

*E-mailed on January 25, 2000.*

**To: Rick Bradburn, Northwest District**

**From : Tom Cascio**

**Subject: Predraft Review of Solutia, Inc. (0330040-002-AV)**

Overall, the *document looks excellent*. A few minor points follow:

1. The permit needs proofreading to correct typos (spellcheck).
2. The footnote on the permit history page should read:

2 - AC permit(s) automatic extension(s) in Rule 62-213.420(1)(a)4., F.A.C., effective 03/20/96.  
{Rule 62-213.420(1)(b)2., F.A.C., allows Title V Sources to operate under valid permits that were in effect at the time of application until the Title V permit becomes effective}

3. You need to fix the page break controls for the tables.
4. For clarity, we include the **specific condition number** when citing permits as a reference (not mandatory).

# Electronic Notification Cover Memorandum

**TO:** Barbara Boutwell, Title V Section, Tallahassee  
**THRU:** Ed Middelwart, Administrator, Northwest District Air Program  
**FROM:** Rick Bradburn, Permit Engineer  
**DATE:** January 13, 2000  
**RE:** DRAFT Title V Permit(s) for Tallahassee Review

The following Title V permit(s) and associated documents are made available for your review/comment prior to issuance.

<u>Applicant Name</u>	<u>County</u>	<u>Method of Transmittal</u>	<u>Electronic File Name(s)</u>
Solutia, Incorporated	Escambia	electronic	darm_common\t5permit\nwd\0330040\predraft\0330040.zip

This zipped file contains the following electronic files:

- 0330040i.doc
- 0330040d.doc
- 03300401.xls
- 03300402.xls
- 0330040h.doc
- 0330040s.doc
- 0330040sob.doc

Special Circumstances "Comments"

Include Specific Conditions # within Certificate Permit

not handwritten

NEED TO FIX PAGES FOR TABLE.

FOOTNOTES FOR HISTORY PAGES

## **STATEMENT OF BASIS**

Solutia, Incorporated  
Pensacola Plant  
**Facility ID No.:** 0330040  
Escambia County

Initial Title V Air Operation Permit  
**DRAFT Permit No.:** 0330040-002-AV

This Title V air operation permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-213. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the permitting authority, in accordance with the terms and conditions of this permit.

Solutia makes nylon and various nylon intermediate chemicals. This facility consists of several raw materials barge, train, and truck offloading, and storage operations; chemical unit process plants which make the chemical feedstocks and intermediates and the nylon resins; a yarn plant to make finished yarn product; and, boilers and a cogeneration unit to provide process steam and plant electricity. The following is a brief description of the emissions units:

Boilers 7 and 8. Boilers 7 and 8 were manufactured by Babcock & Wilcox and were originally rated for 515 MMBtu/hour heat input. The boilers have been modified to incorporate low NOx burners and are fueled by natural gas, ethane, and maleic anhydride production offgas. Each of the modified burners are rated for 388 MMBtu/hour and 225,000 pounds/hour steam production. Emissions are controlled by proper combustion controls. The boilers are regulated under Rule 62-296.405, F.A.C., Fossil Fuel Steam Generators with more than 250 MMBtu heat input; however, the emission limitations have been adjusted as a result of emission offsets associated with the facility's cogeneration plant.

Boilers 4, 5 and 6. Boilers 4, 5 and 6 are manufactured by Combustion Engineering and rated at 241 MMBtu/hour heat input. These boilers are normally fueled by natural gas and ethane 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 Part 279 - Standards for the Management of Used Oil. Boilers 4 and 5 may also burn as supplemental fuels AGS (a mixture of organic acids from deep well waste stream), KATT (a mixture of organic esters), DME (Dimethyl Esters), and amines. However, they are restricted to burning these supplemental fuels in only one boiler at any one time. Particulates emissions are controlled by proper combustion control. SO<sub>2</sub> emissions are controlled by sulfur content of fuel. The boilers are regulated under Rules 62-296.405 (SO<sub>2</sub> aggregate) and 62-296.406 F.A.C., Fossil Fuel Steam Generators with less than 250 MMBtu heat input.

Hydrogen Generating Plant. Hydrogen is used in the production of cyclohexane/cyclohexanol and other nylon intermediates chemicals. A feedstock of natural gas or ethane-rich gas is desulfurized. The gas is then heated in the reformer fueled by natural gas and waste process gas. The combustion flue gases of the reformer are the only source of emissions. Particulate emissions are controlled by proper combustion, and nitrogen oxides are controlled by use of low NOx burners. The maximum allowable operating rate is 180 MMBtu/hour heat input.

Incinerators and Pyrolysis Ovens. The incinerators and pyrolysis ovens are used to clean resin residues from process equipment and varnish from electric motors to allow for rewinding of the motors. They are fueled by natural gas and equipped with afterburners to ensure the proper control of particulate matter and odor. The incinerators and pyrolysis ovens are regulated under Rule 62-296.401(1)(a), F.A.C., Incinerators.

Nylon and Adipic Acid Drying. Nylon and adipic acid is dried using steam as the heat supply. Particulate emissions are controlled by bag filters and/or scrubbers.

Polymer Fines Removal System. In the polymer fines removal system pelletized Nylon 66 is passed through two elutriator chambers countercurrently with air. The fines as particulate emissions are removed through a bag filter manufactured by Mikro Pul.

Adipic Acid Packaging Facility. In this adipic acid packaging facility dry adipic acid is packaged for sale in bags or boxes. Particulate emissions from ventilation system are controlled by a baghouse filter, manufactured by Flex-Kleen, model 84-BV-16 (III-G)

Adipic Acid Bulk Loading. Adipic acid bulk loading facilities, bulk loading No. 1 and No. 2, are located in Buildings 346 and 372, respectively. These facilities are used to load loose adipic acid into trucks or railcars at a rate of 48,000 pounds/hour for Bulk Loading No. 1, and 60,000 pounds/hour for Bulk Loading No. 2. Particulate matter emissions are controlled by baghouse filters. No. 1 system is a Ray Jet Dust Collector, manufactured by Air Preheater Company, model 8M-25. No.2 system has a Flex-Kleen model 100 CTC-38 III.

Adipic Acid Product Movement Systems. Two adipic acid product movement systems that move dry adipic acid from the adipic acid dryers to storage bins. These systems are designated as:

1. Product Separator, rated capacity 10,000 pounds/hour of dry adipic acid. Particulate emissions are controlled by a baghouse filter manufactured by Mikro-Pulsair, model 42-8-100, located in building 465.
2. Alternate Conveyor, rated capacity 12,000 pounds/hour of dry adipic acid. Particulate emissions are controlled by a baghouse filter manufactured by Modukleen, located in building 465.

Abrasive Blast Facility. In this abrasive blast facility, equipment is grit blasted prior to painting. The area is ventilated with particulate emissions controlled by a baghouse filter, manufactured by Clemco, model 5040.

Adipic Acid Transfer System. The transfer system, located in Building 465, pneumatically conveys the dry product produced by the dryer, EU 060, to a storage bin. Particulate emissions are controlled by a bag filter, manufactured by Modu-Kleen, model RPBV 18/6. This system is designed to transfer the dry product with controlled emissions of 3,600 SCF/minute containing a maximum particulate concentration of 0.03 gr/DSCF.

Adipic Acid Loading System. Plant steam supplies the heat to the dryer. Particulate emissions from the new dryer are to be controlled by a baghouse filter manufactured by Fabric Filters Air System, model 240-10 with 98% control efficiency. Particulate emissions from the new loading

system will be controlled by a bag fabric filter, Modu-Cleen dust collector model RPBV 18/6 with 98% control efficiency.

Nylon Vydyne Resin Process. In the nylon vydyne resin manufacturing facility various materials are blended into nylon resin to yield a molding product. Particulates from the mixing operation (process step 1) are controlled by a bag filter manufactured by Mikro Pulsaire, model 815-10-20. Organic emissions from the resin extrusion (process step 2) are controlled by a scrubber manufactured by Vulcan Manufacturing, serial No. 12718. The maximum operating rate is 4000 pounds/hour.

Aluminum silicate, one of the blended materials, is pneumatically conveyed to a storage silo and is then pneumatically conveyed to a mineral weigh hopper. Particulate emissions from these two conveying operations are each controlled by a baghouse filter.

The nylon resin raw material, vydyne resin product and reworked product are pneumatically conveyed, but because of the relative large size of the materials (pellets), these systems are not classified as sources of particulate emissions.

Vaporizers. Operation of eight vaporizers. Total capacity is 136 million Btu/hour-heat input. These emissions units are primarily fueled by natural gas. No. 2 fuel oil with a maximum of 0.5% sulfur by weight is allowed as an emergency fuel. Energy conservation features, which do not effect emissions, have been incorporated into the Vaporizer facility. The exit stack temperature is approximately 311°F. Vaporizer unit exhausts have been consolidated in some cases. The facility is still capable of exhausting through individual stacks, if necessary.

Cyclohexane Oxidation Process. Cyclohexane is oxidized with air in two high-pressure reactor trains. Two high-pressure scrubbers reduce the loss of volatile organic compounds (VOC). Emissions are primarily VOC and carbon monoxide (CO). Further VOC and CO emissions reductions are effected by routing the emissions from the scrubbers to a NOx thermal reduction unit. The reactors are discharged to cyclohexane recovery, product refining, and distillation operations. Emissions from these operations are controlled by two low-pressure scrubbers. The emissions from low-pressure scrubbers are of similar composition but lesser quantity than those from high-pressure scrubbers. Total process emissions of volatile organic compounds are estimated at 926 pounds/hour and emissions of carbon monoxide are estimated at 1,404 pounds/hour.

The Cyclohexane Oxidation Process has a cyclohexanone/cyclohexanaol (KA) Recovery Column which functions as a separator for product KA, water and impurities. The overhead vapors pass through an overhead condenser into a decanter where the aqueous and hydrocarbon streams are separated. The aqueous phase is further processed for recovery. The hydrocarbon stream is routed to product streams for refining. The vapors from condenser and decanter are mixed with other streams to feed one of the low-pressure scrubbers.

The condenser system operates with the sump pump temperature below 50°C. The condenser sump pump temperature is used as the control parameter and will be stored via an existing process data collection system.

This emissions unit is regulated under applicable portions of NSPS - 40 CFR 60 Subparts A and NNN; NESHAPs - 40 CFR 63 Subpart F, adopted and incorporated by reference in Rule 62-204.800, F.A.C.

Adipic Acid Process. In this process cyclohexanone and cyclohexanol is oxidized with nitric acid to produce an Adipic Acid solution. The solution is refined by chilling due to vacuum evaporation, forming Adipic Acid crystals at the bottom of the process vessel. The resulting slurry is centrifuged to remove water and form a wet cake. The wet cake is used to produce Nylon Salt or dried for other uses. Emissions of CO, VOC and NOx are controlled by a John Zink Thermal Reduction Unit (TRU) coupled with a Selective Catalytic Reduction Unit (SCR) to bring NOx emissions down to 150 ppm. The TRU is fueled by burning natural gas, ethane or butane. The system includes a backup NOx compressor (#2) for the existing NOx compressor (#1) that controls NOx emissions down to 150 ppm at the adipic acid NOx collection header. The backup compressor is capable of being brought on-line within a two-hour time period. This system will be used when the primary control system is inoperative for any reason. The TRU is also used to control VOC and CO from the Cyclohexane Oxidation Process offgases.

This emissions unit is regulated under applicable portions of NSPS - 40 CFR 60 Subparts A, VV, NNN and RRR; NESHAPs - 40 CFR 61 Subparts A, and V, adopted and incorporated by reference in Rule 62-204.800, F.A.C.

Cogeneration Plant. The cogeneration plant consists of one combustion turbine that exhausts through a heat recovery steam generator. The heat recovery steam generator supplies steam to the manufacturing operations and replaces steam generated by the existing boilers. The turbine, fueled by natural gas, 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 NOx emissions. Low NOx burners are used on the heat recovery steam generator.

This emissions unit is regulated under applicable portions of NSPS - 40 CFR 60 Subparts A, Db and GG, adopted and incorporated by reference in Rule 62-204.800, F.A.C.

Research and Development. Operation of sources associated with Research and Development (R&D). For the most part these sources are uncontrolled. Each R&D project is evaluated with a Safety Audit conducted by independent groups selected by Monsanto management to ensure compliance with company-wide safety policy. All new chemicals are evaluated for safety, including toxicity, by a chemicals committee.

Butane Barge Unloading. Operation of a butane barge unloading station consisting of two Chiksan marine unloading arms, piping connecting the station to the existing butane storage vessels and existing plant steam system. This system is vented from a 20 foot high stack equipped with a vent silencer. Barge unloading is to transfer liquid butane through a closed piping system.

Cryogenic Ammonia Handling. Operation of cryogenic ammonia system, consisting of receiving and storage of liquid ammonia. Held at -28°F with a flare to control emissions of ammonia in case of emergency. Flare is designed to control emissions of 1000 pounds of ammonia/hour at 98% destruction efficiency. Normal ammonia release is zero.

Dimethyl Ester Production. Operation a Dimethyl Ester (DME) Production Unit. An adipic acid manufacturing by-product stream consisting of adipic, glutaric and succinic acids (AGS) is reacted with methanol to produce dimethylester. Off-gasses are pyrolyzed in the hydrogen plant reformer furnace. Air emissions occur only during unplanned shutdowns of the hydrogen plant #1 reformer furnace or malfunctions of the DME production unit that prevent transfer of off-gasses to the reformer furnace.

The DME production unit storage tanks are subject to applicable requirements of 40 CFR Part 60, Subpart Kb, adopted and incorporated by reference in Rule 62-204.800, F.A.C.

Hexamethylene Diamine Synthesis. Adiponitrile is hydrogenated to yield crude Hexa Methylene Diamine (HMD). The HMD is then refined by vacuum distillation. In the the last purification stage (strippers A, B and C) a vacuum is achieved by staged steam jets. The water soluble HMD is discharged in the condensed steam to the wastewater system. The concentration of HMD in the noncondensable emissions is reduced in each stage.

The stripper distillation columns are subject to applicable requirements of 40 CFR Part 60, Subparts A and NNN, adopted and incorporated by reference in Rule 62-204.800, F.A.C. Column head pressures are used as a surrogate parameter to control HMD emissions.

Maleic Anhydride (MA) Plant. Operation of a maleic anhydride plant with a design capacity of 260 million pounds per year of maleic anhydride. The reaction is carried out in four reactors using butane as a raw material with off gases separated in two product recovery units and combusted in Boilers 7 and 8.

Approximately 6.5 million standard cubic feet per hour of off gas is emitted from each pair of reactors which contains approximately 9,000 pounds/hour CO and 7,000 pounds/hour VOC at design rates. The balance of the off gas stream is H<sub>2</sub>O, CO<sub>2</sub>, N<sub>2</sub> and O<sub>2</sub>. Emissions of CO and VOC are controlled by burning in Boilers 7 and 8. The two off gas headers are cross connected, but normal flow is from reactors 1 and 2 to boiler 7, and from reactors 3 and 4 to Boiler 8.

This emissions unit is regulated under applicable portions of NSPS - 40 CFR 60 Subparts A, Kb, VV, and III; NESHAPs - 40 CFR 63 Subparts A, F, G and H, adopted and incorporated by reference in Rule 62-204.800, F.A.C.

Nylon Polymerization Lines. Nylon salts are mixed, concentrated and polymerized to form a molten polymer by both continuous and batch processes. The molten polymer is solidified to nylon fiber from the continuous lines and flake products from the batch lines. Unconfined emissions of organic compounds occur during this solidification, and are vented away from the working areas and discharged without controls.

Each continuous line has a separate evaporator. A portion of evaporator emissions is used to preheat the nylon salts, and the remaining emissions are normally fed to a distillation column shared by other yarn plant equipment. Pre-reactor steam and emissions are also fed to the distillation column control device. Four batch evaporators cyclically feed the batch lines' twelve autoclaves where the batch polymerization takes place. The autoclave emissions are also normally fed to the distillation column. The organics recovered by the distillation column are used as supplemental fuel in power boilers or routed to the plant process waste disposal system.

The twelve continuous polymerization lines and the vydine resin line normally operate using an Evaporator/Reactor/Finisher process design or an alternative polymerization method, involving an Evaporator/Pre-reactor/Reactor/Finisher process design. Reactor steam is condensed to produce process steam and the condensate is handled as wastewater. The emissions from the Finishing step are controlled by monomer scrubbers.

Nitric Acid Plant. Operation of a nitric acid plant with a maximum capacity of 1500 tons/day. NOx emissions are controlled by process operating conditions and/or use of a Selective Catalytic Reduction (SCR) NOx abatement device. In the synthesis process, ammonia is oxidized in the presence of a catalyst to form NOx which is then converted to HNO<sub>3</sub> by a reaction with water. This emissions unit is regulated under applicable portions of NSPS - 40 CFR 60 Subparts A, and G, adopted and incorporated by reference in Rule 62-204.800, F.A.C.

Based on the initial Title V permit application received June 12, 1996, this facility is a major source of hazardous air pollutants (HAPs).



Solutia, Incorporated  
Pensacola Plant  
**Facility ID No.:** 0330040  
Escambia County

Initial Title V Air Operation Permit  
**DRAFT Permit No.:** 0330040-002-AV

Permitting and Compliance Authority:  
Department of Environmental Protection  
Northwest District  
160 Governmental Center  
Pensacola, FL 32501-5794  
Telephone: 850/595-8364  
Fax: 850/595-8096

Drafted on January 12, 2000

[electronic file name: 0330040d.doc]

Initial Title V Air Operation Permit  
**DRAFT Permit No.: 0330040-002-AV**

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Appendices:

Statement of Basis

Appendix A-1, Abbreviations, Acronyms, Citations, and Identification Numbers

Appendix H-1, Permit History/ID Number Changes

Appendix TV-3, Title V General Conditions (version dated 04/30/99)

Table 1-1, Summary of Air Pollutant Standards and Terms

Table 2-1, Summary of Compliance Requirements

**Permittee:**  
Solutia, Incorporated

**DRAFT Permit No.:** 0330040-002-AV  
**Facility ID No.:** 0330040  
**SIC Nos.:** 28, 2824  
**Project:** Initial Title V Air Operation Permit

This permit is for the operation of the Pensacola Plant located at 3000 Old Chemstrand Road, Gonzalez, Escambia County; UTM Coordinates: Zone 16, 476 km East and 3385 km North; Latitude: 30° 35' 56" North and Longitude: 87° 15' 01" West.

STATEMENT OF BASIS: This Title V air operation permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.) and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-213. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the permitting authority, in accordance with the terms and conditions of this permit.

**Referenced attachments made a part of this permit:**

Appendix TV-3, Title V Conditions (version dated 04/30/99)  
Appendix SS-1, Stack Sampling Facilities (version dated 10/07/96)  
Table 297.310-1, Calibration Schedule (version dated 10/07/96)  
Table A-1, Cogeneration Plant Heat Input

**Effective Date:**  
**Renewal Application Due Date:**  
**Expiration Date:**

**FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION**

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**Ed K. Middleswart, P.E.**  
**Air Program Administrator**

EKM/rb

**Section I. Facility Information.**

**Subsection A. Facility Description.**

Solutia makes nylon and various nylon intermediate chemicals. This facility consists of several raw materials barge, train and truck offloading and storage operations; chemical unit process plants which make the chemical feedstocks and intermediates and the nylon resins; a yarn plant to make finished yarn product; and, boilers and a cogeneration unit to provide process steam and plant electricity.

Based on the initial Title V permit application received June 12, 1996, this facility is a major source of hazardous air pollutants (HAPs) and criteria pollutants.

**Subsection B. Summary of Emissions Unit ID Nos. and Brief Descriptions.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
003	Boiler 8
004	Boiler 7
014	C. E. Boiler No.4
015	C. E. Boiler No.5
016	C. E. Boiler No.6
049	Hydrogen Generating Plant – Reformer Furnace Exhaust Stack
001	Electric Motor Pyrolysis Oven
030	Pyrolysis Cleaning Oven, Area 524, 254A
031	Pyrolysis Cleaning Oven, Area 524, 254B
053	Two Pyrolysis ovens, Spinning Equipment --529 Area
054	Incinerator, Chemical Process Equipment
059	Vydyne Pyrolysis Oven
067	Nylon Polymerization Equipment Incinerator
012	Pyrolysis Cleaning Furnace, Area 59 - spin packs
069	Pyrolysis Cleaning Furnace, Area 59 - spin packs
044	Nylon Drying Facility
060	Adipic Acid Dryer, Building 485
061	Adipic Acid Dryer 405-A
062	Adipic Acid Dryer 405-B
063	Adipic Acid Dryer 465-A
064	Adipic Acid Dryer 465-B
079	Adipic Acid Dryer, Building 485
028	Polymer Fines Removal System
045	Adipic Acid Packaging Facility
050	Adipic Acid Bulk Loading No. 1, Building 346
051	Adipic Acid Bulk Loading No. 2, Building 372
065	Product Separator, Building 465
066	Alternate Conveyor, Building 465
073	Abrasive Blast Facility



052	Adipic Acid Transfer System, Building 465
080	Adipic Acid Loading System, Building 465
047	Nylon Vydye Resin Process, Mixing operation (process step 1)
070	Nylon Vydye Resin Process, Resin extrusion (process step 2)
071	Nylon Vydye Resin Process, Aluminum silicate storage silo
072	Nylon Vydye Resin Process, Mineral weigh hopper.
005	Vaporizer No.1
007	Vaporizer No.2
008	Vaporizer No.3
009	Vaporizer No.4
010	Vaporizer No.5
011	Vaporizer No.6
013	Vaporizer No.7
075	Vaporizer No.8
020	Cyclohexane Oxidation Process
002	Adipic Acid Process, TRU/SCR, NOx Compressor
032	Cogeneration Plant
038	Research and Development
055	Butane Barge Unloading
068	Cryogenic Ammonia Handling
077	Dimethyl Ester Production
040	Hexamethylene Diamine Synthesis
041	B and C Hexamethylene Diamine Stripper Distillation Column
076	Maleic Anhydride (MA) Plant
081	Continuous Nylon Polymerization Lines
082	Batch Nylon Polymerization
042	Nitric Acid Plant E

*Please reference the Permit No., Facility ID No., and appropriate Emissions Units ID Nos. on all correspondence, test report submittals, applications, etc.*

**Subsection C. Relevant Documents.**

The documents listed below are not a part of this permit; however, they are specifically related to this permitting action.

These documents are provided to the permittee for information purposes only:

Statement of Basis

Table 1-1, Summary of Air Pollutant Standards and Terms

Table 2-1, Summary of Compliance Requirements

Appendix A-1, Abbreviations, Acronyms, Citations, and Identification Numbers

Appendix H-1, Permit History/ID Number Changes

This document is on file with permitting authority:

Initial Title V Permit Application received June 12, 1996, including Company Confidential Section

**Section II. Facility-wide Conditions.**

**The following conditions apply facility-wide:**

1. APPENDIX TV-3, TITLE V CONDITIONS, is a part of this permit.

{Permitting note: APPENDIX TV-3, TITLE V CONDITIONS, is distributed to the permittee only. Other persons requesting copies of these conditions shall be provided one copy when requested or otherwise appropriate.}

2. General Pollutant Emission Limiting Standards. Objectionable Odor Prohibited. The permittee shall not cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

[Rule 62-296.320(2), F.A.C. and permits AC17-262484, AC17-247476, AC17-262486, AC17-127871, AC17-229192]

3. General Particulate Emission Limiting Standards. General Visible Emissions Standard.

Except for emissions units that are subject to a particulate matter or opacity limit set forth or established by rule and reflected by conditions in this permit, no person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20 percent opacity). EPA Method 9 is the method of compliance pursuant to Chapter 62-297, F.A.C.

[Rules 62-296.320(4)(b)1. & 4., F.A.C.]

4. Prevention of Accidental Releases (Section 112(r) of CAA).

a. As required by rule, inspection, or change in process the owner or operator shall submit an updated Risk Management Plan (RMP) to the Chemical Emergency Preparedness and Prevention Office (CEPPO) RMP Reporting Center.

b. The owner or operator shall report to the Department of Community Affairs (DCA) within one working day of discovery of an accidental release of a regulated substance from the stationary source, if the owner or operator is required to report the release to the USEPA/Chemical Safety Hazard Investigation Board or the National Response Center under Section 112(r)(6).

c. The owner or operator shall submit the required annual registration fee to the DCA on or before June 21, 1999 and on April 1 annually thereafter, in accordance with Part IV, Chapter 252, F.S. and Rule 9G-21, F.A.C.

5. Not federally enforceable. General Pollutant Emission Limiting Standards. Volatile Organic Compounds (VOC) Emissions or Organic Solvents (OS) Emissions. The permittee shall allow no person to store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds (VOC) or organic solvents (OS) without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department.

[Rule 62-296.320(1)(a), F.A.C.]

**6. Not federally enforceable.** Reasonable precautions to prevent emissions of unconfined particulate matter at this facility includes the application of good housekeeping practices.  
[Rule 62-296.320(4)(c)2., F.A.C.]

7. When appropriate, any recording, monitoring, or reporting requirements that are time-specific shall be in accordance with the effective date of the permit, which defines day one.  
[Rule 62-213.440, F.A.C.]

8. The permittee shall submit all compliance related notifications and reports required of this permit to the Department's Northwest District office:

Department of Environmental Protection  
Northwest District Office  
160 Governmental Center  
Pensacola, Florida 32501-5794  
Telephone: 850/595-8364; Fax: 850/595-8096

9. Any reports, data, notifications, certifications, and requests required to be sent to the United States Environmental Protection Agency, Region 4, should be sent to:

United States Environmental Protection Agency  
Region 4  
Air, Pesticides & Toxics Management Division  
Air and EPCRA Enforcement Branch, Air Enforcement Section  
61 Forsyth Street  
Atlanta, Georgia 30303  
Telephone: 404/562-9055, Fax: 404/562-9164



**Section III. Emissions Units and Conditions.**

**Subsection A. This section addresses the following emissions units.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
003	Boiler 8
004	Boiler 7

Boilers 7 and 8 were manufactured by Babcock & Wilcox and were originally rated for 515 MMBtu/hour heat input. The boilers have been modified to incorporate low NO<sub>x</sub> burners and are fueled by natural gas, ethane, and Maleic Anhydride Production offgas. Each of the modified burners are rated for 388 MMBtu/hour and 225,000 pounds/hour steam production. Emissions are controlled by proper combustion controls. SO<sub>2</sub> emissions are controlled by sulfur content of fuel.

These emissions units are regulated under Rule 62-296.405 F.A.C., Fossil Fuel Steam Generators with more than 250 MMBtu heat input; however, the emission limitations have been adjusted as a result of emission offsets associated with the facility's cogeneration plant.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**A.1. Capacity.** The maximum operational heat input of each boiler is 388 MMBtu per hour. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**A.2. Methods of Operation - Fuels.** These boilers may be fueled by natural gas, ethane or Maleic Anhydride Production offgas. The maximum natural gas usage shall be limited to 1,100 million standard cubic feet per year for each boiler. Records of monthly and annual gas usage shall be maintained and available for Department inspection. [Rules 62-4.160(2) and 62-213.440(1), F.A.C.]

**A.3. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**A.4. Visible Emissions.** Visible emissions shall not exceed 20% opacity except for up to one six-minute period per hour of up to 27%. [Rule 62-296.405(1)(a), F.A.C.]

**A.5. Particulate Matter.** Particulate matter emissions from each unit shall not exceed 0.1 pounds per MMBtu.

[Rule 62-296.405(1)(b), F.A.C.]

**A.6. Carbon monoxide.** Carbon monoxide emissions from each unit shall not exceed 54.8 pounds per hour.

[AO17-242265 and cogeneration project offset]

**A.7. Nitrogen oxides.** Nitrogen oxides emissions from each unit shall not exceed 22.5 pounds per hour.

[AO17-242265 and cogeneration project offset]

**A.8. Volatile organic compounds.** Volatile organic compounds matter emissions from each unit shall not exceed 7.04 pounds per hour.

[AO17-242265 and cogeneration project offset]

**A.9. Sulfur Dioxide.** The aggregate maximum total sulfur dioxide emissions from boilers No. 4 through No. 8 shall be less than 57.5 tons in any 24 hour period. Monthly records of sulfur dioxide emissions, based on fuel usage and sulfur content, shall be maintained and made available for inspection by the Department.

[Rule 62-296.405(1)(c)1.f., F.A.C.]

#### **Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**A.10. Emissions Tests.** See common condition number **Z.1.**

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**A.11. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.

[Rule 62-297.401, F.A.C.]

**A.12. Particulate Matter.** The test method for particulate matter shall be EPA test method 5, incorporated and adopted by reference in Chapter 62-297, F.A.C.

[Rule 62-297.401, F.A.C.]

**A.13. Carbon Monoxide.** The test method for carbon monoxide shall be EPA test method 10, incorporated and adopted by reference in Chapter 62-297, F.A.C.

[Rule 62-297.401, F.A.C.]

**A.14. Nitrogen Oxides.** The test method for nitrogen oxides shall be EPA test method 7E, incorporated and adopted by reference in Chapter 62-297, F.A.C.

[Rule 62-297.401, F.A.C.]

**A.15. Volatile Organic Compounds.** The test method for volatile organic compounds shall be EPA test method 25A, incorporated and adopted by reference in Chapter 62-297, F.A.C. Testing is required only upon permit renewal.  
[Rule 62-297.401, F.A.C.]

**A.16. Continuous Emissions Monitoring.** Permittee shall operate and maintain a carbon monoxide (CO) continuous emission monitor (CEM) on the exhaust stack for measurement of CO concentration. The CEM shall be properly operated and maintained to ensure accurate and reliable monitoring, recording, and reporting data. Permittee shall implement and maintain a quality control program which, at a minimum, follows the quality assurance procedures set forth in 40 CFR Appendix F, Quality Assurance Procedures, and Appendix B, Performance Specifications. Such data may be used directly or indirectly for compliance determination or any other purpose deemed appropriate by the Department.  
[Rules 62-4.070 and 62-297.550, F.A.C. and AC17-250268 (maleic anhydride plant)]

**A.17. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection B. This section addresses the following emissions units.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
014	C. E. Boiler No.4
015	C. E. Boiler No.5
016	C. E. Boiler No.6

Boilers 4, 5 and 6 are manufactured by Combustion Engineering and rated at 241 MMBtu per hour heat input. These boilers are normally fueled by natural gas and ethane 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 Part 279 - Standards for the Management of Used Oil. Boilers 4 and 5 may also burn as supplemental fuels AGS (a mixture of organic acids from deep well waste stream), KATT (a mixture of organic esters), DME (Dimethyl Esters), and amines. However, they are restricted to only burning these supplemental fuels in only one or the other boiler at any one time. Particulates emissions are controlled by proper combustion control. SO<sub>2</sub> emissions are controlled by sulfur content of fuel.

These emissions units are regulated under Rules 62-296.405 (SO<sub>2</sub> aggregate) and 62-296.406 F.A.C., Fossil Fuel Steam Generators with less than 250 MMBtu heat input.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**B.1. Capacity.** The maximum operational heat input of each boiler is 241 MMBtu per hour. Boilers 4, 5 and 6 may operate at a combined maximum operating rate of 864 MMBtu per hour during periods of outage of the cogeneration unit. Records of operating rates for the boilers shall be kept during such periods on an hourly basis. Such records shall be maintained and made available for Department inspection.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**B.2. Methods of Operation - Fuels.** These boilers may be fueled by natural gas or ethane. No. 6 fuel oil, blended with on-specification used oil, may be used as an alternate fuel provided the Department is notified in writing within seven days of the fuel change over. If fuel oil use exceeds six hours per day on each of four or more days within a 30 day period, a visible emission compliance test shall be conducted within 14 days using the maximum quantity of fuel oil. Testing is not required if a passing test has been successfully conducted within the last 12 months.

**Used Oil.** Burning of on-specification used oil is allowed in this emissions unit in accordance with all other conditions of this permit and the following conditions:

**On-specification Used Oil Emissions Limitations:** This emissions unit is permitted to burn on-specification used oil. On-specification used oil is defined as used oil that meets the specifications of 40 CFR 279 - Standards for the Management of Used Oil, listed below. The owner shall maintain records to demonstrate that each shipment of used oil meets the

specifications of 40 CFR 279. "Off-specification" used oil shall not be burned. Used oil which fails to comply with any of these specification levels is considered "off-specification" used oil.

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

**Supplemental Fuels.** The following supplemental fuels may be burned in boilers number 4 and 5 in conjunction with burning of gas or fuel oil:

1. AGS, a mixture of organic acids extracted from the deep well waste stream, up to 8,000 pounds per hour, and/or
2. KATT, a mixture of organic esters, and/or DME, up to 8,000 lbs/hr.
3. Organic amines derived from nylon intermediates and polymerization process control up to 2,000 pounds per hour.
4. These fuels may only be burned in only one boiler, number 4 or number 5, at a time. Records shall be maintained of the supplemental fuel quantities burned. A request may be made by the Department to periodically sample and analyze supplemental fuels. The supplemental fuels shall be sampled and results submitted with the application for renewal of this permit.

[Rules 62-4.070, 62-4.160(2) and 62-213.440(1), F.A.C. and 40 CFR 279.11]

### **Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**B.3.** Visible emissions shall not exceed 20% opacity except for up to two minutes in any one hour at not more than 40% opacity.

[Rule 62-296.406(1), F.A.C.]

**B.4.** Sulfur Dioxide. The aggregate maximum total sulfur dioxide emissions from boilers No. 4 through No. 8 shall be less than 57.5 tons in any 24 hour period. Monthly records of sulfur dioxide emissions, based on fuel usage and sulfur content, shall be maintained and made available for inspection by the Department.

[Rule 62-296.405(1)(c)1.f., F.A.C.]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**B.5. Emissions Tests.** See common condition number **Z.1.**

**B.6. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.  
[Rule 62-297.401, F.A.C.]

**B.7. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection C. This section addresses the following emissions units.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
049	Hydrogen Generating Plant – Reformer Furnace Exhaust Stack

Hydrogen is used in the production of cyclohexane/cyclohexanol and other nylon intermediates chemicals. A feedstock of natural gas or ethane-rich gas is desulfurized. The gas is then heated in the reformer fueled by natural gas and waste process gas. The combustion flue gases of the reformer are the only source of emissions. Particulate emissions are controlled by proper combustion and nitrogen oxides are controlled by use of low NOx burners. The maximum allowable operating rate is 180 MMBtu/hr heat input.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**C.1. Capacity.** The maximum allowable operating rate is 180 MMBtu per hour heat input. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C. and AC17-271831]

**C.2. Methods of Operation - Fuels.** This emissions unit shall be fueled by natural gas and/or process waste gas. [Rules 62-4.160(2) and 62-213.440(1), F.A.C.]

**C.3. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emission Limitations and Standards**

{Permitting notes: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**C.4. Visible Emissions.** Visible emissions shall be less than 20% opacity. [Rule 62-296.320(4)(b), F.A.C.]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**C.5. Emissions Tests.** See common condition number **Z.1.**

**C.6. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C. [Rule 62-297.401, F.A.C.]

**C.7. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection D. This section addresses the following emissions units.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
001	Electric Motor Pyrolysis Oven
030	Pyrolysis Cleaning Oven 254A, Area 524
031	Pyrolysis Cleaning Oven 254B, Area 524
053	Two Pyrolysis ovens, Spinning Equipment -Area 529
054	Incinerator, Chemical Process Equipment
059	Vydyne Pyrolysis Oven
067	Nylon Polymerization Equipment Incinerator
012	Two Pyrolysis Cleaning Furnaces, Area 59 - spin packs
069	Two Pyrolysis Cleaning Furnaces, Area 59 - spin packs

These incinerators and pyrolysis ovens are used to clean resin residues from process equipment and varnish from electric motors to allow for rewinding of the motors. They are fueled by natural gas and equipped with afterburners to ensure the proper control of particulate matter and odor.

These incinerators and pyrolysis ovens are regulated under Rule 62-296.401(1)(a), F.A.C., Incinerators.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**D.1. E.U. 001, Electric Motor Pyrolysis Oven**

The oven is a Model IGG88 Controlled Pyrolysis Furnace. It is used to burn the varnish off motor windings so the motors can be reconditioned.

**D.1.a. Capacity.** The maximum amount of varnish pyrolyzed shall not exceed 15 lbs/hr. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C., AC17-184414]

**D.1.b. Methods of Operation.** Afterburner temperature shall be a minimum of 1400°F when the unit is in operation. Only varnish coated electric motor windings are to be pyrolyzed in this furnace. [Rules 62-4.160(2) and 62-213.440(1), F.A.C., AC17-184414]

**D.2. E. U. 030 Pyrolysis Cleaning Oven 254A, Area 524**

**E. U. 031 Pyrolysis Cleaning Oven 254B, Area 524**

The two pyrolysis cleaning ovens (254A and B) are located at Area 524 of Building 500. Both are manufactured by Pollution Control Products Company, model IGG88. These ovens are used to clean nylon from process equipment.

**D.2.a. Capacity.** The maximum allowable operating rate is 100 pounds of nylon per charge on each oven. The annual amount of nylon pyrolyzed shall not exceed 10,000 pounds. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C., AC17-207576]



**D.2.b. Methods of Operation.** Afterburner temperature shall be a minimum of 1400°F when the unit is in operation.

[Rules 62-4.160(2) and 62-213.440(1), F.A.C., AC17-207576]

**D.3. E. U. 053 Two Pyrolysis ovens, Spinning Equipment - Area 529**

The two pyrolysis ovens are used to clean spinning parts. Each oven is independently batch loaded with spinning parts which require cleaning by burning off adhering nylon polymer. Emissions are controlled by a single afterburner manufactured by McGill, Inc.

**D.3.a. Capacity.** The maximum allowable operating rate is 100 pounds of nylon per oven per batch.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**D.3.b. Methods of Operation.** Afterburner temperature shall be a minimum of 1400°F when the unit is in operation. Only nylon polymer is to be pyrolyzed in this furnace.

[Rules 62-4.160(2) and 62-213.440(1), F.A.C.]

**D.4. E. U. 054 Incinerator, Chemical Process Equipment**

This incinerator is a Pollution Control Products Company Model No. IGG-1800 and is used to clean chemical process equipment.

**D.4.a. Capacity.** The maximum allowable operating rate is 1,000 pounds of organic material per batch.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**D.4.b. Methods of Operation.** Afterburner temperature shall be a minimum of 1500°F when the unit is in operation.

[Rules 62-4.160(2) and 62-213.440(1), F.A.C.]

**D.5. E. U. 059 Vydyne Pyrolysis Oven**

This is a controlled pyrolysis cleaning furnace (Vydyne Pyrolysis) manufactured by Pollution Control Products Company, model SCTR 15. This furnace is designed to clean extrusion molding screws up to 15 feet long.

**D.5.a. Capacity.** The maximum allowable operating rate is 15 pounds of pyrolyzed nylons/resins per hour or 100 pounds of nylon per batch. The amount of nylon resin pyrolyzed shall not exceed 10,000 pounds per year.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C., AC17-136188]

**D.5.b. Methods of Operation.** Afterburner temperature shall be a minimum of 1400°F when the unit is in operation. Only nylon resin is to be pyrolyzed in this furnace.

[Rules 62-4.160(2) and 62-213.440(1), F.A.C., AC17-136188]

**D.6. E. U. 067 Nylon Polymerization Equipment Incinerator**

This incinerator was manufactured by Pollution Control Products Company, model IGG-391 and is used for cleaning nylon polymerization equipment.

**D.6.a. Capacity.** The maximum operating rate is 30 pounds of nylon polymer per hour. The amount of nylon pyrolyzed shall not exceed 20,000 pounds per year.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C., AC17-104180]

**D.6.b. Methods of Operation.** Afterburner temperature shall be a minimum of 1400°F when the unit is in operation. Only nylon is to be pyrolyzed in this incinerator.

[Rules 62-4.160(2) and 62-213.440(1), F.A.C., AC17-104180]

**D.7. E. U. 012 Pyrolysis Cleaning Furnace, Area 59 - spin packs**

E. U. 069 Pyrolysis Cleaning Furnace, Area 59 - spin packs

These units are manufactured by Pollution Control Products Company, Model IGG88. They are used to clean nylon residue from spinning packs.

**D.7.a. Capacity.** The maximum allowable operating rate of each unit is 15 lbs/nylon residue per hour or 100 pounds/batch. The amount of nylon residue pyrolyzed from each unit shall not exceed 10,000 pounds per year.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C., AC17-142980]

**D.7.b. Methods of Operation.** Afterburner temperature shall be a minimum of 1400°F when the unit is in operation.

[Rules 62-4.160(2) and 62-213.440(1), F.A.C., AC17-142980]

## **D.8. Common Conditions**

### **Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**D.8.a. Visible Emissions.** No visible emission (5 percent opacity) except that visible emissions not exceeding 20 percent opacity are allowed for up to three minutes in any one hour period.

[Rule 62-296.401(1)(a), F.A.C.]

**D.8.b. Objectionable Odor Prohibited.** The permittee shall not cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

[Rule 62-296.401(1)(b), F.A.C.]

**D.8.c. Hours of Operation.** These emissions units are allowed to operate continuously, i.e., 8,760 hours/year.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**D.8.d. Determination of Process Variables.** See common condition number **Z.2.**

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**D.8.e Emissions Tests.** See common condition number **Z.1**.

5/1/00

**D.8.f. Visible Emissions.** The test method for visible emissions shall be DEP Method 9, incorporated in Chapter 62-297, F.A.C.  
[Rules 62-296.401(1)(c), and 62-297.401, F.A.C.]

**Recordkeeping**

**D.8.g. Recordkeeping.** Records of primary and secondary temperatures with batch time shall be maintained and available for inspection by the Department.  
[Rule 62-4.070, F.A.C. ]

**Subsection E. This section addresses the following emissions units.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
044	Nylon Drying Facility
060	Adipic Acid Dryer, Building 485
061	Adipic Acid Dryer 405-A
062	Adipic Acid Dryer 405-B
063	Adipic Acid Dryer 465-A
064	Adipic Acid Dryer 465-B
079	Adipic Acid Dryer, Building 485

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**E.1. E.U. 044, Nylon Drying Facility**

In the nylon drying facility nylon pellets are batch dried in three parallel tumble dryers by a flow of dry nitrogen gas. The tumble creates particulates that are carried out by the nitrogen gas. Emission of these particulates are controlled by a scrubber followed by a bag filter, manufactured by Flex-Kleen, model 58-CT-8. The process rate of the three dryers totals 10,000 pounds per hour.

**E.1.a. Capacity.** The maximum allowable operating rate is a total of 10,000 pounds of nylon pellets per hour for all three dryers combined.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**E.2. E.U. 060, Adipic Acid Dryer, Building 485**

The dryer is rated to produce dry product with controlled emissions of 10,200 standard cubic feet per minute containing a maximum particulate concentration of 0.015 grains per dry standard cubic foot. Particulate emissions are controlled by an Impinjet model 250 two-stage scrubber manufactured by Sly Manufacturing Company.

**E.2.a. Capacity.** The maximum allowable operating rate shall be as quoted in the "Company Confidential" section of Solutia's Title V permit application received June 12, 1996. This document is incorporated by reference.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C. and permit A017-218450]

**E.2.b. Methods of Operation:** Scrubber water flow rate shall be maintained at a minimum of 5,500 lb/hr. Flow rates shall be recorded a minimum of once per operator shift. Records of the scrubber water flow rate shall be kept and be available for Department inspection.  
[Rules 62-4.160(2) and 62-213.440(1), F.A.C. and permit A017-218450]

**E.3.** E.U. 061, Adipic Acid Dryer 405-A  
E.U. 062, Adipic Acid Dryer 405-B  
E.U. 063, Adipic Acid Dryer 465-A  
E.U. 064, Adipic Acid Dryer 465-B

The adipic acid refining-crystallization area contains four adipic acid dryers, each rated to produce 10,000 pounds per hour of dry product. Steam is the heat supply to these dryers (no fuel). Particulate emissions are controlled by an Impinjet scrubber, manufactured by Sly Manufacturing Co., model 250 on each dryer. Nitrogen oxides from the refining-crystallization area are collected for recycling to the adipic acid synthesis feed.

**E.3.a. Capacity.** The maximum allowable operating rate is 10,000 pounds of dry adipic acid per dryer per hour.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C., A017-173960]

**E.4.** E.U. 079, Adipic Acid Dryer, Building 485

Plant steam supplies the heat to the dryer. Particulate emissions from the new dryer are to be controlled by a baghouse filter manufactured by Fabric Filters Air System, model 240-10 (or equivalent) with 98% control efficiency. Particulate emissions from the new loading system will be controlled by a bag fabric filter, Modu-Cleen dust collector model RPBV 18/6 (or equivalent) with 98% control efficiency.

**E.4.a. Capacity.** The maximum allowable operating rate, in pounds of Adipic Acid per hour, shall be as quoted in the "Company Confidential" section of Solutia's Title V permit application received June 12, 1996. This document is incorporated by reference.

[Rules 624.070, 62-4.160(2) and 62-210.200(PTE), F.A.C. and permit AC17-262484]

**E.4.b. Reasonable Assurances** The following work practices shall be followed to insure reasonable control of particulate matter:

(1) Dust collectors or bag filters, associated with solids handling, are to be in service prior to commencement of activities such as loading, unloading, storing, handling or other industrially related activities.

(2) Operation logs shall include documentation that particulate matter control devices (hoods, fans, filters or similar equipment) are activated prior to initiation of solid material handling activities. This documentation will be maintained and made available for Department inspections.

(3) Visible emissions testing shall be conducted on an annual basis to provide reasonable assurance of system effectiveness. To perform the visible emissions testing, it will be necessary to have material handling ongoing at reasonable or typical activity levels. No operating rate limits will apply to this testing, however Solutia commits to ensure that operating rates are representative of normal operating conditions. A log of operating rates shall be maintained on a daily basis. The operating rates during testing shall be noted on the test report. These operating rate logs and visible emissions tests will also be maintained and will be made available for Department inspection.

[Rule 62-4.070, F.A.C., and permit AC17-262484]

**Particulate Matter Limitations.**

**E.5. E.U. 044, Nylon Drying Facility**

**E.5.a.** The maximum allowable emission rate for the nylon drying facility is 9.74 pounds per hour for all three dryers combined.

[Rules 62-4.070 and 62-296.320(4)(a), F.A.C.]

**E.6. E.U. 060, Adipic Acid Dryer, Building 485.**

**E.6.a.** Particulate emissions shall not exceed 0.015 grains per dry standard cubic foot. This is equivalent to 1.31 pounds per hour, 5.74 tons per year.

[Rule 62-4.070, F.A.C. and permit A017-218450]

**E.6.b.** Scrubber water recirculation pressure and scrubber make-up water flow values during the test shall be submitted as part of the test results on the adipic acid dryer.

[Rule 62-4.070, F.A.C. and permit A017-218450]

**E.7. E.U. 061, Adipic Acid Dryer 405-A**

E.U. 062, Adipic Acid Dryer 405-B

E.U. 063, Adipic Acid Dryer 465-A

E.U. 064, Adipic Acid Dryer 465-B

**E.7.a.** Particulate emissions shall not exceed 9.5 pounds per hour per dryer. At lesser operating rates the particulate emissions shall not exceed:  $E = 3.59P^{0.62}$  where E = emissions in pounds per hour and P = process weight rate in tons per hour.

[Rule 62-296.320(4)(a)2., F.A.C.]

**E.8. E.U. 079, Adipic Acid Dryer, Building 485**

**E.8.a.** Particulate emissions from the dryer bag filter shall not exceed 1.35 pounds per hour.

[Rule 62-4.070, F.A.C. and permit AC17-262484]

**E.9. Common Conditions.**

**Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**E.9.a. Visible Emissions.** The emissions units listed above shall not exceed 5 percent opacity.

[Rule 62-297.620(4), F.A.C.]

**E.9.b. Hours of Operation.** The emissions units listed above are allowed to operate continuously, i.e., 8,760 hours/year.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**E.9.c. Emissions Tests.** See common condition number **Z.1.**

**E.9.d. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.  
[Rule 62-297.401, F.A.C.]

**E.9.e. Particulate Matter.** The test method for particulate matter shall be EPA test method 5, incorporated and adopted by reference in Chapter 62-297, F.A.C. Testing is required only upon permit renewal.  
[Rule 62-297.401, F.A.C.]

**E.9.f.** Compliance with the mass emission standard may be assumed, and a waiver of the PM testing requirements may be granted, if visible emissions are not greater than 5 percent opacity. If the results of the visible emissions tests show greater than 5 percent opacity, the permittee shall conduct a particulates test within 30 days to show compliance with the mass emission standard of the Department.  
[Rule 62-297.620(4), F.A.C.]

**E.9.g. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection F. This section addresses the following emissions unit.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
028	Polymer Fines Removal System

In the polymer fines removal system pelletized Nylon 66 is passed through two elutriator chambers countercurrently with air. The fines as particulate emissions are removed through a bag filter manufactured by Mikro Pul.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**F.1. Capacity.** The maximum allowable operating rate shall be as quoted in the "Company Confidential" section of Solutia's Title V permit application received June 12, 1996. This document is incorporated by reference.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**F.2. Methods of Operation.** The two elutriators may be operated at the same time.  
[Rules 62-4.160(2) and 62-213.440(1), F.A.C.]

**F.3. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**F.4. Visible Emissions.** Visible emissions shall be less than 5% opacity.  
[Rule 62-297.620(4), F.A.C.]

**F.5. Particulate Matter.** The particulate matter emissions from this facility shall not exceed 0.03 grains/dscf and 0.91 pounds/hour.  
[Rule 62-4.070, F.A.C., permittee requested limits, AO17-183194]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**F.6. Emissions Tests.** See common condition number **Z.1.**



**F.7. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.  
[Rule 62-297.401, F.A.C.]

**F.8. Particulate Matter.** The test method for particulate matter shall be EPA test method 5, incorporated and adopted by reference in Chapter 62-297, F.A.C. Testing is required only upon permit renewal.  
[Rule 62-297.401, F.A.C.]

**F.9.** Compliance with the mass emission standard may be assumed, and a waiver of the PM testing requirements may be granted, if visible emissions are not greater than 5 percent opacity. If the results of the visible emissions tests show greater than 5 percent opacity, the permittee shall conduct a particulates test within 30 days to show compliance with the mass emission standard of the Department.  
[Rule 62-297.620(4), F.A.C.]

**F.10. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection G. This section addresses the following emissions unit.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
045	Adipic Acid Packaging Facility

In this adipic acid packaging facility dry adipic acid is packaged for sale in bags or boxes. Particulate emissions from ventilation system are controlled by a baghouse filter, manufactured by Flex-Kleen, model 84-BV-16 (III-G)

{Permitting note(s): pursuant to A017-183216, permittee made commitment in letter of January 13, 1998 to additional restrictions.}

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**G.1. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**G.2. Visible emissions shall be less than 20% opacity under normal operating conditions.**  
[Rule 62-296.320(4)(b), F.A.C. and permit A017-183216]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**G.3. Emissions Tests.** See common condition number **Z.1.**

T-16<sup>o</sup>

**G.4. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.  
[Rule 62-297.401, F.A.C.]

**G.5. Reasonable Assurances**

(a) The dust collectors or bag filters, associated with solids handling, are to be in service prior to commencement of activities such as loading, unloading, storing, handling or other industrially related activities.

(b) Operating area log sheets shall contain documentation that the unconfined particulate matter control device (hoods, fans, filters or similar equipment) is activated prior to initiation of solid material handling activities. This documentation will be maintained and made available for Department inspection.

(c) Visible emissions testing is proposed to be conducted on an annual basis to provide reasonable assurance of system effectiveness. To perform the visible emissions testing, it will be necessary to have material handling ongoing at reasonable or typical activity levels. No operating rate limits will apply to this testing, however Solutia commits to ensure that operating rates are representative of normal operating conditions. A log of operating rates shall be maintained on a daily basis. The operating rates during testing shall be noted on the test report. These operating rate logs and visible emissions tests will also be maintained and made available for Department inspection.

[Rule 62-4.070, F.A.C., A017-183216, commitment in letter of January 13, 1998]

**G.6. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection H. This section addresses the following emissions units.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
050	Adipic Acid Bulk Loading No. 1, Building 346
051	Adipic Acid Bulk Loading No. 2, Building 372

Adipic acid bulk loading facilities, bulk loading No. 1 and No. 2, are located in Buildings 346 and 372, respectively. These facilities are used to load loose adipic acid into trucks or railcars at a rate of 48,000 lbs/hr for Bulk Loading No. 1, and 60,000 lbs/hr for Bulk Loading No. 2. Particulate matter emissions are controlled by baghouse filters. No. 1 system is a Ray Jet Dust Collector, manufactured by Air Preheater Company, model 8M-25. No.2 system has a Flex-Kleen model 100 CTC-38 III.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**H.1. Visible emissions shall be less than 20% opacity under normal operating conditions.**  
[Rule 62-296.320(4)(b), F.A.C., A017-183217]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**H.2. Emissions Tests.** See common condition number **Z.1.**

**H.3. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.  
[Rule 62-297.401, F.A.C.]

**H.4. Reasonable Assurances**

- (a) The dust collectors or bag filters, associated with solids handling, are to be in service prior to commencement of activities such as loading, unloading, storing, handling or other industrially related activities.
- (b) Operating area log sheets shall document that the unconfined particulate matter control device (hoods, fans, filters or similar equipment) is activated prior to initiation of solid material handling activities. This documentation will be maintained and made available for Department inspection.

(c) Visible emissions testing is proposed to be conducted on an annual basis to provide reasonable assurance of system effectiveness. To perform the visible emissions testing, it will be necessary to have material handling ongoing at reasonable or typical activity levels. No operating rate limits will apply to this testing, however Solutia commits to ensure operating rates are representative of normal operating conditions. A log of operating rates shall be maintained on a daily basis. The operating rates during testing shall be noted on the test report. These operating rate logs and visible emissions tests shall also be maintained and will be made available for department inspection.

[Rule 62-4.070, F.A.C., A017-183217, commitment in letter of January 13, 1998]

**H.5. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection I. This section addresses the following emissions units.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
065	Product Separator, Building 465
066	Alternate Conveyor, Building 465

Two adipic acid product movement systems that move dry adipic acid from the adipic acid dryers to storage bins. These systems are designated as:

1. Product Separator, rated capacity 10,000 pounds per hour of dry adipic acid. Particulate emissions are controlled by a baghouse filter manufactured by Mikro-Pulsair, model 42-8-100, located in building 465.
2. Alternate Conveyor, rated capacity 12,000 pounds per hour of dry adipic acid. Particulate emissions are controlled by a baghouse filter manufactured by Modukleen, located in building 465.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**I.1. Capacity.**

The maximum allowable operating rate for the Product Separator System 10,000 pounds of dry adipic acid per hour.

The maximum allowable operating rate for the Alternate Conveyor System 12,000 pounds of dry adipic acid per hour.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C., AO17-173961]

**Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**I.2. Visible Emissions.** These emissions units shall not exceed 5 percent opacity.

[Rule 62-297.620(4), F.A.C.]

**I.3.** Particulate emissions shall not exceed 9.50 pounds from the Product Separator System per hour. At lesser operating rates the particulate emissions shall not exceed:  $E = 3.59P^{0.62}$  where E = emissions in pounds per hour and P = process weight rate in tons per hour.

[Rules 62-4.070 and 62-296.320(4)(a), F.A.C., AO17-173961]

**I.4.** Particulate emissions shall not exceed 10.90 pounds from the Alternate Conveyor System per hour. At lesser operating rates the particulate emissions shall not exceed:  $E = 3.59P^{0.62}$  where E = emissions in pounds per hour and P = process weight rate in tons per hour.

[Rules 62-4.070 and 62-296.320(4)(a), F.A.C., AO17-173961]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**I.5. Emissions Tests.** See common condition number **Z.1.**

**I.6. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.  
[Rule 62-297.401, F.A.C.]

**I.7. Particulate Matter.** The test method for particulate matter shall be EPA test method 5, incorporated and adopted by reference in Chapter 62-297, F.A.C. Testing is required only upon permit renewal.  
[Rule 62-297.401, F.A.C.]

**I.8. Particulate Matter Compliance.** Compliance with the mass emission standard may be assumed, and a waiver of the PM testing requirements may be granted, if visible emissions are not greater than 5 percent opacity. If the results of the visible emissions tests show greater than 5 percent opacity, the permittee shall conduct a particulates test within 30 days to show compliance with the mass emission standard of the Department.  
[Rule 62-297.620(4), F.A.C.]

**I.9. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection J. This section addresses the following emissions unit.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
073	Abrasive Blast Facility

In this abrasive blast facility equipment is grit blasted prior to painting. The area is ventilated with particulate emissions controlled by a baghouse filter, manufactured by Clemco, model 5040.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**J.1. Capacity.** The maximum allowable operating rate is 500 pounds of grit usage per hour. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C., AC17-148294, A017-183195]

**Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**J.2. Visible Emissions.** This emissions unit shall not exceed 5 percent opacity. [Rule 62-297.620(4), F.A.C.]

**J.3. Particulate Matter.** Particulate matter emissions from this facility shall not exceed 4.9 pounds per hour. [Rule 62-4.070, F.A.C., AC17-148294, A017-183195]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**J.4. Emissions Tests.** See common condition number **Z.1.**

**J.5. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C. [Rule 62-297.401, F.A.C.]

**J.6. Particulate Matter.** The test method for particulate matter shall be EPA test method 5, incorporated and adopted by reference in Chapter 62-297, F.A.C. Testing is required only upon permit renewal. [Rule 62-297.401, F.A.C.]



**J.7. Particulate Matter Compliance.** Compliance with the mass emission standard may be assumed, and a waiver of the PM testing requirements may be granted, if visible emissions are not greater than 5 percent opacity. If the results of the visible emissions tests show greater than 5 percent opacity, the permittee shall conduct a particulates test within 30 days to show compliance with the mass emission standard of the Department.  
[Rule 62-297.620(4), F.A.C.]

**J.8. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection K. This section addresses the following emissions unit.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
052	Adipic Acid Transfer System, Building 465

The transfer system, located in Building 465, pneumatically conveys the dry product produced by the dryer, EU 060, to a storage bin. Particulate emissions are controlled by a bag filter, manufactured by Modu-Kleen, model RPBV 18/6. This system is designed to transfer the dry product with controlled emissions of 3,600 SCF/min containing a maximum particulate concentration of 0.03 gr/DSCF.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**K.1. Capacity.** The maximum allowable operating rate shall be as quoted in the "Company Confidential" section of Solutia's Title V permit application received June 12, 1996. This document is incorporated by reference.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C., A017-218450]

**Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**K.2. Visible Emissions.** Visible Emissions shall not exceed 5% opacity.  
[AO17-218450]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**K.3. Emissions Tests.** See common condition number **Z.1.**

**K.4. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.  
[Rule 62-297.401, F.A.C.]

**K.5. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection L. This section addresses the following emissions unit.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
080	Adipic Acid Loading System, Building 465

Plant steam supplies the heat to the dryer. Particulate emissions from the new dryer are to be controlled by a baghouse filter manufactured by Fabric Filters Air System, model 240-10 with 98% control efficiency. Particulate emissions from the new loading system will be controlled by a bag fabric filter, Modu-Clean dust collector model RPBV 18/6 with 98% control efficiency.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**L.1. Capacity.** The maximum allowable operating rate, in pounds of Adipic Acid per hour, for the Loading System during testing is to be representative of normal operating conditions. [Rules 62-4.070, 62-4.160(2) and 62-210.200(PTE), F.A.C. and permit AC17-262484]

**Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**L.2. Visible emissions shall not exceed 5% opacity.**  
[Rule 62-4.070, F.A.C. and permit AC17-262484]

**L.3. Particulate emissions from the loading system filter shall not exceed 0.21 pounds per hour.**  
[Rule 62-4.070, F.A.C. and permit AC17-262484]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**L.4. Emissions Tests.** See common condition number **Z.1.**

**L.5. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.  
[Rule 62-297.401, F.A.C.]

**L.6. Particulate Matter.** The test method for particulate matter shall be EPA test method 5, incorporated and adopted by reference in Chapter 62-297, F.A.C. Testing is required only upon permit renewal.  
[Rule 62-297.401, F.A.C.]

**L.7.** Compliance with the mass emission standard may be assumed, and a waiver of the PM testing requirements may be granted, if visible emissions are not greater than 5 percent opacity. If the results of the visible emissions tests show greater than 5 percent opacity, the permittee shall conduct a particulates test within 30 days to show compliance with the mass emission standard of the Department.

[Rule 62-297.620(4), F.A.C.]

**L.8. Source Commitments.** Fugitive dust generated at this site shall be adequately controlled by existing good housekeeping practices such as washdowns, sweeping and/or vacuuming of spilled materials in work areas, and protecting transfer points on windy days as appropriate.

[Rules 62-4.070 and 62-296.310(3), F.A.C, permit AC17-262484]

**L.9. Reasonable Assurances** The following work practices shall be followed to insure reasonable control of particulate matter:

(a) Dust collectors or bag filters, associated with solids handling, are to be in service prior to commencement of activities such as loading, unloading, storing, handling or other industrially related activities.

(b) Operation logs shall include documentation that particulate matter control devices (hoods, fans, filters or similar equipment) are activated prior to initiation of solid material handling activities. This documentation will be maintained and made available for Department inspections.

(c) Visible emissions testing shall be conducted on an annual basis to provide reasonable assurance of system effectiveness. To perform the visible emissions testing, it will be necessary to have material handling ongoing at reasonable or typical activity levels. No operating rate limits will apply to this testing, however Solutia commits to ensure that operating rates are representative of normal operating conditions. A log of operating rates shall be maintained on a daily basis. The operating rates during testing shall be noted on the test report. These operating rate logs and visible emissions tests will also be maintained and will be made available for Department inspection.

[Rule 62-4.070, F.A.C. and permit AC17-262484]

**L.10. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection M. This section addresses the following emissions units.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
047	Nylon Vydyne Resin Process, Mixing operation (process step 1)
070	Nylon Vydyne Resin Process, Resin extrusion (process step 2)
071	Nylon Vydyne Resin Process, Aluminum silicate storage silo
072	Nylon Vydyne Resin Process, Mineral weigh hopper.

In the nylon vydyne resin manufacturing facility various materials are blended into nylon resin to yield a molding product. Particulates from the mixing operation (process step 1) are controlled by a bag filter manufactured by Mikro Pulsaire, model 815-10-20. Organic emissions, from the resin extrusion (process step 2) are controlled by a scrubber manufactured by Vulcan Manufacturing, serial No. 12718. The maximum operating rate is 4000 pounds per hour.

Aluminum silicate, one of the blended materials, is pneumatically conveyed to a storage silo and is then pneumatically conveyed to a mineral weigh hopper. Particulate emissions from these two conveying operations are each controlled by a baghouse filter.

The nylon resin raw material, vydyne resin product and reworked product are pneumatically conveyed, but because of the relative large size of the materials (pellets), these systems are not classified as sources of particulate emissions.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**M.1. Capacity.** The maximum allowable operating rate is 4000 pounds of product per hour. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**M.2. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**M.3. Visible Emissions.** Visible emissions shall not exceed 5% opacity. [Rule 62-297.620(4), F.A.C.]

**M.4. Particulate Matter.** Particulate emissions from the mixing operation (process 1) and the two conveying operations (while pneumatically transferring material) shall not exceed 4.73 pounds per hour at the maximum operating rate of 4000 pounds per hour. At lesser operating

rates the particulate emissions shall not exceed:  $E = 3.59P^{0.62}$  where E = emissions in pounds per hour and P = process weight rate in tons per hour. This particulate emission limit shall apply to the sum of the mixing operation and the two conveying operations.  
[Rule 62-296.320(4)(a)2., F.A.C.]

### **Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**M.5. Emissions Tests.** See common condition number **Z.1.**

**M.6. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C. Visible emissions testing required on emissions units 047, 071 and 072 only.  
[Rule 62-297.401, F.A.C.]

**M.7. Particulate Matter.** The test method for particulate matter shall be EPA test method 5, incorporated and adopted by reference in Chapter 62-297, F.A.C. Testing is required only upon permit renewal on emissions units 047, 071 and 072 only.  
[Rule 62-297.401, F.A.C.]

**M.8.** Compliance with the mass emission standard may be assumed, and a waiver of the PM testing requirements may be granted, if visible emissions are not greater than 5 percent opacity. If the results of the visible emissions tests show greater than 5 percent opacity, the permittee shall conduct a particulates test within 30 days to show compliance with the mass emission standard of the Department.  
[Rule 62-297.620(4), F.A.C.]

### **Monitoring of Operations**

**M.9.** Scrubber water flow rate shall be maintained at a minimum of five gallons per minute, with rates logged daily. Records of the scrubber water flow rate shall be maintained and be available for Department inspection.  
[Rules 62-4.160(2) and 62-213.440(1), F.A.C.]

**M.10. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection N. This section addresses the following emissions units.**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
005	Vaporizer No.1
007	Vaporizer No.2
008	Vaporizer No.3
009	Vaporizer No.4
010	Vaporizer No.5
011	Vaporizer No.6
013	Vaporizer No.7
075	Vaporizer No.8

Operation of eight vaporizers. Total capacity is 136 million Btu/hour heat input. These emissions units are primarily fueled by natural gas. No. 2 fuel oil with a maximum of 0.5 % sulfur by weight is allowed as an emergency fuel.

These emissions units are regulated under applicable portions of NSPS - 40 CFR 60 Subparts A and Dc., adopted and incorporated by reference in Rule 62-204.800, F.A.C.

Energy conservation features, which do not effect emissions, have been incorporated into the Vaporizer facility. The exit stack temperature is approximately 311°F. Vaporizer unit exhausts have been consolidated in some cases. The facility is still capable of exhausting through individual stacks, if necessary. The discharge arrangement is given below:

<u>Source I.D. Number</u>	<u>Vaporizer Unit</u>	<u>Stack Number</u>
EU-005	Vaporizer No.1	Stack No.4
EU-007	Vaporizer No.2	Stack No.2
EU-008	Vaporizer No.3	Stack No.5
EU-009	Vaporizer No.4	Stack No.4
EU-010	Vaporizer No.5	Stack No.5
EU-011	Vaporizer No.6	Stack No.6
EU-013	Vaporizer No.7	Stack No.6
EU-075	Vaporizer No.8	Stack No.8

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**N.1. Methods of Operation- Fuels.** The primary fuel shall be natural gas. No. 2 fuel oil with a maximum of 0.5% sulfur by weight may be use as an emergency fuel only. The permittee shall immediately notify the Department of each emergency use of No. 2 fuel oil and if such use exceeds four days a visible emissions compliance test shall be conducted on each unit burning fuel oil.

[Rules 62-4.160(2) and 62-213.440(1), F.A.C.]

**N.2. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**N.3. Visible Emissions.** Visible emissions shall not exceed 10% opacity under normal operating conditions. Compliance shall be assumed if visible emissions are undetectable by Department inspections.  
[Air Permit AO17-170108]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**N.9. Emissions Tests.** See common condition number **Z.1.**

**N.4. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.  
[Rule 62-297.401, F.A.C.]

**N.5. Special Compliance Tests.** If Department inspections observe visible emissions above 5% opacity on any vaporizer and/or stack, it shall be considered reason to believe the visible emissions standard could be violated; therefore, a special visible emissions compliance test shall be conducted to show compliance with the emission standard.  
[Rule 62-297.310(7)(b), F.A.C. and permit AO17-170108]

**N.3. Determination of Process Variables.** See common condition number **Z.2.**



**Subsection O. This section addresses the following emissions unit(s).**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
020	Cyclohexane Oxidation Process

Cyclohexane is oxidized with air in two high-pressure reactor trains. Two high-pressure scrubbers reduce the loss of volatile organic compounds (VOC). Emissions are primarily VOC and carbon monoxide (CO). Further VOC and CO emissions reductions are effected by routing the emissions from the scrubbers to a NO<sub>x</sub> thermal reduction unit. The reactors are discharged to cyclohexane recovery, product refining, and distillation operations. Emissions from these operations are controlled by two low-pressure scrubbers. The emissions from low-pressure scrubbers are of similar composition but lesser quantity than those from high-pressure scrubbers. Total process emissions of volatile organic compounds are estimated at 926 pounds per hour and emissions of carbon monoxide are estimated at 1,404 pounds per hour.

The Cyclohexane Oxidation Process has a cyclohexanone/cyclohexanoneol (KA) Recovery Column which functions as a separator for product KA, water and impurities. The overhead vapors pass through an overhead condenser into a decanter where the aqueous and hydrocarbon streams are separated. The aqueous phase is further processed for recovery. The hydrocarbon stream is routed to product streams for refining. The vapors from condenser and decanter are mixed with other streams to feed one of the low pressure scrubbers.

The condenser system operates with the sump pump temperature below 50°C. The condenser sump pump temperature is used as the control parameter and will be stored via an existing process data collection system.

This emissions unit is regulated under applicable portions of NSPS - 40 CFR 60 Subparts A and NNN; NESHAPs - 40 CFR 63 Subpart F, adopted and incorporated by reference in Rule 62-204.800, F.A.C.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**O.1. Capacity.** The maximum allowable operating rate for the Cyclohexane Oxidation Process is 82,000 pounds per hour process air. The maximum allowable liquid feed rate for the KA recovery column is 40,000 lb/hr.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**O.2. Methods of Operation.** Oil flow through each of the high-pressure scrubbers shall be maintained at or above 3600 pounds per hour during reactor train operation. Flow rate indicator values shall be continuously monitored and averaged values logged at no larger than one hour intervals. Records shall be maintained and made available for Department inspection. Further VOC and CO emissions reductions will be made by routing the emissions from the scrubbers to the NO<sub>x</sub> Thermal Reduction Unit. The KA recovery column shall vent to the condenser and from there to the low pressure scrubbers. The KA recovery column/condenser shall maintain a total resource effectiveness value greater than 1.0, as applicable under NSPS 40 CFR Part 60 Subpart NNN.  
[Rules 62-4.070, 62-296.320(1), 62-204.800(7)63. and 62-213.440(1), F.A.C.]

**O.3. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**O.4. Visible Emissions.** Visible emissions shall be less than 20% opacity.  
[Rule 62-296.320(4)(b), F.A.C.]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**O.5. Emissions Tests.** See common condition number **Z.1.**

**O.6. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.  
[Rule 62-297.401, F.A.C.]

**O.7. Carbon monoxide and volatile organic compounds.** Carbon monoxide and volatile organic compounds emissions tests shall be conducted in accordance with the approved alternative testing plan dated October 25, 1994. The owner or operator shall comply with the testing method, recordkeeping, and reporting requirements under NSPS, 40 CFR 60, Subpart NNN, Standards of Performance of VOC emissions from SOCM Distillation Processes.  
[Rule 62-296.800 and 62-204.800(7)63. F.A.C. and permit AC17-247476]

**Monitoring of Operations**

**O.8.** Applicable monitoring and recording devices shall be operated and maintained as per NSPS 40 CFR Part 60 Subpart NNN Regulations to monitor the operation of the condenser.  
[Rules 62-4.070 and 62-204.800(7)63. F.A.C.]

**Recordkeeping and Reporting Requirements**

**O.9.** Applicable reporting and record keeping requirements of NSPS 40 CFR Part 60 Subpart NNN Regulations shall be adhered to. Records shall be maintained and kept available for inspection by the Department.  
[Rules 62-4.070 and 62-204.800(7)63. F.A.C.]

**O.10. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection P. This section addresses the following emissions unit(s).**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
002	Adipic Acid Process, TRU/SCR and NOx Compressor

In this process cyclohexanone and cyclohexanol is oxidized with nitric acid to produce an Adipic Acid solution. The solution is refined by chilling due to vacuum evaporation, forming Adipic Acid crystals at the bottom of the process vessel. The resulting slurry is centrifuged to remove water and form a wet cake. The wet cake is used to produce Nylon Salt or dried for other uses. Emissions of CO, VOC and NOx are controlled by a John Zink Thermal Reduction Unit (TRU) coupled with a Selective Catalytic Reduction Unit (SCR) to bring NOx emissions down to 150 ppm. The TRU is fueled by burning natural gas, ethane or butane. The system includes a backup NOx compressor (#2) for the existing NOx compressor (#1) which controls NOx emissions down to 150 ppm at the adipic acid NOx collection header. The backup compressor is capable of being brought on-line within a two hour time period. This system will be used when the primary control system is inoperative for any reason. The TRU is also used to control VOC and CO from the Cyclohexane Oxidation Process offgases.

This emissions unit is regulated under applicable portions of NSPS - 40 CFR 60 Subparts A, VV, NNN and RRR; NESHAPs - 40 CFR 61 Subparts A, and V, adopted and incorporated by reference in Rule 62-204.800, F.A.C.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**P.1. Capacity.** The maximum allowable operating rate is 92,000 pounds of Ketone/Alcohol mixture per hour.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**P.2. Methods of Operation.** The TRU shall use only natural gas, ethane or butane as primary fuel during normal operation. Equipment shall be operated and maintained in such a manner as to minimize leaks, fugitive emissions and spills of VOC materials.  
[Rules 62-4.160(2), 62-213.440(1) and 62-296.320(1)(a), F.A.C.]

**P.3. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emissions Limitations and Standards**

**P.4. Visible emissions.** Visible emissions shall not exceed 5% opacity.  
[Permit AC17-262486]

**P.5. Nitrogen Oxides.** Nitrogen Oxides from the TRU/SCR, NOx compressor #1 or backup NOx compressor #2 shall not exceed 150 ppm based on a rolling 24-hour average. The combined total NOx emissions from these emissions units shall not exceed 236 tons per year based on a rolling 12-month average.

[Permit 03300040-011-AC and Consent Order No. 97-2066]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**P.6. Emissions Tests.** See common condition number **Z.1.**

**P.7. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.

[Rule 62-297.401, F.A.C.]

**P.8. Nitrogen Oxides.** The test method for nitrogen oxides shall be EPA test method 7, incorporated and adopted by reference in Chapter 62-297, F.A.C.

[Rule 62-297.401, F.A.C.]

**P.9 Continuous Emissions Monitoring.** Permittee shall operate and maintain a NOx continuous emission monitor (CEM) on the TRU/SCR exhaust stack for measurement of NOx concentration. The CEM shall be properly operated and maintained to ensure accurate and reliable monitoring, recording, and reporting data. Permittee shall implement and maintain a quality control program which, at a minimum, follows the quality assurance procedures set forth in 40 CFR Appendix F, Quality Assurance Procedures, and Appendix B, Performance Specifications. Such data may be used directly or indirectly for compliance determination or any other purpose deemed appropriate by the Department.

[Rule 62-4.070, F.A.C., Permit 03300040-011-AC and Consent Order No. 97-2066]

**P.10. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection Q. This section addresses the following emissions unit(s).**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
032	Cogeneration Plant

The cogeneration plant consists of one combustion turbine that exhausts through a heat recovery steam generator. The heat recovery steam generator supplies steam to the manufacturing operations and replaces steam generated by the existing boilers. The turbine, fueled by natural gas, 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 NOx emissions. Low NOx burners are used on the heat recovery steam generator.

This emissions unit is regulated under applicable portions of NSPS - 40 CFR 60 Subparts A, Db and GG, adopted and incorporated by reference in Rule 62-204.800, F.A.C.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**Q.1. Capacity.** The maximum allowable heat input is 184 MMBtu per hour for the heat recovery steam generator duct burner. The maximum allowable heat input for the combustion turbine varies with the ambient air temperature as specified in Table A-1, attached and incorporated by reference. Table A-1 is used to determine rated capacity. Ambient temperatures other than table values can be linearly interpolated or extrapolated.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Q.2. Methods of Operation.** This emissions unit shall be fueled by natural gas.  
[Rules 62-4.160(2) and 62-213.440(1), F.A.C.]

**Q.3. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emissions Limitations and Standards**

**Q.4. Visible emissions.** Visible emissions shall not exceed 20% opacity under normal operation except for up to one six-minute period per hour during which opacity shall not exceed 27% opacity.  
[Rule 62-296.406(1), F.A.C. and permit AC17-213374]

**Q.5. Total combined NOx emissions from the cogeneration plant turbine and duct burner shall not exceed 106.6 pounds per hour at the maximum allowable operating rate of 184 MMBtu/hr heat input.  
[Rule 62-4.070, F.A.C., permits AC17-213374 and AO17-239459]**

**Q.6.** NO<sub>x</sub> emissions (expressed as NO<sub>2</sub>) from the duct burner, less emissions creditable to the combustion turbine, shall not exceed 0.2 pounds per million Btu, i.e., 36.8 pounds per hour at the maximum allowable operating rate of 184 MMBtu per hour heat input.  
[Rule 62-4.070, F.A.C., 40 CFR 60.44b(a)(4)i and AO17-239459]

**Q.7.** Carbon monoxide. Carbon monoxide (CO) emissions shall not exceed 83.5 pounds per hour. [AC17-213374]

**Q.8.** Volatile organic compound. Volatile organic compound (VOC) emissions shall not exceed 10.9 pounds per hour.  
[AC17-213374]

### **Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**Q.9.** Emissions Tests. See common condition number **Z.1.**

**Q.10.** Visible Emissions. The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.  
[Rule 62-297.401, F.A.C.]

**Q.11.** Nitrogen Oxides. The test method for nitrogen oxides shall be EPA test method 20, incorporated and adopted by reference in Chapter 62-297, F.A.C. Testing is required only upon permit renewal.  
[Rule 62-297.401, F.A.C.]

**Q.12.** Carbon monoxide. The test method for carbon monoxide nitrogen oxides shall be EPA test method 10, incorporated and adopted by reference in Chapter 62-297, F.A.C. Testing is required only upon permit renewal.  
[Rule 62-297.401, F.A.C.]

**Q.13.** Volatile organic compound. The test method for volatile organic compound nitrogen oxides shall be EPA test method 25A, incorporated and adopted by reference in Chapter 62-297, F.A.C. Testing is required only upon permit renewal.  
[Rule 62-297.401, F.A.C.]

**Q.14.** Determination of Process Variables. See common condition number **Z.2.**

**Subsection R. This section addresses the following emissions unit(s).**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
038	Research and Development

Operation of sources associated with Research and Development. For the most part these sources are uncontrolled. Each R&D project is evaluated with a Safety Audit conducted by independent groups selected by Monsanto management to ensure compliance with company-wide safety policy. All new chemicals are evaluated for safety, including toxicity, by a chemicals committee.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**R.1. Methods of Operation.** A file of safety audits for each Research and Development project shall be maintained which summarizes safety problems and corrective actions. This file shall be maintained and be available for Department inspection.

Any chemicals utilized at this source which are identified by the Chemicals Committee safety review as a toxic air pollutant shall be identified to the Department with pertinent portions of the safety audit submitted for Department review. The submittals should include but not be limited to: expected quantities to be used per units of time, operator instruction for safe handling, and estimated maximum concentration in exhaust ventilation.

The Department shall review control for specific sources of pollution with periodic inspections. the Department has reason to believe a specific source of pollution might be in violation of provisions of Chapter 403, Florida Statutes or the rules and regulations promulgated thereunder, the Department may require submission of a complete permit application which shall include proof of compliance with all applicable standards.

[Rules 62-4.070 and 62-213.440(1), F.A.C. and permit AO17-208657]

**R.2. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection S. This section addresses the following emissions unit(s).**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
055	Butane Barge Unloading

Operation of a butane barge unloading station consisting of two Chiksan marine unloading arms, piping connecting the station to the existing butane storage vessels and existing plant steam system. This system is vented from a 20 foot high stack equipped with a vent silencer. Barge unloading is to transfer liquid butane through a closed piping system.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**S.1. Methods of Operation.** The station shall be used with the vent silencer. The butane barge unloading station shall not be used to transfer other chemicals unless prior approval has been obtained from the Department.

[Rules 62-4.160(2) and 62-213.440(1), F.A.C. and permit AC17-85169]

**S.2. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emissions Limitations and Standards**

**S.3.** Butane emissions from the barge unloading station shall not exceed 4.7 tons per year. Compliance with this limit shall be determined by calculations based on the actual number of barges unloaded during the year and the estimated butane emissions each time the station is purged. Records of barge unloading and station purging shall be maintained and made available for inspection by the Department.

[AC 17-85169]

**S.4. Determination of Process Variables.** See common condition number **Z.2.**



**Subsection T. This section addresses the following emissions unit(s).**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
068	Cryogenic Ammonia Handling

Operation of cryogenic ammonia system, consisting of receiving and storage of liquid ammonia. Held at -28°F with a flare to control emissions of ammonia in case of emergency. Flare is designed to control emissions of 1000 pounds of ammonia per hour at 98 percent destruction efficiency. Normal ammonia release is zero.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**T.1. Capacity.** Ammonia vented to the flare shall not exceed 1000 pounds/hour nor 60 tons per year.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**T.2. Methods of Operation.** The flare shall be properly maintained and available to control emissions of ammonia in case of emergency.

[Rules 62-4.160(2), 62-213.440(1), F.A.C. and permit AC17-127871]

**T.3. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emissions Limitations and Standards**

**T.4. Visible emissions.** Visible emissions from the flare shall not exceed 5 percent opacity.

[Permit AC17-127871]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**T.5. Emissions Tests.** See common condition number **Z.1.**

**T.6. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C. Testing is required only if flare is used to flare ammonia. No testing is required if flare is not used.

[Rule 62-297.401, F.A.C.]

**T.7. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection U. This section addresses the following emissions unit(s).**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
077	Dimethyl Ester Production

Operation a Dimethyl Ester (DME) Production Unit. An adipic acid manufacturing by-product stream consisting of adipic, glutaric and succinic acids (AGS) is reacted with methanol to produce dimethylester. Off-gasses are pyrolyzed in the hydrogen plant reformer furnace. Air emissions occur only during unplanned shutdowns of the hydrogen plant #1 reformer furnace or malfunctions of the DME production unit that prevent transfer of off-gasses to the reformer furnace.

The DME production unit storage tanks are subject to applicable requirements of 40 CFR Part 60, Subpart Kb, adopted and incorporated by reference in Rule 62-204.800, F.A.C.

**The following specific conditions apply to the emissions unit(s) listed above:**

**Essential Potential to Emit (PTE) Parameters**

**U.1. Capacity.** The maximum allowable operating rate is 30 million pounds per year of 80% AGS. The production unit is currently limited to a maximum allowable operating rate of 18.5 MMlbs/yr AGS consistent with the November 15, 1994 compliance test.  
[Rules 62-4.160(2), 62-210.200(PTE), F.A.C. and permit AC17-229192]

**U.2. Methods of Operation.** DME process air emissions shall be controlled during temporary outages of the Hydrogen Plant #1 reformer furnace by a Calgon Activated Granulated Carbon Bed Vapor Pac unit. Permittee may use one or two carbon beds to achieve the desired minimum 90% VOC removal efficiency. The Department may require compliance testing of the Vapor Pac if the temporary outage lasts longer than 30 days.  
[Rules 62-4.160(2), 62-213.440(1) and 62-296.320(1)(a), F.A.C.]

**U.3. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emissions Limitations and Standards**

**U.4.** The DME Production Unit may discharge only during unplanned shutdowns of the hydrogen reformer furnace or malfunctions of the DME production unit that prevent transfer of off gas to the reformer furnace as allowed by FAC Rule 62-210.700. During these shutdowns the maximum estimated emission rate for periods of time up to two hours in any twenty four hour period for each pollutant is as follows:

<u>Pollutant</u>	<u>Emission Rate</u>
NOx	48 lbs/hr
Hydrogen Cyanide	6 lbs/hr
Total C as methanol	15 lbs/hr

[Permit AC17-229192]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**U.5. Emissions Tests.** See common condition number **Z.1.**

**U.6. NO<sub>x</sub>, Hydrogen Cyanide, and Total Carbon.** Emissions tests for NO<sub>x</sub>, hydrogen cyanide, and total carbon as methanol shall be performed in accordance with Solutia's March 30, 1994 test plan. The test report documentation shall include calculations and formulas sufficient to identify and quantify DME process unit emissions occurring during unplanned shutdowns of the hydrogen plant #1 reformer furnace or malfunctions of the DME production unit that prevent transfer of off gas to the reformer furnace.

[Rule 62-4.070, F.A.C., and permit AC17-229192]

**Recordkeeping and Reporting Requirements**

**U.7.** Records shall be maintained identifying the date, time, duration, and quantities of HCN, total carbon as methanol, and NO<sub>x</sub> discharged during any periods of venting. These records shall be available for Department inspections, and shall be submitted with the renewal permit application.

[Rule 62-4.070, F.A.C., and permit AC17-229192]

**40 CFR 60 Requirements**

**U.8. NSPS Provisions.** The owner or operator of each storage vessel shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel for the life of the source.

[Rule 62-204.800(7)(b)16., F.A.C.; 40 CFR 60.116(b)]

**U.9. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection V. This section addresses the following emissions unit(s).**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
040	Hexamethylene Diamine Synthesis
041	B and C Hexamethylene Diamine Stripper Distillation Column

Adiponitrile is hydrogenated to yield crude Hexa Methylene Diamine (HMD). The HMD is then refined by vacuum distillation. In the the last purification stage (strippers A, B and C) a vacuum is achieved by staged steam jets. The water soluble HMD is discharged in the condensed steam to the wastewater system. The concentration of HMD in the noncondensable emissions is reduced in each stage.

The stripper distillation columns are subject to applicable requirements of 40 CFR Part 60, Subparts A and NNN, adopted and incorporated by reference in Rule 62-204.800, F.A.C. Column head pressures are used as a surrogate parameter to control HMD emissions.

**V.1. Capacity.** The maximum allowable feed rate for the B stripper column is 25,000 lb/hr of HMD feed material.  
[Rules 62-4.160(2), 62-210.200(PTE), F.A.C. and permit 0330040-004-AC ]

**V.2. Hours of Operation.** This emissions units are allowed to operate continuously, i.e., 8,760 hours/year.  
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**V.3.** All applicable requirements of 40 CFR Part 60 Subpart NNN, Standards for Performance for Volatile Organic Compound (VOC) Emissions for Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations, shall be adhered to for the stripper columns. Subpart NNN requirements that apply include the following:

a. A total resource effectiveness (TRE) index shall be maintained at a value greater than or equal to 1.0. Details of the calculation(s) shall be submitted with any testing required and when any process changes that may impact the TRE index are made.

[40CFR60.662(c)]

b. Continuous monitoring of stripper columns head pressure is required and serves as a surrogate parameter to control HMD emissions. The column head pressure shall be maintained at or below a maximum of 100mm Hg. Records of stripper column head pressure logged hourly shall be maintained and be available for inspection by the Department.

[Department approved alternative to 40CFR60.663(d)(2)(i)].

**V.4.** Condensation of steam and solution of HMD between stages of a series of steam vacuum jets are determined to be vapor control devices deemed necessary by the Department. The permittee shall maintain operations and maintenance of the jets and condensers sufficient to provide reasonable assurance that HMD emissions remain approximately at the levels of these measured values.

[Rules 62-4.070, 62-296.320(1)(a), F.A.C., and permit 0330040-004-AC]

**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**V.5. Emissions Tests.** See common condition number **Z.1.**

**V.6.** The test method for HMD shall be EPA Methods 1, 2, 4 and 18, and ASTM Methods D1946-77 and D2382-76., incorporated and adopted by reference in Chapter 62-297, F.A.C. [Rule 62-297.401, F.A.C.]

**V.7. Determination of Process Variables.** See common condition number **Z.2.**

**Subsection W. This section addresses the following emissions unit(s).**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
076	Maleic Anhydride (MA) Plant

Operation of a maleic anhydride plant with a design capacity of 260 million pounds per year of maleic anhydride. The reaction is carried out in four reactors using butane as a raw material with off gases separated in two product recovery units and combusted in Boilers 7 and 8.

Approximately 6.5 million standard cubic feet per hour of off gas is emitted from each pair of reactors which contains approximately 9,000 pounds per hour of carbon monoxide (CO) and 7,000 pounds per hour of volatile organic compounds (VOC) at design rates. The balance of the off gas stream is H<sub>2</sub>O, CO<sub>2</sub>, N<sub>2</sub> and O<sub>2</sub>. Emissions of CO and VOC are controlled by burning in Boilers 7 and 8. The two off gas headers are cross connected, but normal flow is from reactors 1 and 2 to boiler 7, and from reactors 3 and 4 to Boiler 8.

During startup, shutdown or malfunction of the maleic anhydride plant, waste gases are vented without control. This is required for safety. Such venting is conditionally allowed.

This emissions unit is regulated under applicable portions of NSPS - 40 CFR 60 Subparts A, Kb, VV, and III; NESHAPs - 40 CFR 63 Subparts A, F, G and H, adopted and incorporated by reference in Rule 62-204.800, F.A.C.

**Essential Potential to Emit (PTE) Parameters**

**W.1. Capacity.** The maximum allowable operating rate is 260 million pounds MA per year. [Rules 62-4.160(2), 62-210.200(PTE), F.A.C.]

**W.2. Methods of Operation.** The maximum gas flow rate from the maleic anhydride to each boiler shall not exceed 6.5 MMscf/hour (13.0 MMscf/hour total to both boilers). [Rules 62-4.160(2), 62-213.440(1), F.A.C. and permit AC17-250268]

**W.3. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year. [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emission Limitations and Standards**

**W.4.** During startup, shutdown, and control system malfunctions this source shall not exceed emissions resulting from a production rate of 130 MM pounds MA per year and shall comply with the following emission limits:

**Emission Limits and Formulas:**

- a. Emissions shall not exceed 1,750 pounds of either VOC (calculated as butane) or CO per reactor hour for startups and malfunctions; or 875 pounds of either VOC or CO per reactor hour for shutdowns, and
- b. No more than one and one-half reactor hours shall be used for an individual reactor startup or shutdown, and
- c. No more than eight reactor hours shall be used for a total production startup, and
- d. No more than six hours shall be used during a control system malfunction to allow sufficient time to trouble shoot and correct the problem.

These limits and formulas are reflected in the following table:

Number of Reactors	Startup			Shutdown			Malfunction		
	Maximum Vent Hrs.	Pounds		Maximum Vent Hrs.	Pounds		Maximum Vent Hrs.	Pounds	
		CO	VOC		CO	VOC		CO	VOC
1	1.5	2,625	2,625	1.5	1,313	1,313	6	10,500	10,500
1	1.5	5,250	5,250	(Second reactor on line, separate startup)					
2	4	7,000	7,000	4	3,400	3,400	6	21,000	21,000
3	6	10,500	10,500	6	5,250	5,250	6	31,500	31,500
4	8	14,000	14,000	8	7,000	7,000	6	42,000	42,000

[Permit AC17-250268]

**Recordkeeping and Reporting Requirements**

**W.5.** A log shall be maintained of all uncontrolled VOC and CO emissions resulting from startup, shutdown, and malfunctions.  
(Rules 62-4.070 and 62-210.700 F.A.C.)

**Subsection X. This section addresses the following emissions unit(s).**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
081	Continuous Nylon Polymerization Lines
082	Batch Nylon Polymerization

Nylon salts are mixed, concentrated and polymerized to form a molten polymer by both continuous and batch processes. The molten polymer is solidified to nylon fiber from the continuous lines and flake products from the batch lines. Unconfined emissions of organic compounds occur during this solidification and are vented away from the working areas and discharged without controls.

Each continuous line has a separate evaporator. A portion of evaporator emissions is used to preheat the nylon salts, and the remaining emissions are normally fed to a distillation column shared by other yarn plant equipment. Pre-reactor steam and emissions are also fed to the distillation column control device. Four batch evaporators cyclically feed the batch lines' twelve autoclaves where the batch polymerization takes place. The autoclave emissions are also normally fed to the distillation column. The organics recovered by the distillation column are used as supplemental fuel in power boilers or routed to the plant process waste disposal system.

The twelve continuous polymerization lines and the vydine resin line normally operate using an Evaporator/Reactor/Finisher process design or an alternative polymerization method, involving an Evaporator/Pre-reactor/Reactor/Finisher process design. Reactor steam is condensed to produce process steam and the condensate is handled as wastewater. The emissions from the Finishing step are controlled by monomer scrubbers.

**Essential Potential to Emit (PTE) Parameters**

**X.1. Capacity.** The maximum allowable operating rates shall be as quoted in the "Company Confidential" section of Solutia's Title V permit application received June 12, 1996. This document is incorporated by reference.

[Rules 62-4.160(2), 62-210.200(PTE), F.A.C. and permit 0330040-001-AC]

**X.2. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**X.3.** The maximum allowable emissions rate for VOCs is 715 lbs/day as a rolling annual average.

[Rules 62-4.070, 62-296.320(1)(a), F.A.C., and permit 0330040-001-AC]



**Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**X.4. Emissions Tests.** See common condition number **Z.1.**

**X.5.** VOC emissions testing shall be conducted using the Yarn Plant Emissions Sampling Protocol, dated June 3, 1993.  
[Rule 62-4.070, F.A.C. and permit 0330040-001-AC]

**X.6.** Emission factors shall be revalidated every two years. The permittee shall use protocol as described by letter dated June 18, 1993 (company confidential) to determine the emission factors; and the results shall be submitted no later than 45 days after completion of testing.  
[Rule 62-4.070, F.A.C., and permit 0330040-001-AC]

**Recordkeeping and Reporting Requirements**

**X.7.** The permittee shall maintain a log of down time for each device which controls emissions of organic compounds, i.e. the distillation column and the monomer scrubbers.  
[Rule 62-4.070, F.A.C., and permit 0330040-001-AC]

**X.8.** The permittee shall calculate a daily "365 day moving average" of total organic emissions from all sources using current emissions factors. A summary identifying each day's average shall be attached to and submitted with each annual operating report.  
[Rule 62-4.070, F.A.C., and permit 0330040-001-AC]

**Continuous Monitoring Requirements**

**X.9.** The permittee shall continuously monitor the operation and performance of the distillation column. As a minimum, the monitoring shall include the following:

- a) monthly monitoring of off gas HMDA concentrations.
- b) monitoring and maintaining a minimum acceptable column reflux flow of 5000 lbs/hr.
- c) maintaining a record of reflux flow hourly average readings.
- d) records shall be maintained and made available for Department inspection.

[Rule 62-4.070, F.A.C. and permit 0330040-001-AC]

**Subsection Y. This section addresses the following emissions unit(s).**

**E.U. ID**

<b><u>No.</u></b>	<b><u>Brief Description</u></b>
042	Nitric Acid Plant E

Operation of a nitric acid plant with a maximum capacity of 1500 tons per day. NOx emissions are controlled by process operating conditions and/or use of a Selective Catalytic Reduction (SCR) NOx abatement device.

In the synthesis process, ammonia is oxidized in the presence of a catalyst to form NOx which is then converted to HNO3 by a reaction with water.

This emissions unit is regulated under applicable portions of NSPS - 40 CFR 60 Subparts A, and G, adopted and incorporated by reference in Rule 62-204.800, F.A.C.

**Y.1. Capacity.** The maximum allowable operating rate is 1500 tons of 100% nitric acid produced per day.

[Rules 62-4.160(2), 62-210.200(PTE), F.A.C. ]

**Y.2. Hours of Operation.** This emissions unit is allowed to operate continuously, i.e., 8,760 hours/year.

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

**Monitoring of Operations**

**Y.3.** When the SCR Unit is not employed, the absorber column chilled water shall be monitored and water flow shall be maintained between 200 gal/min and 440 gal/min, and water temperature shall be maintained between 32 °F and 54 °F.

[Rule 62-4.070, F.A.C. and permit 0330040-003-AC]

**Y.4.** Records of daily production, hours of operation, absorber column operating parameters and continuous emission monitor maintenance (down time, calibrations, and adjustments) shall be maintained and be available for inspection by the Department.

[Rule 62-4.070, F.A.C. and permit 0330040-003-AC]

**Y.5.** The zero and span drift of the continuous emission monitor for NOx shall be checked at least once daily, and adjustments shall be made to zero and span whenever they exceed 2% and 2.5%, respectively. This shall be done consistent with 40 CFR 60.13(d).

[FAC Rule 62-204.800(7)(b)10, F.A.C. and 40 CFR 60.73(a) and permit 0330040-003-AC]

**Y.6.** The Permittee shall continuously monitor performance of the SCR Unit and ensure compliance with the emission limit. As a minimum, the monitoring information shall include the following:

a. monitoring, logging and record keeping of operating parameters

b. development and use of operating parameters to monitor the SCR Unit's performance and to insure that emissions are within the appropriate limits.

**Y.7.** The conversion factor established in accordance with 40 CFR 60.73 is 0.0125 lbs NO<sub>x</sub>/ton nitric acid per ppm. As such, the emission standard of 2.72 lbs/ton is equivalent to 218 ppm. The conversion factor shall be reevaluated during each reference method performance test, and a written report included in the reference method test report.

[FAC Rule 62-4.070 and AC17-2179 - amended November 30, 1988, FAC Rule 62-204.800(7)(b)8, 40 CFR 60.73(b), Construction permit application signed August 12, 1996]

### **Emission Limitations and Standards**

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**Y.8. Visible Emissions.** Visible emissions shall be less than 10% opacity.

[Rule 62-204.800(7)(b)10, F.A.C., 40 CFR 60.72(a)(2) and permit 0330040-003-AC]

**Y.9.** The maximum allowable annual emission rate for NO<sub>x</sub> is 2.72 lb/Ton of 100% HNO<sub>3</sub>. The permittee chose this stricter NO<sub>x</sub> emissions standard in 1988 to avoid additional permit review. The maximum allowable annual NO<sub>x</sub> emissions are 360 tons of NO<sub>x</sub> per year based on a 365 day rolling total amount.

[Rule 62-4.070, F.A.C., and permit 0330040-003-AC]

### **Test Methods and Procedures**

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

**Y.10. Emissions Tests.** See common condition number **Z.1.**

**Y.11. Visible Emissions.** The test method for visible emissions shall be EPA test method 9, incorporated and adopted by reference in Chapter 62-297, F.A.C.

[Rule 62-297.401, F.A.C.]

**Y.12. Nitrogen Oxides.** The test method for nitrogen oxides shall be EPA test method 7, 7A, 7B, 7C or 7D, incorporated and adopted by reference in Chapter 62-297, F.A.C.

[Rule 62-297.401, F.A.C.]

### **Continuous Monitoring Requirements**

**Y.13.** The owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system for measuring nitrogen oxides (NO<sub>x</sub>). The pollutant gas mixtures under Performance Specification 2 and for calibration checks under 40 CFR 60.13(d) shall be nitrogen dioxide (NO<sub>2</sub>). The span value shall be 500 ppm of NO<sub>2</sub>.

[Rule 62-296.800(7)(b)10, F.A.C. and 40 CFR 60.73(a)].

**Subsection Z. Common Conditions.**

{Permitting Note: The following conditions are placed here as a convenience and to avoid duplication. See specific conditions in Subsections A through Y for applicability.}

**Z.1. Test Methods and Procedures**

Emissions tests are required to show continuing compliance with the standards of the Department. The test results must provide reasonable assurance that the source is capable of compliance at the permitted maximum operating rate. Tests shall be conducted annually, unless otherwise specified in specific conditions. Results shall be submitted to the Department within 45 days after testing. The Department shall be notified at least 15 days prior to testing to allow witnessing.

[Rule 62-297.310, F.A.C.]

Testing of emissions shall be conducted with the emissions unit operating at permitted capacity, which is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impracticable to test at permitted capacity, an emissions unit may be tested at less than the minimum permitted capacity (i.e., at less than 90 percent of the maximum operation rate allowed by the permit); in this case, subsequent emissions unit operation is limited to 110 percent of the test load until a new test is conducted, provided however, operations do not exceed 100 percent of the maximum operation rate allowed by the permit. Once the emissions unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity.

[Rules 62-297.310(2) & (2)b., F.A.C.]

**Z.2. Determination of Process Variables.**

The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.

Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

[Rule 62-297.310(5), F.A.C.]

**Table 1-1, Summary of Air Pollutant Standards and Terms**

**Solutia, Incorporated  
Pensacola Plant**

**DRAFT Permit No.: 0330040-002-AV  
Facility ID No.: 0330040**

This table summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.

**E.U. ID No.      Brief Description**  
 003            Boiler #8  
 004            Boilers #7

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
PM	NG, ethane, offgas	8760	0.1 pounds per MMBtu			38.8	188.8	62-296.405(1)(b)	
VE	NG, ethane, offgas	8760	20% opacity except 27/8					62-296.405(1)(a)	
CO	NG, ethane, offgas	8760		54.8			240.0	project offset	
NOx	NG, ethane, offgas	8760		22.5			88.8	project offset	
VOC	NG, ethane, offgas	8760		7.04			30.8	project offset	
SO2	NG, ethane, offgas	8760	Boilers 4 thru 8 < 57.5 TPH					62-296.405(1)(c)1.f.	

**E.U. ID No.      Brief Description**  
 014, 015, 018 Boilers #4, 5 and 6

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
SO2	FO, NG, Ethane	8760	Boilers 4 thru 8 < 57.5 TPH					62-296.405(1)(c)1.f.	
VE	FO, NG, Ethane	8760	20 % opacity except 40/2					62-296.406(1)	

**E.U. ID No.      Brief Description**  
 049            Hydrogen Plant

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE	Natural gas	8760	LT 20 % opacity					62-296.320(4)(b)	

**E.U. ID No.      Brief Description**  
 001, 030, 031 053, 054, 059, 067, 012, 069, Pyrolysis Ovens

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE	natural gas	8760	5 % opacity					62-296.401(1)(a)	

**E.U. ID No.      Brief Description**  
 044, 060, 061 062, 063, 064, 079, Dryers

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
PM		8760	see permit					62-296.320(4)(a)	
VE		8760	5 % opacity					62-297.620(4)	

**E.U. ID No.      Brief Description**  
 028            Polymer Fines Removal System

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		

PM		8760	0.03 grains/dscf	0.91			62-296.320(4)(a)	
VE		8760	5% opacity				62-297.620(4)	

**E.U. ID No.**      **Brief Description**  
 045, 050, 051    Adipic Acid Packaging & Loading

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE		8760	LT 20 % opacity					62-296.320(4)(b)	

**E.U. ID No.**      **Brief Description**  
 065, 066      Product Separator and Conveyor

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE		8760	5 % opacity					62-297.620(4)	
PM, Separator		8760		9.5				62-296.320(4)(a)	
PM, Conveyor		8760		10.9				62-296.320(4)(a)	

**E.U. ID No.**      **Brief Description**  
 073            Abrasive Blast Facility

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE		8760	5% opacity					62-297.620(4)	
PM		8760		4.9				62-296.320(4)(a)	

**E.U. ID No.**      **Brief Description**  
 052            Adipic Acid Transfer System

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE		8760	5% opacity					commitment	

**E.U. ID No.**      **Brief Description**  
 080            Adipic Acid Loading

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE		8760	5% opacity					62-297.620(4)	
PM		8760		0.21				AC17-262484	

**E.U. ID No.**      **Brief Description**  
 047,070,071,07 Nylon Vydne Resin Process

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE		8760	5% opacity					62-297.620(4)	
PM		8760		4.73				62-296.320(4)(a)	

**E.U. ID No.**      **Brief Description**  
 005, 007-011, 013, 075, Vaporizers

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE		8760	10% opacity					A017-170108	

**E.U. ID No.**      **Brief Description**  
 O20              Cyclohexane Oxidation Process

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE		8760	LT 20 % opacity					62-296.404(2)(b)	
VOC		8760	see permit						
CO		8760	see permit						

**E.U. ID No.**      **Brief Description**  
 OO2              Adipic Acid Process

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE		8760	5 % opacity					AC17-262486	
NOx		8760	150 ppm, 24hr. Avg					03300040-011-AC	

**E.U. ID No.**      **Brief Description**  
 O32              Cogeneration Plant

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE	NG	8760	20% opacity					62-296.406(1)	
NOx	NG	8760		106.6				AC17-213374	
NO2	NG	8760		36.8				AC17-213374	
CO	NG	8760		83.5				AC17-213374	
VOC	NG	8760		10.9				AC17-213374	

**E.U. ID No.**      **Brief Description**  
 O38              Research and Development

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
see permit		8760	see permit						

**E.U. ID No.**      **Brief Description**  
 O55              Butane Barge Loading

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
Butane		8760			4.7			AC17-85169	

**E.U. ID No.**      **Brief Description**  
 O68              Cryogenic Ammonia Handling

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE		8760	5 % opacity					AC17-127871	

**E.U. ID No.**      **Brief Description**  
 O77              Dimethyl Ester Production

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
NOx		8760		48				AC17-229192	
Hydrogen CN		8760		6				AC17-229192	



TC as methanol		8760		15				AC17-229192	
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**E.U. ID No.**      **Brief Description**  
 O40, O41      Hexamethylene Diamine Synthesis

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
HMD		8760	see permit						

**E.U. ID No.**      **Brief Description**  
 O76      Maleic Anhydride Plant

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
maleic anhydride		8760	see permit						

**E.U. ID No.**      **Brief Description**  
 O81,O82      Nylon Polmerization

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VOC		8760	715 lbs/day, annual avg.					0330040-001-AC	

**E.U. ID No.**      **Brief Description**  
 O42      Nitric Acid Plant

Pollutant Name	Fuel(s)	Hours/Year	Allowable Emissions			Equivalent Emissions*		Regulatory Citation(s)	See permit condition(s)
			Standard(s)	lbs./hour	TPY	lbs./hour	TPY		
VE		8760	LT 10% opacity					0330040-003-AC	
NOx			see permit						

**Notes:**

\* The "Equivalent Emissions" listed are for informational purposes only.

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**Table 2-1, Summary of Compliance Requirements**

Solutia, Incorporated  
Pensacola Plant

DRAFT Permit No.: 0330040-  
Facility ID No.:0330040

This table summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.

**E.U. ID No.            Brief Description**  
003, 004            Boilers 8 and 7

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
VE	NG, ethane, offgas	EPA Method 9	annual				
PM	NG, ethane, offgas	EPA Method 5	annual				
CO	NG, ethane, offgas	EPA Method 10	CEM			yes	
NOx	NG, ethane, offgas	EPA Method 7E	annaul				
VOC	NG, ethane, offgas	EPA Method 25A	permit renewal				
SO2	NG, ethane, offgas	records				yes	

**E.U. ID No.            Brief Description**  
014, 015, 016            Boilers 4, 5 and 6

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
SO2	NG, ethane, FO	records				yes	
VE	NG, ethane, FO	EPA Method 9	annual				

**E.U. ID No.            Brief Description**  
049            Hydrogen Generating Plant

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
VE	NG, offgas	EPA Method 9	annual				

**E.U. ID No.            Brief Description**  
001,030,031,053, 054,059,067,012,069, Pyrolysis Ovens

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
VE	NG	EPA Method 9	annual				

**E.U. ID No.      Brief Description**

044,060,061,062, 063,064,079, Adipic Acid Dryers

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time	Frequency	Min. Compliance	CMS **	See permit condition(s)
			Frequency	Base Date *	Test Duration		
VE	NG	EPA Method 9	annual				
PM	NG	EPA Method 5	permit renewal				

**E.U. ID No.      Brief Description**

028      Polymer Fines Removal System

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time	Frequency	Min. Compliance	CMS **	See permit condition(s)
			Frequency	Base Date *	Test Duration		
VE		EPA Method 9	annual				
PM		EPA Method 5	permit renewal				

**E.U. ID No.      Brief Description**

045      Adipic Acid Packing Facility

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time	Frequency	Min. Compliance	CMS **	See permit condition(s)
			Frequency	Base Date *	Test Duration		
VE		EPA Method 9	annual				

**E.U. ID No.      Brief Description**

050, 051      Adipic Acid Loading

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time	Frequency	Min. Compliance	CMS **	See permit condition(s)
			Frequency	Base Date *	Test Duration		
VE		EPA Method 9	annual				

**E.U. ID No.      Brief Description**

065,066      Product Separator and Conveyor

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time	Frequency	Min. Compliance	CMS **	See permit condition(s)
			Frequency	Base Date *	Test Duration		
VE		EPA Method 9	annual				
PM		EPA Method 5	permit renewal				

**E.U. ID No.      Brief Description**

073      Abrasive Blast Facility

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time	Frequency	Min. Compliance	CMS **	See permit condition(s)
			Frequency	Base Date *	Test Duration		
VE		EPA Method 9	annual				

PM		EPA Method 5	permit renewal				
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**E.U. ID No.**      **Brief Description**  
 052      Adipic Acid Transfer

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS**	See permit condition(s)

**E.U. ID No.**      **Brief Description**  
 080      Adipic Acid Loading

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS**	See permit condition(s)
PM		EPA Method 5	permit renewal				

**E.U. ID No.**      **Brief Description**  
 047,070,071,072      Nylon Vydne Resin Process

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS**	See permit condition(s)
PM		EPA Method 5	permit renewal				

**E.U. ID No.**      **Brief Description**  
 005,007,008,009 010,011,013,075, Vaporizers

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS**	See permit condition(s)

**E.U. ID No.**      **Brief Description**  
 020      Cyclohexane Oxidation Process

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS**	See permit condition(s)
CO		see permit	annual				
VOC		see permit	annual				

**E.U. ID No.**      **Brief Description**  
 002      Adipic Acid Process, TRU/SCR, NOx Compressor

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
VE		EPA Method 9	annual				
NOx		EPA Method 7	CEM			yes	

**E.U. ID No.**      **Brief Description**  
 032      Cogeneration

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
VE	NG	EPA Method 9	annual				
NOx	NG		annual				
CO	NG		annual				
VOC	NG		permit renewal				

**E.U. ID No.**      **Brief Description**  
 038      Research and Development

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
see permit		see permit				yes	

**E.U. ID No.**      **Brief Description**  
 055      Butane Barge Unloading

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
Butane		see permit				yes	

**E.U. ID No.**      **Brief Description**  
 068      Cryogenic Ammonia Handling

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
VE		EPA Method 9	see permit			yes	

**E.U. ID No.**      **Brief Description**  
 077      Dimethyl Ester Production

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
NOx		see permit	annual				
Hydrogen CN		see permit	annual				
Total C as Methanol		see permit	annual				

**E.U. ID No.**      **Brief Description**  
 040, 041      Hexamethylene Diamine Synthesis, B & C Hexamethylene Diamine Stripper

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
HMD		EPA Method 18	annual				

**E.U. ID No.**      **Brief Description**  
 076      Maleic Anhydride Plant

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
MA		see permit					

**E.U. ID No.**      **Brief Description**  
 081, 082      Continuous and Batch Nylon Polymerization

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
VOC		see permit					

**E.U. ID No.**      **Brief Description**  
 042      Nitric Acid Plant

Pollutant Name or Parameter	Fuel(s)	Compliance Method	Testing Time Frequency	Frequency Base Date *	Min. Compliance Test Duration	CMS **	
						See permit condition(s)	
VE		EPA Method 9	annual				
NOx		EPA Method 7	annual				

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002-AV

## Appendix H-1, Permit History/ID Number Changes

Solutia, Incorporated

**DRAFT Permit No.:** 0330040-002-AV  
**Facility ID No.:** 0330040

**Permit History (for tracking purposes):**

E.U.

<u>ID No.</u>	<u>Description</u>	<u>Permit No.</u>	<u>Issue Date</u>	<u>Expiration Date</u>	<u>Extended Date</u> <sup>1,2</sup>	<u>Revised Date(s)</u>
004,003	Boilers #7&8	AO17-239459	7/8/94	6/30/99		
014	Boiler #4	0330040-001-AO	12/1/92	11/1/97		
015,016	Boilers #5&6	AO17-219432	10/15/92	10/1/97		
049	Hydrogen Plant #1	AC17-271831	7/28/95	11/1/00		
030, 031	Cleaning Ovens	AO17-224989	3/1/93	1/31/98		
053	Cleaning Ovens	AO17-183219	9/20/90	9/1/95		
054	Incinerator	AO17-183218	9/20/90	9/1/95		
059	Cleaning Oven	AO17-228470	4/30/93	4/1/98		
067	Incinerator	AO17-193299	3/6/91	3/1/96		
012,069	Cleaning Furnaces	AO17-234688	8/3/93	8/31/98		
044	Nylon Drying	AO17-183211	9/20/90	9/1/95		
052,060	Adipic Dryer & Transfer	AO17-218450	10/29/92	10/11/97		
061-064	Adipic Dryers	AO17-173960	3/12/90	2/1/95		
079, 080	Adipic Dryer & Loading	AC17-262484	7/28/95	2/1/99		
028	Polymer Fines Removal	AO17-183194	9/20/90	9/1/95		
045	Adipic Packaging	AO17-183216	9/20/90	9/1/95		
050	Adipic Loading	AO17-183217	9/20/90	9/1/95		
065, 066	Separator & Conveyor	AO17-173961	3/12/90	2/1/95		
073	Blast Facility	AO17-183195	9/20/90	9/11/95		
052	Adipic Transfer	AO17-218450	10/29/92	10/11/97		
080	Adipic Loading	AC17-262484	7/28/95	2/1/99		
047,070 071,072	Nylon Vydyne Resin Process	AO17-219437	10/15/92	10/1/97		
005,007 007-011 013,075	Vaporizers Ithru 8	AO17-170108	10/23/89	6/2/95		



020	Cyclohexane Oxid. Process	AC17-247476	7/28/94	3/1/97
002	Adipic Acid Process	AC17-262486	7/6/95	6/1/00
032	Cogeneration Plant	AO17-239459	11/29/93	11/1/98
038	Research & Development	AO17-208657	2/26/92	2/1/97
055	Butane Barge Unloading	AO17-183220	9/20/90	9/1/95
068	Cryogenic Ammonia Handling	AO17-176423	3/12/90	2/1/95
077	Dimethyl Ester Production	AO17-263462	1/17/95	12/31/99
040,041	Hexamethylene Diamine Synthesis	0330040-004-AC	12/17/96	12/17/01
076	Maleic Anhydride Plant	AC17-250268	10/3/94	9/1/99
081,082	Polymerization Lines	0330040-0030AC	3/26/96	3/26/01
042	Nitric Acid Plant	0330040-003-AC	11/25/96	10/1/01

Notes:

1 - AO permit(s) automatic extension(s) in Rule 62-210.300(2)(a)3.a., F.A.C., effective 03/21/96.

2 - AC permit(s) automatic extension(s) in Rule 62-213.420(1)(a)4., F.A.C., effective 03/20/96.

{Rule 62-213.420(1)(b)2., F.A.C., effective 03/20/96, allows Title V Sources to operate under existing valid permits}

IX

**FLORIDA'S Permit Application Summary Form**General Facility Information

Facility name: Solutia Inc.  
 Site: Pensacola Plant  
 SIC code of major product: 28, 2869

AIRS ID: 0030040  
 Date application received: June 12, 1996  
 Permit number: 0330040-002-AV  
 County located: Escambia

Application Type/Permit Activity

Initial issuance  
 Permit modification  
 Permit renewal

General permit  
 Conditional major

Facility Emissions Summary Table

Pollutant	Allowable (tpy)
PM	698
SO <sub>2</sub>	252
NO <sub>x</sub>	1470
CO	846
VOC	3242
LEAD	
HAP ≥ 10 tpy (by CAS)	H054-26 TPY, H115-66 TPY

Compliance Summary

Source is out of compliance  
 Compliance certification signed

Compliance schedule included

Applicable Requirements list

PSD       NESHAPS       Other  
 NSPS       SIP

Miscellaneous

Acid rain source  
 Facility subject to 112(r)  
 Facility applied for federally enforceable emissions cap  
 Facility provided terms for alternative operating scenarios  
 One or more emissions unit(s) subject to a MACT standard  
 One or more emissions unit(s) requested case-by-case 112(g) or (j) determination  
 Application proposes new control technology  
 Certified by responsible official  
 Diagrams or drawings included  
 Confidential business information (CBI) was received

**Table A-1. Design Information and Stack Parameters for Monsanto Cogeneration Facility- GE PG7111(EA), QUIET Combustor, Natural Gas**

Data	Gas Turbine Natural Gas 20°F	Gas Turbine Natural Gas 40°F	Gas Turbine Natural Gas 59°F	Gas Turbine Natural Gas 70°F	Gas Turbine Natural Gas 90°F
A	B	C	D	E	F
<b>General:</b>					
Power (kW)	101,400.0	95,520.0	89,820.0	86,390.0	79,850.0
Heat Rate (Btu/kwh)	9,940.0	10,030.0	10,150.0	10,230.0	10,440.0
Heat Input (MMBtu/hr)	1,007.9	958.1	911.7	883.8	833.6
Fuel (lb/hr)	46,847.1	44,530.1	42,373.8	41,076.9	38,746.6
(cf/hr)	1,060,964.2	1,008,490.1	959,655.8	930,283.9	877,509.5
<b>Fuel:</b>					
Heat Content - (LHV)	21,515.0	21,515.0	21,515.0	21,515.0	21,515.0
Sulfur	1 gr/100cf	1 gr/100cf	1 gr/100cf	1 gr/100cf	1 gr/100cf
<b>CT Exhaust:</b>					
Volume Flow (acfm)	1,616,110	1,563,804	1,512,219	1,480,815	1,422,809
Volume Flow (scfm)	604,753	579,431	555,251	540,712	514,198
Mass Flow (lb/hr)	2,641,000	2,528,000	2,419,000	2,353,000	2,230,000
Temperature (°F)	951	965	978	986	1,001
Moisture (% Vol.)	10.97	11.19	11.54	11.82	12.70
Oxygen (% Vol.)	13.08	13.08	13.05	13.01	12.87
Molecular Weight	28.05	28.02	27.96	27.95	27.86
Steam Injected (lb/hr)	78,120	75,130	70,600	66,740	58,140
<b>HRS Stack:</b>					
Volume Flow (acfm)	870,477	834,029	799,225	778,298	740,133
Temperature (°F)	300	300	300	300	300
Diameter (ft)	15.0	15.0	15.0	15.0	15.0
Velocity (ft/sec)	82.1	78.7	75.4	73.4	69.8
Stack Height (ft)	100	100	100	100	100

Source: General Electric, 1991.

HRSB Length - 76 ft; Width - 24 ft; Height - 60 ft.  
12026C1/APPA 05/06/92