Florida Department of Environmental Protection
Northwest District
160 W. Government Street, Suite 308
Pensacola, Florida 32502-5740

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Governor

Jennifer Carroll
Lt. Governor

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Secretary

Sent by Electronic Mail – Received Receipt Requested

PERMITTEE

Ascend Performance Materials LLC
3000 Old Chemstrand Road
Cantonment, Florida 32533

Authorized Representative:
Timothy N. Montgomery
Chemical & Utilities Plant Manager

Air Permit No. 0330040-036-AC
Permit Expires: June 9, 2016

Pensacola Plant
Title V Air Construction Permit
Adipic Acid 1080 MAR

This is the final air construction permit, which supersedes 0330040-035-AC and authorizes increased adipic acid production to 1080 MAR with off-setting emissions reductions projects. The proposed work will be conducted at the Ascend Pensacola Plant, which is an organic chemical and nylon plastics manufacturing facility (Standard Industrial Classification No. 2869 and 2821). The facility is located in Escambia County at 3000 Old Chemstrand Road south of Cantonment, Florida. The UTM coordinates are Zone 16, 476 km East, and 3385 km North. As noted in the Final Determination provided with this final permit, only minor changes and clarifications were made to the draft permit.

This final permit is organized by the following sections.

Section 1. General Information

Section 2. Administrative Requirements

Section 3. Emissions Unit Specific Conditions

Section 4. Appendices

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of Section 4 of this permit.

This air pollution construction permit is issued under the provisions of: Chapter 403 of the Florida Statutes (F.S.) and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296 and 62-297 of the Florida Administrative Code (F.A.C.). The permittee is authorized to conduct the proposed work in accordance with the conditions of this permit. This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C., and is not subject to the preconstruction review requirements for major stationary sources in Rule 62-212.400, F.A.C., for the Prevention of Significant Deterioration (PSD) of Air Quality.

Upon issuance of this final permit, any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Pensacola, Florida

/s/ June 9, 2011

Rick Bradburn, Air Program Administrator (Date)

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Permit package (including the Final Determination and Final Permit) was sent by electronic mail (or a link to these documents made available electronically on a publicly accessible server) with received receipt requested before the close of business on June 9, 2011 to the persons listed below.

Timothy N. Montgomery, Ascend Performance Materials: tnmont@ascendmaterials.com
Ken Kosky, P.E., Golder Associates: kkosky@golder.com
Roy W. Noble, Ascend Performance Materials: rwnobl@ascendmaterials.com
Chuck Clarke, Ascend Performance Materials: ceclar@ascendmaterials.com

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

/s/ 6/9/11

(Clerk) (Date)

FACILITY AND PROJECT DESCRIPTION

This construction permit follows Title V revision permit 0330040-029-AV (which incorporated CP28 & 29 conversion to pelletizing, effective March 25, 2009) to Title V operation permit 0330040-018-AV, effective November 2, 2006. Permit 0330040-030-AC, effective December 30, 2008, allowed vaporizer modernizations and conversion of Continuous Polymerization Lines 22 and 23 to pellets. Permit 0330040-031-AC, effective March 16, 2009, allowed the modification of 0330040-027-AC to update past actual and future projected actual NOx emissions from those given in 0330040-027-AC. Permit 0330040-032-AC, effective August 14, 2009, was the transfer of ownership and name change from Solutia to Ascend Performance Materials LLC, and permit 0330040-033-AC, effective March 24, 2010, allowed the conversion of Continuous Polymerization Lines 16 and 17 to pelletizing. Permit 0330040-034-AC, effective August 13, 2010, allowed equipment and process changes necessary for the Area II Adipic Acid Production Increase (from 850 to 930 MAR). Permit 0330040-035-AC incorporated and superseded permit 0330040-034-AC, allowing adipic acid production to be further increased to 990 MAR. This permit incorporates and supersedes 0330040-035-AC and allows adipic acid production to be further increased to 1080 MAR with off-setting emissions reduction projects.

Existing Facility

Ascend Performance Materials LLC (Ascend) owns and operates a nylon and intermediate chemical manufacturing facility located in Cantonment, Florida, approximately 20 kilometers north of Pensacola on the Escambia River. The facility manufactures various chemicals including adipic acid, nylon fibers, nylon resins, hexamethylene diamine and maleic anhydride. The existing facility consists of the following emissions units:

Facility ID No. 0330040

ID No.	Emission Unit Description
EU003	Boiler No. 8
EU004	Boiler No. 7
EU014	Boiler No. 4
EU015	Boiler No. 5
EU016	Boiler No. 6
EU099	Boiler No. 9
EU100	Boiler No. 10
EU049	Hydrogen Generating Plant #1
EU060	Adipic Acid 485 BEPEX Dryer
EU061	Adipic Acid Dryer 405-A
EU062	Adipic Acid Dryer 405-B
EU063	Adipic Acid Dryer 465-A
EU064	Adipic Acid Dryer 465-B
EU079	Adipic Acid 485 NIRO Dryer
EU005	Vaporizer No.1
EU007	Vaporizer No.2
EU008	Vaporizer No.3
EU009	Vaporizer No.4
EU010	Vaporizer No.5
EU011	Vaporizer No.6
EU013	Vaporizer No.7

EU075	Vaporizer No.8
EU020	Cyclohexane Oxidation Process
EU002	Adipic Acid Process
EU090	Adipic Acid Process- Fugitive Emissions
EU032	Cogeneration Plant
EU040	Hexamethylene Diamine Synthesis and Refining
EU041	B and C Hexamethylene Diamine Stripper Distillation Column
EU076	Maleic Anhydride (MA) Plant
EU081	Continuous Nylon Polymerization Lines
EU082	Batch Nylon Polymerization
EU042	Nitric Acid Plant
EU088	Area 480 KA Expansion, P2K
EU089	Area 480 KA Expansion, P2K - Fugitive Emissions
EU097	NSPS Storage Tanks
EU073	Abrasive Blast Facility
EU038	Research and Development
EU050	Adipic Acid Bulk Loading No. 1, Building 346
EU051	Bulk Loading No. 2
EU080	Building 373 Loading
EU045	Building 465 Boxing/Bagging

Proposed Project

Ascend submitted this permit application to increase the permitted annual capacity for adipic acid production in Emissions Unit 002 from 850 MAR (million pounds annual rate) adipic acid to 1080 MAR based on a 12-month rolling total basis. Modifications to the adipic acid plant will include increasing the feedrate to 123,000 lb/hr, installation of three new storage tanks, modifications to existing crystallizers and addition of one new crystallizer, addition of one low temperature converter, and upgrades to the 403B still. The 610 ton per year NOx emission limit for the adipic acid emissions unit remains in place. The project will also add a new therminol vaporizer, a new hydrogen generating plant, a new electric air compressor for the nitric acid plant, new nitric acid railcar unloading facilities and a new cooling tower. Modifications in the Area 480 Ketone Alcohol (KA) production facility will improve process efficiency and reduce energy use without increasing production capacity. The project will increase nylon production rates, convert two fiber production lines to pellets (CP 18 and 21), install 8 new dust removal devices (elutriators) and install a new extruder for compounding nylon with additives. Offsetting emissions reductions will be achieved by (1) modifications in the cyclohexane oxidation plant to re-route atmospheric vents from tanks, centrifuges, and scrubbers to recovery or control devices with an associated VOC limit of 94.21 tons per year, (2) reduction in allowable NOx emissions from the nitric acid plant from 360 tons per year to 285 tons per year and (3) particulate matter limits on the group of boilers based on amount of fuel combusted and fuel sulfur content (PM10 $\leq$ 240 tons per year and PM2.5 $\leq$ 143 tons per year). The project may increase the capacity of utility systems such as compressed air, water systems, nitrogen and electricity distribution; however, these systems do not have associated air emissions. Two thirds of the additional energy needs created by the project will be met using waste heat recovery in the new hydrogen plant and in the nitric acid plant.

This project will add or modify the following emissions units.

Facility ID No. 0330040

ID No.	Emission Unit Description
EU002	Adipic Acid Process
EU090	Adipic Acid Process- Fugitive Emissions
EU042	Nitric Acid Plant
EU020	Cyclohexane Oxidation Process
EU088	Area 480 KA Expansion, P2K
EU040	Hexamethylene Diamine Synthesis and Refining
EU041	B and C Hexamethylene Diamine Stripper Distillation Column
EU081	Continuous Nylon Polymerization Lines
EU005	Vaporizer No.1
EU007	Vaporizer No.2
EU008	Vaporizer No.3
EU009	Vaporizer No.4
EU010	Vaporizer No.5
EU011	Vaporizer No.6
EU013	Vaporizer No.7
EU075	Vaporizer No.8
EU060	Adipic Acid 485 BEPEX Dryer
EU061	Adipic Acid Dryer 405-A
EU062	Adipic Acid Dryer 405-B
EU063	Adipic Acid Dryer 465-A
EU064	Adipic Acid Dryer 465-B
EU079	Adipic Acid 485 NIRO Dryer
EU003	Boiler No. 8
EU004	Boiler No. 7
EU014	Boiler No. 4
EU015	Boiler No. 5
EU016	Boiler No. 6
EU099	Boiler No. 9
EU032	Cogeneration Plant
EU101	Adipic acid new fugitive emissions (new)
EU102	Area 480 KA new fugitive emissions/barge loading (new)
EU103	Hydrogen Generating Plant #2 (new)
EU104	Hydrogen Generating Plant #2 Flare (new)
EU105	Vaporizer No.9 (new)
EU106	Vaporizer No. 9 Fugitive Emissions

EU107	Cooling Towers (new)
EU077	Dimethyl Ester Production (new)
EU050	Adipic Acid Bulk Loading No. 1, Building 346
EU051	Adipic Acid Bulk Loading No. 2
EU080	Adipic Acid Building 373 Loading
EU045	Adipic Acid Building 465 Boxing/Bagging

Emissions Changes Due to Project: (Emissions listed in tons per year)

Regulated Air Pollutant	**Baseline Actual Emissions**		**Baseline Actual Emissions plus Demand Growth**		**Projected Actual Emissions**		**Net Project Increase**		**Significant Emissions Rate (TPY)**
CO	424		501.		548		47		100
NOx	1763		2,300		2,337		37		40
PM/PM10	374		502		514		12		25/15
PM2.5	265		353		361		8		10
SO2	3413		4,604		4,606		2		40
VOC	219		316		345		29		40

Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities (See Appendices U-1 and I-1).

Based on the construction permit application received February 14, 2011, this facility is a major source of hazardous air pollutants (HAP). The facility is considered a major stationary source with respect to PSD because it is a chemical process plant that has the potential to emit 100 tons per year or more of the regulated air pollutants: NO_X, CO, PM, VOC and SO_2.

FACILITY REGULATORY CLASSIFICATION

- The facility is a major source of hazardous air pollutants (HAP).
- The facility has no units subject to the acid rain provisions of the Clean Air Act (CAA).
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400(PSD), F.A.C.

SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: The permitting authority for this project is the Northwest District Air Resource Management Program, Florida Department of Environmental Protection (Department). The District's mailing address is 160 W. Government Street, Room 308, Pensacola, Florida 32502-5740. All documents related to applications for permits to operate an emissions unit shall be submitted to the District Office.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the District Office at the above address or nwdair@dep.state.fl.us.

3. Appendices: The following Appendices are attached as part of this permit:

   a. Appendix A. Citation Formats and Glossary of Common Terms;

   b. Appendix B. General Conditions;

   c. Appendix C. Common Conditions; and

   d. Appendix D. Common Testing Requirements.

   e. Appendix I-1. List of Insignificant Emissions Units and/or Activities

   f. Appendix U-1. List of Unregulated Emissions Units and/or Activities

   g. Appendix PEI. Post Project Emissions Increase Report

4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296 and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.

5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

6. Modifications: The permittee shall notify the Compliance Authority upon commencement of construction. No new emissions unit shall be constructed and no existing emissions unit shall be modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

7. Source Obligation:

   (a) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

   (b) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

   [Rule 62-212.400(12), F.A.C.]

8. Application for Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V air operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V air operation permit revision at least 90 days prior to expiration of this permit, but no later than 180 days after completion of construction of each milestone listed below. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authority.

   Project Milestones

   (1) New Therminol vaporizer

   (2) New Hydrogen generating plant

   (3) Conversion of both nylon fiber lines to pellets

   (4) Completion of the projects required to achieve 1080 MAR adipic

   [Rules 62-4.030, 62-4.050, 62-4.220 and Chapter 62-213, F.A.C.]

9. Actual Emissions Reporting: This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (12), F.A.C. for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., the permittee is subject to the following monitoring, reporting and recordkeeping provisions.

   a. The permittee shall monitor the emissions of any PSD pollutant that the Department identifies could increase as a result of the construction or modification and that is emitted by any emissions unit that could be affected; and, using the most reliable information available, calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of ten years following resumption of regular operations after the change. Emissions shall be computed in accordance with the provisions in Rule 62-210.370, F.A.C., which are provided in Appendix C of this permit.

   b. The permittee shall report to the Department within 60 days after the end of each calendar year during the ten-year period setting out the unit's annual emissions during the calendar year that preceded submission of the report. The report shall contain the following:

      1) The name, address and telephone number of the owner or operator of the major stationary source;

      2) The annual emissions as calculated pursuant to the provisions of 62-210.370, F.A.C., which are provided in Appendix C of this permit;

      3) If the emissions differ from the preconstruction projection, an explanation as to why there is a difference; and

      4) Any other information that the owner or operator wishes to include in the report.

   c. The information required to be documented and maintained pursuant to subparagraphs 62-212.300(1)(e)1 and 2, F.A.C., shall be submitted to the Department, which shall make it available for review to the general public.

   For this project, the Department requires the annual reporting of actual NO_X, CO, PM/PM10, PM2.5, VOC and SO_2 emissions for the following units:

EU002	Adipic Acid Process
EU090	Adipic Acid Process- Fugitive Emissions

EU042	Nitric Acid Plant
EU020	Cyclohexane Oxidation Process
EU088	Area 480 KA Expansion, P2K
EU040	Hexamethylene Diamine Synthesis and Refining
EU041	B and C Hexamethylene Diamine Stripper Distillation Column
EU081	Continuous Nylon Polymerization Lines
EU082	Batch Nylon Polymerization
EU005	Vaporizer No.1
EU007	Vaporizer No.2
EU008	Vaporizer No.3
EU009	Vaporizer No.4
EU010	Vaporizer No.5
EU011	Vaporizer No.6
EU013	Vaporizer No.7
EU075	Vaporizer No.8
EU060	Adipic Acid 485 BEPEX Dryer
EU061	Adipic Acid Dryer 405-A
EU062	Adipic Acid Dryer 405-B
EU063	Adipic Acid Dryer 465-A
EU064	Adipic Acid Dryer 465-B
EU079	Adipic Acid 485 NIRO Dryer
EU003	Boiler No. 8
EU004	Boiler No. 7
EU014	Boiler No. 4
EU015	Boiler No. 5
EU016	Boiler No. 6
EU099	Boiler No. 9
EU032	Cogeneration Plant
EU101	Adipic acid new fugitive emissions (new)
EU102	Area 480 KA new fugitive emissions /barge loading (new)
EU103	Hydrogen Generating Plant #2 (new)
EU104	Hydrogen Generating Plant #2 Flare (new)
EU105	Vaporizer No. 9 (new)
EU106	Vaporizer No. 9 fugitive emissions
EU107	Cooling Towers (new)
EU077	Dimethyl Ester Production (new)
EU050	Adipic Acid Bulk Loading No. 1, Building 346
EU051	Adipic Acid Bulk Loading No. 2

EU080	Adipic Acid Building 373 Loading
EU045	Adipic Acid Building 465 Boxing/Bagging
	New nylon compounding extruder (insignificant)
	8 new nylon pellet elutriators (insignificant)

[Application 0330040-036-AC; Rules 62-212.300(1)(e) and 62-210.370, F.A.C.]

A. Adipic Acid Synthesis

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
EU002	Area II Adipic Acid Synthesis and Refining

A mixture of cyclohexane and cyclohexanone (ketone/alcohol or KA) is oxidized with nitric acid to produce adipic acid solution. The solution is refined using 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 nylon salt strike area or to drying and product loading operations. NOx and VOC emissions from the process are controlled using a thermal reduction unit (TRU) followed by a selective catalytic reduction unit (SCR I). The SCR II, a backup control device, controls only NOx when the TRU/SCR I is out of service. Both the primary and the backup control devices are equipped with continuous emissions monitoring systems (CEMS).

Heat recovered from the TRU/SCR I vent stream is used to produce 650 psig steam in a heat recovery boiler.

This project will replace the existing SCR I (selective catalytic reduction control device) with a new SNCR (selective non-catalytic reduction control device).

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

2. New Equipment: Except for the changes noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. Storage Tanks: The permittee is authorized to install three new storage tanks; Refined Crystallizer Feed (RCF Storage Tank No. 2), Water Mother Liquor (WML Tank No.2) and Adipic Solution Tank. Due to the low vapor pressure of the material stored in RCF Storage Tank No. 2 and WML Tank No.2 (<0.5 psia), and the size of the Adipic Solution Tank (500 gallons), all of these tanks are exempt from the requirements of 40 CFR part 60 subpart Kb. [Application No. 0330040-036-AC]

4. Crude and Refine Crystallizers Optimization: The permittee is authorized to replace the existing feed pumps, modify the existing circulation pumps to increase their capacity, and add improved instrumentation and controls to increase the on-stream time of the crude and refine crystallizers by reducing their fouling rate. Additionally, the crude crystallizer vertical condensers will be replaced by larger units and new heat exchangers for energy integration/optimization may be added. These unit operations are not subject to any specific emission limiting requirements. [Application No. 0330040-036-AC]

5. Crude Crystallizer Capacity Increase: The permittee is authorized to make the equipment modifications required to convert one refine crystallizer to a crude crystallizer. These modifications include changes to the existing vaporizer and suspension tank, replacing the existing single stage centrifuge with a new 2-stage centrifuge and the addition of crude slurry pumps, inclined screen thickener, 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. These unit operations are not subject to any specific emission limiting requirements. [Application No. 0330040-036-AC]

6. New Refine Crystallizer: The permittee is authorized to install a new refine crystallizer system in a new building including the new pumps, water heater, condenser, and screw conveyor required to operate the system. These unit operations are not subject to any specific emission limiting requirements. [Application No. 0330040-036-AC]

7. Distillation: The permittee is authorized to increase the capacity of the 403B still which may include increasing the reboiler and condenser capacity and the installation of feed and tails pumps. As a result of the modification, the distillation column will become subject to 40 CFR 60 subpart NNN, Standards of Performance for Volatile Organic Compound (VOC) emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations. The vent stream from the distillation column will be routed to the TRU during normal operation or to the backup SCR when the TRU is down. [Application No. 0330040-036-AC, 40 CFR part 60 subpart NNN, Rule 62-204.800(8)66., F.A.C.] *{Permitting note: The permittee has selected the alternative means of compliance allowed under 40 CFR 60.660(d) which is compliance with 40 CR 65 subpart D, the Consolidated Federal Air Rule process vent provisions. Under Subpart D, the column vent is classified as Group 2B which is subject only to recordkeeping and reporting requirements.}*

8. Reaction: The permittee is authorized to install a new large Low Temperature Converter (LTC). The modification will include additions/modifications to ancillary equipment and to the bleacher/off gas vessels. The new LTC will be subject to 40 CFR 60 subpart RRR, Standards of Performance for Volatile Organic Compound Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes. The vent stream will be combined with other reactor processes and routed through a closed vent system to the TRU during normal operation or to the backup SCR when the TRU is down. [Application No. 0330040-036-AC, 40 CFR part 60 subpart RRR, Rule 62-204.800(8)70., F.A.C.] *{Permitting Note: The permittee has selected the alternative means of compliance allowed under 40 CFR 60.700(d) which is compliance with 40 CR 65 subpart D, the Consolidated Federal Air Rule process vent provisions. Under Subpart D, the column vent is classified as Group 2B which is subject only to recordkeeping and reporting requirements.}*

9. Emissions Control: The permittee is authorized to replace the existing SCR system associated with the TRU with a selective non-catalytic reduction (SNCR) system. The project will include a small aqueous ammonia storage tank followed by a pump and piping to inject the ammonia into the SNCR vessel. [Application No. 0330040-036-AC]

PERFORMANCE RESTRICTIONS

10. Permitted Capacity:

a. Feed and Product Rate. The maximum allowable feedrate of KA to the adipic acid synthesis unit is 98,000 lb/hr and the maximum allowable production is 990 million pounds of adipic acid as per 0330040-035-AC until such time as NOx emissions from EU042 are reduced from an average of 360 TPY to 285 TPY and the VOC emissions in EU020 are reduced to the average annual equivalent level of 94.2 TPY.

b. Upon demonstration in writing to the Department that the aforementioned proposed emissions reductions have been achieved, the Department will authorize, in writing, an increase in maximum allowable feedrate of KA to the adipic acid synthesis unit up to 123,000 lb/hr and the maximum allowed production of adipic acid up to 1080 million pounds of adipic acid produced per year based on a 12 month rolling total basis. [Rules 62-4.030, 62-4.070(3), 62-4.160(2), 62-210.200(PTE), and 62-212.400(12), Requested by Permittee to avoid PSD Review, and permit applications 0330040-035-AC and 0330040-036-AC]

c. Combined Permitted Feedrate. The feed rate for the Cyclohexane Oxidation Process (Halcon), EU 020, and the Area 480 KA Expansion, EU 088, apportioned to Adipic Acid Synthesis, EU 002, shall not exceed the combined maximum feed rate given in the Company Confidential Appendix in million pounds KA per year based on a 12-month rolling total basis. [Rules 62-4.030, 62-4.070(3), 62-210.200(PTE) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]
{*Permitting Note: In order to prevent triggering PSD, we require that the NOx emission reduction in the HNO3 plant and the VOC emission reductions in Halcon be executed prior to allowing the increases in adipic and nylon production.*}

EMISSIONS STANDARDS

11. NO_x Emissions. The NO_x emissions concentration from each of the TRU/SCR I (eventually the TRU/SNCR) or SCR II shall not exceed 500 ppm on a 30-day rolling average. Total NO_x emissions from EU002 shall not exceed 610 TPY, on a 12-month rolling total basis. NO_x emissions from the stacks of TRU/SCR I (eventually the TRU/SNCR) and SCR II shall be demonstrated by means of a NO_x Continuous Emissions Monitor (CEM), which is operated under a Department approved QC plan, while firing the process gases from Area I and Area II. [Rules 62-4.030, 62-4.070(3), and 62-212.400(12), F.A.C., Consent Order OGC File No. 97-2066, executed February 2, 1998, permits AC17-262486 and 0330040-018-AV, Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

TESTING REQUIREMENTS

12. Initial Compliance Tests: After installation of the SNCR, a relative accuracy test audit (RATA) will be conducted to verify that the NOx CEMS has not been inadvertently damaged during construction, and emissions testing will be conducted to verify the ammonia levels exiting the new SNCR. The initial tests shall be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the SNCR. [Rules 62-4.070(3) and 62-297.310(7)(a)1, F.A.C.]

13. Annual Compliance Tests: Volatile Organic Compounds (VOC) emissions tests are required to show compliance with the standards of the Department at the TRU/SCR I (eventually the TRU/SNCR) INLET, which is equivalent to the SCR II Inlet, and the TRU/SCR I or TRU/SNCR OUTLET, whichever is in service at the time, to verify the destruction efficiency. The test method for VOC emissions shall be EPA Method 25A, incorporated and adopted by reference in Rule 62-297.401(7), F.A.C. The test results must provide reasonable assurance that the source is capable of compliance at the permitted maximum operating rate, otherwise the emissions unit will be limited to 110 percent of the test rate until a new test can be conducted at capacity. Such tests shall be conducted once during each federal fiscal year (1 Oct – 30 Sept). The Department shall be notified at least 15 days prior to testing to allow witnessing. Results shall be submitted to the Department within 45 days after testing. A special requirement for the first test conducted under this permit shall be to run a standard sample with a known KA concentration through the sampling train to determine and report testing methodology accuracy. [Rules 62-4.070, 62-297.310(2) and (7), and 62-297.401(7), F.A.C. , and permit application 0330040-035-AC]
{Permitting Note: Gases at the inlet to the TRU and SCR II have the same composition and the TRU/SNCR may not be in service for a few years, so permittee needs to continue to test the TRU/SCR I outlet until the TRU/SNCR comes on line.}

14. Test Requirements: The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. Notification may be sent via e-mail to nwdair@dep.state.fl.us. Tests shall be conducted in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rule 62-297.310(7)(a)9., F.A.C.]

15. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
25A	Method for Determining Gaseous Organic Concentrations (Flame Ionization)
CTM-027	EPA method for determining ammonia slip (formerly method 206)

The above methods, except for CTM-027, are described in Appendix A of 40 CFR 60 and are adopted by reference in Rules 62-204.800 and 62-297.401, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rules 62-204.800, 62-297.100 and 62-297.401, F.A.C.; and Appendix A of 40 CFR 60]

MONITORING REQUIREMENTS

16. Continuous Compliance - NO_x Emissions Concentrations. Permittee shall demonstrate continuous compliance with the NO_x emissions limitation from each of the TRU/SCR I or TRU/SNCR and SCR II stacks by proper maintenance and operation of Continuous Emission Monitors (CEMs) for NOx in conformance with a Department approved QC plan and annual CEMs RATA testing. CEMs readings shall be recorded continuously, and rolling 30-day and 12-month calculated averages shall be maintained and made available for Department inspection. Annual compliance testing may be waived if the Department receives reasonable assurance that the CEMs and data processing/recording systems have been functioning properly. [Rules 62-4.030 and 62-4.070(3), F.A.C., Consent Order OGC File No. 97-2066, executed February 2, 1998, and permit application 0330040-036-AC]

RECORDS AND REPORTS

17. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix D (Common Testing Requirements) of this permit. The test reports shall comply with applicable portions of Rule 62-297.310, F.A.C., Test Reports. The Department can require special compliance tests in accordance with Rule 62-297.310(7) F.A.C. Other test methods and alternate compliance procedures may be used only after prior Departmental approval has been obtained in writing. For each test run, the report shall also indicate the KA feedrate and adipic acid production rate. [Rule 62-297.310(8), F.A.C.]

18. Operational Data: Permittee shall maintain records of KA feed on an hourly and 12 month rolling averages. Permittee shall also maintain records of adipic acid production on a monthly total basis and 12-month rolling totals. These records shall be made available for Department inspection. [Rules 62-4.030, 62-4.070(3), 62-4.160(2) and 62-210.200(PTE), F.A.C., and permit application 0330040-036-AC]

19. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for NO_X, CO, PM/PM10, PM2.5, VOC and SO_2. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

{*Permitting Note: Appendix PEI has been prepared and attached to this permit to facilitate tracking of post project emissions monitoring.*}

B. Adipic Acid/KA VOC Equipment Leaks

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
EU090	Adipic Acid 850 MAR Fugitives
EU101	Adipic Acid 1080 MAR Fugitives
EU102	KA Barge Loading Fugitives

These emissions units consist of fugitive equipment leaks from pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and connectors in VOC service but not also in HAP service located within the unit boundaries of the adipic acid process and the proposed new KA barge loading facilities. The new emissions unit EU101 is created to capture emissions from new equipment added to support the increase from 850 MAR to 1080 MAR adipic. As a result of this project, these emissions units become subject to 40 CFR part 60 subpart VVa.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]
2. New Equipment: Except for the changes noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. The permittee is authorized to install pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and connectors as required to support the increase in production from 850 to 1080 MAR adipic and improved barge loading. [Application No. 0330040-036-AC and 40 CFR 60 subpart VVa, Rule 62-204.800(8)(b), F.A.C]
4. Equipment shall be identified as either subject to monitoring or exempt from monitoring. [40 CFR 60.486a(e)(1)-(6) and (f), (i) and (j), Rule 62-204.800(8)(b), F.A.C.]

PERFORMANCE RESTRICTIONS

5. Restricted Operation: The hours of operation of are not limited (8760 hours per year). [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

EMISSIONS STANDARDS

6. Emissions Standards: The permittee shall comply with the following emission standards as applicable:
   a. Standards: Pumps in light liquid service. [40 CFR 60.482-2a, Rule 62-204.800(8)(b), F.A.C.]
   b. Standards: Compressors**.** [40 CFR 60.482-3a, Rule 62-204.800(8)(b), F.A.C.]
   c. Standards: Pressure relief devices in gas/vapor service. [40 CFR 60.482-4a, Rule 62-204.800(8)(b), F.A.C.]
   d. Standards: Sampling connection systems. [40 CFR 60.482-5a, Rule 62-204.800(8)(b), F.A.C.]

e. Standards: Open-ended valves or lines. [40 CFR 60.482-6a, Rule 62-204.800(8)(b), F.A.C.]

f. Standards: Valves in gas/vapor service and in light liquid service. [40 CFR 60.482-7a, Rule 62-204.800(8)(b), F.A.C.]

g. Standards: Pumps, valves, and connectors in heavy liquid service and pressure relief devices in light liquid or heavy liquid service. [40 CFR 60.482-8a, Rule 62-204.800(8)(b), F.A.C.]

h. Standards: Delay of repair. [40 CFR 60.482-9a, Rule 62-204.800(8)(b), F.A.C.]

i. Standards: Closed vent systems and control devices. [40 CFR 60.482-10a, Rule 62-204.800(8)(b), F.A.C.]

j. Standards: Connectors in gas/vapor service and in light liquid service. [40 CFR 60.482-11a (currently stayed), Rule 62-204.800(8)(b), F.A.C.]

TESTING REQUIREMENTS

7. Initial Compliance Tests: The emissions units shall be tested to demonstrate initial compliance with the emissions standards for VOC. The initial test shall be conducted not later than 180 days after initial operation of the unit, except for connectors, which must be monitored within 12 months of startup (provisions for connectors, under 40 CFR 60.482-11a, are currently stayed). [40 CFR 60.482-1a(a) and 60.482-11a(a), and Rules 62-204.800(8)(b), 62-4.070(3) and 62-297.310(7)(a)1, F.A.C.]

8. Routine Compliance Tests: Routine compliance tests shall be conducted as specified below under Monitoring Requirements. [40 CFR 60 Subpart VVa, Rule 62-204.800(8)(b), F.A.C.]

9. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
21*	Determination of Volatile Organic Compound Leaks

*Monitoring shall comply with Method 21 of 40 CFR part 60, appendix A, except as otherwise provided in 40 CFR 60.485a

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rules 62-204.800 and 62-297.401, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rules 62-204.800, 62-297.100 and 62-297.401, F.A.C.; and Appendix A of 40 CFR 60]

MONITORING REQUIREMENTS

10. Post Project Emissions Monitoring: The permittee shall monitor emissions of VOC and, using the most reliable information available, calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of ten years following completion of construction. [Rules 62-4.070(3) and 62-212.300(1)(e)1., F.A.C.]

11. Leak Monitoring: Except where equipment has been designated exempt from monitoring under 40 CFR 60.486a (e)(1)-(6) and (f), (i) and (j), the permittee shall comply with the following routine monitoring requirements in the standards referenced:

a. Pumps in light liquid service. [40 CFR 60.482-2a(a), (b)(2), Rule 62-204.800(8)(b), F.A.C.]

b. Compressors. [40 CFR 60.482-3a(e)(1), Rule 62-204.800(8)(b), F.A.C.]

c. Pressure relief devices in gas/vapor service. [40 CFR 60.482-4a(b), Rule 62-204.800(8)(b), F.A.C.]

d. Valves in gas/vapor service and in light liquid service. [40 CFR 60.482-7a(a) and (c), Rule 62-204.800(8)(b), F.A.C.]

e. Connectors in gas/vapor service and in light liquid service. [40 CFR 60.482-11a(a) and (b)(3) (currently stayed), Rule 62-204.800(8)(b), F.A.C.]

RECORDS AND REPORTS

10. Test Reports: The permittee shall submit the following reports:

    a. Semiannual reports. [40 CFR 60.487a(a)-(c), 62-204.800(8)(b), F.A.C.]

    b. Notification of compliance with alternative standards, if applicable. [40 CFR 60.487(d), Rule 62-204.800(8)(b), F.A.C.]

    c. Performance test reports, if applicable. [40 CFR 60.487(e), Rule 62-204.800(8)(b), F.A.C.]

11. Post Project Emissions Reporting: The permittee shall report to the Department within 60 days after the end of each year the information required under Administrative Requirements, Actual Emissions Reporting for VOC. [Rule 62-212.300(1)(e)2., F.A.C.]

12. Operational Records: The following records shall be kept to demonstrate compliance with the leak detection and repair standards.

    a. For each monitoring event the following information shall be recorded: (1) monitoring instrument identification, (2) operator identification, (3) equipment identification, (4) date of monitoring, and (5) instrument reading. [40 CFR 60.486a(a)(3), Rule 62-204.800(8)(b), F.A.C.]

    b. When each leak is detected, the following information shall be recorded in a log and shall be kept for two years in a readily accessible location:

       (1) The instrument and operator identification numbers and the equipment identification number, except when indications of liquids dripping from a pump are designated as a leak,

       (2) The date the leak was detected and the dates of each attempt to repair the leak,

       (3) Repair methods applied in each attempt to repair the leak,

       (4) Maximum instrument reading measured by Method 21 of Appendix A to 40 CFR part 60 at the time the leak is successfully repaired or determined to be nonrepairable (except when a pump is repaired by eliminating indications of liquids dripping),

       (5) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery,

       (6) The signature of the owner or operator (or designee) whose decision it was that repair could not be effected without a process shutdown,

       (7) The expected date of successful repair of the leak if a leak is not repaired within 15 days,

       (8) Dates of process unit shutdowns that occur while the equipment is unrepaired,

       (9) The date of successful repair of the leak. [40 CFR 60.486a(b), incorporated by reference in Rule 62-204.800(8)(b), F.A.C.]

    c. If applicable, information pertaining to the design of closed vent systems and control devices used to control equipment leaks. [40 CFR 60.486a(d), Rule 62-204.800(8)(b), F.A.C.]

d. Documentation for each compliance test performed to designate equipment operating with no detectable emissions in 40 CFR 60.482-2a(e), 60.482-3a(i), 60.482-4a, and 60.482-7a(f). [40 CFR 60.486a(e)(4), Rule 62-204.800(8)(b), F.A.C.]

e. The date and results of the weekly visual inspection for indications of liquids dripping from pumps in light liquid service. [40 CFR 60.486a(e)(7), Rule 62-204.800(8)(b), F.A.C.]

f. Calibration records for monitoring instruments. [40 CFR 60.486a(e)(8), Rule 62-204.800(8)(b), F.A.C.]

g. The connector monitoring schedule (if applicable). [40 CFR 60.486(e)(9), Rule 62-204.800(8)(b), F.A.C.]

h. Records of each release from a pressure relief device subject to monitoring. [40CFR 60.486a(e)(10), Rule 62-204.800(8)(b), F.A.C.]

i. Documentation required for compliance with the alternative monitoring frequency for valves described in 40 CFR 60.483-2a, if applicable. [40 CFR 60.486a(g), Rule 62-204.800(8)(b), F.A.C.]

j. Design criteria for pump or compressor seal systems equipped with leak detectors as described in 40 CFR 60.482-2a(d)(5) and/or 60.482-3a(e)(2), if applicable. [40 CFR 60.486a(h), Rule 62-204.800(8)(b), F.A.C.]

C. Nitric Acid Plant

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
EU042	Nitric Acid Plant

In the synthesis process, ammonia is oxidized in the presence of a catalyst to form NO_x, which is then converted to nitric acid by a reaction with water. NO_x emissions are controlled by process operating conditions and/or use of a Selective Catalytic Reduction (SCR) NO_x abatement device. This emissions unit is regulated under 40 CFR part 60 subpart G.

Per Application 0330040-036-AC, a new electric air compressor and railcar unloading facilities will be added in the nitric acid plant. SCR utilization will be increased by increasing ammonia injection to reduce NOx emissions from 360 tons per year to 285 tons per year. Fumes from the nitric acid storage tanks will be gathered into the NOx collection header and routed to the TRU during railcar unloading.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

2. New Equipment: Except for the change noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. The permittee is authorized to install a new electric air compressor and facilities for unloading nitric acid from railcars which will include spill containment, piping and pumps. [Application No. 0330040-036-AC]

PERFORMANCE RESTRICTIONS

4. Permitted Capacity: For testing purposes, the maximum allowable operating rate is 1,500 tons of 100% nitric acid produced per day. [Rule 62-210.200(PTE), F.A.C. and permit application 0330040-036-AC]

5. Restricted Operation: The hours of operation of are not limited (8760 hours per year). [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

EMISSIONS STANDARDS

6. Emissions Standards:

   a. Nitrogen oxides, expressed as NO_2, shall not exceed 1.5 kg per metric ton of acid produced (3.0 lb per ton), the production being expressed as 100 percent nitric acid. The maximum allowable annual NO_x emissions, to avoid PSD, are 285 tons of NO_x per year based on a 365-day rolling total amount as determined by the CEMs data, production data, and the conversion factor established during annual testing. Records shall be kept for a 365-day rolling total amount calculated in tons of NO_x per year.

   b. Opacity shall be less than 10 percent.

   [40 CFR 60.72(a)(1) and (2) and 60.73(b) incorporated by reference in Rule 62-204.800(8)10., F.A.C. and annual limit requested by applicant to avoid PSD, Application No. 0330040-036-AC]

RECORDS AND REPORTS

7. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for NOx, PM10 and PM2.5. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

D. Cyclohexane Oxidation Process

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
EU020	Cyclohexane Oxidation Process (Halcon)

Ascend produces cyclohexanone/cyclohexanol (KA), a ketone and alcohol mixture, as an intermediate chemical in the production of adipic acid and for outside sales. Cyclohexane is oxidized with air in two high-pressure reactor trains. Two high-pressure scrubbers recover the cyclohexane from the reactor off gas. High-pressure scrubber off gas containing primarily VOC and CO is routed to the TRU when operating. Another thermal oxidizer (the Organic BackUp Device, or OBUD) is used to control the VOC and CO emissions from the Halcon process area during times when the TRU is down or during other process upset conditions. The cyclohexane recovered by the high-pressure scrubbers is returned to the reactors for reuse. Two low-pressure scrubbers control emissions from product refining, certain tanks and distillation columns. The low-pressure scrubbers currently vent to atmosphere. The emissions from the low-pressure scrubbers are of similar composition but lesser quantity than those from the high-pressure scrubbers.

This project will reduce emissions of VOC in two phases. In the first phase, vents from four tanks (481TA54B, 481TA108, and 481TA56A, B) and two centrifuges (481SE53A, B) will be routed to the low pressure scrubbers. In the second phase, compressors will be installed to route the low pressure scrubber vents to the high pressure scrubber off-gas headers. Off gas from the low pressure scrubbers will be vented to atmosphere during periods when the OBUD is on line.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]
2. New Equipment: Except for the changes noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. The permittee is authorized to install the piping, blowers/compressors and ancillary equipment required to route the emissions from four tanks (481TA54B, 481TA108, and 481TA56A, B) and two centrifuges (481SE53A, B) to the low pressure scrubbers and to route the low pressure scrubber off-gas to the high pressure scrubber off-gas headers. [Application No. 0330040-036-AC]

PERFORMANCE RESTRICTIONS

4. Permitted Capacity: The process/operation rate for the Cyclohexane Oxidation Process (Halcon), EU 020, shall not exceed the maximum operating rate given in the Company Confidential Appendix in million pounds KA per year based on a 12-month rolling total basis. [Rules 62-4.030, 62-4.070(3), 62-210.200(PTE) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

EMISSIONS STANDARDS

5. PSD Avoidance Limitation for VOC. The total VOC emissions from the Halcon process area shall not

exceed 94.21 TPY, rolling 12-month total commencing upon completion of construction of the Halcon emission reduction project milestone. The calculation methodology will be as follows unless an alternative calculation method is approved by the Department:

94.21 ≥ ((AFLOW * AEF) * (1-DEST) + (BFLOW * BEF) * (1-DEST)

+ (AFLOW + BFLOW) * OBUDEF

+ (LP401FLOW* LP401EF + LP461FLOW * LP461EF) *(1- DEST)

+ (LP401FLOW* LP401EF + LP461FLOW * LP461EF) * (FACTOR)

+ uncontrolled Tank emissions using Water 9 and Tanks 4 software)/2000

Where, AFLOW is the A train process air (lb)

AEF is the A train emission factor (lb VOC/lb air)

BFLOW is the B train process air (lb)

BEF is the B train emission factor (lb VOC/lb air)

DEST is the TRU destruction efficiency

= 99.92% if TRU is on line

= 0 if TRU and OBUD are <u>both</u> off line

= 1 if OBUD is on line

OBUDEF is the OBUD emission factor (lb VOC/lb air, updated annually based on test; = 0 if OBUD is not on line)

FACTOR

= 0 if the LP scrubbers are venting to the TRU

= 1 if TRU is off line but OBUD is on line (LP scrubbers venting to air)

= 0 if TRU and OBUD are <u>both</u> off line

LP401FLOW is 401 LP scrubber off gas flow (lb)

LP401EF is the 401 LP scrubber emission factor (lb VOC/lb gas)

LP461FLOW is the 461 LP scrubber off gas flow (lb)

LP461EF is the 461 LP scrubber emission factor (lb VOC/lb gas)

Emissions calculations will be calculated by the end of the month for the prior month, with the exception of uncontrolled tank emissions which will be calculated annually. The emission factors for the low pressure (LP) scrubbers may be determined by process modeling or sampling. Documentation for the LP scrubber emission factor determination will be submitted to the Department.

[Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

{Permitting note: Normally, when the TRU is not on line, the OBUD will be on line. The low pressure scrubbers will vent to the air, as they currently do, when the TRU is not on line.}

TESTING REQUIREMENTS

6. This permit does not impose any additional testing requirements for this emissions unit. However, if the Department has good reason to believe that the applicable emission standard is not being met, it shall require the permittee to conduct additional compliance tests. [Rule 62-297.310(7)(b), F.A.C.]

RECORDS AND REPORTS

7. Process Data. The permittee will measure and record A train process air flow, B train process air flow, and low pressure scrubber off gas flow in pounds on at least an hourly average basis for the purpose of demonstrating compliance with the VOC emission limit. The permittee will maintain a record of the date, time, and duration when either the TRU or the OBUD is off line or the low pressure scrubbers are venting to the atmosphere. [Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

8. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for NO_X, CO, PM/PM10, PM2.5, VOC and SO_2. Permittee must keep records to show the percentage of production that is fed to the adipic acid unit and that percentage of the total emissions will be reported for the purposes of 62-212.300(1)(e), F.A.C. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit applications 0330040-036-AC]

E. Area 480 KA (P2K)

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
EU088	Area 480 KA (P2K)- Product Synthesis, Refining and Raw Material Recovery and all related ancillary equipment and systems - VOC Control Flare and Backup Flare

Phenol is reacted with hydrogen in a gas phase hydrogenation reaction for conversion to cyclohexanone/cyclohexanol mixture (KA). The KA is used in adipic acid production or for outside sales. Process emissions are primarily VOC. Fugitive emissions are VOC, primarily cyclohexanone and cyclohexanol; and HAP, primarily phenol. The VOC emissions control equipment for the Area 480 KA process consists of an enclosed flare and a backup enclosed flare.

This project proposes to make minor upgrades to processing equipment to improve energy efficiency without increasing production capacity or emissions. The minor emissions increases at Area 480 KA resulting from the need for additional KA in EU 002 are included in the ancillary emissions increase assessments presented in the application. Should more P2K-KA be produced for adipic acid manufacturing than accounted for in these emissions calculations, it will be at the expense of KA produced at the higher emission rate Halcon Unit (EU 020), as a result, overall emissions will be lower. Emissions from increased steam demand in this unit are included in the assessment. There are emissions recordkeeping requirements for ten years to ensure proper PSD Avoidance.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

2. New Equipment: Except for the changes noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. The permittee is authorized to make minor modifications to process equipment to improve energy efficiency without increasing production capacity or potential to emit. [Application No. 0330040-036-AC]

PERFORMANCE RESTRICTIONS

4. Permitted Capacity: The process/operation rate for the Area 480 KA (P2K) Synthesis, EU 088, shall not exceed 400 million pounds KA per year based on a 12-month rolling total basis. [Rules 62-4.030, 62-4.070(3), 62-4.160(2), 62-210.200(PTE), and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit applications 0330040-036-AC]

RECORDS AND REPORTS

5. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for NO_X, CO, PM/PM10, PM2.5, and VOC. Permittee must keep records to show the percentage of production that is fed to the adipic acid unit and that percentage of the total emissions will be

reported for the purposes of 62-212.300(1)(e), F.A.C. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit applications 0330040-036-AC]

F. Hexamethylene Diamine Synthesis and Stripper

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
EU040	Hexamethylene Diamine Synthesis and Refining
EU041	B and C Hexamethylene Diamine Stripper Distillation Column

Adiponitrile is hydrogenated to yield crude Hexamethylene Diamine (HMD). The HMD is then refined by vacuum distillation. A vacuum is achieved by staged steam jets. The water soluble HMD is discharged in the steam condensate to the wastewater system. The concentration of HMD in the non-condensable emissions is reduced in each stage.

Per Application 0330040-036-AC, there are no physical changes involved in this emissions unit for the Area II Adipic Acid Expansion Project. VOC emissions from this emissions unit increase due to the increase in demand to support nylon production downstream. There are emissions recordkeeping requirements for ten years to ensure proper PSD Avoidance.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

2. New Equipment: Except for the changes noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. This permit authorizes a minor production increase above baseline levels without physical modifications to equipment or changes in methods of operation. [Application 0330040-036-AC]

PERFORMANCE RESTRICTIONS

4. Permitted Capacity: The process/operation rate for the HMD Synthesis and Stripper Distillation Column, EU's 040 and 041, shall not exceed the maximum operating rate given in the Company Confidential Appendix in million pounds HMD per year based on a 12-month rolling total basis. [Rules 62-4.030, 62-4.070(3), 62-210.200(PTE) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

RECORDS AND REPORTS

5. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for VOC. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

G. Nylon Production Lines

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
EU081	Continuous Nylon Polymerization Lines
EU082	Batch Nylon Polymerization

Hexamethylene diamine is reacted with adipic acid to form hexamethylene diammonium adipate, or nylon salt. The salt is heated and water is evaporated to form nylon 6,6 polymer. The polymer can be spun into fiber or pelletized. Volatile organic compounds are evolved during the evaporation and spinning steps. VOC generated during evaporation and reaction steps are controlled using a distillation column. VOC generated during the finishing and spinning step (monomer) is either vented away from the work area and discharged without controls or controlled using water scrubbers. Particulate matter is also generated in this process either as a result of flake handling or condensation of uncontrolled monomer. Heat recovery is used to produce steam.

Emissions from production of the additional steam required for increased nylon production are included in the project emissions assessment for the boilers.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

2. New Equipment: Except for the change noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. Polymerization: The permittee is authorized to install new centrifugal booster pumps and primary pumps with strainers and a new steam letdown station, larger size reactor off-gas reboilers to replace the existing ones, higher capacity finisher agitators to replace the existing ones, and other miscellaneous equipment to increase nylon polymerization capacity. [Application No. 0330040-036-AC]

4. Flake Handling: The permittee is authorized to install two new dilute phase pneumatic conveyors with associated 100 HP blowers, rotary valves and piping for conveying pelletized product to storage silos. Eight new elutriators with associated dust collectors, 1.5 HP rotary valves, 20 HP blowers, air coolers and piping may be installed in the convey systems to remove particulate matter from the pelletized product. [Application No. 0330040-036-AC]

5. Compounding: The permittee is authorized to install a new twin screw extruder with multiple feeders and ancillary equipment to combine nylon 6,6 melt with various other additives designed to modify the physical properties of the finished products. Ancillary compounding equipment may include the following: a vacuum conveyor to transport the products to multiple loading stations; a high efficiency air filter (HEAF) to control particulate matter emissions from the new unit's die, pelletizer, and vacuum pump; a baghouse to clean air prior to vacuum pump and atmospheric discharge; piping, valves and flanges to supply therminol to the new transfer line to the extruder; two new vacuum pumps; one new cooling water circulation pump; and other miscellaneous equipment. [Application No. 0330040-036-AC]

6. Drying: The permittee is authorized to improve the operating efficiency of the Solid State Polymerization (SSP) dryer by adding a 300 cubic foot holding bin under one existing high temperature unit and converting that unit to a heat-only machine. A low temperature cooling bin may also be installed to run in tandem with the heat-only machine. [Application No. 0330040-036-AC]

7. Pelletizing: The permittee is authorized to convert two more fiber producing lines to pellet producing lines. CP Line 21 polymer melt stream will be merged with CP 22/23 polymer melt streams to be pelletized in the existing CP 22/23 pelletizer. CP Line 18 polymer melt stream will be combined with CP 16/17 polymer melt streams to be pelletized in the existing CP 16/17 pelletizer. The project will include melt piping and diverter valves which may be heated by therminol and additive supply lines. [Application No. 0330040-036-AC]

8. Chillers: The permittee is authorized to improve the energy efficiency of the 500 Building chilled water system by installing a thermo-compressor to use excess reactor off-gas reboiler steam to boost the evaporator vent steam pressure. [Application No. 0330040-036-AC]

PERFORMANCE RESTRICTIONS

9. Permitted Capacity: The combined process/operation rate for EUs 081 and 082 shall not exceed the maximum operating rate given in the Company Confidential Appendix in million pounds nylon per year based on a 12-month rolling total basis, as measured by nylon salt fed to polymerization. [Rules 62-4.030, 62-4.070(3), 62-210.200(PTE), and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit applications 0330040-036-AC]

EMISSIONS STANDARDS

10. Emissions Standards: Visible emissions from each elutriator dust collector and compounder baghouse vent shall be less than 20% opacity. [Rule 62-296.320(4)(b), F.A.C.]

TESTING REQUIREMENTS

11. Initial Compliance Tests: The emissions unit shall be tested to demonstrate initial compliance with the visible emissions standard. The initial tests shall be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the unit. The units to be tested include each new elutriator and the compounder baghouse. [Rules 62-4.070(3) and 62-297.310(7)(a)1., F.A.C.]

12. Test Requirements: The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. Notification may be sent via e-mail to nwdair@dep.state.fl.us. Tests shall be conducted in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rule 62-297.310(7)(a)9., F.A.C.]

13. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rules 62-204.800 and 62-297.401, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rules 62-204.800, 62-297.100 and 62-297.401, F.A.C.; and Appendix A of 40 CFR 60]

MONITORING REQUIREMENTS

14. The permittee shall establish and include provisions in the site Operation and Maintenance plan for monitoring dust collector/baghouse operation including but not limited to immediate shutdown and repair if operating parameters fall outside the normal established ranges. [Rule 62-4.070(3), F.A.C.]

RECORDS AND REPORTS

15. Operational Data: The permittee shall maintain records of the total pounds of salt and salt concentration fed to the nylon production lines on a 12-month rolling total basis. Using this raw material feed data with an appropriate conversion factor for water of reaction, nylon production will be calculated monthly to show compliance with the nylon polymer permitted capacity. [Rule 62-4.070(3), F.A.C.]

16. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for PM/PM10, PM2.5, and VOC. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

H. Vaporizers

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
EU005	Vaporizer No.1
EU007	Vaporizer No.2
EU008	Vaporizer No.3
EU009	Vaporizer No.4
EU010	Vaporizer No.5
EU011	Vaporizer No.6
EU013	Vaporizer No.7
EU075	Vaporizer No.8
EU105	Vaporizer No. 9 (new)

The vaporizers produce Therminol vapor which supplies heat to the nylon production process. The primary fuel for these units is natural gas. Except for vaporizers No. 8 and No. 9, Number 2 fuel oil with a maximum sulfur content of 0.5% by weight can be used as an emergency fuel. The total heat input for all vaporizers is 191.6 MMBtu/hr.

Vaporizers 1-7 predate the NSPS. However, Vaporizers 8 and 9 are regulated under 40 CFR part 60 subparts A and Dc, adopted and incorporated by reference in 62-204.800, F.A.C. Because vaporizers No. 8 and No. 9 will combust only natural gas with no fuel oil for emergency backup, they are subject only to the notification and fuel recordkeeping requirements in 40 CFR 60.48c.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]
2. New Equipment: Except for the changes noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. Vaporizer: The permittee is authorized to install a new vaporizer designated No.9, EU105, with a maximum heat input of 55.6 MMBtu/hr fueled only by natural gas. [Application No. 0330040-036-AC]

PERFORMANCE RESTRICTIONS

4. Permitted Capacity: The maximum heat input for the Vaporizers, EUs 005, 007, 008, 009, 010, 011, 013, 075, and 105 shall not exceed 191.6 MMBtu/hr based on a natural gas higher heating value of 1020 Btu/scf and a 12-month rolling average basis. [Rules 62-4.030, 62-4.070(3), 62-210.200(PTE) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit applications 0330040-036-AC]
5. Authorized Fuel: Vaporizers No. 8 and No. 9 are only permitted to burn natural gas. [Application No. 0330040-036-AC and Rule 62-210.200(PTE), F.A.C.]

6. Restricted Operation: The hours of operation of are not limited (8760 hours per year). [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

RECORDS AND REPORTS

7. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for NO_X, CO, PM/PM10, PM2.5, VOC and SO_2. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

8. Fuel Records: An aggregate natural gas usage heat input will be calculated on an hourly basis and recorded in units of MMBtu/hr for vaporizers 1-9 combined. [40 CFR 60.48c(g), Rule 62-204.800(8)(b)(4), F.A.C., and Application 0330040-036-AC]

   {Permitting note: The NSPS only requires fuel usage to be recorded daily, or even monthly if only natural gas is combusted, however, the permittee requested to continue monitoring fuel usage hourly as has been done for many years to avoid the need for retraining.}

I. Adipic Acid Drying

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
EU060	Adipic Acid 485 BEPEX Dryer
EU061	Adipic Acid Dryer 405-A
EU062	Adipic Acid Dryer 405-B
EU063	Adipic Acid Dryer 465-A
EU064	Adipic Acid Dryer 465-B
EU079	Adipic Acid 485 NIRO Dryer

Adipic acid is dried using steam as the heat supply. Particulate emissions are controlled by bag filters and/or scrubbers. For this project, emissions assumptions are based on a higher proportion of adipic acid being sent to the EU 061, 062, 063 and 064 dryers than historical usages, resulting in conservatively higher drying emissions estimates. Similarly, the loading emissions assessment assumes that all of the material from these four dryers will be bulk loaded into railcars at EU 050 rather than being split with loading in the lower emitting boxing and bagging operation. Emissions from production of additional steam required to dry the additional adipic acid production are included in the project emissions assessment for the boilers.

This project requires no physical changes in these emissions units and no permit changes are requested.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

2. New Equipment: Except for the change noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. This permit authorizes minor increases in throughput above the baseline for this emissions unit. (Application 0330040-036-AC]

PERFORMANCE RESTRICTIONS

4. Permitted Capacity: The combined process/operation rate for the Adipic Acid Drying, EU 060, 061, 062, 063, 064, and 079, shall not exceed the amount given in the Company Confidential Appendix in Million Pounds dried Adipic Acid per year based on a 12-month rolling total basis. [Rules 62-4.030, 62-4.070(3), 62-210.200(PTE), and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

RECORDS AND REPORTS

5. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative

Requirements for PM/PM10, and PM2.5. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit applications 0330040-036-AC]

6. Operational Data: The permittee shall record the combined production rate of dry Adipic Acid from EU's 060, 061, 062, 063, 064, and 079 on a 12-month rolling total basis. Such records will be made available for review by Department request. [Rules 62-4.030, 62-4.070(3), 62-210.200(PTE), and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

J. Boilers 7 and 8

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
EU003	Boiler No. 8
EU004	Boiler No. 7

Boilers Nos. 7 and 8 have been modified to incorporate low NOx burners and are fueled by natural gas, maleic anhydride production off gas, and pentane vapor stream. Each of the modified boilers is rated for 388 MMBtu/hour and 225,000 pounds/hour steam production. Emissions are controlled by proper combustion controls. SO_2 and particulate matter emissions are controlled by sulfur content of the fuel.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

2. New Equipment: Except for the changes noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. No physical changes to equipment or changes in methods of operation are authorized by this permit. [Application 0330040-036-AC]

PERFORMANCE RESTRICTIONS

4. Authorized Fuels. Boilers Nos. 7 and 8 may be fueled by natural gas, maleic anhydride production off gas and pentane vapor stream. The maximum total natural gas usage shall be limited to 1,100 million standard cubic feet per year for each boiler (Boiler No. 7 and Boiler No. 8). [Rules 62-4.160(2) and 62-213.440(1), F.A.C., Permittee letter dated June 22, 2006, and permit application 0330040-036-AC]

5. Heat Input Limit. For a period of ten years from the effective date of this permit, total heat input for EU 003, 004, 014, 015, 016, 032 and 099 shall not exceed 16,360,362 MMBtu/yr from all fuels in any 12-month rolling period. The heating value of the various fuels is determined as follows:

   Natural Gas: Use previous year's average higher heating value

   Maleic Off Gas: Analyzer data is used to compute a higher heating value

   Pentane Vapor Stream: combined and metered with the natural gas and uses natural gas higher heating value

   [Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

EMISSIONS STANDARDS

6. PSD Avoidance Limitation for PM/PM10. The total PM/PM10 emissions from EU 003, 004, 014, 015, 016, 032 and 099 combined shall not exceed 240 TPY. For EU003 and EU004, PM/PM10 emissions will be calculated as follows:

   XPM10 = (XEF10+ 0.00559) * GASX / 2000 Where,

X = 7 or 8

XPM10 is tons per year of PM10 from Boiler No. X

XEF10 is average of previous five years emission factors for Boiler No. X based on Method 5testing in lb PM10/MMBtu gas fed, updated annually

GASX is MMBtu of gas fed to Boiler No. X in prior 12 months calculated using gas flow and higher heating values of natural gas and maleic off gas as described under the Heat Input Limit above.

(0.00559 lbs/MMBtu is AP 42 emission factor for condensable PM)

PSD Avoidance Limit:

240TPY≥ 7PM10 + 8PM10 + 4PM10 + 5PM10 + 6PM10 + 9PM10 + CGPM10, where emission calculations for the other boilers and cogen are defined in their respective permit sections.

[Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD, and permit application 0330040-036-AC]

7. PSD Avoidance Limitation for PM2.5: The total PM2.5 emissions from EU 003, 004, 014, 015, 016, 032 and 099 combined shall not exceed 143 TPY. For EU003 and EU004, PM2.5 emissions will be calculated as follows:

XPM2.5 = (XEF2.5+ 0.00559) * GASX/ 2000 Where,

X = 7 or 8

XPM2.5 is tons per year of PM2.5 from Boiler No. X

XEF2.5 is average of previous five years emission factors for Boiler No. X based on Method 5testing in lb PM2.5/MMBtu gas fed, updated annually

GASX is MMBtu of gas fed to Boiler No. X in prior 12 months calculated using gas flow and higher heating values of natural gas and maleic off gas as described under the Heat Input Limit above.

(0.00559 lbs/MMBtu is AP 42 emission factor for condensable PM)

PSD Avoidance Limit

143TPY≥ 7PM2.5 + 8PM2.5+ 4PM2.5+ 5PM2.5 + 6PM2.5 + 9PM2.5+ CGPM2.5, where emission calculations for the other boilers and cogen are defined in their respective permit sections.

[Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

RECORDS AND REPORTS

8. Fuel Records: To demonstrate compliance with the heat input limit, records of monthly total and annual total natural gas/pentane vapor stream and maleic anhydride production off gas usage shall be maintained and available for Department inspection. Total heat input, PM/PM10 and PM2.5 emissions for EU 003, 004, 014, 015, 016, 032 and 099 will be calculated monthly for the prior 12 months. Records will be maintained of all analyses and calculations used in determining the heating value of each fuel. [Rules 62-4.070 and 62-213.440(1), F.A.C., and permit application 0330040-036-AC]

9. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4)

through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for NO_X, CO, PM/PM10, PM2.5, VOC and SO_2. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

K. Boilers 4, 5 and 6

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
EU014	Boiler No. 4
EU015	Boiler No. 5
EU016	Boiler No. 6

Boilers Nos. 4, 5 and 6 are normally fueled by natural gas. No. 6 fuel oil is an alternate fuel, which may contain blended on-specification used oil as supplemental fuel. The used oil must meet the requirements of 40 CFR 279.11 (Standards for the Management of Used Oil). Boiler No. 4 and Boiler No. 5 may also burn as supplemental fuels AGS (a mixture of organic acids from a deep well waste stream), KATT (a mixture of organic esters), DME (Dimethyl Esters), Amines and Area 480 residue. Emissions are controlled by proper combustion control and by fuel composition.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

2. New Equipment: Except for the changes noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. No physical changes to equipment or changes in methods of operation are authorized by this permit. [Application 0330040-036-AC]

PERFORMANCE RESTRICTIONS

4. Heat Input Limit. For a period of ten years from the effective date of this permit, total heat input for EU 003, 004, 014, 015, 016, 032 and 099 shall not exceed 16,360,362 MMBtu/yr from all fuels in any 12-month rolling period. The heating value of the various fuels is determined as follows:

   Natural Gas: Calculated from steam generation and boiler efficiency (82%) minus heat input from other fuels

   No. 6 Fuel Oil: Based on suppliers' higher heating value (certificate of analysis)

   KATT: Assume 12, 500 Btu/lb

   Other Fuels: Higher heating value based on fuel analysis if burned

   [Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

EMISSIONS STANDARDS

5. PSD Avoidance Limitation for PM/PM10. The total PM/PM10 emissions from EU 003, 004, 014, 015, 016, 032 and 099 combined shall not exceed 240 TPY. For EU014, EU015 and EU016, PM/PM10 emissions will be calculated as follows:

XPM10 = ((9.19(XSO) + 3.22) * XkgalO + (9.19(XSK) + 3.22) *XkgalK + 1.5 *(XkgalO + XkgalkK) + XNGHEAT* 0.00745)/2000, where

X= 4, 5, or 6

XPM10 = tons per year of PM10 from boiler X

XSO = wt. % sulfur content of fuel oil, based on supplier certificate of analysis burned in boiler X

XSK = wt. % sulfur content of KATT, based on most recent analysis combusted in boiler X

XkgalO= thousand gallons of oil combusted in boiler X

XkgalK = thousand gallons of KATT combusted in boiler X

XNGHEAT = heat input from natural gas in MMBtu

If any other liquid fuels are burned, terms analogous to those for oil and KATT will be added to XPM10 for each additional fuel burned.

(reference: AP-42 Chapter 1.3)

PSD Avoidance Limit:

240 TPY ≥ 7PM10 + 8PM10 + 4PM10 + 5PM10 + 6PM10 + 9PM10 + CGPM10, where emission calculations for the other boilers and cogen are defined in their respective permit sections.

[Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

6. PSD Avoidance Limitation for PM2.5. The total PM2.5 emissions from EU 003, 004, 014, 015, 016, 032 and 099 combined shall not exceed 143 TPY. For EU014, EU015 and EU016, PM2.5 emissions will be calculated as follows:

XPM2.5 = ((4.67(1.12(XSO) + 0.37))* XkgalO + (4.67(1.12(XSK) + 0.37)) *XkgalK + 1.5 *(XkgalO + XkgalkK) + XNGHEAT * 0.00745)/2000, where

X= 4, 5, or 6

XPM2.5 = tons per year of PM2.5 from boiler X

XSO =wt. % sulfur content of fuel oil, based on supplier certificate of analysis burned in boiler X

XSK = wt. % sulfur content of KATT, weighted average combusted in boiler X

XkgalO= thousand gallons of oil combusted in boiler X

XkgalK = thousand gallons of KATT combusted in boiler X

XNGHEAT = heat input from natural gas in MMBtu

If any other liquid fuels are burned, terms analogous to those for oil and KATT will be added to XPM10 for each additional fuel burned.

(reference AP-42 Chapter 1.3)

PSD Avoidance Limit:

143 TPY ≥ 7PM2.5 + 8PM2.5 + 4PM2.5 + 5PM2.5 + 6PM2.5 + 9PM2.5 + CGPM2.5, where emission calculations for the other boilers and cogen are defined in their respective permit sections.

[Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

RECORDS AND REPORTS

7. Fuel Records: To demonstrate compliance with the heat input limit, records of monthly total and annual total combustion of natural gas, No. 6 fuel oil, on-spec used oil, AGS, KATT, DME, Amines and Area 480 residue shall be maintained and available for Department inspection. Total heat input, PM/PM10 and PM2.5 emissions for EU 003, 004, 014, 015, 016, 032 and 099 will be calculated monthly for the prior twelve months. Records will be maintained of all analyses and calculations used in determining the heating value of each fuel. [Rules 62-4.070 and 62-213.440(1), F.A.C., and permit application 0330040-036-AC]

8. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for NO_X, CO, PM/PM10, PM2.5, VOC and SO_2. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

L. Boiler No. 9

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
099	Boiler No. 9

This is a natural gas fired boiler with a maximum rated heat input of 344 MMBtu per hour and 250,000 pounds per hour steam. The packaged boiler is manufactured by Indeck Power Equipment Company/Volcano Technologies, Inc., Model No. A5-250-S. This boiler is subject to 40 CFR 60 subpart Db.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

2. New Equipment: Except for the changes noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. No physical changes or changes in methods of operation are authorized by this permit. [Application 0330040-036-AC]

4. Boiler No. 10, EU100: The application for this permit and the PSD applicability evaluation did not include emissions from Boiler No. 10, EU100. Permittee will conduct detailed engineering design studies and apply for a revision to this permit prior to undertaking any construction associated with Boiler No. 10. [Rules 62-4.070, 62-212.300(1)(e) and 62-210.370, F.A.C., and permit application 0330040-036-AC]

   {As part of the Title V renewal, 0330040-037-AV, boiler 10 will be removed.}

PERFORMANCE RESTRICTIONS

5. Heat Input Limit. For a period of ten years from the effective date of this permit, total heat input for EU 003, 004, 014, 015, 016, 032 and 099 shall not exceed 16,360,362 MMBtu/yr from all fuels in any 12-month rolling period. The natural gas heating value is the previous year's higher heating value. [Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

EMISSIONS STANDARDS

6. PSD Avoidance Limitation for PM/PM10. The total PM/PM10 emissions from EU 003, 004, 014, 015, 016, 032 and 099 combined shall not exceed 240 TPY. For EU099, PM/PM10 emissions will be calculated as follows:

   9PM10 = GAS9 * 7.6/ (1,000,000 * 2000), where

   9PM10 = tons per year of PM10 from Boiler No.9

   GAS9 = standard cubic feet of natural gas fed to Boiler No. 9 in prior 12 months, corrected to 1020 Btu/scf

   PSD Avoidance Limit:

240 TPY ≥ 7PM10 + 8PM10 + 4PM10 + 5PM10 + 6PM10 + 9PM10 + CGPM10, where emission calculations for the other boilers and cogen are defined in their respective permit sections.

[Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

7. PSD Avoidance Limitation for PM2.5. The total PM2.5 emissions from EU 003, 004, 014, 015, 016, 032 and 099 combined shall not exceed 143 TPY. For EU099, PM2.5 emissions will be calculated as follows:

   9PM2.5 = GAS9 * 7.6/ (1,000,000 * 2000), where

   9PM2.5 = tons per year of PM2.5 from Boiler No.9

   GAS9 = standard cubic feet of natural gas fed to Boiler No. 9 in prior 12 months corrected to 1020 Btu/scf

   PSD Avoidance Limit:

   143 TPY ≥ 7PM2.5 + 8PM2.5 + 4PM2.5 + 5PM2.5 + 6PM2.5 + 9PM2.5 + CGPM2.5, where emission calculations for the other boilers and cogen are defined in their respective permit sections.

   [Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

RECORDS AND REPORTS

8. Fuel Records: To demonstrate compliance with the heat input limit, records of monthly total and annual total combustion of natural gas shall be maintained and available for Department inspection. Total heat input, PM/PM10 and PM2.5 emissions for EU 003, 004, 014, 015, 016, 032 and 099 will be calculated monthly on 12-month rolling average basis. Records will be maintained of all analyses and calculations used in determining the heating value of each fuel. [Rules 62-4.070 and 62-213.440(1), F.A.C., and permit application 0330040-036-AC]

9. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for NO_X, CO, PM/PM10, PM2.5, VOC and SO_2. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

M. Cogeneration Plant

This section of the permit addresses the following emissions unit.

ID No.	Emission Unit Description
032	Cogeneration Plant

The cogeneration plant consists of one combustion turbine that exhausts through a heat recovery steam generator with duct burner. The heat recovery steam generator supplies steam to the manufacturing operations and displaces steam generated by the existing boilers. The turbine, fueled by natural gas as defined in 40 CFR 60.331(u), turns a generator capable of producing a nominal 86 megawatts of electricity. Supplemental firing of natural gas at the heat recovery steam generator will supply additional steam, if needed. The combustion turbine employs steam injection to control NO_x emissions. The duct burner is equipped with a low NO_x burner. Operation of the combustion turbine using evaporative direct water spray fogging inlet air cooling is also authorized. The cogeneration plant is subject to 40 CFR 60 subparts Db and GG.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

2. New Equipment: Except for the changes noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. No physical changes to equipment or changes in methods of operation are authorized by this permit. [Application 0330040-036-AC]

PERFORMANCE RESTRICTIONS

4. Heat Input Limit. For a period of ten years from the effective date of this permit, total heat input for EU 003, 004, 014, 015, 016, 032 and 099 shall not exceed 16,360,362 MMBtu/yr from all fuels in any 12-month rolling period. The natural gas heating value is the previous year's higher heating value. [Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

EMISSIONS STANDARDS

5. PSD Avoidance Limitation for PM/PM10. The total PM/PM10 emissions from EU 003, 004, 014, 015, 016, 032 and 099 combined shall not exceed 240 TPY. For EU032, PM/PM10 emissions will be calculated as follows:

   CGPM10 = GASCG * 7.6/ (1,000,000 * 2000), where

   CGPM10 = tons per year of PM10 from Cogen

   GASCG = standard cubic feet of natural gas fed to Cogen in prior 12 months corrected to 1020 Btu/scf

   PSD Avoidance Limit:

   240 TPY $\geq$ 7PM10 + 8PM10 + 4PM10 + 5PM10 + 6PM10 + 9PM10 + CGPM10, where emission calculations for the other boilers are defined in their respective permit sections.

[Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

6. PSD Avoidance Limitation for PM2.5. The total PM2.5 emissions from EU 003, 004, 014, 015, 016, 032 and 099 combined shall not exceed 143 TPY. For EU032, PM2.5 emissions will be calculated as follows:

   CGPM2.5 = GASCG * 7.6/ (1,000,000 * 2000), where

   CGPM2.5 = tons per year of PM2.5 from Cogen

   GASCG = standard cubic feet of natural gas fed to Cogen in prior 12 months corrected to 1020 Btu/scf

   PSD Avoidance Limit:

   143 TPY ≥ 7PM2.5 + 8PM2.5 + 4PM2.5 + 5PM2.5 + 6PM2.5 + 9PM2.5 + CGPM2.5, where emission calculations for the other boilers are defined in their respective permit sections.

   [Rules 62-212.300(1)(e) and 62-212.400(12), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

RECORDS AND REPORTS

7. Fuel Records: To demonstrate compliance with the heat input limit, records of monthly total and annual total combustion of natural gas shall be maintained and available for Department inspection. Total heat input, PM/PM10 and PM2.5 emissions for EU 003, 004, 014, 015, 016, 032 and 099 will be calculated monthly for the prior 12 months. Records will be maintained of all analyses and calculations used in determining the heating value of each fuel. [Rules 62-4.070 and 62-213.440(1), F.A.C., and permit application 0330040-036-AC]

8. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for NO_X, CO, PM/PM10, PM2.5, VOC and SO_2. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

N. Hydrogen Generating Plant #2

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
103	Hydrogen Generating Plant #2
104	Hydrogen Plant #2 Flare

This project will construct a new hydrogen generating plant using steam methane reforming technology. The furnace will be fueled by purge gas using natural gas as a trim fuel. Pressure swing absorbers (PSA's) will be used to purify the hydrogen gas and the purge gas separated from the hydrogen by the PSA's (consisting of CO, methane and hydrogen) will be the primary furnace fuel. A flare with two natural gas pilots, each rated at 50 standard cubic feet of natural gas per hour, will be used to destroy combustibles during periods of startup, shutdown and malfunction. The furnace will be equipped with a waste heat recovery boiler.

Low NOx burners will be used in the furnace. The furnace is subject to 40 CFR 63 subpart DDDDD, however, this regulation has not been adopted by Florida yet. Therefore, requirements under subpart DDDDD are not enforceable by the Department.

EQUIPMENT

1. This project authorizes the installation of a new steam methane reformer and flare, pressure swing absorbers and other ancillary equipment required for generating hydrogen gas. [Application No. 0330040-036-AC]

PERFORMANCE RESTRICTIONS

2. Permitted Capacity: The maximum heat input rate to the furnace is 171.3 MMBtu/hr. [Rule 62-210.200(PTE), F.A.C. and Application No. 0330040-036-AC]
3. Authorized Fuel: Natural gas and PSA purge gas may be combusted in the furnace. [Application No. 0330040-036-AC and Rule 62-210.200(PTE), F.A.C.]
4. Restricted Operation: The hours of operation of are not limited (8760 hours per year). [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

EMISSIONS STANDARDS

5. Visible Emissions: This emissions unit is subject to the general 20% opacity limit. [Rule 62-296.320(4)(b), F.A.C.]

TESTING REQUIREMENTS

6. Initial Compliance Tests: The emissions unit shall be tested to demonstrate initial compliance with the general visible emissions standards. The initial tests shall be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the unit. The minimum observation period shall be 30 minutes. [Rules 62-4.070(3) and 62-297.310(7)(a)1., F.A.C.]
7. Additional Compliance Tests: Once per permit cycle, during the federal fiscal year (October 1 to September 30) preceding operating permit renewal, the emissions unit shall be tested to demonstrate compliance with the general visible emissions standard. [Rule 62-297.310(7)(a)4., F.A.C.]
8. Test Requirements: The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. Notification may be sent via e-mail to nwdair@dep.state.fl.us. Tests shall be conducted

in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rule 62-297.310(7)(a)9., F.A.C.]

9. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rules 62-204.800 and 62-297.401, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rules 62-204.800, 62-297.100 and 62-297.401, F.A.C.; and Appendix A of 40 CFR 60]

RECORDS AND REPORTS

10. Operational Data: The permittee shall maintain records of total heat input rate to the furnace, hourly average heat input rate to the furnace, and quantities of natural gas and PSA purge gas combusted in the furnace and in the flare on a monthly basis. Hourly heat input rate to the furnace shall be averaged monthly over the actual total operating hours for that month. Records of determination of heating value for the natural gas and PSA gas combusted shall also be kept. These records shall be maintained for Department inspection for a period of five years. [Rules 62-210.200(PTE) and 62-4.070(3), F.A.C. and Application 0330040-036-AC]

11. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for NO_X, CO, PM/PM10, PM2.5, VOC and SO_2. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

O. Adipic Acid Bulk Loading, Bagging and Boxing

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
EU050	Bulk Loading #1
EU051	Bulk Loading #2
EU080	Building 373 Loading
EU045	Building 465 Boxing/Bagging

Dried adipic acid is loaded into railcars, boxed, or bagged based on customer demand.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

2. New Equipment: Except for the change noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. This permit authorizes minor increases in throughput of adipic loading operations above the confidential level used to determine baseline emissions at 850 MAR. [Application No. 0330040-036-AC]

PERFORMANCE RESTRICTIONS

4. Methods of Operation. EU 050, Bulk Loading #1 Baghouses shall use Tetratex PTFE Membrane filter bags or equivalent, made of polyester felt or equivalent, to maintain equivalent baghouse efficiency. Bulk Loading shall not be conducted without properly installed, operated and maintained baghouses. Baghouses shall be operated and maintained in accordance with the manufacturer's recommendations. Bulk Loading shall not occur without an appropriate loading spout seal and operational dust return system. [Rules 62-4.160(2), 62-210.200(PTE) and 62-213.440(1), F.A.C. and permit application 0330040-035-AC]

   {Permitting Note: This is based on Ascend's PSD analysis and statement that they saw a 15 TPY reduction in PM after installing the Tetratex PTFE Membrane filter bags.}

RECORDS AND REPORTS

5. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for NO_X, CO, PM/PM10, PM2.5, VOC and SO_2. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

P. Dimethyl Ester Production

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
EU077	Dimethyl Ester Production

Dimethyl Ester is produced from adipic acid production byproducts and methanol. This production unit is regulated under the MON for Group 1 batch vents (from distillation and reaction), for the methanol storage tank (using the alternative method of compliance under 40 CFR 63 subpart WW), for heat exchangers, for wastewater (group 2 only), and for leak detection and repair (LDAR).

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

2. New Equipment: Except for the changes noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

3. Dimethyl Ester Production: This permit authorizes minor increases in throughput above the 830 adipic MAR baseline in the dimethyl ester production area. [Application 0330040-036-AC]

   {Permitting note: Emissions increases in the dimethyl ester area result primarily from increasing the throughput of 486TA19 methanol storage tank regulated by 40 CFR 60 subpart Kb and the MON.}

RECORDS AND REPORTS

4. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements for VOC. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]

Q. New Unregulated Emissions Units

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
EU106	Vaporizer No. 9 Fugitive Emissions
EU107	Cooling Towers

These emissions units are created primarily to capture emissions from these activities for the purposes of post project emissions monitoring for 0330040-036-AC.

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit and supersedes 0330040-035-AC. Except for the changes noted below, the unit remains subject to the conditions of all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]
2. New Equipment: Except for the changes noted below, the new equipment authorized by this permit shall be subject to the same requirements, such as, but not limited to; emissions standards, recordkeeping, compliance testing and fuels limitations previously established for this emissions unit in all other legally binding air construction and operating permits. [Rules 62-4.070(3) and 62-210.300(1), F.A.C.]

EQUIPMENT

5. Therminol Fugitives: The permittee is authorized to install two new primary Therminol condensate return pumps and piping, flanges and valves required to return the therminol condensate to the new Vaporizer No. 9. Fugitive emissions estimates for equipment in Therminol service installed for the purpose of supplying Therminol to the new nylon compounder and the new transition lines for conveying polymer from CP18 and CP21 to the pelletizers will be included with this emissions unit. [Application No. 0330040-036-AC]
6. Cooling Towers: The permittee is authorized to install one new 20,000 gallon recirculation rate cooling tower designed with a drift rate of 0.001% and to increase the circulation rate on existing cooling towers 1, 2, 3, 4, and 6 by a total of 10,000 gallons per minute. [Application No. 0330040-036-AC]

RECORDS AND REPORTS

7. PSD Avoidance - Emissions Reporting. This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (11), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., this emissions unit is subject to the "Actual Emissions Reporting" provisions in Section 2, Administrative Requirements. [Rule 62-212.300(1)(e), F.A.C., Requested by Permittee to avoid PSD Review, and permit application 0330040-036-AC]