.57		-8.89	-29.78	-1.06
2005					172.87					154.38					18.49
2006															
2007															
2008															
2009															
Avg.	254.89	1308.84	389.45	4574.26	117.96	247.93	1284.08	397.82	4604.06	109.25	6.96	24.76	-8.49	-29.80	8.72

Total Emissions All Emission Units

	Projected Emissions (TPY) up to 1080 MAR CO	NOX	PM/PM10	SO2	VOC	Projected Emissions (TPY) up to 850 MAR CO	NOX	PM/PM10	SO2	VOC	Net Emissions Change (TPY) CO	NOX	PM/PM10	SO2	VOC
2001															
2002		1398.34					1374.76					23.58			
2003	210.25	1219.35	398.12	4616.49		206.91	1193.41	406.21	4646.32		3.34	25.94	-8.08	-29.82	
2004	299.53		380.78	4532.02	63.06	288.95		389.43	4561.80	64.12	10.57		-8.89	-29.78	-1.06
2005					172.87					154.38					18.49
2006															
2007															
2008															
2009															
Avg.	254.89	1308.84	389.45	4574.26	117.96	247.93	1284.08	397.82	4604.06	109.25	6.96	24.76	-8.49	-29.80	8.72

PSD Review Applicability for 1080 MAR

	Baseline	Demand Growth - 850 MAR	Post-Project Emissions at 930 MAR	Project Increase	PSD Threshold
CO	552.46	499.24	545.45	46.2	100.00
NOx	1926.63	2300.20	2332.29	32.09	40.00
PM	312.43	422.79	430.71	7.91	25.00
PM10	312.43	422.79	430.71	7.91	15.00
SO2	3564.11	4604.22	4576.10	-28.1	40.00
VOC	255.30	301.78	321.32	19.54	40.00

a Based on 70 days of TRU downtime

Source: Ascend, 2010; Golder, 2010.

Table 2. Projected Adipic Acid VOC Emissions Based on Emissions Testing (1080 MAR) - EU002

Post Project Estimated VOC Emissions are as follows:

Projected Annual Emissions from Adipic TRU/SCR I

Annual TRU Flow[b] (lb/yr)	VOC Emissions per Off Gas (lb/lb Off Gas)	HCN Emissions per Off Gas (lb/lb Off Gas)	VOC Control Efficiency[a] (% Reduction)	HCN Control Efficiency[a] (% Reduction)	VOC Emissions (TPY)	HCN Emissions (TPY)
479529113	9.06E-04	4.29E-05	99.5	99	**1.09**	**0.10**

[a]ENTEC Services Inc. October 22, 2010

[b] Based 7080 hours per year and 67,730 pph average projected rate at 1080 MAR.

[b] VOC Emissions (tpy) = Annual TRU Flow (lb/yr) x Emission per Off Gas (lb/lb Off Gas) x (1 - VOC Control Efficiency/100) x ton/2000 lb

[b] HCN Emissions (tpy) = Annual TRU Flow (lb/yr) x Emission per Off Gas (lb/lb Off Gas) x (1 - HCN Control Efficiency/100) x ton/2000 lb

Projected Annual Emissions from Adipic Backup SCR (SCR II) based on Control Device Operations

Annual SCR Feed[a] (lb/yr)	VOC + HCN Emissions per Off Gas (lb/lb Off Gas)	VOC Emissions[b] (TPY)
113786569	9.49E-04	**53.99**

[a] Based on 67,730 lb/hr x (8760 hr - 7080 hr) = 101135755 lb/yr

[b] Emissions of VOC are uncontrolled through the Backup SCR

Annual Emission from Adipic Acid Refining Tanks

Annual VOC Emission[a] (lb/yr)	VOC Emissions (TPY)
864	**0.43**

[a] Source: Ascend. Basis: EPA Water 9 Calculations
0.0016 lb VOC / Ton Adipic Acid

Total Annual Emissions for 1080 MAR

Annual VOC Emission (TPY)
55.62

Table 3. Projected Adipic Acid VOC Emissions - EU090 New Fugitive Emission Sources (1080 MAR)

Calculation of Component Leak Rates

Component Type	(C) Correlation Equation Constant[1]	(E) Correlation Equation Exponent[1]	(Z) Default-Zero Value[2]	(N) Total Number Of Components	(P_Z) Percent of Components at Devault-Zero	(SV_1) Screening Value 1 (ppmv)	(P_1) Percent of Components at Screening Value 1	(SV_2) Screening Value 1 (ppmv)	(P_2) Percent of Components at Screening Value 1	(SV_3) Screening Value 1 (ppmv)	(P_3) Percent of Components at Screening Value 1	Average Emissions per Component (lbs/hr/comp)[4]	Average Emissions (lbs/hr)[5]	Annual Emissions (tons/yr)[6]
Valves, Gas	1.87E-06	0.873	6.60E-07	0	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0000278	0.000	[redacted]
Valves, Liquid	6.41E-06	0.797	4.90E-07	500	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0000555	0.028	[redacted]
Pumps[3]	1.90E-05	0.824	7.50E-06	30	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0002094	0.006	[redacted]
Compressors	1.90E-05	0.824	7.50E-06	0	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0002094	0.000	[redacted]
Pressure Relief Valves	1.90E-05	0.824	7.50E-06	5	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0002094	0.001	[redacted]
Connectors	3.05E-06	0.885	6.10E-07	2000	98.00%	10	1.75%	100	0.25%			0.0000032	0.006	[redacted]
Total VOC Emissions Based on Annual Operation of 8,760 hrs/yr													**0.041**	**0.182**

(1) Source: USEPA, Protocol for Equipment Leak Emission Estimates, November 1995: Correlation Equations from Table 2-09

(2) Source: USEPA, Protocol for Equipment Leak Emission Estimates, November 1995: Default-Zero Values from Table 2-11

(3) Use for all other SOCMI compressor seals, pressure relief valves, agitator seals, and heavy liquid pumps.

(4) Calculated as: $(P_1 \text{ X } C \text{ X } SV_1^E + P_2 \text{ X } C \text{ X } SV_2^E + P_3 \text{ X } C \text{ X } SV_3^E + Z \text{ X } P_Z) \text{ X } 2.2.4026$ lbs/kg

(5) Calculated as: Average Emissions per Component (lbs/hr/comp) **X** Total Number of Components

(6) Calculated as: Average Emissions (lbs/hr) **X** Annual Operation (hrs/yr) ÷ 2,000 lbs/ton

Source: Ascend, 2011.

Table 4. Projected Therminol No. 9 Emissions - New Emission Unit

Average Heat Input	55.6	MMBtu/hr (Natural Gas)
Annual Operation	8,760	hrs/yr

Pollutant	Average Operating Rate (MMBtu/hr)	Emission Factor[1] (lbs/MMBtu)	Emissions	
			Average[2] (lbs/hr)	Annual[3] (Tons/yr)
Particulate Matter (PM_{10})	55.6	0.00745	0.414	1.815
Particulate Matter ($PM_{2.5}$)	55.6	0.00745	0.414	1.815
Sulfur Dioxide (SO_2)	55.6	0.00059	0.033	0.143
Nitrogen Oxides (NO_x)	55.6	0.04902	2.7	11.94
Carbon Monoxide (CO)	55.6	0.08235	4.58	20.06
Total VOC	55.6	0.00539	0.30	1.313

(1) Emission Factor Sources: For PM, SO_2, and VOC: AP-42 (7/98); Table 1.4-2
For NO_x Design basis for Low NO_x burners
For CO: AP-42 (7/98); Table 1.4-1

(2) Calculated as: Average Operating Rate (MMBtu/hr) **X** Emission Factor (lbs/MMBtu)

(3) Calculated as: Average Emissions (lbs/hr) **X** Annual Operation (hrs/yr) ÷ 2,000 lbs/ton

Source: Ascend, 2011.

Table 5. Projected Vaporizer No. 9 Fugitive VOC Emissions - New Fugitive Emission Sources

Calculation of Component Leak Rates

Component Type	(C) Correlation Equation Constant[1]	(E) Correlation Equation Exponent[1]	(Z) Default-Zero Value[2]	(N) Total Number Of Components	(P_Z) Percent of Components at Devault-Zero	(SV_1) Screening Value 1 (ppmv)	(P_1) Percent of Components at Screening Value 1	(SV_2) Screening Value 1 (ppmv)	(P_2) Percent of Components at Screening Value 1	(SV_3) Screening Value 1 (ppmv)	(P_3) Percent of Components at Screening Value 1	Average Emissions per Component (lbs/hr/comp)[4]	Average Emissions (lbs/hr)[5]	Annual Emissions (tons/yr)[6]
Valves, Gas	1.87E-06	0.873	6.60E-07	75	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0000278	0.002	[redacted]
Valves, Liquid	6.41E-06	0.797	4.90E-07	45	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0000555	0.002	[redacted]
Pumps [3]	1.90E-05	0.824	7.50E-06	6	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0002094	0.001	[redacted]
Compressors	1.90E-05	0.824	7.50E-06	0	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0002094	0.000	[redacted]
Pressure Relief Valves	1.90E-05	0.824	7.50E-06	6	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0002094	0.001	[redacted]
Connectors	3.05E-06	0.885	6.10E-07	300	98.00%	10	1.75%	100	0.25%			0.0000032	0.001	[redacted]
Total VOC Emissions Based on Annual Operation of 8,760 hrs/yr													**0.008**	**0.035**

[1] Source: USEPA, Protocol for Equipment Leak Emission Estimates, November 1995: Correlation Equations from Table 2-09

[2] Source: USEPA, Protocol for Equipment Leak Emission Estimates, November 1995: Default-Zero Values from Table 2-11

[3] Use for all other SOCMI compressor seals, pressure relief valves, agitator seals, and heavy liquid pumps.

[4] Calculated as: $(P_1 \times C \times SV_1^E + P_2 \times C \times SV_2^E + P_3 \times C \times SV_3^E + Z \times P_z) \times 2.24026$ lbs/kg

[5] Calculated as: Average Emissions per Component (lbs/hr/comp) **X** Total Number of Components

[6] Calculated as: Average Emissions (lbs/hr) **X** Annual Operation (hrs/yr) ÷ 2,000 lbs/ton

Source: Ascend, 2011.

Table 6. Projected Hydgrogen Plant Emissions

I. SMR Stack

	Emission Factor	Natural Gas Heat Input MMBtu/hr	Emissions (lb/hr)	Emissions (lb/day)	Emissions (TPY)
NOx	0.05 lb/MMBtu[a]	171	8.57	205.6	37.53
CO	0.015 lb/MMBtu[a]	171	2.57	61.7	11.26
PM10	0.0076 lb/MMBtu[b]	171	1.30	31.1	5.67
SOx	0.0020 lb/MMBtu[c]	171	0.35	8.3	1.52
VOC	0.0055 lb/MMBtu[d]	171	0.94	22.5	4.11

[a] Vendor data. Air Products, 2011.
[b] From Vendor based on AP-42, Section 1.4, 1070 Btu/scf
[c] From Vendor based 3 grains S per 100scf, Material Balance
[d] From Vendor based on AP-42 (7/98 edition).

II. Flare (Two Natural Gas Pilots, Each Rated at 50 SCFH)

	Emission Factor	Natural Gas Heat Input MMBtu/hr	Emissions (lb/hr)	Emissions (lb/day)	Emissions (TPY)
NOx	0.05 lb/MMBtu[a]	0.102	0.0051	0.1224	0.022
CO	0.082 lb/MMBtu[a]	0.102	0.0084	0.2016	0.037
PM10	0.0075 lb/MMBtu[b]	0.102	0.0008	0.01824	0.003
SOx	0.0006 lb/MMBtu[b]	0.102	0.0001	0.00144	0.0003
VOC	0.0054 lb/MMBtu[b]	0.102	0.0006	0.0132	0.002

[a] Vendor data based on AP-42 (7/98 edition). Small boilers (<100 MMBtu/hr)
b Based on AP-42 Table 1.4-2

III. Startup and Shutdown Emissions

Streams are estimated to be routed to the flare for following duration each year.

Vent Stream	Effective Vent Hours @100% Cap
PSA Feed	10
H2 Product	10
PSA Purge Gas	3
Natural Gas	0.3

	PSA FEED GAS			PSA H2 PRODUCT				PSA Purge GAS				Natural Gas				Total Uncontrolled Emissions		
Componenet	MW	LBMOL/HR	LBS	LBMOL/HR	MOL FRAC	KSCF	LBS	LBMOL/HR	MOL FRAC	KSCF	LBS	LBMOL/HR	MOL FRAC	KSCF	LBS	KSCF	LBS	Tons/yr
C5H12	72.151		0			0	0			0	0	0.52	0.00	0.06	11.66	0.06	11.66	0.01
C4H10	58.124		0			0	0			0	0	2.33	0.00	0.28	42.23	0.28	42.23	0.02
C3H8	44.097		0			0	0			0	0	5.06	0.01	0.60	69.77	0.60	69.77	0.03
C2 H6 (Ethane - Non VOC)	30.07		0			0	0			0	0	17.31	0.03	2.05	162.63	2.05	162.63	0.08
CH4 (Mehtane - Non VOC)	16.0429	70.746	11491.6		0.0	0.0	0.0	70.7	0.1	77.2	3263.0	485.20	0.94	57.54	2432.52	406.54	17187.14	8.59
CO2	44.0097	374.996	167098	0.008	0.0	0.0	3.4	375.0	0.5	409.1	47446.4	4.44	0.01	0.53	61.10	1850.44	214608.48	107.30
CO	28.0109	105.593	29947.3	0.008	0.0	0.0	2.2	105.6	0.1	115.2	8502.9		0.00	0.00	0.00	520.92	38452.33	19.23
H2	2.016	1762.52	35976.6	1592.654	1.0	5817.0	30903.9	169.9	0.2	185.3	984.5		0.00	0.00	0.00	12774.16	67864.96	33.93
N2	28.013	2.221	629.946	1.592	0.0	5.8	429.2	0.6	0.0	0.7	50.7	2.22	0.00	0.26	19.44	15.30	1129.29	0.56
H2O	18.01511	9.375	1710.03		0.0	0.0	0.0	9.4	0.0	10.2	485.6		0.00	0.00	0.00	46.25	2195.59	1.10

[a] Engineering Estimate.

Source: Ascend, 2011.

Table 7. Projected P2K Emissions Supportive of 1080 MAR Adipic Acid

Flare Emissions (from P2K Application, 12/18/98 RAI Response)					
5 MMBtu/hr					
8760 hrs/year					
	CO	**NOx**	**PM/PM10**	**VOC**	
Emission Factor	0.021	0.2	0.015	0.003	lb/MMBtu
	0.46	4.38	0.33	0.07	tons/year
VOC Emissions at max P2K Production				**VOC**	
Emission Factor				2	lb/hr
				8.76	tons/year
P2K Production Required to support 850 MAR Adipic (at max Halcon production)					
				VOC	
				0.876	tons/year
P2K Production Required to support 1080 MAR Adipic (at max Halcon production)					
				VOC	
				5.037	tons/year
Total Emissions to support 850 MAR Adipic	**CO**	**NOx**	**PM/PM10**	**VOC**	
	0.46	4.38	0.33	0.94	tons/year
Total Emissions to support 1080 MAR Adipic	**CO**	**NOx**	**PM/PM10**	**VOC**	
	0.46	4.38	0.33	5.10	tons/year
Net Increase 850 MAR to 1080 MAR	**CO**	**NOx**	**PM/PM10**	**VOC**	
	0.00	0.00	0.00	4.16	tons/year

Source: Ascend, 2011.

Table 8. Projected P2K VOC Fugitive Emissions - New Fugitive Emission Sources

Barge Loading Additional Component Fugitive Emissions

Calculation of Component Leak Rates

Component Type	(C) Correlation Equation Constant[1]	(E) Correlation Equation Exponent[1]	(Z) Default-Zero Value[2]	(N) Total Number Of Components	(P_Z) Percent of Components at Devault-Zero	(SV_1) Screening Value 1 (ppmv)	(P_1) Percent of Components at Screening Value 1	(SV_2) Screening Value 1 (ppmv)	(P_2) Percent of Components at Screening Value 1	(SV_3) Screening Value 1 (ppmv)	(P_3) Percent of Components at Screening Value 1	Average Emissions per Component (lbs/hr/comp)[4]	Average Emissions (lbs/hr)[5]	Annual Emissions (tons/yr)[6]
Valves, Gas	1.87E-06	0.873	6.60E-07	0	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0000278	0.000	[redacted]
Valves, Liquid	6.41E-06	0.797	4.90E-07	20	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0000555	0.001	[redacted]
Pumps [3]	1.90E-05	0.824	7.50E-06	2	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0002094	0.000	[redacted]
Compressors	1.90E-05	0.824	7.50E-06	0	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0002094	0.000	[redacted]
Pressure Relief Val	1.90E-05	0.824	7.50E-06	0	98.00%	500	1.25%	1000	0.50%	1500	0.25%	0.0002094	0.000	[redacted]
Connectors	3.05E-06	0.885	6.10E-07	60	98.00%	10	1.75%	100	0.25%			0.0000032	0.000	[redacted]
Total VOC Emissions Based on Annual Operation of 8,760 hrs/yr													**0.002**	**0.008**

(1) Source: USEPA, Protocol for Equipment Leak Emission Estimates, November 1995: Correlation Equations from Table 2-09

(2) Source: USEPA, Protocol for Equipment Leak Emission Estimates, November 1995: Default-Zero Values from Table 2-11

(3) Use for all other SOCMI compressor seals, pressure relief valves, agitator seals, and heavy liquid pumps.

(4) Calculated as: $(P_1 \times C \times SV_1^E + P_2 \times C \times SV_2^E + P_3 \times C \times SV_3^E + Z \times P_Z) \times 2.2.4026$ lbs/kg

(5) Calculated as: Average Emissions per Component (lbs/hr/comp) **X** Total Number of Components

(6) Calculated as: Average Emissions (lbs/hr) **X** Annual Operation (hrs/yr) ÷ 2,000 lbs/ton

Source: Ascend, 2011.

Table 9. Projected Elutriator and Conveying Emissions - EU 081/082

Number of Proposed Elutriators	8	
Number of Proposed Conveyors	2	
Annual Operation	8,760	hrs/yr

Pollutant	Flow Rate (scfm)	Emission Factor[1] (grains/scf)	Emissions	
			Average[2] (lbs/hr)	Annual[3] (Tons/yr)
Particulate Matter (PM_{10}) (Elutriator)	400	0.010	0.274	1.200
Particulate Matter (PM_{10}) (Conveyor)	2,000	0.004	0.130	0.570
			TOTAL	1.770

(1) Emission Factor Sources: For Elutriator: Bagfilter vendor specs

For Conveyor: TRC Test Report 39596-001 conducted on 4/16/2003

(2) Calculated as: Flow Rate (scfm) **X** Emission Factor (grains/scf) **X** 60 (min/hr) **X** 0.0648 (grams/grain) **/** 454 (grams/lb) **X** Number

(3) Calculated as: Average Emissions (lbs/hr) **X** Annual Operation (hrs/yr) **÷** 2,000 lbs/ton

Source: Ascend, 2011.

Table 10. Projected Extruder Emissions - EU 081/082

Number of Proposed Extruders 1

Annual Operation 8,760 hrs/yr

HEAF Vent

Pollutant	Production (MAR)	Emission Factor[1] (lb/MAR)	Abatement Factor %	Emissions	
				Average[2] (lbs/hr)	Annual[3] (Tons/yr)
Total VOC	**(Production Data Company Confidential)**	**(Production Data Company Confidential)**	0	0.171	0.750
Particulate Matter (PM_{10})	**(Production Data Company Confidential)**	**(Production Data Company Confidential)**	95	0.018	0.078

Baghouse Vacuum Convey

Pollutant	Flow Rate (scfm)	Emission Factor[4] (grains/scf)	Emissions	
			Average[5] (lbs/hr)	Annual[3] (Tons/yr)
Particulate Matter (PM_{10})	1,500	0.015	0.193	0.844

Total Emissions

Pollutant	Annual (Tons/yr)
Particulate Matter (PM_{10})	0.922
Total VOCs	0.750

(1) Emission Factor Sources: ISSN 1047-3289 J. Air & Waste Manage. Assoc. 51:1001-1008, Vol 51 July 2001, Table 3, Nylon 66 Extrusion

(2) Calculated as: Production (MAR) **X** Emission Factor (lb/million lb nylon) **X** (1-Abatement Factor/100%) / 8760 hours/year

(3) Calculated as: Average Emissions (lbs/hr) **X** Annual Operation (hrs/yr) ÷ 2,000 lbs/ton

(4) Emission Factor Sources: Bagfilter vendor specs

(5) Calculated as: Flow Rate (scfm) **X** Emission Factor (grains/scf) **X** 60 (min/hr) **X** 0.0648 (grams/grain) / 454 (grams/lb)

Source: Ascend, 2011.

Table 11. Proposed New Fuel Oil Limit to Achieve PM Reductions Necessary for PSD Avoidance.

I. Proposed Total Fuel Oil Reduction (Boilers Nos. 4, 5, and 6)

	AP-42 Factor		Heat Input from 850 MAR to 930 MAR		
	lb/Mgal	*lb/MMBtu*	MMbtu/yr	lb/yr	TPY
CO	5	0.0329	150,000	4934.2	2.47
NOX	32	0.2105	150,000	31578.9	15.79
PM/PM10	26.01	0.1711	150,000	25668.9	12.83
SO2[a]			150,000	109732.7	54.87
VOC	5.5	0.0362	150,000	5427.6	2.71

[a] TPY SO2 = Fuel Usage (kgal) x 1000 x Fuel Density (lb/gal) x % Sulfur x (64.06/32.06) / 2000
where (64.06/32.06) is the conversion of sulfur to SO2 and S = 0.7% and Density = 7.95

II. Natural Gas Combustion Replacement of Fuel Oil Reductions

	AP-42 Factor		Heat Input from 850 MAR to 930 MAR		
	lb/MMscf	*lb/MMBtu*	MMbtu/yr	lb/yr	TPY
CO	24	0.0235	150,000	3529.4	1.76
NOX	170	0.1667	150,000	25000.0	12.50
PM/PM10	7.6	0.0075	150,000	1117.6	0.56
SO2	0.6	0.0006	150,000	88.2	0.04
VOC	5.5	0.0054	150,000	808.8	0.40

EPA AP-42 Table 1.4-2.

III. Net Emissions From Natural Gas Replacement of 150,000 MMBtu/yr Fuel Oil

	lb/yr	TPY
CO	-1404.8	-0.70
NOX	-6578.9	-3.29
PM/PM10	-24551.3	-12.28
SO2	-109644.5	-54.82
VOC	-4618.8	-2.31

IV. Proposed Fuel Limits

Total Fuel Heat Input (All Fuels)	16,374,276 MMBtu/yr
Fuel Oil	**3,289,781** MMBtu/yr

Source: Golder, 2011.

Table 12. VOC REDUCTION PROJECTS IN HALCON

Vent Source	VOC Emissions, lbs/yr [1]	VOC Emissions, ton/yr
PROJECT I - TANK VENT RECOVERY		
481TA54B BML Tank Conservation Vent	25,828	12.91
481TA108 Flasher Condensate Vent Tank	2,175	1.09
481TA56A A Slurry Tank	735	0.37
481TA56B B Slurry Tank	1,014	0.51
481SE53A A Centrifuge (vents through TA56A)	2,942	1.47
481SE53B B Centrifuge (vents through TA56B)	2,942	1.47
PROJECT II - LP SCRUBBERS EMISSION CONTROL		
LP Scrubbers, 401 and 461	33,000	16.50
TOTAL, VOC Vented Project I	**35,636**	**17.82**
TOTAL, VOC Vented Project II	**33,000**	**16.50**
TOTAL, VOC Emissions After Control[2] Project I	**8,936**	**4.47**
TOTAL, VOC Emissions After Control[2] Project II	**8,275**	**4.14**
Change in VOC Emissions[3] Project I	**26,700**	**13.35**
Change in VOC Emissions[3] Project II	**24,725**	**12.36**
Total Change in VOC Emissions[3]	**-51,426**	**-25.71**

NOTE:

[1] Air Calculations at Halcon maximum production
Calculations performed using Engineering Models TANKS4 and WATER9

[2] VOC Emissions After Control = VOC Vented x 0.25 + (VOC Vented x 0.75 x (1-0.999))
75% TRU onstream time and 99.9% TRU destruction efficiency

[3]Total Reduction VOC Emissions = (VOC Emissions After Control - VOC Vented)

Source: Ascend, 2011

Table 13. Cooling Tower PM Emissions (Insignificant Activity)

Annual Operation 8,760 hrs/yr

I. Modifications to Existing Cooling Towers 1, 2, 3, 4, and 6.

	Baseline Emissions (2003)					Baseline Emissions (2004)									
				PM10 Emissions					PM10 Emissions					PM10 Emissions	
Cooling Tower	Water Circulation, gpm	Elimination Drift Rate, %	TDS	lbs/hr[1]	ton/yr[2]	Water Circulation, gpm	Elimination Drift Rate, %	TDS	lbs/hr[1]	ton/yr[2]	Post Project Projected Actual Circulation Rate, gpm[a]	Elimination Drift Rate, %[b]	TDS[c]	lbs/hr[1]	ton/yr[2]
1&2	68700	0.001	834	0.24	1.07	72100	0.001	936	0.29	1.26	92,000	0.001	834	0.33	1.43
3	42734	0.0027	966	0.47	2.08	39741	0.0027	1027	0.47	2.05	59,000	0.001	966	0.24	1.06
4	10944	0.007	796	0.26	1.14	10776	0.007	785	0.25	1.10	17,000	0.007	796	0.40	1.76
6	9200	0.003	1322	0.16	0.68	11300	0.003	1364	0.20	0.86	17,000	0.003	1322	0.29	1.26
Total					4.96					5.27					5.51

[a] Post project actual circulation rate = average of baseline + circulation increase.

[b] *Baseline emission estimates utilize the current tower drift elimination rate. Cooling Tower No. 3 post project drift rate based on planned maintenance replacement of drift eliminators.*

[c] Average of baseline TDS

(1) Calculated as: Increase Water Circulation **X** 8.34 lb/gal **X** 60 minutes/hr **X** Drift Rate/100 **X** TDS/10^6 **X** PM10/PM
Estimated Drift Rate: Performance of drift eliminators as % of tower circulation rate
Estimated TDS: ppm total dissolved solids in tower water
PM10/PM: fraction of total PM that is PM10 = 0.85

(2) Calculated as: Average Emissions (lbs/hr) **X** Annual Operation (hrs/yr) ÷ 2,000 lbs/ton

II. New Cooling Tower

	Increase Water Circulation,			PM10 Emissions	
Cooling Tower	gpm	Estimated Drift Rate, %	Estimated TDS	lbs/hr[1]	ton/yr[2]
New Cooling Tower	20,000	0.0010	1,300	0.11	0.48
TOTAL				0.11	**0.48**

(1) Calculated as: Increase Water Circulation **X** 8.34 lb/gal **X** 60 minutes/hr **X** Drift Rate/100 **X** TDS/10^6 **X** PM10/PM
Estimated Drift Rate: Performance of drift eliminators as % of tower circulation rate
Estimated TDS: ppm total dissolved solids in tower water
PM10/PM: fraction of total PM that is PM10 = 0.85

(2) Calculated as: Average Emissions (lbs/hr) **X** Annual Operation (hrs/yr) ÷ 2,000 lbs/ton

Source: Ascend, 2011.