

Solutia Inc.
#2 Hydrogen Plant
Facility ID No.: 0330040
Escambia County

Air Construction Permit
Permit No.: 0330040-013-AC

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

[electronic file name: solh2ac.doc]

Air Construction Permit
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Permittee:
Solutia Inc.

Permit No.: 0330040-013-AC
Facility ID No.: 0330040
SIC Nos.: 28, 2869
Project: Air Construction Permit

This permit is for the construction of the new #2 Hydrogen Plant located at 3000 Old Chemstrand Road in 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 air construction 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
Appendix SS-1, Stack Sampling Facilities

Effective Date: June 29, 1999

Expiration Date: June 29, 2004

**FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION**

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

EKM/as

Section I. Facility Information.

Subsection A. Facility Description.

This facility makes nylon and various nylon intermediate chemicals. This permit is for the phased construction of the #2 Hydrogen generation unit to supply additional hydrogen to support increased intermediates production.

Solutia has filed permit applications with the Northwest District office for an expansion of its Nylon Intermediates production capacity, consisting of four related projects -- the New Hydrogen Plant #2, Area II Expansion (Adipic Acid), New Area 471 (Phenol) and Area 480 Expansion (KA) projects. These expansions are being done in conjunction with an overall emission reduction plan involving the addition of Selective Catalytic Reduction (or equivalent) to the existing NOx Thermal Reduction Unit (TRU, at the Adipic Acid Process) and a backup to the TRU. Because of associated control equipment and process improvements, emissions of most pollutants will show a net decrease, but potential emissions of PM₁₀ will increase 14.7 T/yr, just below the 15 T/yr PSD threshold. Solutia provided the Department with sufficient information to provide reasonable assurance that the PM₁₀ increase will be below the PSD significance threshold for modifications to major sources by adherence to specified operating parameters.

Based on the permit application received and information on file, this facility is a major source for emissions of various criteria pollutants, including hazardous air pollutants (HAPs).

Subsection B. Summary of Emissions Unit ID No(s). and Brief Description(s).

E.U.

ID No.

Brief Description

083

Hydrogen Plant #2 -- Reformer Furnace Exhaust Stack

Please reference the Permit No., Facility ID No., and appropriate Emissions Unit(s) ID No(s). on all correspondence, test report submittals, applications, etc.

Permitting notes are for clarification purposes only and are not permit conditions.

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 on file with permitting authority:

Permit Application dated December 18, 1998, received December 21, 1998

Additional related information included in information received regarding the Area II (Adipic Acid), Area 471 (Phenol) and Area 480 (KA) projects, letter dated December 12, 1998, received December 21, 1998, letter dated March 18, 1999, received March 22, 1999.

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. **Not Federally Enforceable** 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.]
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. Permittee shall install appropriate stack sampling facilities, including sampling ports, work platforms, access to work platforms, electrical power, and sampling equipment support. All stack sampling facilities must meet applicable requirements of Rule 62-297(6), F.A.C. and any Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.
[Rule 62-297.310(6), F.A.C.]
6. 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.]

7. The applicant shall retain a Professional Engineer, registered in the State of Florida, for the inspection of this project. Upon completion, the engineer shall inspect for conformity to the permit application and associated documents. A revision to the Title V Permit (or application) shall be submitted no later than 180 days after the emission units commence operation. The permittee shall obtain an operating permit for this source if the permittee desires to continue operation.

[Rules 62-4.050(3), 62-210.300, and 62-213.420(5), F.A.C.]

8. The Department telephone number for reporting problems, malfunctions or exceedances under this permit is (850) 595-8364, day or night, and for emergencies involving a significant threat to human health or the environment is (800) 320-0519. For routine business, telephone (850) 595-8364 during normal working hours.

[Rules 62-210.700 and 62-4.130, F.A.C.]

9. The Department shall be notified upon commencement of construction. The Department shall be notified and prior approval shall be obtained of any changes or revisions made during construction. Projects beyond one year require annual status reports.

[Rule 62-4.030, F.A.C.]

10. 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

11. 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 Unit(s) and Conditions.

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

E.U.

ID No. Brief Description

083 Hydrogen Plant #2 -- Reformer Furnace Exhaust Stack

A feedstock of natural gas or ethane-rich gas is desulfurized. The gas is then heated in the reformer fueled by natural gas. Particulate emissions are controlled by proper combustion. Nitrogen Oxides are controlled by installation of Low NOx burners. The hydrogen produced will be used in the Area 480 process to produce KA feedstock for the Adipic Acid production area and potentially other nylon intermediates uses. Heat recovery or steam generation will be part of furnace design and operation.

{Permitting note(s): The Solutia facility makes nylon and intermediate chemicals. Solutia has filed permit applications with the Northwest District office for an expansion of its Adipic acid production capacity, consisting of four related projects -- the New Hydrogen Plant #2, Area II expansion (Adipic Acid Production), New Area 471 (Alphox production) and Area 480 expansion (KA production) projects. These expansions are being done in conjunction with an overall emission reduction plan involving the addition of Selective Catalytic Reduction (or equivalent) to the existing NOx Thermal Reduction Unit (TRU, at the Adipic Acid Process) and a backup to the TRU. Because of associated control equipment and process improvements, the net emissions of most pollutants will decrease, but potential emissions of PM₁₀ will increase 14.7 T/yr, just below the 15 T/yr PSD threshold. Solutia provided the Department with sufficient information to provide reasonable assurance that the PM₁₀ increase will be below the PSD significance threshold for modifications to major sources by adherence to specified operating parameters.}

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

Essential Potential to Emit (PTE) Parameters

A.1. Capacity. The maximum allowable operating rate shall be 114 MMBtu/hr gross heat input from all combustible gases introduced into the furnace combined. This is the rate at which compliance shall be demonstrated. However, permittee shall not exceed an average gross heat input of 95 MM Btu/hr, based on a 12 month rolling average. Permittee shall maintain records of heat input on an hourly basis and ongoing rolling 24 hour and 12 month averages available for Department inspection. (permitting note: 114 MM Btu/hr is 120% of 95 MM Btu/hr)
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C., AC Permit application]

A.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.]

A.3. Methods of Operation. Permittee shall install low NOx burners as noted in permit application. These burners shall be properly operated and maintained. Permittee shall provide manufacturer's information addressing proper operation and maintenance and a warranty statement of performance for the burners with the Title V permit revision application. [Rules 62-4.160(2) and 62-213.440(1), F.A.C., AC Permit application]

A.4. Methods of Operation. Permittee shall use only natural gas, purge gas and/or ethane-rich gas in the reformer as listed below. No other facility process waste gases, liquids or solids are to be introduced into the reformer furnace. Permittee shall install instrumentation and recording methods to keep records of types and amounts of gas burned. Records shall be made available for Department inspection for at least 5 years. [Rules 62-4.160(2) and 62-213.440(1), F.A.C., AC Permit application]

Emission Limitations and Standards

Permitting Note: The standards below are set to reflect emissions represented as not exceeding PSD thresholds when considered in conjunction with the contemporaneous emissions of the other projects in this expansion.

A.5. Particulate Matter. The maximum allowable emissions of Particulate Matter shall be 1.71 lb PM/hr and 6.24 T PM/yr. [Rules 62-4.160(2) and 62-213.440(1), F.A.C., PSD commitment, AC Permit application]

A.6. Nitrogen Oxides. The maximum allowable emissions of Nitrogen Oxides shall be 11.4 lb NOx/hr and 41.61 T NOx/yr. [Rules 62-4.160(2) and 62-213.440(1), F.A.C., PSD commitment, AC Permit application]

Test Methods and Procedures

A.7. Emissions tests are required to show compliance with the standards of the Department and representations in the permit application. The test results must provide reasonable assurance that the source is capable of compliance at the permitted maximum operating rate. Such tests shall be scheduled within ninety days after initial operation. After construction, compliance shall be demonstrated for each operating permit renewal cycle, the testing to be done within six months of operating permit renewal date. The Department shall be notified at least fifteen days prior to testing to allow witnessing. Results shall be submitted to the Department within forty-five days after testing.

<u>Pollutant</u>	<u>Test Method</u>
PM	EPA method 5
VE	EPA method 9
NOx	EPA method 7E

[Rules 62-4.070, 62-297.310(7), and 62-297.401(9), F.A.C.]

A.8. The test reports shall comply with applicable portions of Rule 62-297.310, F.A.C., Test Reports. The Department can require special compliance tests in accordance with Rule 62-297.310(7) F.A.C. Other test methods and alternate compliance procedures may be used only after prior Departmental approval has been obtained in writing.
[Rules 62-297.310(7)(b), 62-297.310(8) and 62-297.620(1), F.A.C.]

A.9. Testing of emissions shall be conducted with the source operating at capacity. Capacity is defined as 90-100% of rated capacity. If it is impractical to test at capacity, then sources may be tested at less than capacity; in this case subsequent source operation is limited to 110% of the test load until a new test is conducted. Once the unit is so limited, then operation at higher capacities is allowed for no more than fifteen days for purposes of additional compliance testing to regain the rated capacity in the permit, with prior notification to the Department.
[Rules 62-297.310(2) and 62-4.070, F.A.C.]

A.10. Special Compliance Tests. When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it may require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department.
[Rule 62-297.310(7)(c), F.A.C.]

A.11. Waiver of Compliance Test Requirements. If the owner or operator of an emissions unit that is subject to a compliance test requirement demonstrates to the Department, pursuant to the procedure established in Rule 62-297.620, F.A.C., that the compliance of the emissions unit with an applicable weight emission limiting standard can be adequately determined by means other than the designated test procedure, such as specifying a surrogate standard of no visible emissions for particulate matter sources equipped with a bag house or specifying a fuel analysis for sulfur dioxide emissions, the Department shall waive the compliance test requirements for such emissions units and order that the alternate means of determining compliance be used, provided, however, the provisions of Rule 62-297.310(7)(b), F.A.C., shall apply.
[Rule 62-297.310(7)(c), F.A.C.; and, SIP approved]

MEMORANDUM

TO : Ed K. Middleswart, P.E.
FROM : Andy Allen, Armando I. Sarasua, P.E.
DATE : 10/29/2002
SUBJECT : Evaluation Summary for Solutia Inc., #2 Hydrogen Plant
0330040-013-AC, Escambia County

We recommend issuing a permit to Solutia Inc. to construct a new Hydrogen Generation Plant at their existing facility in Gonzales. This permit is for the phased construction of the #2 Hydrogen generation unit to supply additional hydrogen to support increased nylon intermediates production. The facility is a Major Source under Title V for emissions over major source thresholds for various criteria pollutants and HAPs from other emissions units at the plant.

Solutia has filed permit applications with the NW District office for an expansion of its Nylon Intermediates production capacity, consisting of four related projects--the New Hydrogen Plant #2, Area II expansion (Adipic Acid Production), New Area 471 (Alphox production) and Area 480 expansion (KA production) projects. These expansions are being done in conjunction with an overall emission reduction plan involving the addition of Selective Catalytic Reduction (or equivalent) to the existing NOx Thermal Reduction Unit (TRU, at the Adipic Acid Process) and a backup to the TRU. Because of associated control equipment and process improvements, the net emissions of most pollutants will decrease, but potential emissions of PM₁₀ will increase 14.7 T/yr, just below the 15 T/yr PSD threshold. Solutia provided the Department with sufficient information to provide reasonable assurance that the PM₁₀ increase will be below the PSD significance threshold for modifications to major sources by adherence to specified operating parameters.

Process Description Natural gas and hydrogen-rich gases are burned to supply heat to a reformer furnace which produces hydrogen gas as a feedstock for other processes. Some heat recovery or steam generation will take place.

Pollution Control Equipment Reformer furnace uses low-NOx burners to control NOx formation. PM is controlled by use of natural gas as fuel.

Environmental Impact . Estimated emissions are: NOx, 41.6 T/yr; PM, 6.2 T/yr; VOC, 1.2 T/yr; CO, 25.4 T/yr. PSD Thresholds not exceeded by net reduction from concurrent emissions.

Applicable Rules & Regulations This source is regulated in accordance with FAC Rule 62-296.320(4) General VE Standard - 20%, 62-296.320(2) Objectionable Odor Prohibited, PM & NOx restrictions avoid PSD for emissions of concurrent projects in Areas II, 471 and 480.

Compliance Monitoring Initial compliance testing to verify NOx and PM emissions. Recordkeeping of fuel types and amounts.

Compliance History None, new emission unit.

Fee Summary Permittee submitted a fee of \$4,500, appropriate for an AC sub-type 1C, source 50 T/yr but less than 100 T/yr.

as:asc