your RETURN ADDRESS completed on the reverse side?

SEN[illegible]

- Comple[illegible] [illegible]ional serv[illegible]es.
- Complete ite[illegible]
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

[illegible] wish to [illegible] following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Phillip P. Ulichney
Reichhold Chem. CO.
PO BOX 1433
Pensacola, Fl 32596

4a. Article Number
P 360 528 995

4b. Service Type
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery MAR 25 1993

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)
[signature]

PS Form 3811 [illegible] D[illegible]MES[illegible] [illegible]

Thank you for using Return Receipt Service.

P 360 528 995

Receipt for Certified Mail

UNITED STATES POSTAL SERVICE

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to	Philip Ulichney
Street and No.	Reichhold Chem.
P.O., State and ZIP Code	Pensacola, Fl
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	AC 17-216840 3-23-93

PS Form 3800, June 1991

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

DER File No. AC 17-216840
Escambia County

Mr. Philip P. Ulichney
Reichhold Chemicals, Inc.
P. O. Box 1433
Pensacola, Florida 32596

_____/

Enclosed is Permit Number AC 17-216840 to construct chemical reactors R1 through R11 at the Reichhold Chemicals, Inc. facility in Pensacola, Escambia County, Florida. This permit is issued pursuant to Section(s) 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 3-23-93 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

(Clerk) 3-23-93 (Date)

Copies furnished to:

David Smith, P.E.
Bradford Crawford, RCI
Ed Middleswart, NWD

Final Determination

Reichhold Chemicals, Inc.
Pensacola, Escambia County, Florida

Chemical Reactors Facility

Permit Number: **AC**17-216840

Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Regulation

March 19, 1993

Final Determination

The Technical Evaluation and Preliminary Determination for the permit to construct/modify a chemical reactors facility (chemical reactors R1 through R11) at the Reichhold Chemicals complex in Pensacola, Florida, was distributed on February 4, 1993. The Notice of Intent was published in the Pensacola News Journal on February 16, 1993. Copies of the evaluation were available for inspection at the Department's offices in Pensacola and Tallahassee.

Reichhold Chemicals, Inc.'s (RCI) application for a permit to construct/modify a chemicals reactors facility (chemical reactors R1 through R11) in Pensacola has been reviewed by the Bureau of Air Regulation in Tallahassee.

No comments were submitted on the Department's Intent to Issue the permit. The final action of the Department will be to issue construction permit **AC**17-216840 as proposed in the Technical Evaluation and Preliminary Determination.

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

PERMITTEE:
Reichhold Chemicals, Inc.
Post Office Box 1433
Pensacola, FL 32596

Permit Number: AC 17-216840
Expiration Date: March 1, 1997
County: Escambia
Latitude/Longitude: 30°24'08"N
87°13'40"W
Project: Chemical Reactor Facility

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-210, 212, 275, 296, 297 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of chemical reactors R1 through R11 equipped with condenser and scrubbers to control volatile organic emissions (VOC). This facility will be located at the Reichhold Chemicals facility in Escambia County, Florida.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Reichhold Chemical, Inc.'s (RCI) applicated dated July 21, 1992.
2. Department's letters dated August 19 and October 16, 1992.
3. RCI's letters dated September 11, November 2, December 4, and December 15, 1992.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

GENERAL CONDITIONS:

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and

GENERAL CONDITIONS:

records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

Chemical Reactors Facility

Emissions Limits

1. Total VOC allowable emissions from reactors R1 through R11 shall not exceed the total emissions listed in Table 1.

2. Total VOC allowable emissions from all three stacks at this facility shall not exceed 3.25 lbs/hr (annual rate), 31.94 lbs/hr (1-hr rate), and 28,480 lbs/yr.

3. Any reactor (R1 through R11) can process any type of formula as long as the production estimate (1400 MM pounds for all reactors) and the total VOC allowable emissions from the facility are not exceeded (14.24 tons per year).

4. Maximum ambient air concentrations of the air toxics evaluated in the air quality analysis shall not exceed the air toxics reference concentrations (ATRC) calculated in accordance with the Department's Air Toxics Permitting Strategy. The following levels shall not be exceed:

SPECIFIC CONDITIONS:

	Air Toxics Reference Concentrations (ug/m^3)		
	8-hr	24-hr	Annual
Methyl Methacrylate	4100	984	-
Styrene	2130	511.2	-
Toluene	3770	898	300
Xylene	4340	1041.6	80
Maleic Anhydride	10	2.4	100
Phthalic Anhydride	61	14.64	2,000

Operating Rates

5. This facility (reactors R1 through R11) is allowed to operate continuously (8760 tons per year).

6. Written operating instructions for each batch formula shall be followed. Specifically, the control of parameters affecting volatile organic emissions such as minimum scrubber water flow rate and scrubber exit temperature. The operating instructions shall contain contingency plans in case of an exceedance of a maximum or minimum control parameter limit. Operator logs or continuous chart records of the critical water flow and vapor temperatures shall be maintained for a minimum of 2 years and be available for Department inspection.

7. Type of product manufactured (formula) and estimated emissions shall be recorded on a daily basis and shall be made available upon request.

8. Any other operating parameters established during compliance testing and/or inspection that will confirm the proper operation of this facility shall be included in the operating permit.

Compliance Determination

9. Compliance with the VOC emission limits shall be determined within 60 days after achieving the maximum production rate at which this facility will be operated, but not later than 180 days after initial start-up and as requested by the District office in their annual operating report, by the following reference methods as described in 40 CFR 60, Appendix A (July 1992 version) and adopted by reference in Rule 17-297, F.A.C.

Method 1. Sample and Velocity Traverses
Method 2. Volumetric Flow Rate

SPECIFIC CONDITIONS:

Method 3. Gas Analysis
Method 4. Determination of Moisture Content in Stack Gases
Method 25A. Determination of Total Gaseous Organic Concentrations using Flame Ionization Analyzer

Other DER approved methods may be used for compliance testing after prior Department approval.

10. Emissions will be the average of 3 valid and separate test runs. The Northwest District office will be notified in writing at least 15 days in advance of the compliance test(s). Compliance test shall be performed under the worst case scenario (as stated in the application). The reactors shall be operating while manufacturing the products with the highest VOC content. Compliance test results shall be submitted to the Northwest District office no later than 45 days after completion.

11. Compliance with the ATRC shall be demonstrated based on calculations certified by a professional engineer registered in Florida using actual operating conditions (if actual operating conditions meet or exceed emission levels used in worst case scenario as stated in the permit application). The ambient concentration for organic compounds shall be determined by Department approved dispersion modeling. ATRC calculations shall be made available upon request.

12. Compliance with this facility's storage area emissions shall be weekly visual inspections of the equipment used to store/transfer the raw materials or products. The visual inspections shall be conducted by the permittee. Any corrective action (other than preventive maintenance) shall be reported to the District office.

13. When the Department, after investigation, has good reason (such as odor complaints, increased visible emissions, excess emissions, etc.), to conclude that any applicable emission standard contained in the air regulation or in this permit is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of air pollutant emissions from the facility and to provide a report of said tests to the Department.

Rule Requirements

14. This facility shall comply with all applicable provisions of Chapter 403, Florida Statutes; Chapters 17-210 through 17-212, and 17-4, Florida Administrative Code; and 40 CFR 60 Subpart A, General Provisions.

SPECIFIC CONDITIONS:

15. This permit is issued in accordance with Rule 17-210.700, F.A.C., Sources not Subject to PSD or Nonattainment Requirements.

16. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-210.300(1)).

17. According to F.A.C. Rule 17-296.320(1)(a), no person shall store, pump, handle, process, load, unload, or use in any process or installation volatile organic compounds or organic solvents without applying known and existing vapor emissions control devices or systems deemed necessary and ordered by the Department. The following procedures shall be utilized to minimize pollutant emissions:

- maintain tightly fitting covers, lids, etc., on all containers of VOC when they are not being handled, tapped, etc.;
- prevent excessive air turbulence across exposed VOCs;
- where possible and practical, procure/fabricate a tightly fitting cover for any open trough, basin, bath, etc., of VOC so that it can be covered when not in use;
- all fittings, valve lines, etc., shall be properly maintained; and,
- all VOC spills shall be attended to immediately and the waste properly disposed of, recycled, etc.

18. This facility is subject to applicable provisions of Rules 17-296.320 and 17-297, F.A.C., Emission Test Procedures.

19. No person shall cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor pursuant to F.A.C. Rule 17-296.320(2). Objectionable odor is defined as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance pursuant to F.A.C. Rule 17-212.200(45).

20. Pursuant to Rule 17-210.300(2), F.A.C., Air Operating Permits, the permittee is required to submit annual reports (DER Form 17-210.900(4)) on the actual operating rates and emissions from the facility. Annual reports shall be sent to the Northwest District office no later than March 1. Since this facility modification is planned for two phases and it is scheduled to be completed in 4

SPECIFIC CONDITIONS:

years (1997), the permittee will be required to submit annual operating reports as mentioned above every year during the construction phase period. The permittee shall maintain operating logs which include but are not limited to the following information: raw materials, utilization rates (lbs/yr), products manufactured, reactors used, batches per year, VOC emissions (lbs/batch, lbs/hr, lbs/yr), and test results (if required). This information shall be retained for a minimum of 2 years and be available for Department inspection.

21. This permit replaces operation permits **AO**17-187600, **AO**17-171913, and **AO**17-171914 and construction permit **AC**17-142284.

22. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

23. An application for an operation permit must be submitted to the Northwest District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this 19 day
of March, 1993

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Howard L. Rhodes

Howard L. Rhodes, Director
Division of Air Resources
Management

REICHHOLD CHEMICALS, INC. (AC17-216840)

Table 1
VOC ALLOWABLE EMISSIONS
(after scrubber(s))

Formulas*	Batch Times (hrs)	Pounds per Batch	Batches per year	Total HAPs lbs per batch	Total VOCs lbs per batch	Total Emissions lbs per batch	Total HAPs lbs per year	Total VOCs lbs per year	Total Emissions lbs per year
10-015	20.5	25000	210	0.59	2.06	2.65	124	433	556
10-060	17	25000	404	0.33	0.37	0.70	133	149	283
11-035	27.5	30000	533	0.53	0.88	1.41	283	469	752
12-035	17	25000	240	0.2	0.13	0.33	48	31	79
12-102	21.5	25000	180	0.2	0.12	0.32	36	22	58
12-511	23.5	24000	188	0	0.21	0.21	0	39	39
13-030	27	24000	63	0.01	1.09	1.10	1	68	69
13-038	15.5	30000	453	0	2.27	2.27	0	1,029	1,029
13-802	25.5	30000	458	7.45	1.2	8.65	3,415	550	3,965
16-902	13.5	25000	240	0.26	0.29	0.55	62	70	132
16-917	29.5	10000	240	5.71	0.13	5.84	1,370	31	1,402
37-128	3	15000	107	0	0	0	0	0	0
37-606	11	14000	429	0	1.07	1.07	0	459	459
37-618	32	10000	945	2.96	4.21	7.17	2,797	3,977	6,776
38-505	9.5	15000	427	0.12	0.00	0.12	51	0	51
38-690	26	25000	216	0.71	3.79	4.5	153	819	972
90-511	23.5	15000	100	2.81	18.34	21.15	281	1,834	2,115
90-543	21.5	14000	332	15.79	1.53	17.32	5,245	508	5,763
92-169	19	60000	167	0.37	0.3	0.67	62	50	112
92-736	23	25000	120	0	0.04	0.04	0	5	5
95-959	25.5	25000	210	0.49	11.97	12.46	103	2,514	2,617
EA-6433	14	15000	100	3.55	0.1	3.65	355	10	365
X4-3544	19	5000	60	0	0	0	0	0	0
X4-6420	17	5000	270	0	3.31	3.31	0	894	894
TOTAL				42.08	53.41	95.49	14,519**	13,961**	28,480**

* Note: These formulas represent the most common products processed and the worst case scenario. These products are considered confidential information. Total emissions from all three (3) stacks shall not exceed 3.25 lbs/hr (annual rate), 31.94 lbs/hr (1-hr rate), and 28,480 lbs/yr.

** Total HAPs: 7.26 tons/yr
Total VOCs: 6.98 tons/yr
Total Emissions: 14.24 tons/yr

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

Interoffice Memorandum

TO: Howard L. Rhodes

FROM: C. H. Fancy

DATE: March 19, 1993

SUBJ: Approval of Construction Permit **AC**17-216840
Reichhold Chemicals, Inc.

Attached for your approval and signature is a permit prepared by the Bureau of Air Regulation for the above mentioned company to construct/modify a chemical reactors facility.

Reichhold Chemicals, Inc. (RCI) is requesting a consolidated permit (reactors R1 to R11) to provide flexibility in the production of the resins. This project involves construction of a new reactor (R9), a new venturi scrubber, connection of existing reactor R8 to the main scrubber, and connection of existing reactors R2, R5, and R11 to the new venturi scrubber. The venturi scrubber will be added to improve efficiency to the system and to reduce emissions.

No comments were received during the public notice period.

I recommend your approval and signature.

CHF/TH/plm

Attachments

~~Preston~~ OK GPL 3/19/93
JOHN B JB 3/19
Clark

Re: Reichhold Chemicals

No comments during the
P.N period.
For your review.
Teresa

Check Sheet

Company Name: Reichhold Chemicals
Permit Number: AC17-216840
PSD Number:
Permit Engineer:

Cross References:
- ☐
- ☐
- ☐

Application:
- ☑ Initial Application
- ☑ Incompleteness Letters
- ☑ Responses
- ☐ Waiver of Department Action
- ☐ Department Response
- ☐ Other

Intent:
- ☑ Intent to Issue
- ☑ Notice of Intent to Issue
- ☑ Technical Evaluation
- ☑ BACT or LAER Determination
- ☒ Unsigned Permit
- ☑ Correspondence with:
  - ☐ EPA
  - ☐ Park Services
  - ☐ Other
- ☑ Proof of Publication
- ☐ Petitions - (Related to extensions, hearings, etc.)
- ☐ Waiver of Department Action
- ☐ Other

Final Determination:
- ☑ Final Determination
- ☑ Signed Permit
- ☒ BACT or LAER Determination
- ☐ Other

Post Permit Correspondence:
- ☐ Extensions/Amendments/Modifications
- ☐ Other

Revision #5

I N T E R O F F I C E M E M O R A N D U M

Date: 28-Jul-1993 10:59am EST
From: Carol Melton PEN
MELTON_C@A1@PNS1
Dept: Northwest District Offi
Tel No: 904/436-8300
SUNCOM:

TO: Teresa Heron TAL (HERON_T @ A1 @ DER)

CC: Carol Melton PEN (MELTON_C@A1@PNS1)
CC: Andy Allen PEN (ALLEN_A@A1@PNS1)
CC: Carolyn Salmon PEN (SALMON_C@A1@PNS1)

Subject: Reichhold Chemicals Inc. Permit # AC17-216840

Dear Teresa Heron,

As per your request, the NWD is trying to determine the best way to assign APIS #'s to emission sources at Reichhold. APIS #'s are accounting and tracking tools for compliance and emission inventory purposes. Before an I.D. number is assigned, the intent of the permit must be understood by compliance, and permitting personnel.

To help the NWD better understand the intent of the Permit, please answer the following questions:

1) Is Reichhold expected to conduct separate stack tests on each scrubber (scrubber 1, scrubber 2, main scrubber)?

Specific condition 10. states, "Emissions will be the average of 3 valid and separate test runs." Three test runs per test are already required in Method 25A.

2) What is the purpose of the stack test(s)?

For example, will the stack test(s) determine compliance of the allowable total emissions limit; or the efficiency of each scrubber; or actual emissions from each scrubber.

3) Why are some sources reverting back to a construction permit from an operation permit?

Scrubber 1, scrubber 2 and the main scrubber were operating under an operation permit. Historically the NWD has issued construction permits to parts of a source actually under construction. The parts of a source already regulated by an operating permit, would retain this status. After completion of construction, sources are incorporated into a new or existing permit.

4) Are you sure that Reichhold is not operating some of their reactors and selling product?

Your time spent answering these questions, will be much appreciated.

Sincerely,
Carol A. Melton

Reichhold Chemicals, Inc.
Coating Polymers & Resins Division
407 South Pace Boulevard
P.O. Box 1433
Pensacola, Florida 32596-1433

REICHHOLD

February 24, 1993

Mr. Preston Lewis
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Notice of Intent to Issue Permit
DER File No. AC17-216840

Dear Mr. Lewis:

Attached is a copy of the legal Notice of Intent received from the Pensacola News Journal in regards to the above referenced permit.

If you have any questions, please call me at (904) 433-7621, ext. 316.

Sincerely,

Philip P. Ulichney
Plant Manager

PPU/kc
cc: J. Heron
E. Middleswart, NW Dist.

Tel.: (904) 433-7621
(800) 874-0868
FAX: (904) 433-3655
Telex: 702424

PENSACOLA
News Journal

PUBLISHED DAILY

Pensacola, Escambia County, Florida

STATE OF FLORIDA
County of Escambia

Before the undersigned authority personally appeared

Sharon Dartman

who is personally known to me and who on oath says that he/she is a representative of The Pensacola News Journal, a daily newspaper published at Pensacola in Escambia County, Florida; that the attached copy of advertisement, being a Legal in the matter of

Notice Of Intent

_____ in the _____ Court, was

published in said newspaper in the issues of

Feb 16, 1993

Affiant further says that the said Pensacola News Journal is a newspaper published at Pensacola, in said Escambia County, Florida, and that the said newspaper has heretofore been continuously published in said Escambia County, Florida each day and has been entered as second class mail matter at the post office in Pensacola, in said Escambia County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Sworn to and subscribed before me this 16

day of Feb A.D., 19 93

Betty J. Weekley
Notary Public

BETTY J. WEEKLEY
"Notary Public—State of Florida"
My Commission Expires Nov. 21, 1995
CC463199

STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL
REGULATION
NOTICE OF INTENT
TO ISSUE PERMIT

The Department of Environmental Regulation gives notice of its intent to issue a permit (AC17-216840) to Reichhold Chemicals, Inc., P.O. Box 1433, Pensacola, FL 32596 to construct chemical reactors R12 through R11. The project is located at 425 South Pace Boulevard in Pensacola. A determination of Best Available Control Technology (BACT) was not required. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision, may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition *must contain the information* set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The petition shall contain the following information; (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of
Environmental
Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida
32399-2400

Department of
Environmental
Regulation
Northwest District
160 Governmental
Center
Pensacola, Florida
3501-5794

Any person may send written comments on the proposed action to Mr. Preston Lewis at the Department's Tallahassee address. All comments received within 14 days of the publication of this notice will be considered in the Department's final determination.

Legal No. 42490 1T
Feb. 16, 1993

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
Philip P. Wichney
Reichhold Chemicals, Inc
P O Box 1433
Pensacola, Fl 32596

4. Type of Service:	Article Number
☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail	P 062 921 964

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X

7. Date of Delivery
FEB 08 1993

8. Addressee's Address (ONLY if requested and fee paid)

P 062 921 964

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to
Philip Wichney
Street and No.
Reichhold Chem.
P.O., State and ZIP Code
Pensacola, Fl

Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	2-4-93

AC 17-216840

PS Form 3800, June 1991

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

~~Carol M. Browner, Secretary~~
Virginia B. Wetherell

February 3, 1993

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Philip P. Ulichney
Reichhold Chemicals, Inc.
Post Office Box 1433
Pensacola, FL 32596

Dear Mr. Ulichney:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permit to construct chemical reactors R1 through R11.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Preston Lewis of the Bureau of Air Regulation.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/TH/plm

Attachments

cc: David Smith, P.E.
Bradford Crawford, RCI
Ed Middleswart, NWD

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CERTIFIED MAIL

In the Matter of an
Application for Permit by:

DER File No. AC17-216840
Escambia County

Reichhold Chemicals, Inc.
Post Office Box 1433
Pensacola, FL 32596

_____/

INTENT TO ISSUE

The Department of Environmental Regulation gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above, for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Reichhold Chemicals, Inc., applied on July 21, 1992, to the Department of Environmental Regulation for a permit to construct chemical reactors R1 through R11. This project is located at 107 South Pace Boulevard in Pensacola, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes and Florida Administrative Code (F.A.C.) Chapters 17-212 and 17-4. The project is not exempt from permitting procedures. The Department has determined that a construction permit is required for the proposed work.

Pursuant to Section 403.815, Florida Statutes and Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by Petitioner, if any;
(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this intent in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this

proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on 2-4-93 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk 2-4-93 Date

Copies furnished to:
David Smith, P.E.
Bradford Crawford, RCI
Ed Middleswart, NWD

the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Department of Environmental Regulation
Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794

Any person may send written comments on the proposed action to Mr. Preston Lewis at the Department's Tallahassee address. All comments received within 14 days of the publication of this notice will be considered in the Department's final determination.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF INTENT TO ISSUE PERMIT

The Department of Environmental Regulation gives notice of its intent to issue a permit (**AC**17-216840) to Reichhold Chemicals, Inc., PO Box 1433, Pensacola, FL 32596 to construct chemical reactors R1 through R11. The project is located at 107 South Pace Boulevard in Pensacola. A determination of Best Available Control Technology (BACT) was not required. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information; (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in

Technical Evaluation
and
Preliminary Determination

Reichhold Chemicals, Inc.
Pensacola, Escambia County, Florida

Chemical Reactors Facility

Permit Number: **AC**17-216840

Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Regulation

February 3, 1993

I. NAME AND ADDRESS OF APPLICANT

Reichhold Chemicals, Inc.
Post Office Box 1433
Pensacola, Florida 32596

II. REVIEWING AND PROCESS SCHEDULE

Date of Receipt of Application: July 21, 1992.

Completeness Review: Department's letters dated August 19 and October 16, 1992.

Applicant Response to Incompleteness Letter: Company's letters dated September 11 and December 4, 1992.

Application Completeness Date: December 7, 1992.

III. FACILITY INFORMATION

III.1 FACILITY LOCATION

The proposed sources are located at 407 South Pace Boulevard in Pensacola, Escambia County, Florida. The latitude and longitude coordinates are 30°24'30"N and 87°14'40"W.

III.2 STANDARD INDUSTRIAL CLASSIFICATION CODE (SIC)

This facility is classified as follows:

Major Group No. 28 - Chemicals and Allied Products

Industry Group No. 282 - Plastics, Materials and Synthetic Resin, Synthetic Rubbers, Synthetic and other man made fibers, except glass

Industry No. 2821 - Plastics

III.3 FACILITY CATEGORY

Reichhold Chemicals, Inc. is a minor emitting facility for volatile organic compounds (VOC) and particulate matter (PM). The entire plant's actual VOC emissions (SARA 393 report data) are 34,068 pounds per year (17.03 TPY). The chemical reactor facility's potential VOC emissions are 28,480 pounds per year (14.24 TPY). There is no VOC emission increases at the entire plant as a result of the proposed modification.

IV. PROJECT DESCRIPTION

This project involves the construction of a new reactor (R9), a new venturi scrubber, connection of R8 to the main scrubber, and connection of R2, R5, and R11 to the new venturi scrubber. R8 is currently permitted to vent directly to the atmosphere through a condenser and conservation vent. The venturi scrubber will be added to improve efficiency to the system. Reactors R2, R5, and R11 will be connected to the new venturi scrubber to provide both cleaner emissions and add flexibility of the new products produced in these reactors.

Reichhold Chemicals, Inc. (RCI) is requesting a consolidated permit to provide flexibility in the production of the resins. RCI uses 300+ raw materials to make many different resins.

This project is scheduled to be built in phases. The installation of the new venturi scrubber and connection of reactor vents to the scrubber system will be completed first. Construction of the new R9 reactor will not begin until the other changes are made and started-up.

IV.1 BACKGROUND INFORMATION

An updated air pollution source inventory was submitted by the company along with the 1991 Sara 313 data. It was concluded that the greatest emissions at the RCI complex are volatile organic compounds, 17.03 tons per year (actual emissions). Particulate matter emissions are in the order of 3 tons per year. The majority of the high emitter VOC sources from the Reichhold Chemicals plant were sold to Arizona Chemicals.

The industrial manufacturing processes at the Pensacola Plant are: copolymers and acrylics, synthetic resin from modified wood and tall oil resin, alkyd resins from various vegetables oils and fatty acid, epoxy resins and resin esters.

All resinous materials, both liquids and solids are stored at room temperature, and are shipped in solid form in metal resin drums, in flaked or crushed form in bags, or as solutions in various solvents, such as toluene or xylene, in sealed drums or tank trucks.

V. PROCESS DESCRIPTION

RCI is a resin manufacturer involved in the production of alkyd resins (solvent process), alkyd resins (fusion process), copolymer resins, water reducible epoxy esters, epoxy, hardeners, and acrylic resins for the coating industry. The resin is produced

in vessels called chemical reactors. The reactors are operated in a batch mode with each reactor producing a discreet quantity of products per batch.

Currently, RCI produces resin in ten (10) reactors, R1 through R11 (excluding proposed R9). Each process, except for the Alkyd Resin Fusion Process, is vented through either the R1 or R2 scrubber stack. This process accounts for approximately 15% of all production. The attached flow diagram (Attachment No. 1) shows the routing of all emission vents after the proposed modification. All processes, except for the fusion process, are vented through a condenser prior to entering the scrubbers.

The products to be processed at these reactors are identified in Attachment No. 2. The emission data presented is based on a distribution of product types to each individual reactor. While this is accurate in terms of total air emissions (worse case scenario), the exact product demand and reactor scheduling will dictate actual operations. Many of the products (formulas) can be manufactured in more than one reactor.

VI. RULE APPLICABILITY

This project is subject to preconstruction review requirements under the provisions of Chapter 403, Florida Statutes (F.S.) and Chapter 17-212, Florida Administrative Code (F.A.C.).

The proposed sources are located at RCI's complex in an area (Escambia County) currently designated attainment for all criteria pollutants in accordance with Rule 17-275.400, F.A.C.

RCI is a minor emitting facility for particulate matter and volatile organic compounds as defined in Rule 17-212.400, F.A.C.

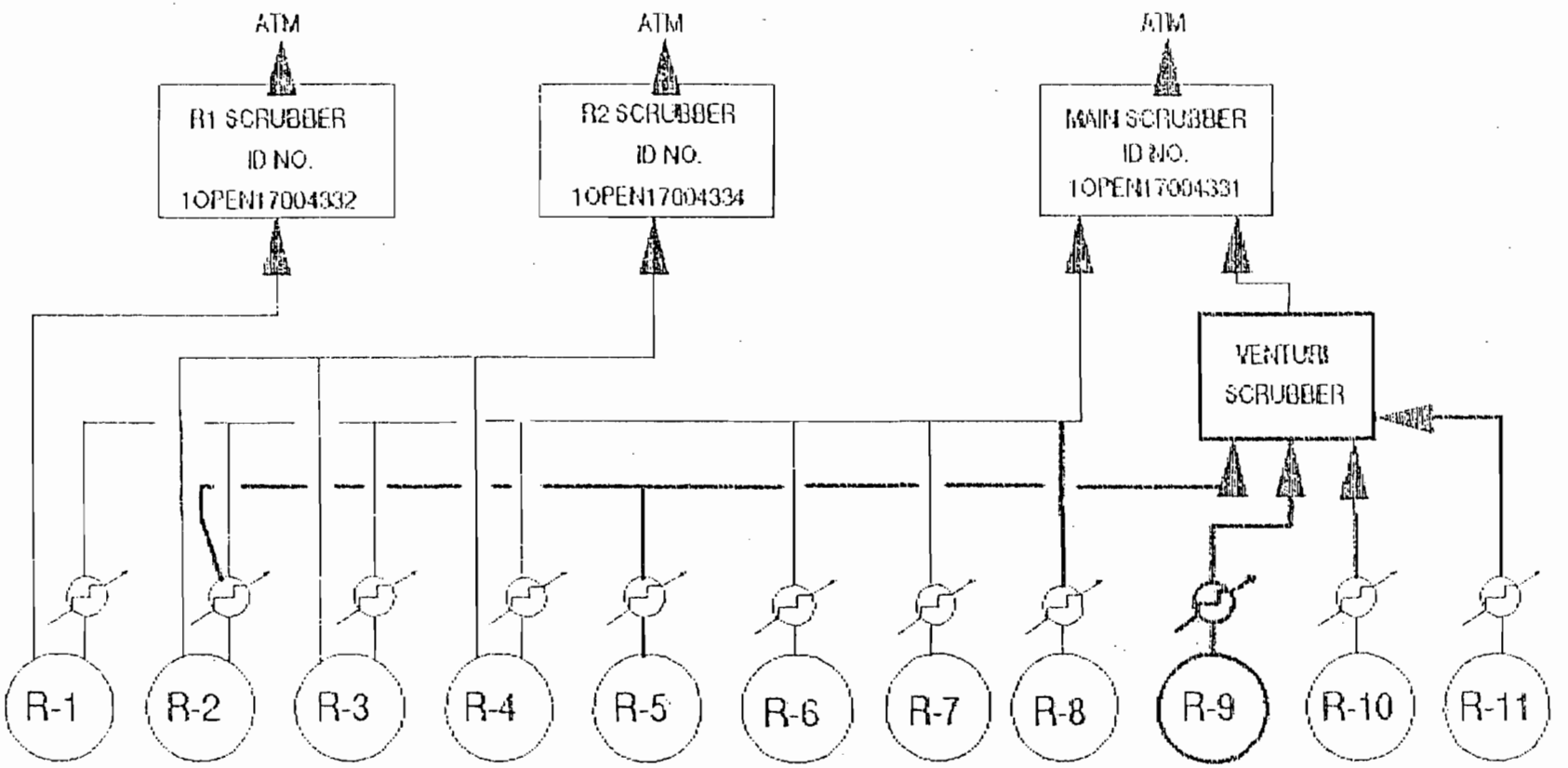
This facility category, Chemicals Process Plant, is in the list of the 28, Table 17-212.400-1, Major Facility Category, Rule 17-212.400, F.A.C.

The proposed project is exempt from provisions of Rule 17-212.400, F.A.C., Prevention of Significant Deterioration, because its emissions do not exceed the PSD significance levels.

The proposed project shall be permitted under Rule 17-212.400, F.A.C., Sources Not Subject to Prevention of Significant Deterioration or Nonattainment Requirements.

The proposed facility shall comply with Rule 17-296.310(1) and (2), F.A.C., General Pollutant Emissions Limiting Standards.

ATTACHMENT 1



REACTOR EMISSIONS
FLOW DIAGRAM
7/13/92

Attachment No. 2
Summary
(Production Estimate (MM pounds) for Reactors)

Formulas*	Time (hrs)	Pounds per Batch	Batches per year	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	Total
10-015	20.5	25000	210			3	2.25								5.25
10-060	17	25000	404	3	0.3			0.3		5		1.5			10.1
11-035	27.5	30000	533				6			10					16
12-035	17	25000	240	6											6
12-102	21.5	25000	180	3			1.5								4.5
12-511	23.5	24000	188			4.5									4.5
13-030	27	24000	63			1.5									1.5
13-038	15.5	30000	453								10			3.6	13.6
13-802	25.5	30000	458					0.75			10			3	13.75
16-902	13.5	25000	240			3	3								6
16-917	29.5	10000	240		2.4										2.4
37-128	3	15000	107						1.6						1.6
37-606	11	14000	429										6		6
37-618	32	10000	945		0.9			0.3				8.25			9.45
38-505	9.5	15000	427						6.4						6.4
38-690	26	25000	216											5.4	5.4
90-511	23.5	15000	100									1.5			1.5
90-543	21.5	14000	332		2.4							2.25			4.65
92-169	19	60000	167							10					10
92-736	23	25000	120	3											3
95-959	25.5	25000	210			3	2.25								5.25
EA-6433	14	15000	100									1.5			1.5
X4-3544	19	5000	60					0.3							0.3
X4-6420	17	5000	270					1.35							1.35
TOTAL				15	6	15	15	3	8	25	20	15	6	12	140

* These formulas represent the most common products processed and the worst case scenario.

VII. EMISSION LIMITATIONS

VII.1 SOURCE IMPACT ANALYSIS

The processing of the different resins will produce emissions of volatile organic compounds (VOC).

The estimated total potential VOC emissions due to the processing of all different raw materials at all the reactors (R1 through R11) are summarized in Attachment No. 2. The total VOC emissions include the total hazardous pollutant emissions identified in the EPA list of 189 Hazardous Pollutants along with the other different emissions from the chemicals compounds used.

All raw materials and finished products are stored in bulk storage tanks, 50 pound bags, 55 gallon drums or small container (DOT) approved. Bulk storage tanks are equipped with conservation vents to control emissions, and emissions from each reactor loading are vented through the condenser and scrubber system to help control emissions.

RCI's plant wide VOC emissions levels are 17.03 tons per year.

VII.2 AIR TOXICS EVALUATION

The operation of this chemical reactors facility will produce emissions of chemical compounds that may be toxic in high concentrations. The emission rates of these chemicals shall not create ambient concentrations greater than the air toxics reference concentrations (ATRC) listed in the Department's air toxics list. The following table lists the maximum emission rates for each hazardous air pollutant (worst case scenario).

Air Toxics Maximum Emission Rates*

Hazardous Air Pollutants (HAPs)	Annual Rate (lb/hr)	24-hr Rate* (lb/hr)	8-hr Rate* (lb/hr)	1-hr Rate** (lb/hr)
Methyl Methacrylate	0.8442	1.378	3.7863	7.5726
Styrene	0.0455	0.086	0.2757	0.5150
Toluene	0.2252	0.830	2.2275	4.4550
Xylene	0.5418	0.630	1.7450	3.4900
Maleic Anhydride	0.0003	0.021	0.0625	0.1250
Phthalic Anhydride	0.0002	0.021	0.0625	0.1250
Total HAPs	1.6572	2.966	8.1413	16.2826
Total VOCs	3.2511***			31.94****

* Values from modeling analysis.
** Most emissions occur during a short portion of the batch cycle.
*** Total emissions from facility converted to average hourly rate.
**** Total VOC maximum hourly rate calculated by using the same ratio as between hourly rate vs. annual rate for total HAPs.

VII.2 AIR QUALITY ANALYSIS

The project has been evaluated in accordance with the procedures contained in the Department's Air Toxics Permitting Strategy (draft). The maximum hourly emissions of potential air toxics were modeled to determine the maximum predicted ambient concentrations for comparison to the conservative ATRC guideline contained in the air toxics permitting strategy. The pollutants evaluated were methyl methacryate, styrene, toluene, xylene, maleic anhydride, phthalic anhydride.

The applicant used the EPA and Department-approved Industrial Source Complex Short-Term (ISCST)2 model with five years of meteorological data in its modeling analysis (1982-1986 Pensacola, FL/Apalachicola, FL National Weather Service data). Direction specific downwash parameters were used because the stacks were less than good engineering practice (GEP) stack heights. Dispersion modeling was performed with receptors placed along the 36 standard radial directions (10 degrees apart). Surrounding the proposed units at the following downwind distances: (1) the first 36 receptors were located at plant property boundaries; (2) subsequent receptors were located at offsite locations of 50, 100, 200, 300, 400, 500, 600, 700, 800, 900 and 1000 meters from the facility. The Department compared the highest predicted concentrations to the no-threat levels for each pollutant.

The modeling results are given in the table below and show that maximum predicted concentrations for each pollutant are less than the appropriate ATRC.

Pollutant	Maximum Predicted Concentration (ug/m^3)			Air Toxics Reference Concentration (ug/m^3)		
	8-hr	24-hr	Annual	8-hr	24-hr	Annual
Methyl Methacrylate	217.7	46.4	3.5	4100	984	-
Styrene	14.8	2.9	0.19	2130	511.2	-
Toluene	128.1	27.9	0.93	3770	898	300
Xylene	100.4	21.1	2.23	4340	1041.6	80
Maleic Anhydride	3.6	0.7	0.0014	10	2.4	100
Phthalic Anhydride	3.6	0.7	0.00094	61	14.64	2,000

VIII. CONCLUSION

Based on the information provided by RCI, the Department has reasonable assurance that the proposed project, as described in this evaluation, and subject to the conditions proposed herein, will not cause or contribute to a violation of any ambient air quality standard, PSD increment, or any other technical provisions of Chapter 17-212 of the Florida Administrative Code.

#41755

PRESTON LEWIS
CERTIFICATE NO. 41755
STATE OF FLORIDA
REGISTERED ENGINEER

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:
Reichhold Chemicals, Inc.
Post Office Box 1433
Pensacola, FL 32596

Permit Number: AC 17-216840
Expiration Date: March 1, 1997
County: Escambia
Latitude/Longitude: 30°24'08"N
87°13'40"W
Project: Chemical Reactor Facility

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-210, 212, 275, 296, 297 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of chemical reactors R1 through R11 equipped with condenser and scrubbers to control volatile organic emissions (VOC). This facility will be located at the Reichhold Chemicals facility in Escambia County, Florida.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Reichhold Chemical, Inc.'s (RCI) applicated dated July 21, 1992.
2. Department's letters dated August 19 and October 16, 1992.
3. RCI's letters dated September 11, November 2, December 4, and December 15, 1992.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

GENERAL CONDITIONS:

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and

GENERAL CONDITIONS:

records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

Chemical Reactors Facility

Emissions Limits

1. Total VOC allowable emissions from reactors R1 through R11 shall not exceed the total emissions listed in Table 1.

2. Total VOC allowable emissions from all three stacks at this facility shall not exceed 3.25 lbs/hr (annual rate), 31.94 lbs/hr (1-hr rate), and 28,480 lbs/yr.

3. Any reactor (R1 through R11) can process any type of formula as long as the production estimate (1400 MM pounds for all reactors) and the total VOC allowable emissions from the facility are not exceeded (14.24 tons per year).

4. Maximum ambient air concentrations of the air toxics evaluated in the air quality analysis shall not exceed the air toxics reference concentrations (ATRC) calculated in accordance with the Department's Air Toxics Permitting Strategy. The following levels shall not be exceed:

SPECIFIC CONDITIONS:

	Air Toxics Reference Concentrations (ug/m^3)		
	8-hr	24-hr	Annual
Methyl Methacrylate	4100	984	-
Styrene	2130	511.2	-
Toluene	3770	898	300
Xylene	4340	1041.6	80
Maleic Anhydride	10	2.4	100
Phthalic Anhydride	61	14.64	2,000

Operating Rates

5. This facility (reactors R1 through R11) is allowed to operate continuously (8760 tons per year).

6. Written operating instructions for each batch formula shall be followed. Specifically, the control of parameters affecting volatile organic emissions such as minimum scrubber water flow rate and scrubber exit temperature. The operating instructions shall contain contingency plans in case of an exceedance of a maximum or minimum control parameter limit. Operator logs or continuous chart records of the critical water flow and vapor temperatures shall be maintained for a minimum of 2 years and be available for Department inspection.

7. Type of product manufactured (formula) and estimated emissions shall be recorded on a daily basis and shall be made available upon request.

8. Any other operating parameters established during compliance testing and/or inspection that will confirm the proper operation of this facility shall be included in the operating permit.

Compliance Determination

9. Compliance with the VOC emission limits shall be determined within 60 days after achieving the maximum production rate at which this facility will be operated, but not later than 180 days after initial start-up and as requested by the District office in their annual operating report, by the following reference methods as described in 40 CFR 60, Appendix A (July 1992 version) and adopted by reference in Rule 17-297, F.A.C.

Method 1. Sample and Velocity Traverses
Method 2. Volumetric Flow Rate

SPECIFIC CONDITIONS:

Method 3. Gas Analysis
Method 4. Determination of Moisture Content in Stack Gases
Method 25A. Determination of Total Gaseous Organic Concentrations using Flame Ionization Analyzer

Other DER approved methods may be used for compliance testing after prior Department approval.

10. Emissions will be the average of 3 valid and separate test runs. The Northwest District office will be notified in writing at least 15 days in advance of the compliance test(s). Compliance test shall be performed under the worst case scenario (as stated in the application). The reactors shall be operating while manufacturing the products with the highest VOC content. Compliance test results shall be submitted to the Northwest District office no later than 45 days after completion.

11. Compliance with the ATRC shall be demonstrated based on calculations certified by a professional engineer registered in Florida using actual operating conditions (if actual operating conditions meet or exceed emission levels used in worst case scenario as stated in the permit application). The ambient concentration for organic compounds shall be determined by Department approved dispersion modeling. ATRC calculations shall be made available upon request.

12. Compliance with this facility's storage area emissions shall be weekly visual inspections of the equipment used to store/transfer the raw materials or products. The visual inspections shall be conducted by the permittee. Any corrective action (other than preventive maintenance) shall be reported to the District office.

13. When the Department, after investigation, has good reason (such as odor complaints, increased visible emissions, excess emissions, etc.), to conclude that any applicable emission standard contained in the air regulation or in this permit is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of air pollutant emissions from the facility and to provide a report of said tests to the Department.

Rule Requirements

14. This facility shall comply with all applicable provisions of Chapter 403, Florida Statutes; Chapters 17-210 through 17-212, and 17-4, Florida Administrative Code; and 40 CFR 60 Subpart A, General Provisions.

SPECIFIC CONDITIONS:

15. This permit is issued in accordance with Rule 17-210.700, F.A.C., Sources not Subject to PSD or Nonattainment Requirements.

16. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-210.300(1)).

17. According to F.A.C. Rule 17-296.320(1)(a), no person shall store, pump, handle, process, load, unload, or use in any process or installation volatile organic compounds or organic solvents without applying known and existing vapor emissions control devices or systems deemed necessary and ordered by the Department. The following procedures shall be utilized to minimize pollutant emissions:

- maintain tightly fitting covers, lids, etc., on all containers of VOC when they are not being handled, tapped, etc.;
- prevent excessive air turbulence across exposed VOCs;
- where possible and practical, procure/fabricate a tightly fitting cover for any open trough, basin, bath, etc., of VOC so that it can be covered when not in use;
- all fittings, valve lines, etc., shall be properly maintained; and,
- all VOC spills shall be attended to immediately and the waste properly disposed of, recycled, etc.

18. This facility is subject to applicable provisions of Rules 17-296.320 and 17-297, F.A.C., Emission Test Procedures.

19. No person shall cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor pursuant to F.A.C. Rule 17-296.320(2). Objectionable odor is defined as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance pursuant to F.A.C. Rule 17-212.200(45).

20. Pursuant to Rule 17-210.300(2), F.A.C., Air Operating Permits, the permittee is required to submit annual reports (DER Form 17-210.900(4)) on the actual operating rates and emissions from the facility. Annual reports shall be sent to the Northwest District office no later than March 1. Since this facility modification is planned for two phases and it is scheduled to be completed in 4

SPECIFIC CONDITIONS:

years (1997), the permittee will be required to submit annual operating reports as mentioned above every year during the construction phase period. The permittee shall maintain operating logs which include but are not limited to the following information: raw materials, utilization rates (lbs/yr), products manufactured, reactors used, batches per year, VOC emissions (lbs/batch, lbs/hr, lbs/yr), and test results (if required). This information shall be retained for a minimum of 2 years and be available for Department inspection.

21. This permit replaces operation permits **AO**17-187600, **AO**17-171913, and **AO**17-171914 and construction permit **AC**17-142284.

22. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

23. An application for an operation permit must be submitted to the Northwest District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this _____ day
of _____, 1993

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____
Howard L. Rhodes, Director
Division of Air Resources
Management

REICHHOLD CHEMICALS, INC. (AC17-216840)

Table 1
VOC ALLOWABLE EMISSIONS
(after scrubber(s))

Formulas*	Batch Times (hrs)	Pounds per Batch	Batches per year	Total HAPs lbs per batch	Total VOCs lbs per batch	Total Emissions lbs per batch	Total HAPs lbs per year	Total VOCs lbs per year	Total Emissions lbs per year
10-015	20.5	25000	210	0.59	2.06	2.65	124	433	556
10-060	17	25000	404	0.33	0.37	0.70	133	149	283
11-035	27.5	30000	533	0.53	0.88	1.41	283	469	752
12-035	17	25000	240	0.2	0.13	0.33	48	31	79
12-102	21.5	25000	180	0.2	0.12	0.32	36	22	58
12-511	23.5	24000	188	0	0.21	0.21	0	39	39
13-030	27	24000	63	0.01	1.09	1.10	1	68	69
13-038	15.5	30000	453	0	2.27	2.27	0	1,029	1,029
13-802	25.5	30000	458	7.45	1.2	8.65	3,415	550	3,965
16-902	13.5	25000	240	0.26	0.29	0.55	62	70	132
16-917	29.5	10000	240	5.71	0.13	5.84	1,370	31	1,402
37-128	3	15000	107	0	0	0	0	0	0
37-606	11	14000	429	0	1.07	1.07	0	459	459
37-618	32	10000	945	2.96	4.21	7.17	2,797	3,977	6,776
38-505	9.5	15000	427	0.12	0.00	0.12	51	0	51
38-690	26	25000	216	0.71	3.79	4.5	153	819	972
90-511	23.5	15000	100	2.81	18.34	21.15	281	1,834	2,115
90-543	21.5	14000	332	15.79	1.53	17.32	5,245	508	5,763
92-169	19	60000	167	0.37	0.3	0.67	62	50	112
92-736	23	25000	120	0	0.04	0.04	0	5	5
95-959	25.5	25000	210	0.49	11.97	12.46	103	2,514	2,617
EA-6433	14	15000	100	3.55	0.1	3.65	355	10	365
X4-3544	19	5000	60	0	0	0	0	0	0
X4-6420	17	5000	270	0	3.31	3.31	0	894	894
TOTAL				42.08	53.41	95.49	14,519**	13,961**	28,480**

* Note: These formulas represent the most common products processed and the worst case scenario. These products are considered confidential information. Total emissions from all three (3) stacks shall not exceed 3.25 lbs/hr (annual rate), 31.94 lbs/hr (1-hr rate), and 28,480 lbs/yr.

** Total HAPs: 7.26 tons/yr
Total VOCs: 6.98 tons/yr
Total Emissions: 14.24 tons/yr

Reichhold Chemicals, Inc.
Corporate Headquarters
P.O. Box 13582
Research Triangle Park, NC 27709-3582

File

December 4, 1992

REICHHOLD

Ms. Teresa Heron
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RECEIVED
DEC 07 1992
Division of Air
Resources Management

RE: Reichhold Chemicals, Incorporated - Pensacola, Florida
Construction Permit Application
Permit Nº AC17-216840

Dear Ms. Heron:

This transmittal is being submitted in response to your November 18, 1992 telephone conversation with Michael Long, requesting additional information in support of the Reichhold air permit application at our Pensacola, Florida facility.

Information you requested during the conversation is listed below:

1. **SARA Air Emissions from Reactors**

   A table of 1991 emissions reported for SARA Section 313 listed chemicals from the reactors is included as Enclosure 1.

2. **Air Permit History**

   A summary of the air permits history for the facility (including operations which have since been sold to Arizona Chemicals, Inc.) is included as Enclosure 2.

3. **Applicability of 40 CFR 60.480 (Subpart VV)**

   During your conversation with Michael Long, the potential applicability of Subpart VV of the New Source Performance Standards was discussed. The regulations only apply to a "process unit" at a facility (40 CFR 60.480(a)(2)). However, 40 CFR 60.481 defines "process unit" as "components assembled to produce, as intermediate or final products, one or more of the chemicals listed in 60.489 of this part." While Reichhold uses several chemicals on the referenced list in the process, we do not produce any of the listed chemicals. Therefore, Subpart VV does not apply. A copy of the regulations is included as Enclosure 3.

Tel: (919) 990-7500
Fax: (919) 990-7711

BEST AVAILABLE COPY

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 2725193144

2197A 2725193144

RECIPIENT'S COPY

1 Date: 12-4-92

From (Your Name) Please Print: Brad Crawford
Your Phone Number (Very Important): (919) 990-7500
Company: REICHHOLD CHEMICALS INC
Department/Floor No.:
Street Address: 2400 ELLIS ROAD
City: DURHAM State: NC ZIP Required: 27703

2 To (Recipient's Name) Please Print: Ms. Teresa Heron
Recipient's Phone Number (Very Important): (904-) 488-1344
Company: Bureau of Air Regulation - FDER
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 2600 Blair Stone Road Twin Towers Office Building
City: Tallahassee State: FL ZIP Required: 32399-2400

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address:
City: State: ZIP Required:

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card 5 [ ] Cash/Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)	Standard Overnight (Delivery by next business afternoon. No Saturday delivery†)
11 [ ] YOUR PACKAGING	51 [ ] YOUR PACKAGING
16 [X] FEDEX LETTER*	56 [ ] FEDEX LETTER*
12 [ ] FEDEX PAK*	52 [ ] FEDEX PAK*
13 [ ] FEDEX BOX	53 [ ] FEDEX BOX
14 [ ] FEDEX TUBE	54 [ ] FEDEX TUBE
Economy Two-Day (Delivery by second business day †)	**Government Overnight** (Restricted for authorized users only)
30 [ ] ECONOMY	46 [ ] GOVT LETTER
	41 [ ] GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
70 [ ] OVERNIGHT FREIGHT** (Confirmed reservation required)
80 [ ] TWO-DAY FREIGHT**
† Delivery commitment may be later in some areas.
*Declared Value Limit $500.
**Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [✓] DELIVER WEEKDAY
3 [ ] DELIVER SATURDAY (Extra charge) (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ]
6 [ ] DRY ICE ____ Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
[ ]
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE
Total	Total	Total

DIM SHIPMENT (Chargeable Weight)
[ ] ____ lbs.
L x W x H

Received At: 1 [✓] Regular Stop 2 [ ] On-Call Stop 3 [ ] Drop Box 4 [ ] B.S.C. 5 [ ] Station

7 Release Signature:

Emp. No. Date
[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del. [ ] Chg. To Hold
Street Address
City State Zip
Received By: X
Date/Time Received FedEx Employee Number

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 2/92
PART #137204 FXEM 6/92
FORMAT #126
126

4. **Compliance Test Scenario**

During the telephone conversation, you requested Reichhold propose an operating scenario for use during compliance stack testing. The scenario utilized for computer modeling to demonstrate compliance with "no threat levels" was a worst case scenario with all reactors running.

In reality, manpower and equipment limitations would not allow all reactors to run simultaneously. Therefore, Enclosure 4 is a table listing a practical "worst case" scenario which could be set-up for stack testing purposes. The scenario utilizes large reactors, making high VOC products, while taking into account equipment limitations. While not the "worst case" scenario used for computer modeling, it is believed this scenario is a realistic worst case for actual expected operations.

It is believed this submittal will satisfy your remaining questions concerning the project. If you have need for further clarification, or have additional questions, please call me at (919) 990-7540.

Sincerely,

Bradford S. Crawford
Regional Environmental Engineer
Environmental Compliance

BSC/gc
Enclosures

REICHHOLD CHEMICALS, INC.
PENSACOLA, FLORIDA
1991 SARA AIR EMISSIONS SUMMARY

ENCLOSURE 1

CHEMICAL	CAS №	1991 REACTOR AIR EMISSIONS
Toluene	108-88-3	398 lb.
Xylene	1330-20-7	452 lb.
Methyl Ethyl Ketone	78-93-3	17 lb.
Methyl Isobutyl Ketone	108-10-1	6 lb.
Butyl Cellosolve	111-76-2	29 lb.
Secondary Butanol	78-92-2	5 lb.
Ethylene Glycol Monopropyl Ether	2807-30-9	1 lb.

REICHHOLD CHEMICALS, INC.
PENSACOLA, FLORIDA

ENCLOSURE 2

AIR PERMIT HISTORY

PERMIT Nº	SOURCE	POLLUTANT	EST. EMISSIONS (TPY)	STATUS
AO17-171913	S. Plant Main Process Scrubber	Hydrocarbons	See Application	Active
AO17-171914	R-1 Reactor Scrubber	Hydrocarbons	See Application	Active
AO17-171914	R-2 Reactor Scrubber	Hydrocarbons	See Application	Active
AO17-93683	Flaker System Hood	Heat & Traces of Hydrocarbons (Resin Oils)	0	Arizona Chemicals
AO17-220210	Boiler Nº 11	NOx SO_2 Particulates	15.35 .06 .33	Active
AO17-188649	Boiler Nº 12	NOx SO_2 Particulates	13.21 .06 .28	Active
AO17-188645	9 Storage Tanks	Hydrocarbons	.78	Active
AC17-213442	Main Dowtherm Heater	NOx	2.62	Under Construction
AO17-81419	Industrial Steam Boiler Nº8	Particulates	0	Gone
AO17-81423	Industrial Steam Boiler Nº9	Particulates	0	Gone
AO17-81424	Industrial Steam Boiler Nº10	Particulates	147.2	Gone
AO17-171916	Dowtherm Heater Nº 1	Particulates NOx HC SO_2	.044 .375 .100 .001	Active
AO17-171916	Dowtherm Heater Nº 2	Particulates NOx HC SO_2	.037 .312 .083 .001	Active
AO17-171916	Reactor Nº 7 Furnace	Particulates NOx HC SO_2	.055 .363 .122 .002	Active

AO17-81422	Resin Flaking & Bagging Building Nº 65	Particulates Resin Dust	0.42	Arizona Chemicals
AO17-73934	Resin Flaking & Bagging Building Nº 56	Particulates Resin Dust	0.88	Arizona Chemicals
AO17-73937	Resin Crushing & Bagging Building Nº 91	Particulates Resin Dust	0.52	Arizona Chemicals
AO17-60662	Flaker Baghouse - South Plant Flaking & Crushing	Particulates Resin Dust	0.36	Gone
AO17-81420	Polyterpene Resin Process	Hydrocarbons	86.9	Arizona Chemicals
AO17-73935	Zinc Resinate Process	Hydrocarbons	19.8	Arizona Chemicals
AO17-187600	Organic Coatings Process	Hydrocarbons	8.75	Active
AO17-73933	Terpene-Phenol Resin Process	Hydrocarbons	67.8	Arizona Chemicals
AO17-81421	Paramenthane Hydroperoxide Process	Hydrocarbons	0	Arizona Chemicals

fire the afterburner. Upon receipt of the results of the performance test, the Administrator will make a finding concerning compliance with the mass standard for the blowing still. If the Administrator finds that the facility was in compliance with the mass standard during the performance test but failed to meet the zero opacity standard, the Administrator will establish and promulgate in the FEDERAL REGISTER an opacity standard for the blowing still that will be the opacity standard when fuel oil is used to fire the afterburner. When the afterburner is fired with natural gas, the zero percent opacity remains the applicable opacity standard.

[§60.474 added at 54 FR 6677, Feb. 14, 1989; amended 54 FR 27016, June 27, 1989]

Subpart VV—Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry

[Subpart VV added at 48 FR 48335, Oct. 18, 1983]

§60.480 Applicability and designation of affected facility.

(a) (1) The provisions of this subpart apply to affected facilities in the synthetic organic chemicals manufacturing industry.

(2) The group of all equipment (defined in §60.481) within a process unit is an affected facility.

(b) Any affected facility under paragraph (a) of this section that commences construction or modification after January 5, 1981, shall be subject to the requirements of this subpart.

(c) Addition or replacement of equipment for the purpose of process improvement which is accomplished without a capital expenditure shall not by itself be considered a modification under this subpart.

(d) (1) If an owner or operator applies for one or more of the exemptions in this paragraph, then the owner or operator shall maintain records as required in §60.486(i).

(2) Any affected facility that has the design capacity to produce less than 1,000 Mg/yr is exempt from §60.482.

(3) If an affected facility produces heavy liquid chemicals only from heavy liquid feed or raw materials, then it is exempt from §60.482.

(4) Any affected facility that produces beverage alcohol is exempt from §60.482.

(5) Any affected facility that has no equipment in VOC service is exempt from §60.482.

[§60.480 amended at 49 FR 22607, May 30, 1984]

§60.481 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act or in subpart A of Part 60, and the following terms shall have the specific meanings given them.

Capital expenditure means, in addition to the definition in 40 CFR 60.2, an expenditure for a physical or operational change to an existing facility that:

(a) Exceeds P, the product of the facility's replacement cost, R, and an adjusted annual asset guideline repair allowance, A, as reflected by the following equation:

$$P = R \times A, \text{ where}$$

(1) The adjusted annual asset guideline repair allowance, A, is the product of the percent of the replacement cost, Y, and the applicable basic annual asset guideline repair allowance, B, as reflected by the following equation:

$$A = Y \times (B \div 100);$$

(2) The percent Y is determined from the following equation: $Y = 1.0 - 0.575 \log X$, where X is 1982 minus the year of construction; and

(3) The applicable basic annual asset guideline repair allowance, B, is selected from the following table consistent with the applicable subpart:

TABLE FOR DETERMINING APPLICABLE FOR B

Subpart applicable to facility	Value of B to be used in equation
VV	12.5
DDD	12.5
GGG	7.0
KKK	4.5

Closed vent system means a system that is not open to the atmosphere and that is composed of piping, connections, and, if necessary, flow inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device.

Connector means flanged, screwed, welded, or other joined fittings used to connect two pipe lines or a pipe line and a piece of process equipment.

Control device means an enclosed combustion device, vapor recovery system, or flare.

Distance piece means an open or enclosed casing through which the piston rod travels, separating the compressor cylinder from the crankcase.

Double block and bleed system means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.

Equipment means each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in VOC service and any devices or systems required by this subpart.

First attempt at repair means to take rapid action for the purpose of stopping or reducing leakage of organic material to atmosphere using best practices.

In gas/vapor service means that the piece of equipment contains process fluid that is in the gaseous state at operating conditions.

In heavy liquid service means that the piece of equipment is not in gas/vapor service or in light liquid service.

In light liquid service means that the piece of equipment contains a liquid that meets the conditions specified in §60.485(e).

In-situ sampling systems means nonextractive samplers or in-line samplers.

In vacuum service means that equipment is operating at an internal pressure which is at least 5 kilopascals (kPa) below ambient pressure.

In VOC service means that the piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight. (The provisions of §60.485(d) specify how to determine that a piece of equipment is not in VOC service.)

Liquids dripping means any visible leakage from the seal including spraying, misting, clouding, and ice formation.

Open-ended valve or line means any valve, except safety relief valves, having one side of the valve seat in contact with process fluid and one side open to the atmosphere, either directly or through open piping.

Pressure release means the emission of materials resulting from system pressure

[Sec. 60.481(a)(3)]

being greater than set pressure of the pressure relief device.

Process improvement means routine changes made for safety and occupational health requirements, for energy savings, for better utility, for ease of maintenance and operation, for correction of design deficiencies, for bottleneck removal, for changing product requirements, or for environmental control.

Process unit means components assembled to produce, as intermediate or final products, one or more of the chemicals listed in §60.489 of this part. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.

Process unit shutdown means a work practice or operational procedure that stops production from a process unit or part of a process unit. An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than 24 hours is not a process unit shutdown. The use of spare equipment and technically feasible bypassing of equipment without stopping production are not process unit shutdowns.

Quarter means a 3-month period; the first quarter concludes on the last day of the last full month during the 180 days following initial startup.

Repaired means that equipment is adjusted, or otherwise altered, in order to eliminate a leak as indicated by one of the following: an instrument reading or 10,000 ppm or greater, indication of liquids dripping, or indication by a sensor that a seal or barrier fluid system has failed.

Replacement cost means the capital needed to purchase all the depreciable components in a facility.

Sensor means a device that measures a physical quantity or the change in a physical quantity such as temperature, pressure, flow rate, pH, or liquid level.

Synthetic organic chemicals manufacturing industry means the industry that produces, as intermediates or final products, one or more of the chemicals listed in §60.489.

Volatile organic compounds or VOC means, for the purposes of this subpart, any reactive organic compounds as defined in §60.2 Definitions.

[§60.481 amended at 49 FR 22607, May 30, 1984; 49 FR 26738, June 29, 1984]

§60.482-1 Standards: General.

(a) Each owner or operator subject to the provisions of this subpart shall demonstrate compliance with the requirements of §§60.482-1 to 60.482-10 for all equipment within 180 days of initial startup.

(b) Compliance with §§60.482-1 to 60.482-10 will be determined by review of records and reports, review of performance test results, and inspection using the methods and procedures specified in §60.485.

(c) (1) An owner or operator may request a determination of equivalence of a means of emission limitation to the requirements of §§60.482-2, 60.482-3, 60.482-5, 60.482-6, 60.482-7, 60.482-8, and 60.482-10 as provided in §60.484.

(2) If the Administrator makes a determination that a means of emission limitation is at least equivalent to the requirements of §§60.482-2, 60.482-3, 60.482-5, 60.482-6, 60.482-7, 60.482-8, or 60.482-10, an owner or operator shall comply with the requirements of that determination.

(d) Equipment that is in vacuum service is excluded from the requirements of §§60.482-2 to 60.482-10 if it is identified as required in §60.486(e)(5).

[§60.482-1 amended at 49 FR 22608, May 30, 1984]

§60.482-2 Standards: Pumps in light liquid service.

(a) (1) Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in §60.485(b), except as provided in §60.482-1(c) and paragraphs (d), (e), and (f) of this section.

(2) Each pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

(b) (1) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(2) If there are indications of liquids dripping from the pump seal, a leak is detected.

(c) (1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482-9.

(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(d) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraph (a), *Provided* the following requirements are met:

(1) Each dual mechanical seal system is-

(i) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or

(ii) Equipment with a barrier fluid degassing reservoir that is connected by a closed vent system to a control device that complies with the requirements of §60.482-10; or

(iii) Equipped with a system that purges the barrier fluid into a process stream with zero VOC emissions to the atmosphere.

(2) The barrier fluid system is in heavy liquid service or is not in VOC service.

(3) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

(4) Each pump is checked by visual inspection, each calendar week, for indications of liquids dripping from the pump seals.

(5) (i) Each sensor as described in paragraph (d)(3) is checked daily or is equipped with an audible alarm, and

(ii) The owner or operator determines, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(6) (i) If there are indications of liquids dripping from the pump seal or the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined in paragraph (d)(5)(ii), a leak is detected.

(ii) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482-9.

(iii) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(e) Any pump that is designated, as described in §60.486(e)(1) and (2), for no detectable emission, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraphs (a), (c), and (d) if the pump:

(1) Has no externally actuated shaft penetrating the pump housing,

[Sec. 60.482-2(e)(1)]

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(2) Is demonstrated to be operating with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background as measured by the methods specified in §60.485(c), and

(3) Is tested for compliance with paragraph (e)(2) initially upon designation, annually, and at other times requested by the Administrator.

(f) If any pump is equipped with a closed vent system capable of capturing and transporting any leakage from the seal or seals to a control device that complies with the requirements of §60.482-10, it is exempt from the paragraphs (a) through (e).

§60.482-3 Compressors.

(a) Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of VOC to the atmosphere, except as provided in §60.482-1(c) and paragraph (h) and (i) of this section.

(b) Each compressor seal system as required in paragraph (a) shall be:

(1) Operated with the barrier fluid at a pressure that is greater than the compressor stuffing box pressure; or

(2) Equipped with a barrier fluid system that is connected by a closed vent system to a control device that complies with the requirements of §60.482-10; or

(3) Equipped with a system that purges the barrier fluid into a process stream with zero VOC emissions to the atmosphere.

(c) The barrier fluid system shall be in heavy liquid service or shall not be in VOC service.

(d) Each barrier fluid system as described in paragraph (a) shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.

(e) (1) Each sensor as required in paragraph (d) shall be checked daily or shall be equipped with an audible alarm.

(2) The owner or operator shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(f) If the sensor indicates failure of the seal system, the barrier system, or both based on the criterion determined under paragraph (e)(2), a leak is detected.

(g) (1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482-9.

(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(h) A compressor is exempt from the requirements of paragraphs (a) and (b), if it is equipped with a closed vent system capable of capturing and transporting any leakage from the seal to a control device that complies with the requirements of §60.482-10, except as provided in paragraph (i) of this section.

(i) Any compressor that is designated, as described in §60.486(e)(1) and (2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraphs (a)-(h) if the compressor:

(1) Is demonstrated to be operating with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as measured by the methods specified in §60.485(c); and

(2) Is tested for compliance with paragraph (i)(1) initially upon designation, annually, and at other times requested by the Administrator.

(j) Any existing reciprocating compressor in a process unit which becomes an affected facility under provisions of §60.14 or §60.15 is exempt from §60.482(a), (b), (c), (d), (e), and (h), provided the owner or operator demonstrates that recasting the distance piece or replacing the compressor are the only options available to bring the compressor into compliance with the provisions of paragraphs (a) through (e) and (h) of this section.

§60.482-4 Standards: Pressure relief devices in gas/vapor service.

(a) Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as determined by the methods specified in §60.485(c).

(b) (1) After each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than 5 calendar days after the pressure release, except as provided in §60.482-9.

(2) No later than 5 calendar days after the pressure release, the pressure relief device shall be monitored to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, by the methods specified in §60.485(c).

(c) Any pressure relief device that is equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device as described in §60.482-10 is exempted from the requirements of paragraphs (a) and (b).

§60.482-5 Standards: Sampling connection systems.

(a) Each sampling connection system shall be equipped with a closed purge system or closed vent system, except as provided in §60.482-1(c).

(b) Each closed purge system or closed vent system as required in paragraph (a) shall:

(1) Return the purged process fluid directly to the process line with zero VOC emissions to the atmosphere; or

(2) Collect and recycle the purged process fluid with zero VOC emissions to the atmosphere; or

(3) Be designed and operated to capture and transport all the purged process fluid to a control device that complies with the requirements of §60.482-10.

(c) In-situ sampling systems are exempt from paragraphs (a) and (b).

§60.482-6 Standards: Open-ended valves or lines.

(a) (1) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in §60.482-1(c).

(2) The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.

(b) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.

(c) When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (a) at all other times.

[Sec. 60.482-6(c)]

[§60.482-6 amended at 49 FR 22607, May 30, 1984]

§60.482-7 Standards: Valves in gas/vapor service in light liquid service.

(a) Each valve shall be monitored monthly to detect leaks by the methods specified in §60.485(b) and shall comply with paragraphs (b) through (e), except as provided in paragraphs (f), (g), and (h), §60.483-1, 2, and §60.482-1(c).

(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(c) (1) Any valve for which a leak is not detected for 2 successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected.

(2) If a leak is detected, the valve shall be monitored monthly until a leak is not detected for 2 successive months.

(d) (1) When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in §60.482-9.

(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(e) First attempts at repair include, but are not limited to, the following best practices where practicable:

(1) Tightening of bonnet bolts;

(2) Replacement of bonnet bolts;

(3) Tightening of packing gland nuts;

(4) Injection of lubricant into lubricated packing.

(f) Any valve that is designated, as described in §60.486(e)(2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraph (a) if the valve:

(1) Has no external actuating mechanism in contact with the process fluid,

(2) Is operated with emissions less than 500 ppm above background as determined by the method specified in §60.485(c), and

(3) Is tested for compliance with paragraph (f)(2) initially upon designation, annually, and at other times requested by the Administrator.

(g) Any valve that is designated, as described in §60.486(f)(1), as an unsafe-to-monitor valve is exempt from the requirements of paragraph (a) if:

(1) The owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (a), and

(2) The owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.

(h) Any valve that is designated, as described in §60.486(f)(2), as a difficult-to-monitor valve is exempt from the requirements of paragraph (a) if:

(1) The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface.

(2) The process unit within which the valve is located either becomes an affected facility through §60.14 or §60.15 or the owner or operator designates less than 3.0 percent of the total number of valves as difficult-to-monitor, and

(3) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

[§60.482-7 amended at 49 FR 22608, May 30, 1984]

§60.482-8 Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors.

(a) Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors shall be monitored within 5 days by the method specified in §60.485(b) if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method.

(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(c) (1) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in §60.482-9.

(2) The first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(d) First attempts at repair include, but are not limited to, the best practices described under §60.482-7(e).

§60.482-9 Standards: Delay of repair.

(a) Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.

(b) Delay of repair of equipment will be allowed for equipment which is isolated from the process and which does not remain in VOC service.

(c) Delay of repair for valves will be allowed if:

(1) The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair, and

(2) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with §60.482-10.

(d) Delay of repair for pumps will be allowed if:

(1) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system, and

(2) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.

(e) Delay of repair beyond a process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.

§60.482-10 Standards: Closed vent systems and control devices.

(a) Owners or operators of closed vent systems and control devices used to comply with provisions of this subpart shall comply with the provisions of this section.

(b) Vapor recovery systems (for example, condensers and adsorbers) shall be designed and operated to recover the VOC emissions vented to them with an efficiency of 95 percent or greater.

(c) Enclosed combustion devices shall be designed and operated to reduce the VOC emissions vented to them with an efficiency of 95 percent or greater, or to provide a minimum residence time of 0.75

seconds at a minimum temperature of 816°C.

(d) Flares used to comply with this subpart shall comply with the requirements of §60.18.

(e) Owners or operators of control devices used to comply with the provisions of this subpart shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs.

(f) (1) Closed vent systems shall be designed and operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined by the methods specified in §60.485(c).

(2) Closed vent systems shall be monitored to determine compliance with this section initially in accordance with §60.8, annually and at other times requested by the Administrator.

(g) Closed vent systems and control devices used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them.

[§60.482-10 amended at 51 FR 2702, Jan. 21, 1986]

§60.483-1 Alternative standards for valves-allowable percentage of valves leaking.

(a) An owner or operator may elect to comply with an allowable percentage of valves leaking of equal to or less than 2.0 percent.

(b) The following requirements shall be met if an owner or operator wishes to comply with an allowable percentage of valves leaking:

(1) An owner or operator must notify the Administrator that the owner or operator has elected to comply with the allowable percentage of valves leaking before implementing this alternative standard, as specified in §60.487(b).

(2) A performance test as specified in paragraph (c) of this section shall be conducted initially upon designation, annually, and at other times requested by the Administrator.

(3) If a valve leak is detected, it shall be repaired in accordance with §60.482-7(d) and (e).

(c) Performance tests shall be conducted in the following manner:

(1) All valves in gas/vapor and light liquid service within the affected facility shall be monitored within 1 week by the methods specified in §60.485(b).

(2) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(3) The leak percentage shall be determined by dividing the number of valves for which leaks are detected by the number of valves in gas/vapor and light liquid service within the affected facility.

(d) Owners and operators who elect to comply with this alternative standard shall not have an affected facility with a leak percentage greater than 2.0 percent.

§60.483-2 Alternative standards for valves-skip period leak detection and repair.

(a) (1) An owner or operator may elect to comply with one of the alternative work practices specified in paragraphs (b)(2) and (3) of this section.

(2) An owner or operator must notify the Administrator before implementing one of the alternative work practices, as specified in §60.487(b).

(b) (1) An owner or operator shall comply initially with the requirements for valves in gas/vapor service and valves in light liquid service, as described in §60.482-7.

(2) After 2 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, an owner or operator may begin to skip 1 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(3) After 5 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0, an owner or operator may begin to skip 3 of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(4) If the percent of valves leaking is greater than 2.0, the owner or operator shall comply with the requirements as described in §60.482-7 but can again elect to use this section.

(5) The percent of valves leaking shall be determined by dividing the sum of valves found leaking during current monitoring and valves for which repair has been delayed by the total number of valves subject to the requirements of this section.

(6) An owner or operator must keep a record of the percent of valves found leaking during each leak detection period.

§60.484 Equivalence of means of emission limitation.

(a) Each owner or operator subject to the provisions of this subpart may apply to the Administrator for determination of equivalance for any means of emission limitation that achieves a reduction in emissions of VOC at least equivalent to the reduction in emissions of VOC achieved by the controls required in this subpart.

(b) Determination of equivalence to the equipment, design, and operational requirements of this subpart will be evaluated by the following guidelines:

(1) Each owner or operator applying for an equivalence determination shall be responsible for collecting and verifying test data to demonstrate equivalence of means of emission limitation.

(2) The Administrator will compare test data for the means of emission limitation to test data for the equipment, design, and operational requirements.

(3) The Administrator may condition the approval of equivalence on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the equipment, design, and operational requirements.

(c) Determination of equivalence to the required work practices in this subpart will be evaluated by the following guidelines:

(1) Each owner or operator applying for a determination of equivalence shall be responsible for collecting and verifying test data to demonstrate equivalence of an equivalent means of emission limitation.

(2) For each affected facility for which a determination of equivalence is requested, the emission reduction achieved by the required work practice shall be demonstrated.

(3) For each affected facility, for which a determination of equivalence is requested, the emission reduction achieved by the equivalent means of emission limitation shall be demonstrated.

(4) Each owner or operator applying for a determination of equivalence shall commit in writing to work practice(s) that provide for emission reductions equal to or greater than the emission reductions achieved by the required work practice.

(5) The Administrator will compare the demonstrated emission reduction for the equivalent means of emission limitation to

[Sec. 60.484(c)(5)]

the demonstrated emission reduction for the required work practices and will consider the commitment in paragraph (c)(4).

(6) The Administrator may condition the approval of equivalence on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the required work practice.

(d) An owner or operator may offer a unique approach to demonstrate the equivalence of any equivalent means of emission limitation.

(e) (1) After a request for determination of equivalence is received, the Administrator will publish a notice in the FEDERAL REGISTER and provide the opportunity for public hearing if the Administrator judges that the request may be approved.

(2) After notice and opportunity for public hearing, the Administrator will determine the equivalence of a means of emission limitation and will publish the determination in the FEDERAL REGISTER.

(3) Any equivalent means of emission limitations approved under this section shall constitute a required work practice, equipment, design, or operational standard within the meaning of section 111(h)(1) of the Clean Air Act.

(f) (1) Manufacturers of equipment used to control equipment leaks of VOC may apply to the Administrator for determination of equivalence for any equivalent means of emission limitation that achieves a reduction in emissions of VOC achieved by the equipment, design, and operational requirements of this subpart.

(2) The Administrator will make an equivalence determination according to the provisions of paragraphs (b), (c), (d), and (e).

§60.485 Test methods and procedures.

(a) In conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b).

(b) The owner or operator shall determine compliance with the standards in §§60.482, 60.483, and 60.484 as follows:

(1) Method 21 shall be used to determine the presence of leaking sources. The instrument shall be calibrated before use each day of its use by the procedures specified in Method 21. The following calibration gases shall be used:

(i) Zero air (less than 10 ppm of hydrocarbon in air); and

(ii) A mixture of methane or n-hexane and air at a concentration of about, but less than, 10,000 ppm methane or *n*-hexane.

(c) The owner or operator shall determine compliance with the no detectable emission standards in §§60.482-2(e), 60.482-3(i), 60.482-4, 60.482-7(f), and 60.482-10(e) as follows:

(1) The requirements of paragraph (b) shall apply.

(2) Method 21 shall be used to determine the background level. All potential leak interfaces shall be traversed as close to the interface as possible. The arithmetic difference between the maximum concentration indicates by the instrument and the background level is compared with 500 ppm for determining compliance.

(d) The owner or operator shall test each piece of equipment unless he demonstrates that a process unit is not in VOC series, i.e., that the VOC content would never be reasonably expected to exceed 10 percent by weight. For purposes of this demonstration, the following methods and procedures shall be used:

(1) Procedures that conform to the general methods in ASTM E-260, E-168, E-169 (incorporated by reference-see §60.17) shall be used to determine the percent VOC content in the process fluid that is contained in or contacts a piece of equipment.

(2) Organic compounds that are considered by the Administrator to have negligible photochemical reactivity may be excluded from the total quantity of organic compounds in determining the VOC content of the process fluid.

(3) Engineering judgment may be used to estimate the VOC content, if a piece of equipment had not been shown previously to be in service. If the Administrator disagrees with the judgment, paragraphs (d)(1) and (2) of this section shall be used to resolve the disagreement.

(e) The owner or operator shall demonstrate that an equipment is in light liquid service by showing that all the following conditions apply:

(1) The vapor pressure of one or more of the components is greater than 0.3 kPa at 20°C. Standard reference texts or ASTM D-2879 (incorporated by reference-see §60.17) shall be used to determine the vapor pressures.

(2) The total concentration of the pure components having a vapor pressure greater than 0.3 kPa at 20°C is equal to or greater than 20 percent by weight.

(3) The fluid is a liquid at operating conditions.

(f) Samples used in conjunction with paragraphs (d), (e), and (g) shall be representative of the process fluid that is contained in or contacts the equipment or the gas being combusted in the flare.

(g) The owner or operator shall determine compliance with the standards of flares as follows:

(1) Method 22 shall be used to determine visible emissions.

(2) A thermocouple or any other equivalent device shall be used to monitor the presence of a pilot flame in the flare.

(3) The maximum permitted velocity (V_{max}) for air-assisted flares shall be computed using the following equation:

$$V_{max}=8.706+0.7084\ H_T$$

where:

V_{max}=maximum permitted velocity, m/sec.

H_T=net heating value of the gas being combusted, MJ/scm.

(4) The net heating value (H_T) of the gas being combusted in a flare shall be computed as follows:

$$H_T = K \sum_{i=1}^{n} C_i\ H_i$$

where:

K=conversion constant, 1.740×10^7 [(g-mole)(MJ)]/ [(ppm)(scm)(kcal).

C_i=concentration of sample component "*i*", *ppm*.

H_i=net heat of combustion of sample component "i" at 25 °C and 760 mm Hg, kcal/g-mole.

(5) Method 18 and ASTM D 2504-67 (incorporated by reference-see §60.17) shall be used to determine the concentration of sample component "i."

(6) ASTM D 2382-76 (incorporated by reference-see §60.17) shall be used to determine the net heat of combustion of

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component "i" if published values are not available or cannot be calculated.

(7) Method 2, 2A, 2C, or 2D, as appropriate, shall be used to determine the actual exit velocity of a flare. If needed, the unobstructed (free) cross-sectional area of the flare tip shall be used.

[§60.485 added at 54 FR 6678, Feb. 14, 1989; amended at 54 FR 27016, June 27, 1989]

§60.486 Recordkeeping requirements.

(a) (1) Each owner or operator subject to the provisions of this subpart shall comply with the recordkeeping requirements of this section.

(2) An owner or operator of more than one affected facility subject to the provisions of this subpart may comply with the recordkeeping requirements for these facilities in one recordkeeping system if the system identifies each record by each facility.

(b) When each leak is detected as specified in §§60.482-2, 60.482-3, 60.482-7, 60.482-8, and 60.483-2, the following requirements apply:

(1) A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.

(2) The identification on a valve may be removed after it has been monitored for 2 successive months as specified in §60.482-7(c) and no leak has been detected during those 2 months.

(3) The identification on equipment except on a valve, may be removed after it has been repaired.

(c) When each leak is detected as specified in §§60.482-2, 60.482-3, 60.482-7, 60.482-8, and 60.483-2, the following information shall be recorded in a log and shall be kept for 2 years in a readily accessible location:

(1) The instrument and operator identification numbers and the equipment identification number.

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

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

(4) "Above 10,000" if the maximum instrument reading measured by the methods specified in §60.485(a) after each repair attempt is equal to or greater than 10,000 ppm.

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

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

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

(8) Dates of process unit shutdown that occur while the equipment is unrepaired.

(9) The date of successful repair of the leak.

(d) The following information pertaining to the design requirements for closed vent systems and control devices described in §60.482-10 shall be recorded and kept in a readily accessible location:

(1) Detailed schematics, design specifications, and piping and instrumentation diagrams.

(2) The dates and descriptions of any changes in the design specifications.

(3) A description of the parameter or parameters monitored, as required in §60.482-10(e), to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring.

(4) Periods when the closed vent systems and control devices required in §§60.482-2, 60.482-3, 60.482-4, and 60.482-5 are not operated as designed, including periods when a flare pilot light does not have a flame.

(5) Dates of startups and shutdowns of the closed vent systems and control devices required in §§60.482-2, 60.482-3, 60.482-4, and 60.482-5.

(e) The following information pertaining to all equipment subject to the requirements in §§60.482-1 to 60.482-10 shall be recorded in a log that is kept in a readily accessible location:

(1) A list of identification numbers for equipment subject to the requirements of this subpart.

(2) (i) A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of §§60.482-2(e), 60.482-3(i) and 60.482-7(f).

(ii) The designation of equipment as subject to the requirements of §60.482-2(e), §60.482-3(i), or §60.482-7(f) shall be signed by the owner or operator.

(3) A list of equipment identification numbers for pressure relief devices required to comply with §60.482-4.

(4) (i) The dates of each compliance test as required in §§60.482-2(e), 60.482-3(i), 60.482-4, and 60.482-7(f).

(ii) The background level measured during each compliance test.

(iii) The maximum instrument reading measured at the equipment during each compliance test.

(5) A list of identification numbers for equipment in vacum service.

(f) The following information pertaining to all valves subject to the requirements of §60.482-7(g) and (h) shall be recorded in a log that is kept in a readily accessible location:

(1) A list of identification numbers for valves that are designated as unsafe-to-monitor, an explanation for each valve stating why the valve is unsafe-to-monitor, and the plan for monitoring each valve.

(2) A list of identification numbers for valves that are designated as difficult-to-monitor, an explanation for each valve stating why the valve is difficult-to-monitor, and the schedule for monitoring each value.

(g) The following information shall be recorded for valves complying with §60.483-2:

(1) A schedule of monitoring.

(2) The percent of valves found leaking during each monitoring period.

(h) The following information shall be recorded in a log that is kept in a readily accessible location:

(1) Design criterion required in §§60.482-2(d)(5) and 60.482-3(e)(2) and explanation of the design criterion; and

(2) Any changes to this criterion and the reasons for the changes.

(i) The following information shall be recorded in a log that is kept in a readily accessible location for use in determining exemptions as provided in §60.480(d):

(1) An analysis demonstrating the design capacity of the affected facility,

(2) A statement listing the feed or raw materials and products from the affected facilities and an analysis demonstrating whether these chemicals are heavy liquids or beverage alcohol, and

(3) An analysis demonstrating that equipment is not in VOC service.

(j) Information and data used to demonstrate that a piece of equipment is not in VOC service shall be recorded in a log

[Sec. 60.486(j)]

that is kept in a readily accessible location.

(k) The provisions of §60.7(b) and (d) do not apply to affected facilities subject to this subpart.

(Approved by the Office of Management and Budget under control number 2060-0012)

§60.487 Reporting requirements.

(a) Each owner or operator subject to the provisions of this subpart shall submit semiannual reports to the Administrator beginning six months after the initial start up date.

(b) The initial semiannual report to the Administrator shall include the following information:

(1) Process unit identification.

(2) Number of valves subject to the requirements of §60.482-7, excluding those valves designated for no detectable emissions under the provisions of §60.482-7(f).

(3) Number of pumps subject to the requirements of §60.482-2, excluding those pumps designated for no detectable emissions under the provisions of §60.482-2(e) and those pumps complying with §60.482-2(f).

(4) Number of compressors subject to the requirements of §60.482-3, excluding those compressors designated for no detectable emissions under the provisions of §60.482-3(i) and those compressors complying with §60.482-3(h).

(c) All semiannual reports to the Administrator shall include the following information, summarized from the information in §60.486:

(1) Process unit identification.

(2) For each month during the semiannual reporting period,

(i) Number of valves for which leaks were detected as described in §60.482(7)(b) or §60.483-2,

(ii) Number of valves for which leaks were not repaired as required in §60.482-7(d)(1),

(iii) Number of pumps for which leaks were detected as described in §60.482-2(b) and (d)(6)(i),

(iv) Number of pumps for which leaks were not repaired as required in §60.482-2(c)(1) and (d)(6)(ii),

(v) Number of compressors for which leaks were detected as described in §60.482-3(f),

(vi) Number of compressors for which leaks were not repaired as required in §60.482-3(g)(1), and

(vii) The facts that explain each delay of repair and, where appropriate, why a process unit shutdown was technically infeasible.

(3) Dates of process unit shutdowns which occurred within the semiannual reporting period.

(4) Revisions to items reported according to paragraph (b) if changes have occurred since the initial report or subsequent revisions to the initial report.

(d) An owner or opertor electing to comply with the provisions of §§60.483-1 and 60.483-2 shall notify the Administrator of the alternative standard selected 90 days before implementing either of the provisions.

(e) An owner or operator shall report the results of all performance tests in accordance with §60.8 of the General Provisions. The provisions of §60.8(d) do not apply to affected facilities subject to the provisions of this subpart except that an owner or operator must notify the Administrator of the schedule for the initial performance tests at least 30 days before the initial performance tests.

(f) The requirements of paragraphs (a) through (c) of this section remain in force until and unless EPA, in delegating enforcement authority to a State under section 111(c) of the Act, approves reporting requirements or an alternative means of compliance surveillance adopted by such State. In that event, affected sources within the State will be relieved of the obligation to comply with the requirements of paragraphs (a) through (c) of this section, provided that they comply with the requirements established by the State.

(Approved by the Office of Management and Budget under control number 2060-0012)

[§60.487 amended at 49 FR 22608, May 30, 1984]

§60.488 Reconstruction.

For the purposes of this subpart:

(a) The cost of the following frequently replaced components of the facility shall not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital costs that would be required to construct a comparable new facility" under §60.15: pump seals, nuts and bolts, rupture disks, and packings.

(b) Under §60.15, the "fixed capital cost of new components" includes the fixed capital cost of all depreciable components (except components specified in §60.488(a)) which are or will be replaced pursuant to all continuous programs of component replacement which are commenced within any 2-year period following the applicability date for the appropriate subpart. (See the "Applicability and designation of affected facility" section of the appropriate subpart.) For purposes of this paragraph, "commenced" means that an owner or operator has undertaken a continuous program of component replacement or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of component replacement.

[§60.488 added 49 FR 22608, May 30, 1984]

§60.489 List of chemicals produced by affected facilities.

(a) The following chemicals are produced, as intermediates or final products, by process units covered under this subpart. The applicability date for process units producing one or more of these chemicals is January 5, 1981.

CAS No. [a]	Chemical
105-57-7	Acetal.
75-07-0	Acetaldehyde.
107-89-1	Acetaldol.
60-35-5	Acetamide.
103-84-4	Acetanilide.
64-19-7	Acetic acid.
108-24-7	Acetic anhydride.
67-64-1	Acetone.
75-86-5	Acetone cyanohydrin.
75-05-8	Acetonitrile.
98-86-2	Acetophenone.
75-36-5	Acetyl chloride.
74-86-2	Acetylene.
107-02-8	Acrolein.
79-06-1	Acrylamide.
79-10-7	Acrylic acid.
107-13-1	Acrylonitrile.
124-04-9	Adipic acid.
111-69-3	Adiponitrile.
[b]	Alkyl naphthalenes.
107-18-6	Allyl alcohol.
107-05-1	Allyl chloride.
1321-11-5	Aminobenzoic acid.
111-41-1	Aminoethylethanolamine.
123-30-8	p-Aminophenol.
628-63-7, 123-92-2	Amyl acetates.
71-41-0[c]	Amyl alcohols.
110-58-7	Amyl amine.
543-59-9	Amyl chloride.
110-66-7[c]	Amyl mercaptans.
1322-06-1	Amyl phenol.
62-53-3	Aniline.
142-04-1	Aniline hydrochloride.
29191-52-4	Anisidine.
100-66-3	Anisole.
118-92-3	Anthranilic acid.
84-65-1	Anthraquinone.
100-52-7	Benzaldehyde.
55-21-0	Benzamide.

CAS No. [a]	Chemical
71-43-2	Benzene.
98-48-6	Benzenedisulfonic acid.
98-11-3	Benzenesulfonic acid.
134-81-6	Benzil.
76-93-7	Benzilic acid.
65-85-0	Benzoic acid.
119-53-9	Benzoin.
100-47-0	Benzonitrile.
119-61-9	Benzophenone.
98-07-7	Benzotrichloride.
98-88-4	Benzoyl chloride.
100-51-6	Benzyl alcohol.
100-46-9	Benzylamine.
120-51-4	Benzyl benzoate.
100-44-7	Benzyl chloride.
98-87-3	Benzyl dichloride.
92-52-4	Biphenyl.
80-05-7	Bisphenol A.
10-86-1	Bromobenzene.
27497-51-4	Bromonaphthalene.
106-99-0	Butadiene.
106-98-9	1-butene.
123-86-4	n-butyl acetate.
141-32-2	n-butyl acrylate.
71-36-3	n-butyl alcohol.
78-92-2	s-butyl alcohol.
75-65-0	t-butyl alcohol.
109-73-9	n-butylamine.
13952-84-6	s-butylamine.
75-64-9	t-butylamine.
98-73-7	p-tert-butyl benzoic acid.
107-88-0	1,3-butylene glycol.
123-72-8	n-butyraldehyde.
107-92-6	Butyric acid.
106-31-0	Butyric anhydride.
109-74-0	Butyronitrile.
105-60-2	Caprolactam.
75-1-50	Carbon disulfide.
558-13-4	Carbon tetrabromide.
56-23-5	Carbon tetrachloride.
9004-35-7	Cellulose acetate.
79-11-8	Chloroacetic acid.
108-42-9	m-chloroaniline.
95-51-2	o-chloroaniline.
106-47-8	p-chloroaniline.
35913-09-8	Chlorobenzaldehyde.
108-90-7	Chlorobenzene.
118-91-2, 535-80-8, 74-11-3[e]	Chlorobenzoic acid.
2136-81-4, 2136-89-2, 5216-25-1[e]	Chlorobenzotrichloride.
1321-03-5	Chlorbenzoyl chloride.
25497-29-4	Chlorodifluoromethane.
75-45-6	Chlorodifluoroethane.
67-66-3	Chloroform.
25586-43-0	Chloronapthalene.
88-73-3	o-chloronitrobenzene.
100-00-5	p-chloronitrobenzene.
25167-80-0	Chlorophenols.
126-99-8	Chloroprene.
7790-94-5	Chlorosulfonic acid.
108-41-8	m-chlorotoluene.
95-49-8	o-chlorotoluene.
106-43-4	p-chlorotoluene.
75-72-9	Chlorotrifluoromethane.
108-39-4	m-cresol.
95-48-7	o-cresol.
106-44-5	p-cresol.
1319-77-3	Mixed cresols.
1319-77-3	Cresylic acid.
4170-30-0	Crotonaldehyde.
3724-65-0	Crotonic acid.
98-82-8	Cumene.
80-15-9	Cumene hydroperoxide.
372-09-8	Cyanoacetic acid.
506-77-4	Cyanogen chloride.
108-80-5	Cyanuric acid.
108-77-0	Cyanuric chloride.

CAS No. [a]	Chemical
110-82-7	Cyclohexane.
108-93-0	Cyclohexanol.
108-94-1	Cyclohexanone.
110-83-8	Cyclohexene.
108-91-8	Cyclohexylamine.
111-78-4	Cyclooctadiene.
112-30-1	Decanol.
123-42-2	Diacetone alcohol.
27576-04-1	Diaminobenzoic acid.
95-76-1, 95-82-9, 554-00-7, 608-27-5, 608-31-1, 626-43-7, 27134-27-6, 57311-92-9[e]	Dichloroaniline.
541-73-1	m-dichlorobenzene.
95-50-1	o-dichlorobenzene.
106-46-7	p-dichlorobenzene.
75-71-8	Dichlorodifluoromethane.
111-44-4	Dichloroethyl ether.
107-06-2	1,2-dichloroethane (EDC).
96-23-1	Dichlorohydrin.
26952-23-8	Dichloropropene.
101-83-7	Dicyclohexylamine.
109-89-7	Diethylamine.
111-46-6	Diethylene glycol.
112-36-7	Diethylene glycol diethyl ether.
111-96-6	Diethylene glycol dimethyl ether.
112-34-5	Diethylene glycol monobutyl ether.
124-17-7	Diethylene glycol monobutyl ether acetate.
111-90-0	Diethylene glycol monoethyl ether.
112-15-2	Diethylene glycol monoethyl ether acetate.
111-77-3	Diethylene glycol monomethyl ether.
64-67-5	Diethyl sulfate.
75-37-6	Difluoroethane.
25167-70-8	Diisobutylene.
26761-40-0	Diisodecyl phthalate.
27554-26-3	Diisooctyl phthalate.
674-82-8	Diketene.
124-40-3	Dimethylamine.
121-69-7	N,N-dimethylaniline.
115-10-6	N,N-dimethyl ether.
68-12-2	N,N-dimethylformamide.
57-14-7	Dimethylhydrazine.
77-78-1	Dimethyl sulfate.
75-18-3	Dimethyl sulfide.
67-68-5	Dimethyl sulfoxide.
120-61-6	Dimethyl terephthalate.
99-34-3	3,5-dinitrobenzoic acid.
51-28-5	Dinitrophenol.
25321-14-6	Dinitrotoluene.
123-91-1	Dioxane.
646-06-0	Dioxilane.
122-39-4	Diphenylamine.
101-84-8	Diphenyl oxide.
102-08-9	Diphenyl thiourea.
25265-71-8	Dipropylene glycol.
25378-22-7	Dodecene.
28675-17-4	Dodecylaniline.
27193-86-8	Dodecylphenol.
106-89-8	Epichlorohydrin.
64-17-5	Ethanol.
141-43-5[e]	Ethanolamines.
141-78-6	Ethyl acetate.
141-97-9	Ethyl acetoacetate.
140-88-5	Ethyl acrylate.
75-04-7	Ethylamine.
100-41-4	Ethylbenzene.
74-96-4	Ethyl bromide.
9004-57-3	Ethylcellulose.
75-00-3	Ethyl chloride.
105-39-5	Ethyl chloroacetate.
105-56-6	Ethylcyanoacetate.
74-85-1	Ethylene.
96-49-1	Ethylne carbonate.
107-07-3	Ethylene chlorohydrin.

CAS No. [a]	Chemical
107-15-3	Ethylenediamine.
106-93-4	Ethylene dibromide.
107-21-1	Ethylene glycol.
111-55-7	Ethylene glycol diacetate.
110-71-4	Ethylene glycol dimethyl ether.
111-76-2	Ethylene glycol monobutyl ether.
112-07-2	Ethylene glycol monobutyl ether acetate.
110-80-5	Ethylene glycol monoethy ether.
111-15-9	Ethylene glycol monethyl ether acetate.
109-86-4	Ethylene glycol monomethyl ether.
110-49-6	Ethylene glycol monomethyl ether acetate.
122-99-6	Ethylene glycol monophenyl ether.
2807-30-9	Ethylene glycol monopropyl ether.
75-21-8	Ethylene oxide.
60-29-7	Ethyl ether
104-76-7	2-ethylhexanol.
122-51-0	Ethyl orthoformate.
95-92-1	Ethyl oxalate.
41892-71-1	Ethyl sodium oxalacetate.
50-00-0	Formaldehyde.
75-12-7	Formamide.
64-18-6	Formic acid.
110-17-8	Fumaric acid.
98-01-1	Furfural.
56-81-5	Glycerol.
26545-73-7	Glycerol dichlorohydrin.
25791-96-2	Glycerol triether.
56-40-6	Glycine.
107-22-2	Glyoxal.
118-74-1	Hexachlorobenzene.
67-72-1	Hexachloroethane.
36653-82-4	Hexadecyl alcohol.
124-09-4	Hexamethylenediamine.
629-11-8	Hexamethylene glycol.
100-97-0	Hexamethylenetetramine.
74-90-8	Hydrogen cyanide.
123-31-9	Hydroquinone.
99-96-7	p-hydroxybenzoic acid.
26760-64-5	Isoamylene.
78-83-1	Isobutanol.
110-19-0	Isobutyl acetate.
115-11-7	Isobutylene.
78-84-2	Isobutyraldehyde.
79-31-2	Isobutyric acid.
25339-17-7	Isodecanol.
26952-21-6	Isooctyl alcohol.
78-78-4	Isopentane.
78-59-1	Isophorone.
121-91-5	Isophthalic acid.
78-79-5	Isoprene.
67-63-0	Isopropanol.
108-21-4	Isopropyl acetate.
75-31-0	Isopropylamine.
75-29-6	Isopropyl chloride.
25168-06-3	Isopropylphenol.
463-51-4	Ketene.
[b]	Linear alkyl sulfonate.
123-01-3	Linear alkylbenzene (linear dodecylbenzene).
110-16-7	Maleic acid.
108-31-6	Maleic anhydride.
6915-15-7	Malic acid.
141-79-7	Mesityl oxide.
121-47-1	Metanilic acid.
79-41-4	Methacrylic acid.
563-47-3	Methallyl chloride.
67-56-1	Methanol.
79-20-9	Methyl acetate.
105-45-3	Methyl acetoacetate.
74-89-5	Methylamine.
100-61-8	n-methylaniline.
74-83-9	Methyl bromide.
37365-71-2	Methyl butynol.
74-87-3	Methyl chloride.
108-87-2	Methylcyclohexane.

[Sec. 60.489(a)]

CAS No. [a]	Chemical
1331-22-2	Methylcyclohexanone.
75-09-2	Methylene chloride.
101-77-9	Methylene dianiline.
101-68-8	Methylene diphenyl diisocyanate.
78-93-3	Methyl ethyl ketone.
107-31-3	Methyl formate.
108-11-2	Methyl isobutyl carbinol.
108-10-1	Methyl isobutyl ketone.
80-62-6	Methyl methacrylate.
77-75-8	Methylpentynol.
98-83-9	a-methylstyrene.
110-91-8	Morpholine.
85-47-2	a-naphthalene sulfonic acid.
120-18-3	b-naphthalene sulfonic acid.
90-15-3	a-naphthol.
135-19-3	b-naphthol.
75-98-9	Neopentanoic acid.
88-74-4	o-nitroaniline.
100-01-6	*p-nitroaniline.*
91-23-6	o-nitroanisole.
100-17-4	p-nitroanisole.
98-95-3	Nitrobenzene.
27178-83-2[c]	Nitrobenzoic acid (o,m, and p).
79-24-3	Nitroethane.
75-52-5	Nitromethane.
88-75-5	2-Nitrophenol.
25322-01-4	Nitropropane.
1321-12-6	Nitrotoluene.
27215-95-8	Nonene.
25154-52-3	Nonylphenol.
27193-28-8	Octylphenol.
123-63-7	Paraldehyde.
115-77-5	Pentaerythritol.
109-66-0	n-pentane.
109-67-1	1-pentene
127-18-4	Perchloroethylene.
594-42-3	Perchloromethyl mercaptan.
94-70-2	o-phenetidine.
156-43-4	p-phenetidine.
108-95-2	Phenol.
98-67-9, 585-38-6, 609-46-1, 1333-39-7[c]	Phenolsulfonic acids.
91-40-7	Phenyl anthranilic acid.
([b])	Phenylenediamine.
75-44-5	Phosgene.
85-44-9	Phthalic anhydride.
85-41-6	Phthalimide.
108-99-6	b-picoline.
110-85-0	Piperazine.
9003-29-6, 25036-29-7[c]	Polybutenes.
25322-68-3	*Polyethylene glycol.*
25322-69-4	Polypropylene glycol.
123-38-6	Propional dehyde.
79-09-4	Propionic acid.
71-23-8	n-propyl alcohol.
107-10-8	Propylamine.
540-54-5	Propyl chloride.
115-07-1	Propylene.
127-00-4	Propylene chlorohydrin.
78-87-5	Propylene dichloride.
57-55-6	Propylene glycol.
75-56-9	Propylene oxide.
110-86-1	Pyridine.
106-51-4	Quinone.
108-46-3	Resorcinol.
27138-57-4	Resorcylic acid.
69-72-7	Salicylic acid.
127-09-3	Sodium acetate.
532-32-1	Sodium benzoate.
9004-32-4	Sodium carboxymethyl cellulose.
3926-62-3	Sodium chloroacetate.
141-53-7	Sodium formate.
139-02-6	Sodium phenate.
110-44-1	Sorbic acid.
100-42-5	Styrene.
110-15-6	Succinic acid.
110-61-2	Succinonitrile.
121-57-3	Sulfanilic acid.
126-33-0	Sulfolane.
1401-55-4	Tannic acid.
100-21-0	Terephthalic acid.
79-34-5[c]	Tetrachloroethanes.
117-08-8	Tetrachlorophthalic anhydride.
78-00-2	Tetraethyl lead.
119-64-2	Tetrahydronapthalene.
85-43-8	Tetrahydrophthalic anhydride.
75-74-1	Tetramethyl lead.
110-60-1	Tetramethylenediamine.
110-18-9	Tetramethylethylenediamine.
108-88-3	Toluene.
95-80-7	Toluene-2,4-diamine.
584-84-9	Toluene-2,4-diisocyanate.
26471-62-5	Toluene diisocyanates (mixture).
1333-07-9	Toluenesulfonamide.
104-15-4[c]	*Toluenesulfonic acids.*
98-59-9	Toluenesulfonyl chloride.
26915-12-8	Toluidines.
87-61-6, 108-70-3, 120-82-1[c]	Trichlorobenzenes.
71-55-6	1,1,1-trichloroethane.
79-00-5	1,1,2-trichloroethane.
79-01-6	Trichloroethylene.
75-69-4	Trichlorofluoromethane.
96-18-4	1,2,3-trichloropropane.
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane.
121-44-8	Triethylamine.
112-27-6	Triethylene glycol.
112-49-2	Triethylene glycol dimethyl ether.
7756-94-7	Triisobutylene.
75-50-3	Trimethylamine.
57-13-6	Urea.
108-05-4	*Vinyl acetate.*
75-01-4	Vinyl chloride.
75-35-4	Vinylidene chloride.
25013-15-4	Vinyl toluene.
1330-20-7	Xylenes (mixed).
95-47-6	o-xylene.
106-42-3	p-xylene.
1300-71-6	Xylenol.
1300-73-8	Xylidine.

[a] CAS numbers refer to the Chemical Abstracts Registry numbers assigned to specific chemicals, isomers, or mixtures of chemicals. Some isomers or mixtures that are covered by the standards do not have CAS numbers assigned to them. The standards apply to all of the chemicals listed, whether CAS numbers have been assigned or not.

[b] No CAS number(s) have been assigned to this chemical, its isomers, or mixtures containing these chemicals.

[c] CAS numbers for some of the isomers are listed; the standards apply to all of the isomers and mixtures, even if CAS numbers have not been assigned.

Subpart WW—Standards of Performance for the Beverage Can Surface Coating Industry

[Subpart WW added at 48 FR 38737, Aug. 25, 1983]

§60.490 Applicability and designation of affected facility.

(a) The provisions of this subpart apply to the following affected facilities in beverage can surface coating lines: each exterior base coat operation, each overvarnish coating operation, and each inside spray coating operation.

(b) The provisions of this subpart apply to each affected facility which is identified in paragraph (a) of this section and commences construction, modification, or reconstruction after November 26, 1980.

§60.491 Definitions.

(a) All terms which are used in this subpart and are not defined below are given the same meaning as in the Act and subpart A of this part.

(1) *Beverage can* means any two-piece steel or aluminum container in which soft drinks or beer, including malt liquor, are packaged. The definition does not include containers in which fruit or vegetable juices are packaged.

(2) *Exterior base coating operation* means the system on each beverage can surface coating line used to apply a coating to the exterior of a two-piece beverage can body. The exterior base coat provides corrosion resistance and a background for lithography or printing operations. The exterior base coat operation consists of the coating application station, flashoff area, and curing oven. The exterior base coat may be pigmented or clear (unpigmented).

(3) *Inside spray coating operation* means the system on each beverage can surface coating line used to apply a coating to the interior of a two-piece beverage can body. This coating provides a protective film between the contents of the beverage can and the metal can body. The inside spray coating operation consists of the coating application station, flashoff area, and curing oven. Multiple applications of an inside spray coating are considered to be a single coating operation.

(4) *Overvarnish coating operation* means the system on each beverage can surface coating line used to apply a coating over ink which reduces friction for automated beverage can filling equipment, provides gloss, and protects the finished beverage can body from abrasion and corrosion. The overvarnish coating is applied to two-piece beverage can bodies. The overvarnish coating operation consists of the coating application station, flashoff area, and curing oven.

(5) *Two-piece can* means any beverage can that consists of a body manufactured from a single piece of steel or aluminum and a top. Coatings for a two-piece can are usually applied after fabrication of the can body.

[Sec. 60.491(a)(5)]

REICHHOLD CHEMICALS, INC.
PENSACOLA, FLORIDA
PROPOSED COMPLIANCE TESTING SCENARIOS

ENCLOSURE 4

STACK	REACTOR Nº	PRODUCT CODE
R-1	R-1	92-736 (fusion)
R-2	R-3	10-024 (fusion)
MAIN SCRUBBER	R-1*	10-015 or 11-035
	R-2	37-618
	R-3*	12-102 or 11-035
	R-4*	11-035 or 10-060
	R-5	90-031
	R-6	38-505
	R-7*	10-060 or 12-102
	R-10	37-601 or 37-607

Due to equipment limitations, only two of the four "" Reactors will be operated during testing.

Venturi Scrubber the 1st

R8
R9
R11

2 phases

1993 1994

Reichhold Chemicals, Inc.
Corporate Headquarters
P.O. Box 13582
Research Triangle Park, NC 27709-3582

November 2, 1992

REICHHOLD

Mr. C.H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Clerk + Teresa have modeling

RE: Reichhold Chemicals, Inc. - Pensacola, Florida
Air Permit Consolidation/New Source Permit
Permit Nº AC 17-216840

Dear Mr. Fancy:

In accordance with a letter to you dated September 11, 1992, and in response to your letter of October 15, 1992, Reichhold Chemicals, Incorporated has completed computer modeling of the hazardous air pollutants being emitted as part of our permit consolidation/new source permit application. Based on a telephone conversation with Ms. Teresa Heron on October 22, 1992, it is my understanding the computer modeling was the only outstanding item from your information request letter dated August 19, 1992.

The results of the modeling performed by KBN Engineering and Applied Sciences, Incorporated are enclosed. Modeling results indicate the "No-Threat Levels" for maximum predicted 8-hour, 24-hour, and annual average concentrations will not be exceeded for any of the six hazardous air pollutants which are expected to be emitted from the permitted sources.

In addition to the computer modeling results being submitted, Reichhold requests the construction permit be issued for a minimum of 4 years. The project is scheduled to be built in phases. The installation of the venturi scrubber and connection of reactor vents to the scrubber system will be completed first. Construction of the new R-9 reactor will not begin until the other changes are made and started-up. Therefore, an extended construction permit expiration date is being requested.

It is believed this submittal responds to all remaining questions/concerns raised by DER on Reichhold's air permit application. If further information is needed, please call Michael Long at (904) 433-7621 (ext. 348) or me at (919) 990-7540.

Sincerely,

Bradford S. Crawford

Bradford S. Crawford
Regional Environmental Engineer
Environmental Compliance

BSC/gc
Enclosure
cc: Ms. Teresa Heron (DER)
C. Holladay
D. Blumm
E. Middleswart, NW Dist

Tel: (919) 990-7500
Fax: (919) 990-7711

November 3, 1992

Mr. Michael Long
Reichhold Chemicals, Inc.
407 South Pace Boulevard
P.O. Box 1433
Pensacola, FL 32596-1433

Re: Toxic Pollutant Air Impact Analysis

Dear Mr. Long:

Reichhold Chemicals, Inc. (RCI) of Pensacola, Florida has contracted KBN Engineering and Applied Sciences, Inc. (KBN) to perform an air quality modeling impact assessment of their plant to determine the maximum facility toxic pollutant impacts based on emissions from their three scrubber stacks. The maximum pollutant impacts were compared to Florida Department of Environmental Regulation's (FDER's) No-Threat Levels (NTLs).

All model predictions were obtained with the Industrial Source Complex Short-Term (ISCST2) air quality dispersion model in conjunction with a 5-year meteorological database comprised of Pensacola surface observations and Appalachicola upper-air data for the years 1982 through 1986. The ISCST2 model is the recommended model for this type of facility and location.

All source input data were supplied to KBN by RCI. Table 1 summarizes the stack, building, and pollutant-specific emission rate information that was input to the ISCST2 model. Detailed information on the derivation of each stack's worst-case emission rates is included in Appendix A.

Modeled concentration levels were predicted using a receptor grid network consisting of 84 receptors around the plant. These 84 receptors included 36 that were located on the plant property boundary on radials that are spaced at 10° intervals from one another. An additional 48 receptors were located at off-site locations at distances from the main scrubber stack of 50, 100, and 200 meters. A flat terrain mode was assumed. The plant property receptors used in the analysis are presented in Table 2.

The effects of building-induced downwash were included in the modeling analysis by incorporating the following building structures in the vicinity of the three scrubber stacks:

Structure	Height (m)	Length (m)	Width (m)
Building #15	11.28	61.0	27.8
Building #11N	14.02	35.9	10.9
Building #11S	11.28	41.4	31.1
Penthouse	17.37	6.1	4.8

KBN ENGINEERING AND APPLIED SCIENCES, INC.
1034 Northwest 57th Street Gainesville, Florida 32605 904/331-9000 FAX: 904/332-4189

In addition to the input data and procedures stated previously, the following conservative assumptions were employed in the air modeling analysis:

1. All three scrubber stacks were co-located and placed at the location of the main scrubber stack, which is the closest stack to the tallest structure.

2. The lowest stack height, lowest flow rate, and largest diameter of all three scrubber stacks were used for the co-located stack.

3. The maximum 8-hour and 24-hour emission rates for each pollutant were used.

The ISCST2 model was initially run with a generic emission rate of 10 grams per second (g/s). The resulting predicted generic concentrations for each year are presented in Table 3. To determine the maximum 8-hour, 24-hour, and annual average impacts for each toxic pollutant analyzed, the specific pollutant emission rate for the 8-hour, 24-hour, or annual averaging time was multiplied by the maximum ISCST2 predicted 8-hour, 24-hour, or annual average concentration, respectively, and then divided by the generic emission rate (10 g/s).

The maximum pollutant impacts compared to their applicable NTLs are summarized in Table 4. The results indicate that none of the air pollutants analyzed will have maximum ambient air quality impacts above the respective NTL.

Should you have any questions about the analysis or techniques employed, please feel free to call me.

Sincerely yours,

Steven R. Marks, C.C.M.
Senior Scientist

SRM/dmpm

Enclosure

cc: File (2)
Dave Buff, KBN

Table 1. Source Emission Rate, Physical and Operational Parameters Employed in the Modeling Analysis

Source Parameters

Stack Height (ft):	43
Exhaust Flow Rate (scfh):	200
Exhaust velocity (fpm):	17.9
Stack Diameter (ft):	0.5
Exit Temperature (°F):	86

Emission Rates:

Pollutant	Annual (lb/hr)	24-hr (lb/hr)	8-hr (lb/hr)
Methyl Methacryate	0.8442	1.378	3.78625
Styrene	0.0455	0.086	0.2575
Toulene	0.2252	0.83	2.2275
Xylene	0.5418	0.63	1.745
Maleic Anhydride	0.0003	0.021	0.0625
Phthalic Anhydride	0.0002	0.021	0.0625

Table 2. Property Boundary Receptors Used in the Modeling Analysis

Direction (degrees)	Distance (m)	Direction (degrees)	Distance (m)
10	43	190	248
20	43	200	275
30	43	210	275
40	44	220	268
50	53	230	346
60	68	240	306
70	99	250	282
80	171	260	269
90	178	270	265
100	156	280	200
110	133	290	99
120	119	300	100
130	111	310	53
140	119	320	44
150	177	330	43
160	226	340	43
170	226	350	43
180	233	360	43

Note: Distances are relative to main scrubber stack location.

Table 3. Maximum Predicted Generic[a] Concentrations from the ISCST2 Model

Averaging Time	Concentration[a] ($\mu g/m^3$)	Receptor Location[b] Direction (degrees)	Receptor Location[b] Distance (m)	Period Ending (YYMMDDHH)
Annual	301	310.	53.	82------
	322	320.	44.	83------
	327	320.	44.	84------
	303	320.	44.	85------
	271	350.	43.	86------
24-Hour Highest	1979	30.	43.	82012124
	2671	330.	43.	83043024
	1839	310.	53.	84102324
	1986	40.	44.	85072724
	1828	10.	43.	86022024
8-Hour Highest	3049	30.	43.	82012108
	3552	320.	44.	83051024
	3379	310.	53.	84071924
	4564	300.	68.	85112524
	3843	10.	43.	86031108

Note: YY=Year, MM=Month, DD=Day, HH=Hour

[a] Maximum concentrations indicated were obtained with a generic emission rate of 10 grams per second.

[b] All receptor coordinates are reported with respect to the main scrubber stack location.

Table 4. Maximum Predicted Toxic Pollutant Impacts Compared With FDER No-Threat Levels

Pollutant	Concentration ($\mu g/m^3$)					
	Annual		24-Hour		8-Hour	
	Impact	NTL	Impact	NTL	Impact	NTL
Methyl Methacryate	3.5	--	46.4	984	217.7	4,100
Styrene	0.19	--	2.9	511.2	14.8	2,130
Toulene	0.93	300	27.9	904.8	128.1	3,770
Xylene	2.23	80	21.1	1041.6	100.4	4,340
Maleic Anhydride	0.0014	100	0.7	2.4	3.6	10
Phthalic Anhydride	0.00094	2,000	0.7	14.64	3.6	61

Notes:

1. NTL = No-Threat Level.
2. Highest predicted concentration ($\mu g/m^3$) for a 10 g/s (79.365 lb/hr) emission rate are:

   Annual: 326.93
   24-hr: 2670.81
   8-hr: 4564.08

3. Maximum concentrations determined with ISCST2 model and Pensacola/ Appalachicola meteorological data from 1982 through 1986.

APPENDIX A

PENSACOLA PLANT

October 20, 1992

CONSOLIDATED PERMIT PROJECT
HAZARDOUS AIR POLLUTANTS
WORST CASE EMISSIONS

CHEMICAL	CAS No.	8-HOUR EMISSIONS (LB/8hr)	24-HOUR EMISSIONS (LB/24hr)	ANNUAL EMISSIONS (LB/YR)
Methyl Methacrylate	80-62-6	30.29	33.08	7395
Styrene	100-42-5	2.06	2.06	399
Toluene	108-88-3	17.82	19.89	1973
Xylene	13330-20-7	13.96	15.03	4746
Maleic Anhydride	108-31-6	.5	.5	3
Phthalic Anhydride	85-44-9	.5	.5	2

PENSACOLA PLANT

October 20, 1992

CONSOLIDATED PERMIT PROJECT
WORST CASE ANALYSIS

METHYL METHACRYLATE

REACTOR Nº	PRODUCT CODE	EMISSIONS (LB/BATCH)	EMISSIONS < 8 HRS?	8 HR EMISSION RATE (LB/8HR)	CYCLE TIME (HRS)	BATCHES PER DAY	24 HR EMISSIONS (LB/DAY)	ANNUAL EMISSIONS
R-5	90-543	8.01	YES	8.01	21.5	1.12	8.94	
R-8	13-802	6.26	YES	6.26	25.5	1	6.26	
R-9	90-543	8.01	YES	8.01	21.5	1.12	8.94	
R-11	90-543	8.01	YES	8.01	21.5	1.12	8.94	
TOTAL				30.29			33.08	7395

PENSACOLA PLANT

October 20, 1992

CONSOLIDATED PERMIT PROJECT
WORST CASE ANALYSIS

STYRENE

REACTOR Nº	PRODUCT CODE	EMISSIONS (LB/BATCH)	EMISSIONS < 8 HRS?	8 HR EMISSION RATE (LB/8HR)	CYCLE TIME (HRS)	BATCHES PER DAY	24 HR EMISSIONS (LB/DAY)	ANNUAL EMISSIONS
R-5	16-917	0.56	YES	0.56	29.5	1	0.56	
R-8	13-802	0.23	YES	0.23	25.5	1	0.23	
R-9	16-917	0.56	YES	0.56	29.5	1	0.56	
R-11	38-690	0.71	YES	0.71	26	1	0.71	
TOTAL				2.06			2.06	399

PENSACOLA PLANT

October 20, 1992

CONSOLIDATED PERMIT PROJECT
WORST CASE ANALYSIS

TOLUENE

REACTOR Nº	PRODUCT CODE	EMISSIONS (LB/BATCH)	EMISSIONS < 8 HRS?	8 HR EMISSION RATE (LB/8HR)	CYCLE TIME (HRS)	BATCHES PER DAY	24 HR EMISSIONS (LB/DAY)	ANNUAL EMISSIONS
R-5	90-543	5.94	YES	5.94	21.5	1.12	6.63	
R-9	90-543	5.94	YES	5.94	21.5	1.12	6.63	
R-11	90-543	5.94	YES	5.94	21.5	1.12	6.63	
TOTAL				17.82			19.89	1973

PENSACOLA PLANT

October 20, 1992

CONSOLIDATED PERMIT PROJECT
WORST CASE ANALYSIS

XYLENE

REACTOR Nº	PRODUCT CODE	EMISSIONS (LB/BATCH)	EMISSIONS < 8 HRS?	8 HR EMISSION RATE (LB/8HR)	CYCLE TIME (HRS)	BATCHES PER DAY	24 HR EMISSIONS (LB/DAY)	ANNUAL EMISSIONS
R-1	10-015	0.59	YES	0.59	20.5	1.17	0.69	
R-2	37-618	2.96	YES	2.96	32	1	2.96	
R-3	12-102	0.19	YES	0.19	21.5	1.12	0.21	
R-4	11-035	0.33	YES	0.33	27.5	1	0.33	
R-5	90-543	1.84	YES	1.84	21.5	1.12	2.05	
R-6	38-505	0.12	YES	0.12	9.5	2.53	0.30	
R-7	10-060	0.33	YES	0.33	17.0	1.41	0.47	
R-8	13-802	0.96	YES	0.96	25.5	1	0.96	
R-9	90-543	1.84	YES	1.84	21.5	1.12	2.05	
R-10	37-618	2.96	YES	2.96	32.0	1	2.96	
R-11	90-543	1.84	YES	1.84	21.5	1.12	2.05	
TOTAL				13.96			15.03	4746

ENCLOSURE E

STACK GEOMETRY AND FLOW CHARACTERISTICS

Emission Point	Stack Height (ft)	Stack Diameter (In)	EXIT VELOCITY (SCFH)	
			Typical Low Flow	Typical High Flow
Reactor #1	46	6	200	200
Reactor #2	43	3	200	200
Main Scrubber	46	6	400	1400

PS Form 3811, July 1983 447-845

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
Bradford J. Crawford
Reichhold Chem. Inc
PO Box 13582
Research Triangle Park, NC
27709-3582

4. Type of Service:	Article Number
☐ Registered ☐ Insured ☑ Certified ☐ COD ☐ Express Mail	P062 921 903

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X [signature]

7. Date of Delivery
10/19/92

8. Addressee's Address *(ONLY if requested and fee paid)*

DOMESTIC RETURN RECEIPT

P 062 921 903

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to
Bradford Crawford
Street and No.
Reichhold Chem.
P.O., State and ZIP Code
RTP, NC

Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	10-15-92

AC 17-216840

PS Form 3800, June 1991

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

October 15, 1992

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Bradford S. Crawford
Regional Environmental Engineer
Reichhold Chemicals, Inc.
P. O. Box 13582
Research Triangle Park, NC 27709-3582

Dear Mr. Bradford:

Re: Permit No. AC 17-216840
Chemicals Reactors R-1 through R-11 with Scrubbers

The Department is in receipt of your letter dated September 11, 1992. This letter is to inform you that all the questions raised in our incompleteness letter of August 19, 1992, were not answered. Therefore, the status of your applications remain incomplete.

Should you have any questions on this matter, please call Teresa Heron or Cleve Holladay at (904) 488-1344, or write to me at the above address.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/TH/plm

cc: Ed Middleswart, NED
Daniel B. Smith, P.E.

Reichhold Chemicals, Inc.
Corporate Headquarters
P.O. Box 13582
Research Triangle Park, NC 27709-3582

REICHHOLD

September 11, 1992

Mr. C. H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Reichhold Chemicals, Inc. - Pensacola, Florida
Air Permit Consolidation/New Source Permit

Dear Mr. Fancy:

On August 11, 1992, Michael Long, Frank Whatton, and I met with Ms. Teresa Heron and Mr. Cleveland Holladay to discuss the air permit application submitted July 20, 1992 by Reichhold Chemicals, Incorporated. The permit application is intended to permit a new reactor, and consolidate several existing permits for the Reichhold facility in Pensacola, Florida.

During the meeting and in an August 19, 1992 follow-up letter, several pieces of additional information were requested by DER. In response to the requests, Reichhold is submitting the following information:

1.a. A more detailed project description is included as Enclosure A.

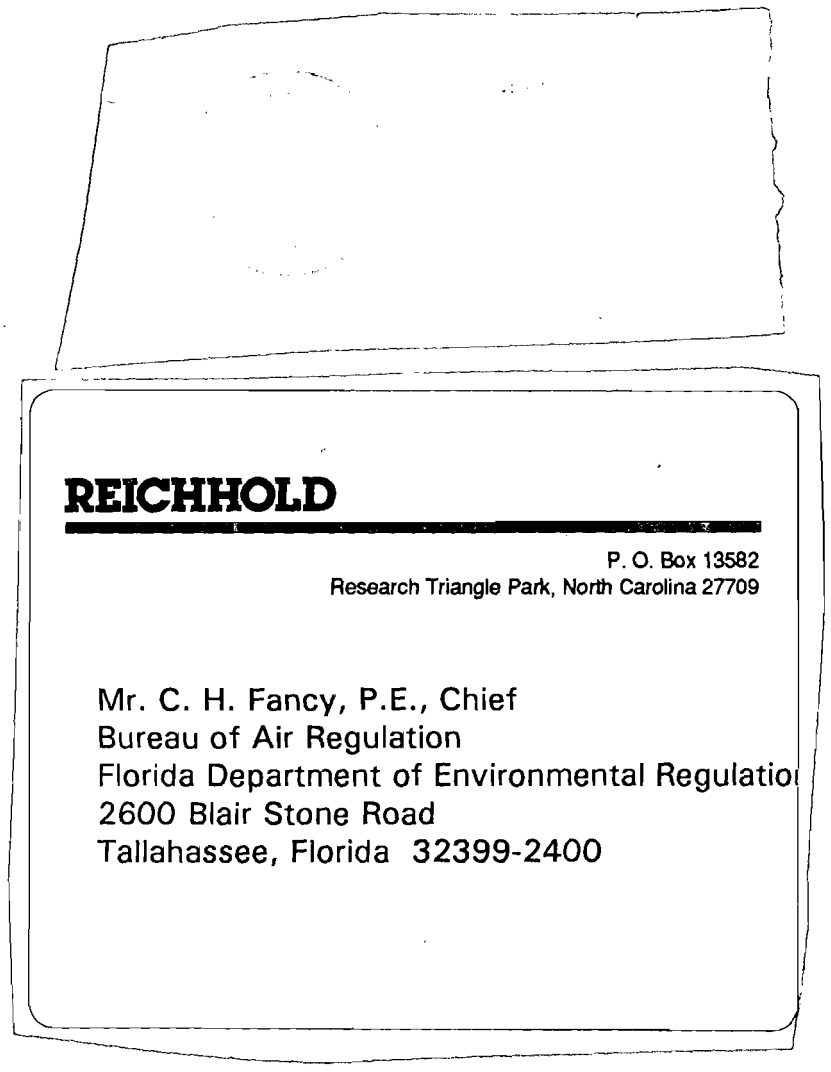
1.b. A summary of actual emissions from the facility is included as Enclosure B. This inventory is a summary of emissions reported under SARA Section 313 for 1991. Allowable emissions are covered by DER issued permits, listed in response 1.c. below.

1.c. Copies of operating permits for existing reactors, and an inventory of sources with corresponding permit numbers and expiration dates is included as Enclosure C.

1.d. A column listing expected scrubber efficiencies for each hazardous air pollutant, and average efficiency for other volatile organic compounds, has been added to the spreadsheets. Typical batch times for each product code (requested during the meeting) has also been added to the spreadsheets. The revised spreadsheets are included as Enclosure D.

1.e. Stack geometry and flow characteristics for each stack are included as Enclosure E.

Tel: (919) 990-7500
Fax: (919) 990-7711



REICHHOLD

P. O. Box 13582
Research Triangle Park, North Carolina 27709

Mr. C. H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulatio
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

1.f. A detailed description of the basis of calculations for the Attachment No. 6 spreadsheet is included as Enclosure F. As noted in the project description (1.a.), approximately 15% of production uses the fusion process and will vent through the R1 or R2 scrubber stack. All other production processes vent through the main scrubber. Emissions from each source are anticipated to be along the same percentages.

1.g. All raw materials and finished products are stored in bulk storage tanks, 55-gallon drums or small DOT approved containers, or 50 pound bags. Bulk storage tanks are equipped with conservation vents to control emissions, and emissions from reactor loading are vented through the condenser and scrubber systems to help control emissions.

2.a. The August 19, 1992 letter requests Reichhold to "model all emitted toxic chemicals." A consulting firm will be putting this information together for Reichhold, and it will be submitted to your office upon completion.

3.a. During the August 11, 1992 meeting, source testing methods were discussed. Reichhold believes EPA Method 25A should be utilized for any required emissions testing.

We believe this submittal responds to each of the questions and requests for additional data made during the August 11, 1992 meeting and in the August 19, 1992 letter. In order to expedite the permit issuance, please call me at (919) 990-7540 or Michael Long at (904) 433-7621, if you have any questions concerning this submittal, or if additional data is needed to process the application,

Sincerely,

Bradford S. Crawford

Bradford S. Crawford
Regional Environmental Engineer
Environmental Compliance

BSC/gc
cc: D. Huron
C. Middlesmart, NW Dist
C. Holladay

ENCLOSURE A

RCI produces resin in ten (10) reactors, R1 through R11 (excluding proposed R9). Products made in these reactors are categorized as follows:

Alkyd Resins (Solvent Process)
Alkyd Resins (Fusion Process)
Copolymer Resins
Water Reducible Epoxy Esters
Epoxy
Hardeners
Acrylics

Each process, except for the Alkyd Resin Fusion Process, is vented through the main scrubber. The fusion process is vented through either the R1 or R2 scrubber stack. This process accounts for approximately 15% of all production. Attachment No.4 of the permit application (Reactor emission flow diagram) shows the routing of all reactor emission vents. All processes, except for the fusion process, are vented through a condenser prior to entering the scrubbers.

The permit application requests permission to construct a new reactor (R9), a new venturi scrubber, connection of R8 to the main scrubber, and connection of R2, R5, R11 to the new venturi scrubber. R8 is currently permitted to vent directly to the atmosphere through a condenser and conservation vent. The venturi scrubber will be added to improve efficiency of the system. Reactor R2, R5, R11, will be connected to the new venturi scrubber to provide both cleaner emissions and add flexibility of the products produced in these reactors.

A consolidated permit is requested to provide flexibility in the production of resin. RCI uses 300+ raw materials to make many different resins. If RCI is limited to what kind of product can be made in each reactor, it will be difficult to adjust to changes in market demand.

ENCLOSURE B

REICHHOLD CHEMICALS, INC.
PENSACOLA, FLORIDA
1991 AIR EMISSIONS SUMMARY
(SARA 313 DATA)

Chemical	CAS Number	Point Source (lb)	Fugitive (lb)	TOTAL (lb)
Maleic Anhydride	108-31-6	0	2	2
Bisphenol A	80-05-7	0	19	19
Methyl Isobutyl Ketone	108-10-1	88	448	536
Styrene	100-42-5	56	50	106
Xylene	1330-20-7	3456	3573	7029
Ethylene Glycol	107-21-1	1	165	166
Toluene	108-88-3	4840	15323	20163
Ethyl Benzene	100-41-4	709	732	1441
Phthalic Anhydride	85-44-9	514	186	700
Methyl Ethyl Ketone	78-93-3	17	544	571
Phenol	108-95-2	0	3	3
Glycol Ethers	-	485	451	936
N-Butyl Alcohol	71-36-3	1	264	265
Sec-Butyl Alcohol	78-92-2	11	2120	2131
			TOTAL	**34,068**

ENCLOSURE C

PERMIT NO.	SOURCE	I.D. NUMBER	EXPIR. DATE	RENEW DEADLINE	ANNUAL REPORT
A017-171914	R-1 & SCRUBBER (FUSION)	10PEN17004332	11/1/94	9/1/94	N/A
A017-171914	R-2 & SCRUBBER (FUSION)	10PEN17004334	11/1/94	9/1/94	N/A
A017-171916	R-7 FURNANCE	10PEN17004341	11/1/94	9/1/94	N/A
A017-171916	DOW BOILER #1	10PEN17004338	11/1/94	9/1/94	N/A
A017-171916	DOW BOILER #2	10PEN17004339	11/1/94	9/1/94	N/A
A017-171913	MAIN PROCESS SCRUBBER	10PEN17004331	11/1/94	9/1/94	N/A
A017-187600	ORGANIC COATING FACILITY (14 VENTS)	10PEN17004343	11/1/95	9/1/95	3/1
	REACTOR R-8				
	MONOMER WEIGH TANK				
	FILTER TANK (TT-8)				
	RAW MAT'L- TK400				
	RAW MAT'L- TK606				
	RAW MAT'L- TK607				
	PROD.-TK401				
	PROD.-TK402				
	PROD.-TK403				
	DRUM VENT (1)				
	DRUM VENT (2)				
	BULK LOAD'G (1) RAILCAR				
	BULK LOAD'G (2) T/W				
	SOLVENT FLUSH SYSTEM (TK 404)				
A017-188645	MA-STORAGE	10PEN17004302	2/01/96	12/1/95	N/A
A017-188645	92-736 STGORAGE	10PEN17004303	2/01/96	12/1/95	N/A
A017-188645	ALKYD RESIN	10PEN17004304	2/01/96	12/1/95	N/A
A017-188645	STYRENE	10PEN17004305	2/01/96	12/1/95	N/A
A017-188645	BC-STORAGE	10PEN17004306	2/01/96	12/1/95	N/A
A017-188645	TT-9	10PEN17004307	2/01/96	12/1/95	N/A
A017-188645	PAMOLYN	10PEN17004308	2/01/96	12/1/95	N/A
A017-188645	ALKYD RESIN	10PEN17004309	2/01/96	12/1/95	N/A
A017-188649	BOILER 12	10PEN17004317	2/01/96	12/1/95	N/A
AC17-211666	TK 613		1/01/93		
AC17-213442	MAIN DOWTHERM BOILER		7/01/93		

Florida Department of Environmental Regulation

Northwest District ● 160 Governmental Center ● Pensacola, Florida 32501-5794 ● 904-436-8300

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary
Robert Kriegel, Deputy Assistant Secretary

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004343
Permit/Certification Number: A017-187600
Date of Issue: NOV 16 1990

Expiration Date: November 1, 1995
County: Escambia
Latitude/Longitude: 30°24'20"N/87°14'45"W
Section/Township/Range: Pensacola/2S/30W
Project: Organic Coating Facility

This permit is issued under the provisions of Section 403.087, Florida Statutes, and Florida Administrative Code Rules 17-2 and 17-4. The above named applicant, hereinafter called 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 Department and made a part hereof and specifically described as follows:

Facility to produce an organic coating material (a copolymer of modified linseed oil and vinyl toluene) in a solvent (naptha or mineral spirits). Emissions of volatile organic compounds (primarily naptha) are inventoried from 14 emission points (three raw material storages and a weigh tank, reactor, filtration, solvent flush system, three product storage tanks, two product bulk shipping and two product drum loading operations). The majority of these emission points are controlled by conservation vents. Two high temperature processes have water cooled condensers to control emissions, these are: 1) emissions from the reactor are cooled to 160°F and 2) emissions from the product filtration are cooled to 112°F. Total volatile organic emissions from this facility are calculated to be 8.75 tons per year at full capacity of 7,110 tons of product per year.

Located: 407 South Pace Boulevard, Pensacola, Florida.

The following specific conditions require timely action by the permittee during the life of this permit:

Condition 17 Annual operation report (by March 1)
Condition 19 Application to renew permit (by September 1, 1995)

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004343
Permit/Certification Number: A017-187600
Date of Issue: NOV 16 1990

Expiration Date: November 1, 1995

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "permit conditions", and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, are required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004343
Permit/Certification Number: A017-187600
Date of Issue: NOV 16 1990
Expiration Date: November 1, 1995

GENERAL CONDITIONS:

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of this permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and,

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a. A description of and cause of noncompliance; and

b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with Florida Rules of Civil Procedure and appropriate evidentiary rules.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004343
Permit/Certification Number: A017-187600
Date of Issue: NOV 16 1990

Expiration Date: November 1, 1995

GENERAL CONDITIONS:

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-730.300, as applicable. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurement;
- the person responsible for performing the sampling or measurement;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004343
Permit/Certification Number: AO17-187600
Date of Issue: NOV 16 1990
Expiration Date: November 1, 1995

GENERAL CONDITIONS:

14. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

15. Emissions of volatile organic compounds are prohibited without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. In accordance with this requirement, the permittee shall maintain and operate the two condensers to achieve the designed vapor temperature over the reactor and the filtration supply.

The temperature of the reactor vapors and of the product filtration shall be controlled to a maximum of 150°F and 112°F respectively. These temperatures are to be continuously measured and continuously recorded or logged from an indicator at least twice per 8-hour work shift while operating. The temperature records shall be available for Department inspection.

16. This source shall be operated in such a fashion so as to preclude objectionable odors.

17. An annual operation report (DER Form 17-1.202(6) attached) shall be submitted by March 1 each year. The attached form shall be reproduced by the permittee and used for future annual submittals.

18. The permanent source identification number for this point source is 10PEN17004343. Please cite this number on all test reports and other correspondence specific to this permitted point source.

19. An application to renew this permit shall be submitted prior to September 1, 1995.

20. The Department telephone number for reporting problems, malfunctions or exceedances under this permit is (904) 436-8300, day or night, and for emergencies involving a significant threat to human health or the environment is (904) 488-1320. For routine business, telephone (904) 436-8364 during normal working hours.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004343
Permit/Certification Number: AO17-187600
Date of Issue: NOV 16 1990

Expiration Date: November 1, 1995

SPECIFIC CONDITIONS:

Expiration date:

November 1, 1995

Issued this 16th day of Nov, 1990.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

ROBERT V. KRIEGEL
Deputy Assistant Secretary

Florida Department of Environmental Regulation

Northwest District • 160 Governmental Center • Pensacola, Florida 32501-5794 • 904-436-8300

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary
Robert Kriegel, Deputy Assistant Secretary

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004332 & 34
Permit/Certification Number: AO17-171914
Date of Issue: JAN 29 1990

Expiration Date: November 1, 1994
County: Escambia
Latitude/Longitude: 30°24'20"N/87°14'45"W
Section/Township/Range: Pensacola/2S/30W
Project: Two Reactors (R1 & R2) - Fusion Reaction

This permit is issued under the provisions of Section 403.087, Florida Statutes, and Florida Administrative Code Rules 17-2 and 17-4. The above named applicant, hereinafter called 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 Department and made a part hereof and specifically described as follows:

Operation of two reactors (R-1 & R-2) with fusion reaction process. During fusion reaction, condenser is not used, emissions are controlled by a wet scrubber on each reactor (R-1 & R-2).

Located: 407 S. Pace Boulevard, Pensacola.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004332 & 34
Permit/Certification Number: AO17-171914
Date of Issue: JAN 2 9 1990

Expiration Date: November 1, 1994

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "permit conditions", and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, are required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004332 & 34
Permit/Certification Number: AO17-171914
Date of Issue: JAN 2 7 1990

Expiration Date: November 1, 1994

GENERAL CONDITIONS:

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of this permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and,

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a. A description of and cause of noncompliance; and

b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with Florida Rules of Civil Procedure and appropriae evidentiary rules.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004332 & 34
Permit/Certification Number: A017-171914
Date of Issue: JAN 2 9 1990
Expiration Date: November 1, 1994

GENERAL CONDITIONS:

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-730.300, as applicable. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurement;
- the person responsible for performing the sampling or measurement;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004332 & 34
Permit/Certification Number: A017-171914
Date of Issue: JAN 2 9 1990
Expiration Date: November 1, 1994

GENERAL CONDITIONS:

14. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

15. Operating instructions set out in written form for each batch recipe shall be followed. Specifically, the control of parameters affecting volatile organic emissions such as scrubber water flow rate minimum and scrubber exit temperature maximum.

Operator logged records or continuous chart records of the critical water flow and vapor temperatures shall be maintained and available for Department inspections.

The operating instructions shall contain contingency plans in case of an exceedance of a maximum or minimum control parameter limit.

16. This source shall be operated in such a fashion so as to preclude objectionable odors.

17. This permit does not authorize any discharges of liquid effluents or contaminated runoff from this source.

18. All reasonable care shall be used with volatile organic compounds to avoid leaks and spills.

19. An application to renew this permit shall be submitted prior to September 1, 1994.

20. The permanent source identification number for this point source is 10PEN1704332 & 34. Please cite this number on all test reports and other correspondence specific to this permitted point source.

21. The Department telephone number for reporting problems, malfunctions or exceedances under this permit is (904) 436-8300, day or night, and for emergencies involving a significant threat to human health or the environment is (904) 488-1320. For routine business, telephone (904) 436-8364 during normal working hours.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004332 & 34
Permit/Certification Number: AO17-171914
Date of Issue: JAN 2 9 1990
Expiration Date: November 1, 1994

SPECIFIC CONDITIONS:

Expiration date:

November 1, 1994

Issued this 29th day of Jan, 1990.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

ROBERT V. KRIEGEL
Deputy Assistant Secretary

RECEIVED FEB 0 1 1990

Florida Department of Environmental Regulation

Northwest District ● 160 Governmental Center ● Pensacola, Florida 32501-5794 ● 904-436-8300

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary
Robert Kriegel, Deputy Assistant Secretary

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004331
Permit/Certification Number: AO17-171913
Date of Issue: JAN 2 9 1990

Expiration Date: November 1, 1994
County: Escambia
Latitude/Longitude: 20°24'20"N/87°14'45"W
Section/Township/Range: Pensacola/2S/30W
Project: Six Reactors using azeotrope solvent reaction process and Two Vacuum Jets

This permit is issued under the provisions of Section 403.087, Florida Statutes, and Florida Administrative Code Rules 17-2 and 17-4. The above named applicant, hereinafter called 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 Department and made a part hereof and specifically described as follows:

Operation of six reactors (R-1, 2, 3, 4, 6 and 7) using azeotrope solvent reaction process and two sets of vacuum jets. Solvent loss is primarily controlled by water cooled condensers upon each reactor. As a secondary control all condenser vents are connected to the Main Process Scrubber which uses recirculating wastewater with make up fresh water to control odors and volatile organic emissions.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004331
Permit/Certification Number: AO17-171913
Date of Issue: JAN 29 1990
Expiration Date: November 1, 1994

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "permit conditions", and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, are required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004331
Permit/Certification Number: A017-171913
Date of Issue: JAN 29 1990
Expiration Date: November 1, 1994

GENERAL CONDITIONS:

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of this permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and,

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a. A description of and cause of noncompliance; and

b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with Florida Rules of Civil Procedure and appropriae evidentiary rules.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004331
Permit/Certification Number: AO17-171913
Date of Issue: JAN 2 9 1990
Expiration Date: November 1, 1994

GENERAL CONDITIONS:

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-730.300, as applicable. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurement;
- the person responsible for performing the sampling or measurement;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004331
Permit/Certification Number: AO17-171913
Date of Issue: JAN 29 1990
Expiration Date: November 1, 1994

GENERAL CONDITIONS:

14. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

15. Operating instructions set out in written form for each batch recipe shall be followed. Specifically, the control of parameters affecting volatile organic emissions such as condenser and scrubber water flow rate minimums and condenser and scrubber exit temperature maximums.

Operator logged records or continuous chart records of the critical water flow and vapor temperatures shall be maintained and available for Department inspections.

The operating instructions shall contain contingency plans in case of an exceedance of a maximum or minimum control parameter limit.

16. This source shall be operated in such a fashion so as to preclude objectionable odors.

17. This permit does not authorize any discharges of liquid effluents or contaminated runoff from this source.

18. All reasonable care shall be used with volatile organic compounds to avoid leaks and spills.

19. An application to renew this permit shall be submitted prior to September 1, 1994.

20. The permanent source identification number for this point source is 10PEN1704331. Please cite this number on all test reports and other correspondence specific to this permitted point source.

21. The Department telephone number for reporting problems, malfunctions or exceedances under this permit is (904) 436-8300, day or night, and for emergencies involving a significant threat to human health or the environment is (904) 488-1320. For routine business, telephone (904) 436-8364 during normal working hours.

PERMITTEE:

Reichhold Chemicals, Inc.

I.D. Number: 10PEN17004331
Permit/Certification Number: AO17-171913
Date of Issue: JAN 29 1990

Expiration Date: November 1, 1994

SPECIFIC CONDITIONS:

Expiration date:

November 1, 1994

Issued this 29th day of Jan, 1990.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

ROBERT V. KRIEGEL
Deputy Assistant Secretary

ATTACHMENT NUMBER 5

(PNSsun99) 14-Aug-92

PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

FORMULAS	BATCH TIMES (HOURS)	POUNDS PER BATCH	BATCHES PER YEAR	PRODUCTION ESTIMATE (MM POUNDS) FOR REACTORS R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	TOTAL
10-015	20.5	25000	210			3	2.25								5.25
10-060	17	25000	404	3	0.3			0.3		5		1.5			10.1
11-035	27.5	30000	533				6			10					16
12-035	17	25000	240	6											6
12-102	21.5	25000	180	3			1.5								4.5
12-511	23.5	24000	188			4.5									4.5
13-030	27	24000	63			1.5									1.5
13-038	15.5	30000	453								10			3.6	13.6
13-802	25.5	30000	458					0.75			10			3	13.75
16-902	13.5	25000	240			3	3								6
16-917	29.5	10000	240		2.4										2.4
37-128	3	15000	107						1.6						1.6
37-606	11	14000	429										6		6
37-618	32	10000	945		0.9			0.3				8.25			9.45
38-505	9.5	15000	427						6.4						6.4
38-690	26	25000	216											5.4	5.4
90-511	23.5	15000	100									1.5			1.5
90-543	21.5	14000	332		2.4							2.25			4.65
92-169	19	60000	167							10					10
92-736	23	25000	120	3											3
95-959	25.5	25000	210			3	2.25								5.25
EA-6433	14	15000	100									1.5			1.5
X4-3544	19	5000	60					0.3							0.3
X4-6420	17	5000	270					1.35							1.35
TOTAL				15	6	15	15	3	8	25	20	15	6	12	140

(PNSsun99) 24-Jun-92

PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

AFTER CONDENSER POUNDS PER BATCH

CHEMICALS	CAS NO.	10-015	10-060	11-035	12-035	12-102	12-511	13-030	13-038	13-802	16-902	16-917	TOTAL
ACRYLIC ACID (X4-4078	79-10-7												0
BIPHENYL	95-52-4												0
CAPROLACTAM	105-60-2												0
DIBUTYL PHTHALATE	84-72-2												0
DIETHYL SULFATE	64-67-5												0
DIETHYLETHANOLAMINE	111-42-2												0
ETHYL ACRYLATE	140-88-5												0
ETHYLBENZENE	100-41-4												0
ETHYLENE GLYCOL	107-21-1												0
ETHYLENE GLYCOL MONOP	2807-30-9												0
ETHYLENE OXIDE	75-21-8												0
FORMALDEHYDE	50-00-0												0
HEXANE	110-54-3												0
HYDROCHLORIC ACID	7647-01-0												0
HYDROQUINONE	123-31-9												0
MALEIC ANHYDRIDE	108-31-6		0.07		0.22			0.90					1.19
METHANOL	67-56-1												0
METHYL ETHYL KETONE	78-93-3												0
METHYL ISOBUTYL KETON	108-10-1												0
METHYL METHACRYLATE	80-62-6									52.28		45.42	97.7
PHENOL	108-95-2												0
PHTHALIC ANHYDRIDE	85-44-9		0.14		0.22	0.22							0.58
PROPYLENE OXIDE	75-56-9												0
STYRENE	100-42-5									3.64		6.69	10.33
TOLUENE	108-88-3												0
TOLUENE DIISOCYANATE	584-84-9												0
TRIETHYLENE GLYCOL MO	143-22-6												0
XYLENE	13330-20-7	9.17	5.55	1.62	5.45	4.12				24.13	13.48		63.52
TOTAL HAP'S		9.17	5.76	1.62	5.89	4.34	0	0.9	0	80.05	13.48	52.11	173.32
OTHER VOC'S		21.77	19.39	21.59	1.25	3.56	9.9	36.93	51.05	4.05	9.5	4.09	183.08
TOTAL VOLATILE ORGANIC COMPOUNDS		30.94	25.15	23.21	7.14	7.9	9.90	37.83	51.05	84.1	22.98	56.2	356.4

(PNSsum99) 24-Jun-92

PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

POUNDS PER BATCH

CHEMICALS	CAS NO.	37-128	AFTER CONDENSER 37-606	37-618	38-505	38-690	90-511	90-543	92-169	92-736	95-959	EA-6433	X4-3544	X4-6420	TOTAL
ACRYLIC ACID (X4-4078	79-10-7														0
BIPHENYL	95-52-4														0
CAPROLACTAM	105-60-2														0
DIBUTYL PHTHALATE	84-72-2														0
DIETHYL SULFATE	64-67-5														0
DIETHYLETHANOLAMINE	111-42-2														0
ETHYL ACRYLATE	140-88-5														0
ETHYLBENZENE	100-41-4														0
ETHYLENE GLYCOL	107-21-1														0
ETHYLENE GLYCOL MONOP	2807-30-9														0
ETHYLENE OXIDE	75-21-8														0
FORMALDEHYDE	50-00-0														0
HEXANE	110-54-3														0
HYDROCHLORIC ACID	7647-01-0														0
HYDROQUINONE	123-31-9														0
MALEIC ANHYDRIDE	108-31-6														0
METHANOL	67-56-1														0
METHYL ETHYL KETONE	78-93-3														0
METHYL ISOBUTYL KETON	108-10-1														0
METHYL METHACRYLATE	80-62-6						19.38	79.72				55.16			154.26
PHENOL	108-95-2														0
PHTHALIC ANHYDRIDE	85-44-9														0
PROPYLENE OXIDE	75-56-9														0
STYRENE	100-42-5					20.33						1.3			21.63
TOLUENE	108-88-3							16.91							16.91
TOLUENE DIISOCYANATE	584-84-9														0
TRIETHYLENE GLYCOL MO	143-22-6														0
XYLENE	13330-20-7			28.49	12.14			9.97	11.77		4.92				67.29
TOTAL HAP'S		0	0	28.49	12.14	20.33	19.38	106.6	11.77	0	4.92	56.46	0	0	260.09
OTHER VOC'S		0.016	57.16	53.42	0	14.43	131.14	1.14	16.48	9.29	116.66	5	0.85	94.07	499.656
TOTAL VOLATILE ORGANIC COMPOUNDS		0.016	57.16	81.91	12.14	34.76	150.52	107.74	28.25	9.29	121.58	61.46	0.85	94.07	759.75

(PNSsun99) 24-Jun-92

PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

AFTER SCRUBBER(S) POUNDS PER BATCH

CHEMICALS	CAS NO.	10-015	10-060	11-035	12-035	12-102	12-511	13-030	13-038	13-802	16-902	16-917	TOTAL
ACRYLIC ACID (X4-4078	79-10-7												0
BIPHENYL	95-52-4												0
CAPROLACTAM	105-60-2												0
DIBUTYL PHTHALATE	84-72-2												0
DIETHYL SULFATE	64-67-5												0
DIETHYLETHANOLAMINE	111-42-2												0
ETHYL ACRYLATE	140-88-5												0
ETHYLBENZENE	100-41-4												0
ETHYLENE GLYCOL	107-21-1												0
ETHYLENE GLYCOL MONOP	2807-30-9												0
ETHYLENE OXIDE	75-21-8												0
FORMALDEHYDE	50-00-0												0
HEXANE	110-54-3												0
HYDROCHLORIC ACID	7647-01-0												0
HYDROQUINONE	123-31-9												0
MALEIC ANHYDRIDE	108-31-6		0		0.01			0.01					0.02
METHANOL	67-56-1												0
METHYL ETHYL KETONE	78-93-3												0
METHYL ISOBUTYL KETON	108-10-1												0
METHYL METHACRYLATE	80-62-6									6.26		5.15	11.41
PHENOL	108-95-2												0
PHTHALIC ANHYDRIDE	85-44-9		0		0	0.01							0.01
PROPYLENE OXIDE	75-56-9												0
STYRENE	100-42-5									0.23		0.56	0.79
TOLUENE	108-88-3												0
TOLUENE DIISOCYANATE	584-84-9												0
TRIETHYLENE GLYCOL MO	143-22-6												0
XYLENE	13330-20-7	0.59	0.33	0.53	0.19	0.19				0.96	0.26		3.05
TOTAL HAP'S		0.59	0.33	0.53	0.2	0.2	0	0.01	0	7.45	0.26	5.71	15.28
OTHER VOC'S		2.06	0.37	0.88	0.13	0.12	0.21	1.09	2.27	1.2	0.29	0.13	8.75
TOTAL VOLATILE ORGANIC COMPOUNDS		2.65	0.7	1.41	0.33	0.32	0.21	1.10	2.27	8.65	0.55	5.84	24.03

(PNSsun99) 24-Jun-92

PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

AFTER SCRUBBER(S) POUNDS PER BATCH

CHEMICALS	CAS NO.	37-128	37-606	37-618	38-505	38-690	90-511	90-543	92-169	92-736	95-959	EA-6433	X4-3544	X4-6420	TOTAL
ACRYLIC ACID (X4-4078	79-10-7														0
BIPHENYL	95-52-4														0
CAPROLACTAM	105-60-2														0
DIBUTYL PHTHALATE	84-72-2														0
DIETHYL SULFATE	64-67-5														0
DIETHYLETHANOLAMINE	111-42-2														0
ETHYL ACRYLATE	140-88-5														0
ETHYLBENZENE	100-41-4														0
ETHYLENE GLYCOL	107-21-1														0
ETHYLENE GLYCOL MONOP	2807-30-9														0
ETHYLENE OXIDE	75-21-8														0
FORMALDEHYDE	50-00-0														0
HEXANE	110-54-3														0
HYDROCHLORIC ACID	7647-01-0														0
HYDROQUINONE	123-31-9														0
MALEIC ANHYDRIDE	108-31-6														0
METHANOL	67-56-1														0
METHYL ETHYL KETONE	78-93-3														0
METHYL ISOBUTYL KETON	108-10-1														0
METHYL METHACRYLATE	80-62-6						2.81	8.01				3.49			14.31
PHENOL	108-95-2														0
PHTHALIC ANHYDRIDE	85-44-9														0
PROPYLENE OXIDE	75-56-9														0
STYRENE	100-42-5					0.71						0.06			0.77
TOLUENE	108-88-3							5.94							5.94
TOLUENE DIISOCYANATE	584-84-9														0
TRIETHYLENE GLYCOL MO	143-22-6														0
XYLENE	13330-20-7			2.96	0.12			1.84	0.37		0.49				5.78
TOTAL HAP'S		0	0	2.96	0.12	0.71	2.81	15.79	0.37	0	0.49	3.55	0	0	26.8
OTHER VOC'S		0	1.07	4.21	-0.00	3.79	18.34	1.53	0.3	0.04	11.97	0.1	0	3.31	44.66
TOTAL VOLATILE ORGANIC COMPOUNDS		0	1.07	7.17	0.12	4.5	21.15	17.32	0.67	0.04	12.46	3.65	0	3.31	71.46

(PNSsum99) 24-Jun-92

PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

AFTER CONDENSER TOTAL POUNDS

CHEMICALS	CAS NO.	10-015	10-060	11-035	12-035	12-102	12-511	13-030	13-038	13-802	16-902	16-917	TOTAL
ACRYLIC ACID (X4-4078	79-10-7	0	0	0	0	0	0	0	0	0	0	0	0
BIPHENYL	95-52-4	0	0	0	0	0	0	0	0	0	0	0	0
CAPROLACTAM	105-60-2	0	0	0	0	0	0	0	0	0	0	0	0
DIBUTYL PHTHALATE	84-72-2	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYL SULFATE	64-67-5	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYLETHANOLAMINE	111-42-2	0	0	0	0	0	0	0	0	0	0	0	0
ETHYL ACRYLATE	140-88-5	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLBENZENE	100-41-4	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL	107-21-1	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL MONOP	2807-30-9	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE OXIDE	75-21-8	0	0	0	0	0	0	0	0	0	0	0	0
FORMALDEHYDE	50-00-0	0	0	0	0	0	0	0	0	0	0	0	0
HEXANE	110-54-3	0	0	0	0	0	0	0	0	0	0	0	0
HYDROCHLORIC ACID	7647-01-0	0	0	0	0	0	0	0	0	0	0	0	0
HYDROQUINONE	123-31-9	0	0	0	0	0	0	0	0	0	0	0	0
MALEIC ANHYDRIDE	108-31-6	0	28	0	53	0	0	56	0	0	0	0	137
METHANOL	67-56-1	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ETHYL KETONE	78-93-3	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ISOBUTYL KETON	108-10-1	0	0	0	0	0	0	0	0	0	0	0	0
METHYL METHACRYLATE	80-62-6	0	0	0	0	0	0	0	0	23962	0	10901	34862
PHENOL	108-95-2	0	0	0	0	0	0	0	0	0	0	0	0
PHTHALIC ANHYDRIDE	85-44-9	0	57	0	53	40	0	0	0	0	0	0	149
PROPYLENE OXIDE	75-56-9	0	0	0	0	0	0	0	0	0	0	0	0
STYRENE	100-42-5	0	0	0	0	0	0	0	0	1668	0	1606	3274
TOLUENE	108-88-3	0	0	0	0	0	0	0	0	0	0	0	0
TOLUENE DIISOCYANATE	584-84-9	0	0	0	0	0	0	0	0	0	0	0	0
TRIETHYLENE GLYCOL MO	143-22-6	0	0	0	0	0	0	0	0	0	0	0	0
XYLENE	13330-20-7	1926	2242	864	1308	742	0	0	0	11060	3235	0	21376
TOTAL HAP'S		1926	2327	864	1414	781	0	56	0	36690	3235	12506	59799
OTHER VOC'S		4572	7834	11515	300	641	1856	2308	23143	1856	2280	982	57286
TOTAL VOLATILE ORGANIC COMPOUNDS		6497	10161	12379	1714	1422	1856	2364	23143	38546	5515	13488	117085

(PNSsun99) 24-Jun-92

PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

AFTER CONDENSER TOTAL POUNDS

CHEMICALS	CAS NO.	37-128	37-606	37-618	38-505	38-690	90-511	90-543	92-169	92-736	95-959	EA-6433	X4-3544	X4-6420	TOTAL
ACRYLIC ACID (X4-4078	79-10-7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BIPHENYL	95-52-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPROLACTAM	105-60-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIBUTYL PHTHALATE	84-72-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYL SULFATE	64-67-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYLETHANOLAMINE	111-42-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYL ACRYLATE	140-88-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLBENZENE	100-41-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL	107-21-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL MONOP	2807-30-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE OXIDE	75-21-8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FORMALDEHYDE	50-00-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEXANE	110-54-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HYDROCHLORIC ACID	7647-01-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HYDROQUINONE	123-31-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MALEIC ANHYDRIDE	108-31-6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHANOL	67-56-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ETHYL KETONE	78-93-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ISOBUTYL KETON	108-10-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHYL METHACRYLATE	80-62-6	0	0	0	0	0	1938	26478	0	0	0	5516	0	0	33932
PHENOL	108-95-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHTHALIC ANHYDRIDE	85-44-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROPYLENE OXIDE	75-56-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STYRENE	100-42-5	0	0	0	0	4391	0	0	0	0	0	130	0	0	4521
TOLUENE	108-88-3	0	0	0	0	0	0	5617	0	0	0	0	0	0	5617
TOLUENE DIISOCYANATE	584-84-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRIETHYLENE GLYCOL MO	143-22-6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
XYLENE	13330-20-7	0	0	26923	5180	0	0	3311	1962	0	1033	0	0	0	38409
TOTAL HAP'S		0	0	26923	5180	4391	1938	35406	1962	0	1033	5646	0	0	82479
OTHER VOC'S		2	24497	50482	0	3117	13114	379	2747	1115	24499	500	51	25399	145900
TOTAL VOLATILE ORGANIC COMPOUNDS		2	24497	77405	5180	7508	15052	35785	4708	1115	25532	6146	51	25399	228380

(PNSsum99) 14-Aug-92

PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

AFTER SCRUBBER(S) TOTAL POUNDS

CHEMICALS	CAS NO.	10-015	10-060	11-035	12-035	12-102	12-511	13-030	13-038	13-802	16-902	16-917	% SCRUBBER EFFICIENCY	TOTAL
ACRYLIC ACID (X4-407	79-10-7	0	0	0	0	0	0	0	0	0	0	0	90	0
BIPHENYL	95-52-4	0	0	0	0	0	0	0	0	0	0	0	90	0
CAPROLACTAM	105-60-2	0	0	0	0	0	0	0	0	0	0	0	90	0
DIBUTYL PHTHALATE	84-72-2	0	0	0	0	0	0	0	0	0	0	0	90	0
DIETHYL SULFATE	64-67-5	0	0	0	0	0	0	0	0	0	0	0	90	0
DIETHYLETHANOLAMINE	111-42-2	0	0	0	0	0	0	0	0	0	0	0	90	0
ETHYL ACRYLATE	140-88-5	0	0	0	0	0	0	0	0	0	0	0	90	0
ETHYLBENZENE	100-41-4	0	0	0	0	0	0	0	0	0	0	0	90	0
ETHYLENE GLYCOL	107-21-1	0	0	0	0	0	0	0	0	0	0	0	90	0
ETHYLENE GLYCOL MONO	2807-30-9	0	0	0	0	0	0	0	0	0	0	0	90	0
ETHYLENE OXIDE	75-21-8	0	0	0	0	0	0	0	0	0	0	0	90	0
FORMALDEHYDE	50-00-0	0	0	0	0	0	0	0	0	0	0	0	90	0
HEXANE	110-54-3	0	0	0	0	0	0	0	0	0	0	0	90	0
HYDROCHLORIC ACID	7647-01-0	0	0	0	0	0	0	0	0	0	0	0	90	0
HYDROQUINONE	123-31-9	0	0	0	0	0	0	0	0	0	0	0	90	0
MALEIC ANHYDRIDE	108-31-6	0	0	0	2	0	0	1	0	0	0	0	98	3
METHANOL	67-56-1	0	0	0	0	0	0	0	0	0	0	0	90	0
METHYL ETHYL KETONE	78-93-3	0	0	0	0	0	0	0	0	0	0	0	90	0
METHYL ISOBUTYL KETO	108-10-1	0	0	0	0	0	0	0	0	0	0	0	90	0
METHYL METHACRYLATE	80-62-6	0	0	0	0	0	0	0	0	2869	0	1236	88	4105
PHENOL	108-95-2	0	0	0	0	0	0	0	0	0	0	0	90	0
PHTHALIC ANHYDRIDE	85-44-9	0	0	0	0	2	0	0	0	0	0	0	95	2
PROPYLENE OXIDE	75-56-9	0	0	0	0	0	0	0	0	0	0	0	90	0
STYRENE	100-42-5	0	0	0	0	0	0	0	0	105	0	134	96	240
TOLUENE	108-88-3	0	0	0	0	0	0	0	0	0	0	0	65	0
TOLUENE DIISOCYANATE	584-84-9	0	0	0	0	0	0	0	0	0	0	0	90	0
TRIETHYLENE GLYCOL M	143-22-6	0	0	0	0	0	0	0	0	0	0	0	90	0
XYLENE	13330-20-7	124	133	283	46	34	0	0	0	440	62	0	94	1122
														0
TOTAL HAP'S		124	133	283	48	36	0	1	0	3415	62	1370	90	5472
														0
OTHER VOC'S		433	149	469	31	22	39	68	1029	550	70	31	90	2892
														0
TOTAL VOLATILE ORGANIC COMPOUNDS		556	283	752	79	58	39	69	1029	3965	132	1402	90	8363

(PNSsun99) 24-Jun-92

PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

AFTER SCRUBBER(S) TOTAL POUNDS

CHEMICALS	CAS NO.	37-128	37-606	37-618	38-505	38-690	90-511	90-543	92-169	92-736	95-959	EA-6433	X4-3544	X4-6420	TOTAL
ACRYLIC ACID (X4-4078	79-10-7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BIPHENYL	95-52-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPROLACTAM	105-60-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIBUTYL PHTHALATE	84-72-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYL SULFATE	64-67-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYLETHANOLAMINE	111-42-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYL ACRYLATE	140-88-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLBENZENE	100-41-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL	107-21-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL MONOP	2807-30-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE OXIDE	75-21-8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FORMALDEHYDE	50-00-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEXANE	110-54-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HYDROCHLORIC ACID	7647-01-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HYDROQUINONE	123-31-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MALEIC ANHYDRIDE	108-31-6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHANOL	67-56-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ETHYL KETONE	78-93-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ISOBUTYL KETON	108-10-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHYL METHACRYLATE	80-62-6	0	0	0	0	0	281	2660	0	0	0	349	0	0	3290
PHENOL	108-95-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHTHALIC ANHYDRIDE	85-44-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROPYLENE OXIDE	75-56-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STYRENE	100-42-5	0	0	0	0	153	0	0	0	0	0	6	0	0	159
TOLUENE	108-88-3	0	0	0	0	0	0	1973	0	0	0	0	0	0	1973
TOLUENE DIISOCYANATE	584-84-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRIETHYLENE GLYCOL MO	143-22-6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
XYLENE	13330-20-7	0	0	2797	51	0	0	611	62	0	103	0	0	0	3624
TOTAL HAP'S		0	0	2797	51	153	281	5245	62	0	103	355	0	0	9047
OTHER VOC'S		0	459	3978	-0	819	1834	508	50	5	2514	10	0	894	11070
TOTAL VOLATILE ORGANIC COMPOUNDS		0	459	6776	51	972	2115	5753	112	5	2617	365	0	894	20117

ENCLOSURE E

STACK GEOMETRY AND FLOW CHARACTERISTICS

Emission Point	Stack Height (ft)	Stack Diameter (In)	EXIT VELOCITY (SCFH)	
			Typical Low Flow	Typical High Flow
Reactor #1	46	6	200	200
Reactor #2	43	3	200	200
Main Scrubber	46	6	400	1400

ENCLOSURE F

(PNSsun88) 17-Aug-92

* BASED UPON 200 SCFH NITROGEN = 15 POUNDS PER HOUR = 0.54 LB. MOLES / HR.
VAPOR MASS = 0.54 / (1 - TOTAL VMF) * VMF * MOL. WT. * TIME

PENSACOLA PLANT EMISSIONS ESTIMATE

		BEFORE CONDENSER							AFTER CONDENSER				
CYCLE SEQUENCE PRODUCT CODE EXAMPLE DESCRIPTION	CYCLE TIME HOURS	TEMP. DEG F	VAPOR PRESSURE PSIA	LIQUID MASS POUNDS	MOLECULAR WEIGHT	LIQUID MOLE FRACTION	PARTIAL PRESSURE PSIA	VAPOR MOLE FRACTION (VMF)	* VAPOR MASS POUNDS	TEMP. DEG F	VAPOR PRESSURE PSIA	PARTIAL PRESSURE PSIA	VAPOR MOLE FRACTION	* VAPOR MASS POUNDS
CHARGE RAW MATERIALS	3	180												
ETHYLENE GLYCOL @ 5000 POUNDS			1.98	5000	104	0.38	0.75	0.05	9.74	110	1.34	0.60	0.04	7.72
NPG @ 5000 POUNDS			2.42	5000	104	0.38	0.92	0.06	11.91		1.74	0.96	0.07	12.25
ADIPIC ACID @ 400 POUNDS			0.11	400	146	0.02	0.00	0.00	0.04		0.03	0.00	0.00	0.00
ISOPHTHALIC ACID @ 4000 POUNDS			0.00	4000	166	0.19	0.00	0.00	0.00		0.00	0.00	0.00	0.00
PHTHALIC ANHYDRIDE @ 500 POUNDS			0.00	500	148	0.03	0.00	0.00	0.00		0.00	0.00	0.00	0.00
						1.00	1.68	0.11				1.56	0.11	
HEAT UP & HOLD AT 180 C (360 F)	4	360								110				
ETHYLENE GLYCOL @ 5000 POUNDS			4.68	5000	104	0.38	1.78	0.12	36.61		1.34	0.63	0.04	10.78
NPG @ 5000 POUNDS			5.15	5000	104	0.38	1.96	0.13	40.29		1.74	0.90	0.06	15.41
ADIPIC ACID @ 400 POUNDS			1.40	400	146	0.02	0.03	0.00	0.88		0.03	0.00	0.00	0.01
ISOPHTHALIC ACID @ 4000 POUNDS			0.00	4000	166	0.19	0.00	0.00	0.01		0.00	0.00	0.00	0.00
PHTHALIC ANHYDRIDE @ 500 POUNDS			0.20	500	148	0.03	0.01	0.00	0.16		0.00	0.00	0.00	0.00
						1.00	3.78	0.26				1.54	0.10	
HEAT UP & HOLD AT 230 C (446 F)	5	446								110				
ETHYLENE GLYCOL @ 5000 POUNDS			6.67	5000	104	0.38	2.54	0.17	76.24		1.34	0.64	0.04	10.84
NPG @ 5000 POUNDS			7.10	5000	104	0.38	2.70	0.18	81.15		1.74	0.88	0.06	14.98
ADIPIC ACID @ 400 POUNDS			3.42	400	146	0.02	0.07	0.01	3.13		0.03	0.00	0.00	0.01
ISOPHTHALIC ACID @ 4000 POUNDS			0.00	4000	166	0.19	0.00	0.00	0.01		0.00	0.00	0.00	0.00
PHTHALIC ANHYDRIDE @ 500 POUNDS			1.50	500	148	0.03	0.04	0.00	1.71		0.00	0.00	0.00	0.00
						1.00	5.35	0.36				1.51	0.10	
COOL AND ADJUST	3	383								110				
ETHYLENE GLYCOL @ 5000 POUNDS			5.16	5000	104	0.33	1.71	0.12	71.73		1.34	0.21	0.01	2.59
NPG @ 5000 POUNDS			5.63	5000	104	0.33	1.86	0.13	78.26		1.74	0.30	0.02	3.67
ADIPIC ACID @ 400 POUNDS			1.80	400	146	0.02	0.03	0.00	2.00		0.03	0.00	0.00	0.00
ISOPHTHALIC ACID @ 4000 POUNDS			0.00	4000	166	0.17	0.00	0.00	0.01		0.00	0.00	0.00	0.00
PHTHALIC ANHYDRIDE @ 500 POUNDS			0.30	500	148	0.02	0.01	0.00	0.42		0.00	0.00	0.00	0.00
XYLENE @ 2000 POUNDS			54.46	2000	106	0.13	7.08	0.48	302.81		0.40	0.26	0.02	3.27
						1.00	10.69	0.73				0.78	0.05	
TRANSFER TO DRUMS	1	320												
ETHYLENE GLYCOL @ 5000 POUNDS			3.92	5000	104	0.33	1.30	0.09	8.41	110	1.34	0.29	0.02	1.17
NPG @ 5000 POUNDS			4.40	5000	104	0.33	1.46	0.10	9.44		1.74	0.42	0.03	1.71
ADIPIC ACID @ 400 POUNDS			0.87	400	146	0.02	0.02	0.00	0.15		0.03	0.00	0.00	0.00
ISOPHTHALIC ACID @ 4000 POUNDS			0.00	4000	166	0.17	0.00	0.00	0.00		0.00	0.00	0.00	0.00
PHTHALIC ANHYDRIDE @ 500 POUNDS			0.13	500	148	0.02	0.00	0.00	0.03		0.00	0.00	0.00	0.00
XYLENE @ 2000 POUNDS			25.13	2000	106	0.13	3.26	0.22	21.57		0.40	0.22	0.01	0.90
						1.00	6.04	0.41				0.92	0.06	
TOTAL BATCH TIME	16 HOURS							TOTAL	756.72				TOTAL	85.31
SCRUBBER DISCHARGE	24	110												
ETHYLENE GLYCOL @ 50 POUNDS			1.34	50	104	0.02	0.02	0.00	3.78					
NPG @ 50 POUNDS			1.74	50	104	0.02	0.03	0.00	4.91					
WATER @ 500 POUNDS			1.28	500	18	0.96	1.23	0.08	36.12					
XYLENE @ 20 POUNDS			0.40	20	106	0.01	0.00	0.00	0.45					
						1.00	1.28	0.09						
								TOTAL	45.26					

The emissions estimate is based upon ideal gas laws and product cook descriptions (Recipe for making the product which includes material quantities, cycle times, temperatures and other important processing information). Because of the very confidential nature of the information included in the product cook descriptions, we have used a fictitious example for the explanation of how we calculated the reactor scrubber emissions.

Product Code : Example

Cycle Number 1 - Charge Raw Materials Cycle No. 1 Time (CN1T) equals **3 hours**
Cycle No. 1 Temp (CN1TMP) equals **180 Deg F**

Ethylene Glycol	charge weight (**EGW1**) equals	**5000 pounds**
NPG	charge weight (**NPGW1**) equals	**5000 pounds**
Adipic Acid	charge weight (**AAW1**) equals	**400 pounds**
Isophthalic Acid	charge weight (**IPAW1**) equals	**4000 pounds**
Phthalic Anhydride	charge weight (**PAAW1**) equals	**500 pounds**

EGW1 := 5000 NPGW1 := 5000 AAW1 := 400 IPAW1 := 4000 PAAW1 := 500

CN1T := 3 CN1TMP := 180

EGMW := 104 ETHYLENE GLYCOL MOLECULAR WEIGHT

NPGMW := 104 NPG MOLECULAR WEIGHT

IPAMW := 166 ISOPHTHALIC ACID MOLECULAR WEIGHT

PAAMW := 148 PHTHALIC ANHYDRIDE MOLECULAR WEIGHT

AAMW := 146 ADIPIC ACID MOLECULAR WEIGHT

EGVP1 := 1.98 ETHYLENE GLYCOL VAPOR PRESSURE (PSIA) AT CYCLE TEMPERATURE

NPGVP1 := 2.42 NPG VAPOR PRESSURE (PSIA) AT CYCLE TEMPERATURE

AAVP1 := 0.11 ADIPIC ACID VAPOR PRESSURE (PSIA) AT CYCLE TEMPERATURE

IPAVP1 := 0.002 ISOPHTHALIC ACID VAPOR PRESSURE (PSIA) AT CYCLE TEMPERATURE

PAAVP1 := 0.005 PHTHALIC ANHYD. VAPOR PRESSURE (PSIA) AT CYCLE TEMPERATURE

$$EGLM1 := \frac{EGW1}{EGMW}$$ EGLM1 = 48.077 ETHYLENE GLYCOL POUND MOLES

$$NPGLM1 := \frac{NPGW1}{NPGMW}$$ NPGLM1 = 48.077 NPG POUND MOLES

$$AALM1 := \frac{AAW1}{AAMW}$$ AALM1 = 2.74 ADIPIC ACID POUND MOLES

$$IPALM1 := \frac{IPAW1}{IPAMW}$$ IPALM1 = 24.096 ISOPHTHALIC ACID POUND MOLES

$$PAALM1 := \frac{PAAW1}{PAAMW}$$ PAALM1 = 3.378 PHTHALIC ANHYD. POUND MOLES

TOTLM1 := EGLM1 + NPGLM1 + AALM1 + IPALM1 + PAALM1

TOTLM1 = 126.368 TOTAL POUND MOLES OF MATERIAL FOR CYCLE NO. 1

$EGLMF1 := \frac{EGLM1}{TOTLM1}$ EGLMF1 = 0.38 ETHYLENE GLYCOL LIQUID MOLE FRACTION

$NPGLMF1 := \frac{NPGLM1}{TOTLM1}$ NPGLMF1 = 0.38 NPG LIQUID MOLE FRACTION

$AALMF1 := \frac{AALM1}{TOTLM1}$ AALMF1 = 0.022 ADIPIC ACID LIQUID MOLE FRACTION

$IPALMF1 := \frac{IPALM1}{TOTLM1}$ IPALMF1 = 0.191 ISOPHTHALIC ACID LIQUID MOLE FRACTION

$PAALMF1 := \frac{PAALM1}{TOTLM1}$ PAALMF1 = 0.027 PHTHALIC ANHYD. LIQUID MOLE FRACTION

The partial pressure of each component is equal to the vapor pressure of that component times the liquid mole fraction of that component (Raoult's law).

$EGPP1 := EGVP1 \cdot EGLMF1$ EGPP1 = 0.753 ETHYLENE GLYCOL PARTIAL PRES. (PSIA)

$NPGPP1 := NPGVP1 \cdot NPGLMF1$ NPGPP1 = 0.921 NPG PARTIAL PRESSURE (PSIA)

$AAPP1 := AAVP1 \cdot AALMF1$ AAPP1 = 0.002 ADIPIC ACID PARTIAL PRESSURE (PSIA)

$IPAPP1 := IPAVP1 \cdot IPALMF1$ $IPAPP1 = 3.814 \cdot 10^{-4}$ ISOPHTHALIC ACID PARTIAL PRES. (PSIA)

$PAPP1 := PAAVP1 \cdot PAALMF1$ $PAPP1 = 1.337 \cdot 10^{-4}$ PHTHALIC ANHYD. PARTIAL PRES. (PSIA)

$TOTPP1 := EGPP1 + NPGPP1 + AAPP1 + IPAPP1 + PAPP1$

TOTPP1 = 1.677 SUM OF THE PARITAL PRESSURES (LESS THAN 14.7 PSIA)

The vapor mole fraction of each component is equal to the partial pressure of that component divided by the total pressure (in this process the total pressure is 14.7 psia). [Raoult's law]

$EGVMF1 := \frac{EGPP1}{14.7}$ EGVMF1 = 0.051 ETHYLENE GLYCOL VAPOR MOLE FRACTION

$NPGVMF1 := \frac{NPGPP1}{14.7}$ NPGVMF1 = 0.063 NPG VAPOR MOLE FRACTION

$AAVMF1 := \frac{AAPP1}{14.7}$ $AAVMF1 = 1.622 \cdot 10^{-4}$ ADIPIC ACID VAPOR MOLE FRACTION

$IPAVMF1 := \frac{IPAPP1}{14.7}$ $IPAVMF1 = 2.594 \cdot 10^{-5}$ ISOPHTHALIC ACID VAPOR MOLE FRACTION

$PAVMF1 := \frac{PAPP1}{14.7}$ $PAVMF1 = 9.093 \cdot 10^{-6}$ PHTHALIC ANHYD. VAPOR MOLE FRACTION

$SUMVMF1 := EGVMF1 + NPGVMF1 + AAVMF1 + IPAVMF1 + PAVMF1$

SUMVMF1 = 0.114

The mole fraction of nitrogen gas in the reactor outlet is equal to 1.0 minus the sum of the vapor mole fractions of the volatile components (SUMVMF1) [Raoult's law].

$NGVMF1 := 1 - SUMVMF1$ NGVMF1 = 0.886 NITROGEN GAS VAPOR MOLE FRACTION

The vapor mass rate [VMR] (in pounds per cycle) is based upon a nitrogen gas sparge rate of 200 standard cubic feet per hour (scfh). [200 scfh of nitrogen equals 0.54 pound moles per hour] The VMR of each component is equal to the vapor mole fraction [VMF] of that component times the molecular weight [MW] of that component times the cycle time [CN1T] times the total number of moles [TMF1]. The TMF1 is equal to 0.54 lb. moles of nitrogen divided by the vapor mole fraction of the nitrogen gas [NGVMF1].

$TMF1 := \frac{0.54}{NGVMF1}$ $TMF1 = 0.61$ TOTAL MOLES PER HOUR OF EFFLUENT

VAPOR MASS IN POUNDS PER CYCLE

$EGVMR1 := EGVMF1 \cdot EGMW \cdot CN1T \cdot TMF1$	$EGVMR1 = 9.745$	ETHYLENE GLYCOL
$NPGVMR1 := NPGVMF1 \cdot NPGMW \cdot CN1T \cdot TMF1$	$NPGVMR1 = 11.911$	NPG
$AAVMR1 := AAVMF1 \cdot AAMW \cdot CN1T \cdot TMF1$	$AAVMR1 = 0.043$	ADIPIC ACID
$IPAVMR1 := IPAVMF1 \cdot IPAMW \cdot CN1T \cdot TMF1$	$IPAVMR1 = 0.008$	ISOPHTHALIC ACID
$PAVMR1 := PAVMF1 \cdot PAAMW \cdot CN1T \cdot TMF1$	$PAVMR1 = 0.002$	PHTHALIC ANHYDRIDE

Emissions after the condenser

$CDTEMP := 110$	CONDENSER TEMPERATURE IN DEGREES F
$EGVPC := 1.34$	ETHYLENE GLYCOL VAPOR PRESSURE AT CONDENSER TEMP. (PSIA)
$NPGVPC := 1.74$	NPG VAPOR PRESSURE AT CONDENSER TEMP. (PSIA)
$AAVPC := 0.03$	ADIPIC ACID VAPOR PRESSURE AT CONDENSER TEMP. (PSIA)
$IPAVPC := 0.001$	ISOPHTHALIC ACID VAPOR PRESSURE AT CONDENSER TEMP. (PSIA)
$PAVPC := 0.001$	PHTHALIC ANHYD. VAPOR PRESSURE AT CONDENSER TEMP. (PSIA)

The liquid mole fraction used to determine the partial pressure of each component in the condenser outlet is based upon the vapor mole fraction of the component entering the condenser.

$EGLMFC := \frac{EGVMF1}{SUMVMF1}$	$EGLMFC = 0.449$	ETHYLENE GLYCOL LIQ. MOLE FRACT.
$NPGLMFC := \frac{NPGVMF1}{SUMVMF1}$	$NPGLMFC = 0.549$	NPG LIQUID MOLE FRACTION
$AALMFC := \frac{AAVMF1}{SUMVMF1}$	$AALMFC = 0.001$	ADIPIC ACID LIQUID MOLE FRACTION
$IPALMFC := \frac{IPAVMF1}{SUMVMF1}$	$IPALMFC = 2.274 \cdot 10^{-4}$	ISOPHTHALIC ACID LIQ. MOLE FRACT.
$PALMFC := \frac{PAVMF1}{SUMVMF1}$	$PALMFC = 7.971 \cdot 10^{-5}$	PHTHALIC ANHYD. LIQ. MOLE FRACT.

The partial pressure of each component is equal to the vapor pressure of that component times the liquid mole fraction of that component (Raoult's law).

$EGPPC := EGVPC \cdot EGLMFC$	$EGPPC = 0.602$	ETHYLENE GLYCOL PARTIAL PRES. (PSIA)
$NPGPPC := NPGVPC \cdot NPGLMFC$	$NPGPPC = 0.955$	NPG PARTIAL PRESSURE (PSIA)
$AAPPC := AAVPC \cdot AALMFC$	$AAPPC = 4.267 \cdot 10^{-5}$	ADIPIC ACID PARTIAL PRESSURE (PSIA)
$IPAPPC := IPAVPC \cdot IPALMFC$	$IPAPPC = 2.274 \cdot 10^{-7}$	ISOPHTHALIC ACID PARTIAL PRES. (PSIA)
$PAPPC := PAVPC \cdot PALMFC$	$PAPPC = 7.971 \cdot 10^{-8}$	PHTHALIC ANHYD. PARTIAL PRES. (PSIA)

$TOTPPC := EGPPC + NPGPPC + AAPPC + IPAPPC + PAPPC$

$TOTPPC = 1.557$ SUM OF THE PARITAL PRESSURES (LESS THAN 14.7 PSIA)

The vapor mole fraction of each component is equal to the partial pressure of that component divided by the total pressure (in this process the total pressure is 14.7 psia). [Raoult's law]

$EGVMFC := \frac{EGPPC}{14.7}$ $EGVMFC = 0.041$ ETHYLENE GLYCOL VAPOR MOLE FRACTION

$NPGVMFC := \frac{NPGPPC}{14.7}$ $NPGVMFC = 0.065$ NPG VAPOR MOLE FRACTION

$AAVMFC := \frac{AAPPC}{14.7}$ $AAVMFC = 2.902 \cdot 10^{-6}$ ADIPIC ACID VAPOR MOLE FRACTION

$IPAVMFC := \frac{IPAPPC}{14.7}$ $IPAVMFC = 1.547 \cdot 10^{-8}$ ISOPHTHALIC ACID VAPOR MOLE FRACTION

$PAVMFC := \frac{PAPPC}{14.7}$ $PAVMFC = 5.423 \cdot 10^{-9}$ PHTHALIC ANHYD. VAPOR MOLE FRACTION

$SUMVMFC := EGVMFC + NPGVMFC + AAVMFC + IPAVMFC + PAVMFC$

$SUMVMFC = 0.106$

The mole fraction of nitrogen gas in the reactor outlet is equal to 1.0 minus the sum of the vapor mole fractions of the volatile components (SUMVMFC) [Raoult's law].

$NGVMFC := 1 - SUMVMFC$ $NGVMFC = 0.894$ NITROGEN GAS VAPOR MOLE FRACTION

The vapor mass rate [VMR] (in pounds per cycle) is based upon a nitrogen gas sparge rate of 200 standard cubic feet per hour (scfh). [200 scfh of nitrogen equals 0.54 pound moles per hour] The VMR of each component is equal to the vapor mole fraction [VMF] of that component times the molecular weight [MW] of that component times the cycle time [CN1T] times the total number of moles [TMFC]. The TMFC is equal to 0.54 lb. moles of nitrogen divided by the vapor mole fraction of the nitrogen gas [NGVMFC].

$TMFC := \frac{0.54}{NGVMFC}$ $TMFC = 0.604$ TOTAL MOLES PER HOUR OF EFFLUENT

VAPOR MASS IN POUNDS PER CYCLE

$EGVMRC := EGVMFC \cdot EGMW \cdot CN1T \cdot TMFC$ $EGVMRC = 7.717$ ETHYLENE GLYCOL

$NPGVMRC := NPGVMFC \cdot NPGMW \cdot CN1T \cdot TMFC$ $NPGVMRC = 12.247$ NPG

$AAVMRC := AAVMFC \cdot AAMW \cdot CN1T \cdot TMFC$ $AAVMRC = 7.678 \cdot 10^{-4}$ ADIPIC ACID

$IPAVMRC := IPAVMFC \cdot IPAMW \cdot CN1T \cdot TMFC$ $IPAVMRC = 4.654 \cdot 10^{-6}$ ISOPHTHALIC ACID

$PAVMRC := PAVMFC \cdot PAAMW \cdot CN1T \cdot TMFC$ $PAVMRC = 1.454 \cdot 10^{-6}$ PHTHALIC ANHYD.

The calculations for the other cycles are done in a similar manner and then the values for all the cycles are added together. The total emissions from the condenser in the example included in our permit application are 87 pounds per batch. The total emissions of ethylene glycol from the condenser in the example included in our permit application is 33.1 pounds per batch. The total emissions of phthalic anhydride from the condenser in the example included in our permit application is 0.0 pounds per batch. The total emissions of xylene from the condenser in the example included in our permit application is 4.17 pounds per batch.

The total emissions of hazardous air pollutants (HAP's) from the condenser in the example included in our permit application are 37.27 pounds per batch. The total emissions of other volatile organic compounds (VOC's) from the condenser in the example included in our permit application are 48.04 pounds per batch. The total emissions of VOC's from the condenser in the example included in our permit application are 85.31 pounds per batch. The emissions reported in pounds per batch are multiplied by the number of batches per year to arrive at the pounds per year [Total Pounds reported in Attachment number 5]. (See tables in Attachment number 5 for actual values for each of our products reported in the permit.)

Emissions after the scrubber

SCTEMP := 110 SCRUBBER TEMPERATURE IN DEGREES F

SCTIME := 24 TIME USED FOR SCRUBBER CALC.S IN HOURS
(> OR = TOTAL BATCH TIME)

EGVPSC := 1.34 ETHYLENE GLYCOL VAPOR PRESSURE AT SCRUBBER TEMP. (PSIA)

NPGVPSC := 1.74 NPG VAPOR PRESSURE AT SCRUBBER TEMP. (PSIA)

WAVPSC := 1.28 WATER VAPOR PRESSURE AT SCRUBBER TEMP. (PSIA)

XYVPSC := 0.40 XYLENE VAPOR PRESSURE AT SCRUBBER TEMP. (PSIA)

EGTMSC := 50 ETHYLENE GLYCOL LIQUID MASS IN SCRUBBER
(> OR = TOTAL VAPOR MASS EMISSIONS PER BATCH)

NPGTMSC := 50 NPG LIQUID MASS IN SCRUBBER
(> OR = TOTAL VAPOR MASS EMISSIONS PER BATCH)

WATMSC := 500 WATER LIQUID MASS IN SCRUBBER
(BASED UPON > OR = 500 POUNDS OF WATER IN SCRUBBER)

XYTMSC := 20 XYLENE LIQUID MASS IN SCRUBBER
(> OR = TOTAL VAPOR MASS EMISSIONS PER BATCH)

XYMW := 106 XYLENE MOLECULAR WEIGHT

WAMW := 18 WATER MOLECULAR WEIGHT

$EGLMSC := \frac{EGTMSC}{EGMW}$ EGLMSC = 0.481 ETHYLENE GLYCOL POUND MOLES

$NPGLMSC := \frac{NPGTMSC}{NPGMW}$ NPGLMSC = 0.481 NPG POUND MOLES

$WALMSC := \frac{WATMSC}{WAMW}$ WALMSC = 27.778 WATER POUND MOLES

$XYLMSC := \frac{XYTMSC}{XYMW}$ XYLMSC = 0.189 XYLENE POUND MOLES

TOTLMSC := EGLMSC + NPGLMSC + WALMSC + XYLMSC

TOTLMSC = 28.928 TOTAL POUND MOLES IN THE SCRUBBER

$EGLMFSC := \frac{EGLMSC}{TOTLMSC}$ $EGLMFSC = 0.017$ ETHYLENE GLYCOL LIQUID MOLE FRACTION

$NPGLMFSC := \frac{NPGLMSC}{TOTLMSC}$ $NPGLMFSC = 0.017$ NPG LIQUID MOLE FRACTION

$WALMFSC := \frac{WALMSC}{TOTLMSC}$ $WALMFSC = 0.96$ WATER LIQUID MOLE FRACTION

$XYLMFSC := \frac{XYLMSC}{TOTLMSC}$ $XYLMFSC = 0.007$ XYLENE LIQUID MOLE FRACTION

$EGPPSC := EGVPSC \cdot EGLMFSC$ $EGPPSC = 0.022$ ETHYLENE GLYCOL PARTIAL PRES. (PSIA)

$NPGPPSC := NPGVPSC \cdot NPGLMFSC$ $NPGPPSC = 0.029$ NPG PARTIAL PRESSURE (PSIA)

$WAPPSC := WAVPSC \cdot WALMFSC$ $WAPPSC = 1.229$ WATER PARTIAL PRESSURE (PSIA)

$XYPPSC := XYVPSC \cdot XYLMFSC$ $XYPPSC = 0.003$ XYLENE PARTIAL PRES. (PSIA)

$TOTPPSC := EGPPSC + NPGPPSC + WAPPSC + XYPPSC$

$TOTPPSC = 1.283$ SUM OF THE PARITAL PRESSURES (LESS THAN 14.7 PSIA)

$EGVMFSC := \frac{EGPPSC}{14.7}$ $EGVMFSC = 0.002$ ETHYLENE GLYCOL VAPOR MOLE FRACTION

$NPGVMFSC := \frac{NPGPPSC}{14.7}$ $NPGVMFSC = 0.002$ NPG VAPOR MOLE FRACTION

$WAVMFSC := \frac{WAPPSC}{14.7}$ $WAVMFSC = 0.084$ WATER VAPOR MOLE FRACTION

$XYVMFSC := \frac{XYPPSC}{14.7}$ $XYVMFSC = 1.775 \cdot 10^{-4}$ XYLENE VAPOR MOLE FRACTION

$SUMVMFSC := EGVMFSC + NPGVMFSC + WAVMFSC + XYVMFSC$

$SUMVMFSC = 0.087$

The mole fraction of nitrogen gas in the reactor outlet is equal to 1.0 minus the sum of the vapor mole fractions of the volatile components (SUMVMFC) [Raoult's law].

$NGVMFSC := 1 - SUMVMFSC$ $NGVMFSC = 0.913$ NITROGEN GAS VAPOR MOLE FRACTION

The vapor mass rate [VMR] (in pounds per cycle) is based upon a nitrogen gas sparge rate of 200 standard cubic feet per hour (scfh). [200 scfh of nitrogen equals 0.54 pound moles per hour] The VMR of each component is equal to the vapor mole fraction [VMF] of that component times the molecular weight [MW] of that component times the cycle time [SCTIME] times the total number of moles [TMFSC]. The TMFSC is equal to 0.54 lb. moles of nitrogen divided by the vapor mole fraction of the nitrogen gas [NGVMFSC].

$TMFSC := \frac{0.54}{NGVMFSC}$ $TMFSC = 0.592$ TOTAL MOLES PER HOUR OF EFFLUENT

$TMFSC \cdot 1.69 = 1$ TOTAL MOLES PER HOUR WITH SAFETY FACTOR OF 1.69 TIMES

VAPOR MASS IN POUNDS PER BATCH

EGVMRSC := EGVMFSC·EGMW·SCTIME·TMFSC·1.69

EGVMRSC = 3.781 ETHYLENE GLYCOL EMISSIONS FROM SCRUBBER

NPGVMRSC := NPGVMFSC·NPGMW·SCTIME·TMFSC·1.69

NPGVMRSC = 4.909 NPG EMISSIONS FROM SCRUBBER

WAVMRSC := WAVMFSC·WAMW·SCTIME·TMFSC·1.69

WAVMRSC = 36.116 WATER EMISSIONS FROM SCRUBBER

XYVMRSC := XYVMFSC·XYMW·SCTIME·TMFSC·1.69

XYVMRSC = 0.451 XYLENE EMISSIONS FROM SCRUBBER

The total emissions from the scrubber in the example included in our permit application are 45.26 pounds per batch. The total emissions of ethylene glycol from the scrubber in the example included in our permit application is 3.78 pounds per batch. The total emissions of phthalic anhydride from the scrubber in the example included in our permit application is 0.0 pounds per batch. The total emissions of xylene from the condenser in the example included in our permit application is 0.45 pounds per batch.

The total emissions of hazardous air pollutants (HAP's) from the condenser in the example included in our permit application are 4.23 pounds per batch. The total emissions of other volatile organic compounds (VOC's) from the scrubber in the example included in our permit application are 4.91 pounds per batch. The total emissions of VOC's from the scrubber in the example included in our permit application are 9.14 pounds per batch. The emissions reported in pounds per batch are multiplied by the number of batches per year to arrive at the pounds per year [Total Pounds reported in Attachment number 5]. (See tables in Attachment number 5 for actual values for each of our products reported in the permit.)

PPA

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Philip P. Ulichney
Plant Manager
Reichhold Chemicals, Inc.
107 South Pace Blvd.
Pensacola, FL 3259601433

4a. Article Number
P 062 921 991

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)

PS Form **3811**, November 1990 ☆U.S. GPO: 1991—287-066 **DOMESTIC RETURN RECEIPT**

P 062 921 991

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Mr. Philip P. Ulichney	
Street and No. Reichhold Chemicals 107 South Pace Blvd.	
P.O. State and ZIP Code Pensacola, FL 32596-1433	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date Mailed: 8-19-92 Permit: AC 17-216840	

PS Form **3800**, June 1991

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

August 19, 1992

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Philip P. Ulichney, Plant Manager
Reichhold Chemicals, Inc.
107 South Pace Boulevard
Pensacola, Florida 32596-1433

1463
OC GPL 8/19

Dear Mr. Ulichney:

Re: Reichhold Chemicals
Permit No. AC 17-216840
Chemicals Reactors R-1 through R-11 with scrubbers

The Department has received the application for a permit to construct a new chemical reactor (R-9) with scrubber, and to consolidate the existing permits for various other reactors into a single permit at the Reichhold chemical complex located in Pensacola, Florida. Based on our initial review of your proposal, we have determined that additional information is needed in order to process this application. Please complete the application by supplying the information requested below:

1. DER Form 17-1.202(1)

   a. Give a more detailed description of this project. Since this process will involve 300+ chemicals as raw materials, please identify the raw materials and products for each reactor, how many reactors will be making the same product, time per batch, how many batches per reactor, etc.

   b. Submit an inventory of all sources at your facility and list their actual and allowable emissions.

   c. Supply a copy of the operating permits for the existing reactors and a chronologic listing of the air permitting activities that have occurred at your facility.

   d. Determine the efficiency of each condenser and scrubber as a function of inlet chemistry for the different chemicals.

   e. Provide the emission stack geometry and flow characteristics for each emission point associated with this process.

f. Furnish the basis of calculations for the spreadsheets data contained in attachment No. 6. What are the total emissions for each individual emission point (R-1, R-2, Main scrubbers) in lbs/hr, lbs/day, tons/year.

g. How are each of the raw materials and products stored? What precautions are taken to minimize fugitive air emissions?

2. AIR MODELING AND TOXIC REVIEW

a. Please model all emitted toxic chemicals using an EPA and FDER approved model such as TSCREEN for comparison with the appropriate no-threat levels listed in the attachment.

Should you have any questions on this matter, please contact Teresa Heron (review engineer), John Glunn (air toxic specialist), or Cleve Holladay (meteorologist) at (904) 488-1344 or write to me at the above address. The processing of your application will continue once this information is received.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/TH/plm

Attachment: Air Toxics Working List

cc: Ed Middleswart, NED
Daniel B. Smith, P.E.

Reichhold Chemicals, Inc.
Coating Polymers & Resins Division
407 South Pace Boulevard
P.O. Box 1433
Pensacola, Florida 32596-1433

REICHHOLD

REGISTERED MAIL/RETURN RECEIPT REQUESTED

July 20, 1992

Mr. G. Preston Lewis, P.E.
Bureau of Air Regulation
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Reichhold Chemicals, Inc. - Pensacola, Florida
Air Permit Consolidation/New Source Permit

Dear Mr. Lewis:

As discussed during a meeting at your office on April 16, 1992, with Bradford S. Crawford and Michael G. Long, Reichhold Chemicals, Inc. wishes to make several changes to air permits at its Pensacola, Florida facility. Permission is being sought to construct a new chemical reactor, R-9, and consolidate that permit with an existing Construction Permit for reactor R-5 and Operating Permits for various other reactors existing on-site. The plant's central scrubber will serve as the primary emission point for each of the reactors, and is the focus of the request to consolidate the plant's existing permits.

The attached Permit Application list specific details on the raw materials to be used in the reactors, and total VOC emissions. In addition, for the hazardous air pollutants, estimated emissions of each individual HAP is listed.

We realize the detailed information attached is likely to generate several questions and may need further explanation. Therefore, after you have had an opportunity to initially review the application, we would like to meet with your and/or your staff, to go through the air permit application, and answer any questions or concerns you might have regarding the application.

Also you will find enclosed a check in the amount of $1,250.00. $250.00 is the fee to cover the modification of the exiting permit and $1,000.00 is the application fee for the permit on the new reactor R-9 based on estimated emission.

Tel.: (904) 433-7621
(800) 874-0868
FAX: (904) 444-7650
Telex: 702424

001031

Please call Michael Long at (904) 433-7621, ext. 348 or Brad Crawford at (919) 990-7540 with any questions you may have, or to set-up a meeting to discuss the application in detail. Your cooperation in this matter is greatly appreciated.

Sincerely,

Philip P. Ulichney
Plant Manager

PPU/kc
Enclosure

cc: Dan Smith

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

$1,000 pd 7-21-92 Rcpt. 180781

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DER - MAIL ROOM
1992 JUL 21 PM 1:27

NORTHWEST DISTRICT
160 GOVERNMENTAL CENTER
PENSACOLA FLORIDA 32501-5794

AC17-216840

SOURCE TYPE: Chemical Reactors [X] New[1] [X] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [X] Modification

COMPANY NAME: Reichhold Chemicals, Inc. COUNTY: Escambia

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Reactors w/Scrubbers

SOURCE LOCATION: Street 107 South Pace Boulevard City Pensacola

UTM: East _____ North _____

Latitude 30 ° 24 ' 08 "N Longitude 87 ° 13 ' 40 "W

APPLICANT NAME AND TITLE: Philip P. Ulichney

APPLICANT ADDRESS: 107 South Pace Boulevard Pensacola, Florida 32596-1433

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Reichhold Chemicals

I certify that the statements made in this application for a Chemical Reactor permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: _____

Philip P. Ulichney, Plant Manager
Name and Title (Please Type)

Date: 7/16/92 Telephone No. 904/433-7621

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed _____

Daniel B. Smith, P.E.
Name (Please Type)

Cornerstone Engineering, Inc.
Company Name (Please Type)

P.O. Box 12101 Pensacola, Florida 32590
Mailing Address (Please Type)

Florida Registration No. 35633 Date: 7/14/92 Telephone No. 904/438-3449

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

This application combines the pollution control permit for exising and planned reactors (ID #'s R-1, 2, 3, 4, 5, 6, 7, 8, 9, 10 & 11) The reason for this modification is to streamline the emission data, comply with the Florida Statutes and better organize information for the Florida DER. (Also See Attachment 1)

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction Reactor R-9 only 8/1/92 Completion of Construction 10/1/93

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Existing devices and Venturi Scrubber ($20,000, Attachment 8)

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

File Nos. 110321, 142284, 171913, 171914, (Escambia County)

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ; if seasonal, describe: The aforementioned reactors operate in a batch mode. The number and chemical types of these batch runs depend on market demand. (See Attachment 1)

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant?	NO
a. If yes, has "offset" been applied?	--
b. If yes, has "Lowest Achievable Emission Rate" been applied?	--
c. If yes, list non-attainment pollutants.	--
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI.	NO
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII.	NO
4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source?	NO
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source?	NO
H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source?	NO
a. If yes, for what pollutants?	--

b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

See Attachment 1 and support materials

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

See Attachment 1

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Control devices consist of a condensor for each reactor and four wet scrubbers.				
Efficiency of the condensors and scrubbers is a function of inlet chemistry.				
See Attachment 1 and support material for complete detail.				

E. Fuels N/A

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis: N/A

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: Varies, See Attachment 1 ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

SECTION IV: INCINERATOR INFORMATION

N/A

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices:

See Attachment 1

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

Scrubber water treated at Wastewater Treatment Plan on Reichhold Chemicals' site.

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

N/A

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

N/A **SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION**

A. Company Monitored Data

1. _____no. sites _____ TSP _____( ) SO^2* _____ Wind spd/dir

Period of Monitoring _____/____/_____ to _____/____/_____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	_____	grams/sec
SO^2	_____	grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

ATTACHMENT 1

Technical Narrative

Reichhold Chemicals, Inc. (RCI) is a resin manufacturer involved in the production of alkyd, epoxy, epoxy esters, epoxy hardeners, copolymers, and acrylic resins for the coatings industry. The resin is produced in vessels called chemical reactors. The reactors are operated in a batch mode with each reactor producing a discreet quantity of product per batch. At present RCI has individual air emission permits for three wet scrubbers and two individual reactors at the Pensacola Facility. These permits are as follows:

- Main Scrubber - AO17-171913
- R1/R2 Fusion Scrubber - AO17-171914
- Organic Coating Facility - AO17-17-110321
- Semiworks Reactors - AC17-142284

The emission data is based on a distribution of product types to each individual reactor. While this is accurate in terms of total air emissions, because many of the products can be made in more than one reactor, the exact product demand and reactor scheduling will dictate actual operations.

The purposes of this permit modifications application are:

1. Consolidate all reactor emission at RCI's Pensacola plant under a single air emission permit with four point sources. (See flow diagram)

2. Identify the various product types, and their associated pre-scrubber and post-scrubber emissions, so as to more accurately describe operations for DER.

3. Identify new chemicals to be used in the reactors.

4. Permit the new Venturi Scrubber to be added to the system.

5. Add a new 4000 gallon reactor to the production system. (R-9)

scrubber exhaust. Pages 8 of 9 and 9 of 9 provide similar data for formulas 37-128 through X4-6420.

The advantage of this database is that as production goes from plan to reality, the actual emissions can be accurately up-dated. The database also serves to eliminate the multiple permit problem of trying to assign a particular reactor with a fixed percentage of emissions.

Attachment 6 provides an example of the calculation for each formula batch. Both before and after condenser emissions are calculated based on temperature of the batch and the partial pressure and mole fraction of each constituent. The result of these calculations form the basis for the calculations and summaries shown in Attachment 5.

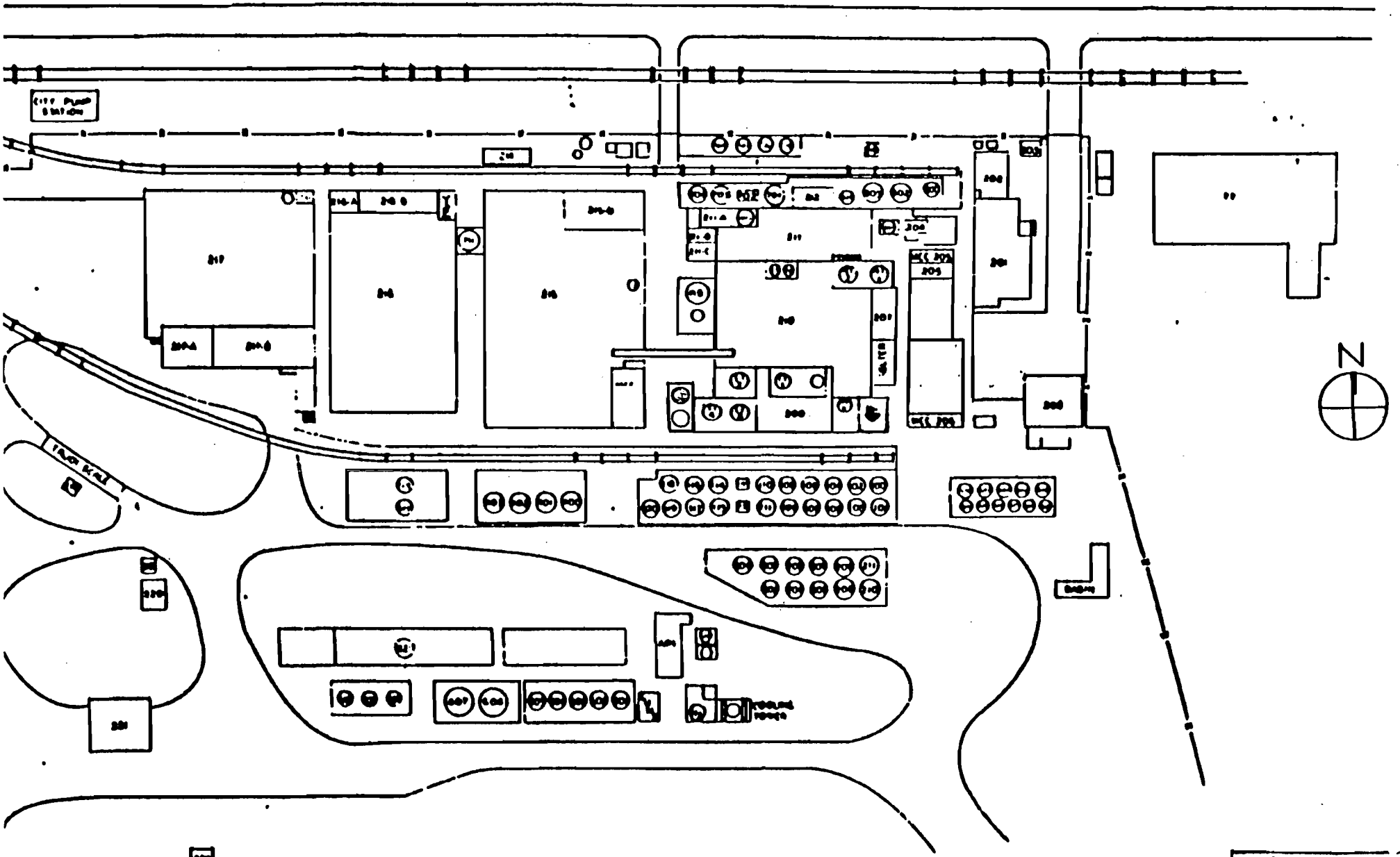
RCI and their consultant feel that this production based, single permit methodology provides DER with accurate and traceable documentation for the Pensacola Plant. We find the permit application to meet the requirements of the Florida Statutes and submit for your review and comment.

LOCATION MAP

FROM U.S. GEOL. SURVEY MAP, 1970
AMS354INW – SERIES V847
REICHHOLD CHEMICALS, INC.
PENSACOLA, ESCAMBIA, FLORIDA
DEC. 21. 1972 SHT 1 OF 4

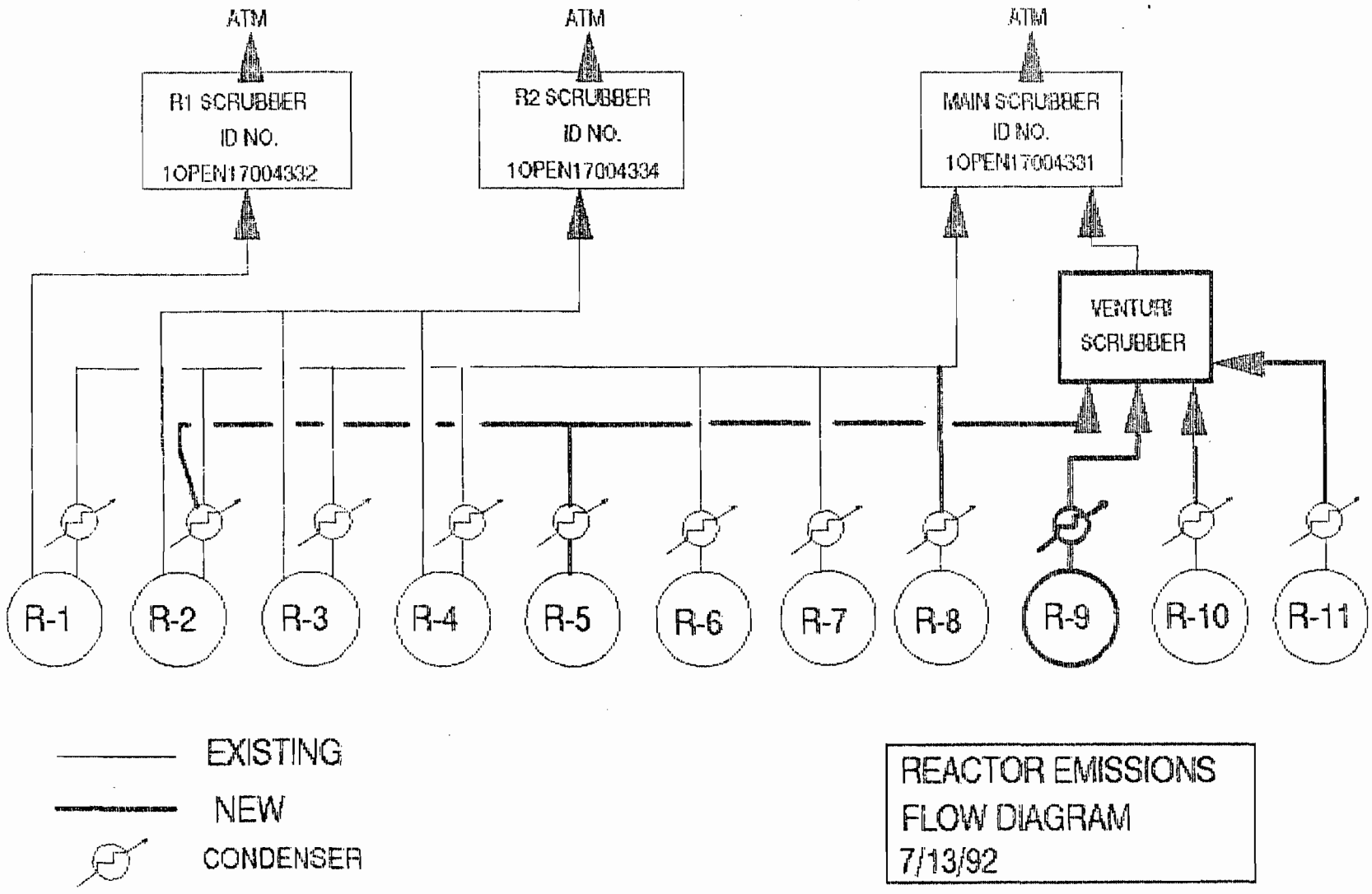
Attachment 2

ATTACHMENT 3



FACILITY PLAN

ATTACHMENT 4



ATTACHMENT NUMBER 5

(PNSsum99) 24-Jun-92

PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

FORMULAS	POUNDS PER BATCH	BATCHES PER YEAR	PRODUCTION ESTIMATE (MM POUNDS) FOR REACTORS R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	TOTAL
10-015	25000	210			3	2.25								5.25
10-060	25000	404	3	0.3			0.3		5		1.5			10.1
11-035	30000	533				6			10					16
12-035	25000	240	6											6
12-102	25000	180	3			1.5								4.5
12-511	24000	188			4.5									4.5
13-030	24000	63			1.5									1.5
13-038	30000	453								10			3.6	13.6
13-802	30000	458					0.75			10			3	13.75
16-902	25000	240			3	3								6
16-917	10000	240		2.4										2.4
37-128	15000	107						1.6						1.6
37-606	14000	429										6		6
37-618	10000	945		0.9			0.3				8.25			9.45
38-505	15000	427						6.4						6.4
38-690	25000	216											5.4	5.4
90-511	15000	100									1.5			1.5
90-543	14000	332		2.4							2.25			4.65
92-169	60000	167							10					10
92-736	25000	120	3											3
95-959	25000	210			3	2.25								5.25
EA-6433	15000	100									1.5			1.5
X4-3544	5000	60					0.3							0.3
X4-6420	5000	270					1.35							1.35
TOTAL			15	6	15	15	3	8	25	20	15	6	12	140

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PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

AFTER CONDENSER POUNDS PER BATCH

CHEMICALS	CAS NO.	10-015	10-060	11-035	12-035	12-102	12-511	13-030	13-038	13-802	16-902	16-917	TOTAL
ACRYLIC ACID (X4-4078	79-10-7												0
BIPHENYL	95-52-4												0
CAPROLACTAM	105-60-2												0
DIBUTYL PHTHALATE	84-72-2												0
DIETHYL SULFATE	64-67-5												0
DIETHYLETHANOLAMINE	111-42-2												0
ETHYL ACRYLATE	140-88-5												0
ETHYLBENZENE	100-41-4												0
ETHYLENE GLYCOL	107-21-1												0
ETHYLENE GLYCOL MONOP	2807-30-9												0
ETHYLENE OXIDE	75-21-8												0
FORMALDEHYDE	50-00-0												0
HEXANE	110-54-3												0
HYDROCHLORIC ACID	7647-01-0												0
HYDROQUINONE	123-31-9												0
MALEIC ANHYDRIDE	108-31-6		0.07		0.22			0.90					1.19
METHANOL	67-56-1												0
METHYL ETHYL KETONE	78-93-3												0
METHYL ISOBUTYL KETON	108-10-1												0
METHYL METHACRYLATE	80-62-6									52.28		45.42	97.7
PHENOL	108-95-2												0
PHTHALIC ANHYDRIDE	85-44-9		0.14		0.22	0.22							0.58
PROPYLENE OXIDE	75-56-9												0
STYRENE	100-42-5									3.64		6.69	10.33
TOLUENE	108-88-3												0
TOLUENE DIISOCYANATE	584-84-9												0
TRIETHYLENE GLYCOL MO	143-22-6												0
XYLENE	13330-20-7	9.17	5.55	1.62	5.45	4.12				24.13	13.48		63.52
TOTAL HAP'S		9.17	5.76	1.62	5.89	4.34	0	0.9	0	80.05	13.48	52.11	173.32
OTHER VOC'S		21.77	19.39	21.59	1.25	3.56	9.9	36.93	51.05	4.05	9.5	4.09	183.08
TOTAL VOLATILE ORGANIC COMPOUNDS		30.94	25.15	23.21	7.14	7.9	9.90	37.83	51.05	84.1	22.98	56.2	356.4

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PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

AFTER CONDENSER POUNDS PER BATCH

CHEMICALS	CAS NO.	37-128	37-606	37-618	38-505	38-690	90-511	90-543	92-169	92-736	95-959	EA-6433	X4-3544	X4-6420	TOTAL
ACRYLIC ACID (X4-4078	79-10-7														0
BIPHENYL	95-52-4														0
CAPROLACTAM	105-60-2														0
DIBUTYL PHTHALATE	84-72-2														0
DIETHYL SULFATE	64-67-5														0
DIETHYLETHANOLAMINE	111-42-2														0
ETHYL ACRYLATE	140-88-5														0
ETHYLBENZENE	100-41-4														0
ETHYLENE GLYCOL	107-21-1														0
ETHYLENE GLYCOL MONOP	2807-30-9														0
ETHYLENE OXIDE	75-21-8														0
FORMALDEHYDE	50-00-0														0
HEXANE	110-54-3														0
HYDROCHLORIC ACID	7647-01-0														0
HYDROQUINONE	123-31-9														0
MALEIC ANHYDRIDE	108-31-6														0
METHANOL	67-56-1														0
METHYL ETHYL KETONE	78-93-3														0
METHYL ISOBUTYL KETON	108-10-1														0
METHYL METHACRYLATE	80-62-6						19.38	79.72				55.16			154.26
PHENOL	108-95-2														0
PHTHALIC ANHYDRIDE	85-44-9														0
PROPYLENE OXIDE	75-56-9														0
STYRENE	100-42-5					20.33						1.3			21.63
TOLUENE	108-88-3							16.91							16.91
TOLUENE DIISOCYANATE	584-84-9														0
TRIETHYLENE GLYCOL MO	143-22-6														0
XYLENE	13330-20-7			28.49	12.14			9.97	11.77		4.92				67.29
TOTAL HAP'S		0	0	28.49	12.14	20.33	19.38	106.6	11.77	0	4.92	56.46	0	0	260.09
OTHER VOC'S		0.016	57.16	53.42	0	14.43	131.14	1.14	16.48	9.29	116.66	5	0.85	94.07	499.656
TOTAL VOLATILE ORGANIC COMPOUNDS		0.016	57.16	81.91	12.14	34.76	150.52	107.74	28.25	9.29	121.58	61.46	0.85	94.07	759.75

(PNSsum99) 24-Jun-92

PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

AFTER SCRUBBER(S) POUNDS PER BATCH

CHEMICALS	CAS NO.	10-015	10-060	11-035	12-035	12-102	12-511	13-030	13-038	13-802	16-902	16-917	TOTAL
ACRYLIC ACID (X4-4078	79-10-7												0
BIPHENYL	95-52-4												0
CAPROLACTAM	105-60-2												0
DIBUTYL PHTHALATE	84-72-2												0
DIETHYL SULFATE	64-67-5												0
DIETHYLETHANOLAMINE	111-42-2												0
ETHYL ACRYLATE	140-88-5												0
ETHYLBENZENE	100-41-4												0
ETHYLENE GLYCOL	107-21-1												0
ETHYLENE GLYCOL MONOP	2807-30-9												0
ETHYLENE OXIDE	75-21-8												0
FORMALDEHYDE	50-00-0												0
HEXANE	110-54-3												0
HYDROCHLORIC ACID	7647-01-0												0
HYDROQUINONE	123-31-9												0
MALEIC ANHYDRIDE	108-31-6			0		0.01			0.01				0.02
METHANOL	67-56-1												0
METHYL ETHYL KETONE	78-93-3												0
METHYL ISOBUTYL KETON	108-10-1												0
METHYL METHACRYLATE	80-62-6									6.26		5.15	11.41
PHENOL	108-95-2												0
PHTHALIC ANHYDRIDE	85-44-9			0		0	0.01						0.01
PROPYLENE OXIDE	75-56-9												0
STYRENE	100-42-5									0.23		0.56	0.79
TOLUENE	108-88-3												0
TOLUENE DIISOCYANATE	584-84-9												0
TRIETHYLENE GLYCOL MO	143-22-6												0
XYLENE	13330-20-7	0.59	0.33	0.53	0.19	0.19				0.96	0.26		3.05
TOTAL HAP'S		0.59	0.33	0.53	0.2	0.2	0	0.01	0	7.45	0.26	5.71	15.28
OTHER VOC'S		2.06	0.37	0.88	0.13	0.12	0.21	1.09	2.27	1.2	0.29	0.13	8.75
TOTAL VOLATILE ORGANIC COMPOUNDS		2.65	0.7	1.41	0.33	0.32	0.21	1.10	2.27	8.65	0.55	5.84	24.03

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PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

AFTER SCRUBBER(S) POUNDS PER BATCH

CHEMICALS	CAS NO.	37-128	37-606	37-618	38-505	38-690	90-511	90-543	92-169	92-736	95-959	EA-6433	X4-3544	X4-6420	TOTAL
ACRYLIC ACID (X4-4078	79-10-7														0
BIPHENYL	95-52-4														0
CAPROLACTAM	105-60-2														0
DIBUTYL PHTHALATE	84-72-2														0
DIETHYL SULFATE	64-67-5														0
DIETHYLETHANOLAMINE	111-42-2														0
ETHYL ACRYLATE	140-88-5														0
ETHYLBENZENE	100-41-4														0
ETHYLENE GLYCOL	107-21-1														0
ETHYLENE GLYCOL MONOP	2807-30-9														0
ETHYLENE OXIDE	75-21-8														0
FORMALDEHYDE	50-00-0														0
HEXANE	110-54-3														0
HYDROCHLORIC ACID	7647-01-0														0
HYDROQUINONE	123-31-9														0
MALEIC ANHYDRIDE	108-31-6														0
METHANOL	67-56-1														0
METHYL ETHYL KETONE	78-93-3														0
METHYL ISOBUTYL KETON	108-10-1														0
METHYL METHACRYLATE	80-62-6						2.81	8.01				3.49			14.31
PHENOL	108-95-2														0
PHTHALIC ANHYDRIDE	85-44-9														0
PROPYLENE OXIDE	75-56-9														0
STYRENE	100-42-5					0.71						0.06			0.77
TOLUENE	108-88-3							5.94							5.94
TOLUENE DIISOCYANATE	584-84-9														0
TRIETHYLENE GLYCOL MO	143-22-6														0
XYLENE	13330-20-7			2.96	0.12			1.84	0.37		0.49				5.78
TOTAL HAP'S		0	0	2.96	0.12	0.71	2.81	15.79	0.37	0	0.49	3.55	0	0	26.8
OTHER VOC'S		0	1.07	4.21	-0.00	3.79	18.34	1.53	0.3	0.04	11.97	0.1	0	3.31	44.66
TOTAL VOLATILE ORGANIC COMPOUNDS		0	1.07	7.17	0.12	4.5	21.15	17.32	0.67	0.04	12.46	3.65	0	3.31	71.46

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PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

CHEMICALS	CAS NO.	10-015	AFTER CONDENSER 10-060	11-035	TOTAL POUNDS 12-035	12-102	12-511	13-030	13-038	13-802	16-902	16-917	TOTAL
ACRYLIC ACID (X4-4078	79-10-7	0	0	0	0	0	0	0	0	0	0	0	0
BIPHENYL	95-52-4	0	0	0	0	0	0	0	0	0	0	0	0
CAPROLACTAM	105-60-2	0	0	0	0	0	0	0	0	0	0	0	0
DIBUTYL PHTHALATE	84-72-2	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYL SULFATE	64-67-5	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYLETHANOLAMINE	111-42-2	0	0	0	0	0	0	0	0	0	0	0	0
ETHYL ACRYLATE	140-88-5	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLBENZENE	100-41-4	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL	107-21-1	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL MONOP	2807-30-9	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE OXIDE	75-21-8	0	0	0	0	0	0	0	0	0	0	0	0
FORMALDEHYDE	50-00-0	0	0	0	0	0	0	0	0	0	0	0	0
HEXANE	110-54-3	0	0	0	0	0	0	0	0	0	0	0	0
HYDROCHLORIC ACID	7647-01-0	0	0	0	0	0	0	0	0	0	0	0	0
HYDROQUINONE	123-31-9	0	0	0	0	0	0	0	0	0	0	0	0
MALEIC ANHYDRIDE	108-31-6	0	28	0	53	0	0	56	0	0	0	0	137
METHANOL	67-56-1	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ETHYL KETONE	78-93-3	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ISOBUTYL KETON	108-10-1	0	0	0	0	0	0	0	0	0	0	0	0
METHYL METHACRYLATE	80-62-6	0	0	0	0	0	0	0	0	23962	0	10901	34862
PHENOL	108-95-2	0	0	0	0	0	0	0	0	0	0	0	0
PHTHALIC ANHYDRIDE	85-44-9	0	57	0	53	40	0	0	0	0	0	0	149
PROPYLENE OXIDE	75-56-9	0	0	0	0	0	0	0	0	0	0	0	0
STYRENE	100-42-5	0	0	0	0	0	0	0	0	1668	0	1606	3274
TOLUENE	108-88-3	0	0	0	0	0	0	0	0	0	0	0	0
TOLUENE DIISOCYANATE	584-84-9	0	0	0	0	0	0	0	0	0	0	0	0
TRIETHYLENE GLYCOL MO	143-22-6	0	0	0	0	0	0	0	0	0	0	0	0
XYLENE	13330-20-7	1926	2242	864	1308	742	0	0	0	11060	3235	0	21376
TOTAL HAP'S		1926	2327	864	1414	781	0	56	0	36690	3235	12506	59799
OTHER VOC'S		4572	7834	11515	300	641	1856	2308	23143	1856	2280	982	57286
TOTAL VOLATILE ORGANIC COMPOUNDS		6497	10161	12379	1714	1422	1856	2364	23143	38546	5515	13488	117085

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PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY AFTER CONDENSER TOTAL POUNDS

CHEMICALS	CAS NO.	37-128	37-606	37-618	38-505	38-690	90-511	90-543	92-169	92-736	95-959	EA-6433	X4-3544	X4-6420	TOTAL
ACRYLIC ACID (X4-4078	79-10-7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BIPHENYL	95-52-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPROLACTAM	105-60-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIBUTYL PHTHALATE	84-72-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYL SULFATE	64-67-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYLETHANOLAMINE	111-42-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYL ACRYLATE	140-88-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLBENZENE	100-41-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL	107-21-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL MONOP	2807-30-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE OXIDE	75-21-8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FORMALDEHYDE	50-00-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEXANE	110-54-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HYDROCHLORIC ACID	7647-01-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HYDROQUINONE	123-31-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MALEIC ANHYDRIDE	108-31-6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHANOL	67-56-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ETHYL KETONE	78-93-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ISOBUTYL KETON	108-10-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHYL METHACRYLATE	80-62-6	0	0	0	0	0	1938	26478	0	0	0	5516	0	0	33932
PHENOL	108-95-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHTHALIC ANHYDRIDE	85-44-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROPYLENE OXIDE	75-56-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STYRENE	100-42-5	0	0	0	0	4391	0	0	0	0	0	130	0	0	4521
TOLUENE	108-88-3	0	0	0	0	0	0	5617	0	0	0	0	0	0	5617
TOLUENE DIISOCYANATE	584-84-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRIETHYLENE GLYCOL MO	143-22-6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
XYLENE	13330-20-7	0	0	26923	5180	0	0	3311	1962	0	1033	0	0	0	38409
TOTAL HAP'S		0	0	26923	5180	4391	1938	35406	1962	0	1033	5646	0	0	82479
OTHER VOC'S		2	24497	50482	0	3117	13114	379	2747	1115	24499	500	51	25399	145900
TOTAL VOLATILE ORGANIC COMPOUNDS		2	24497	77405	5180	7508	15052	35785	4708	1115	25532	6146	51	25399	228380

(PNSsun99) 24-Jun-92

PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY

AFTER SCRUBBER(S) TOTAL POUNDS

CHEMICALS	CAS NO.	10-015	10-060	11-035	12-035	12-102	12-511	13-030	13-038	13-802	16-902	16-917	TOTAL
ACRYLIC ACID (X4-4078	79-10-7	0	0	0	0	0	0	0	0	0	0	0	0
BIPHENYL	95-52-4	0	0	0	0	0	0	0	0	0	0	0	0
CAPROLACTAM	105-60-2	0	0	0	0	0	0	0	0	0	0	0	0
DIBUTYL PHTHALATE	84-72-2	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYL SULFATE	64-67-5	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYLETHANOLAMINE	111-42-2	0	0	0	0	0	0	0	0	0	0	0	0
ETHYL ACRYLATE	140-88-5	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLBENZENE	100-41-4	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL	107-21-1	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL MONOP	2807-30-9	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE OXIDE	75-21-8	0	0	0	0	0	0	0	0	0	0	0	0
FORMALDEHYDE	50-00-0	0	0	0	0	0	0	0	0	0	0	0	0
HEXANE	110-54-3	0	0	0	0	0	0	0	0	0	0	0	0
HYDROCHLORIC ACID	7647-01-0	0	0	0	0	0	0	0	0	0	0	0	0
HYDROQUINONE	123-31-9	0	0	0	0	0	0	0	0	0	0	0	0
MALEIC ANHYDRIDE	108-31-6	0	0	0	2	0	0	1	0	0	0	0	3
METHANOL	67-56-1	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ETHYL KETONE	78-93-3	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ISOBUTYL KETON	108-10-1	0	0	0	0	0	0	0	0	0	0	0	0
METHYL METHACRYLATE	80-62-6	0	0	0	0	0	0	0	0	2869	0	1236	4105
PHENOL	108-95-2	0	0	0	0	0	0	0	0	0	0	0	0
PHTHALIC ANHYDRIDE	85-44-9	0	0	0	0	2	0	0	0	0	0	0	2
PROPYLENE OXIDE	75-56-9	0	0	0	0	0	0	0	0	0	0	0	0
STYRENE	100-42-5	0	0	0	0	0	0	0	0	105	0	134	240
TOLUENE	108-88-3	0	0	0	0	0	0	0	0	0	0	0	0
TOLUENE DIISOCYANATE	584-84-9	0	0	0	0	0	0	0	0	0	0	0	0
TRIETHYLENE GLYCOL MO	143-22-6	0	0	0	0	0	0	0	0	0	0	0	0
XYLENE	13330-20-7	124	133	283	46	34	0	0	0	440	62	0	1122
TOTAL HAP'S		124	133	283	48	36	0	1	0	3415	62	1370	5472
OTHER VOC'S		433	149	469	31	22	39	68	1029	550	70	31	2892
TOTAL VOLATILE ORGANIC COMPOUNDS		556	283	752	79	58	39	69	1029	3965	132	1402	8363

(PNSsun99) 24-Jun-92

PENSACOLA PLANT EMISSIONS ESTIMATE SUMMARY AFTER SCRUBBER(S) TOTAL POUNDS

CHEMICALS	CAS NO.	37-128	37-606	37-618	38-505	38-690	90-511	90-543	92-169	92-736	95-959	EA-6433	X4-3544	X4-6420	TOTAL
ACRYLIC ACID (X4-4078	79-10-7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BIPHENYL	95-52-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAPROLACTAM	105-60-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIBUTYL PHTHALATE	84-72-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYL SULFATE	64-67-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIETHYLETHANOLAMINE	111-42-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYL ACRYLATE	140-88-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLBENZENE	100-41-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL	107-21-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE GLYCOL MONOP	2807-30-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHYLENE OXIDE	75-21-8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FORMALDEHYDE	50-00-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEXANE	110-54-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HYDROCHLORIC ACID	7647-01-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HYDROQUINONE	123-31-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MALEIC ANHYDRIDE	108-31-6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHANOL	67-56-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ETHYL KETONE	78-93-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHYL ISOBUTYL KETON	108-10-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
METHYL METHACRYLATE	80-62-6	0	0	0	0	0	281	2660	0	0	0	349	0	0	3290
PHENOL	108-95-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHTHALIC ANHYDRIDE	85-44-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROPYLENE OXIDE	75-56-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STYRENE	100-42-5	0	0	0	0	153	0	0	0	0	0	6	0	0	159
TOLUENE	108-88-3	0	0	0	0	0	0	1973	0	0	0	0	0	0	1973
TOLUENE DIISOCYANATE	584-84-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRIETHYLENE GLYCOL MO	143-22-6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
XYLENE	13330-20-7	0	0	2797	51	0	0	611	62	0	103	0	0	0	3624
TOTAL HAP'S		0	0	2797	51	153	281	5245	62	0	103	355	0	0	9047
OTHER VOC'S		0	459	3978	-0	819	1834	508	50	5	2514	10	0	894	11070
TOTAL VOLATILE ORGANIC COMPOUNDS		0	459	6776	51	972	2115	5753	112	5	2617	365	0	894	20117

ATTACHMENT NUMBER 6

Attachment number six is an example of the lotus spreadsheet calculations used to calculate emissions for each of the product codes listed in attachment number five. We have not included the actual calculations due to the very sensitive nature of the information which would be revealed.

The first page of this attachment shows the spreadsheet with the data shown based upon an example (not an actual product). The second page is the same example but with portions erased to make room for an explanation of the calculations used on the spreadsheet.

(PNSsun88) 09-Jul-92

* BASED UPON 200 SCFH NITROGEN = 15 POUNDS PER HOUR = 0.54 LB. MOLES / HR.
VAPOR MASS = 0.54 / (1 - TOTAL VMF) * VMF * MOL. WT. * TIME

PENSACOLA PLANT EMISSIONS ESTIMATE

CYCLE SEQUENCE PRODUCT CODE EXAMPLE DESCRIPTION	CYCLE TIME HOURS	BEFORE CONDENSER TEMP. DEG F	VAPOR PRESSURE PSIA	LIQUID MASS POUNDS	MOLECULAR WEIGHT	LIQUID MOLE FRACTION	PARTIAL PRESSURE PSIA	VAPOR MOLE FRACTION (VMF)	* VAPOR MASS POUNDS	AFTER CONDENSER TEMP. DEG F	VAPOR PRESSURE PSIA	PARTIAL PRESSURE PSIA	VAPOR MOLE FRACTION	* VAPOR MASS POUNDS
CHARGE RAW MATERIALS	3	180												
ETHYLENE GLYCOL @ 5000 POUNDS			1.98	5000	104	0.38	0.75	0.05	9.74	110	1.34	0.60	0.04	9.74
NPG @ 5000 POUNDS			2.42	5000	104	0.38	0.92	0.06	11.91		1.74	0.96	0.07	11.91
ADIPIC ACID @ 400 POUNDS			0.11	400	146	0.02	0.00	0.00	0.04		0.03	0.00	0.00	0.00
ISOPHTHALIC ACID @ 4000 POUNDS			0.00	4000	166	0.19	0.00	0.00	0.00		0.00	0.00	0.00	0.00
PHTHALIC ANHYDRIDE @ 500 POUNDS			0.00	500	148	0.03	0.00	0.00	0.00		0.00	0.00	0.00	0.00
						1.00	1.68	0.11				1.56	0.11	
HEAT UP & HOLD AT 180 C (360 F)	4	360								110				
ETHYLENE GLYCOL @ 5000 POUNDS			4.68	5000	104	0.38	1.78	0.12	36.61		1.34	0.63	0.04	10.78
NPG @ 5000 POUNDS			5.15	5000	104	0.38	1.96	0.13	40.29		1.74	0.90	0.06	15.41
ADIPIC ACID @ 400 POUNDS			1.40	400	146	0.02	0.03	0.00	0.88		0.03	0.00	0.00	0.01
ISOPHTHALIC ACID @ 4000 POUNDS			0.00	4000	166	0.19	0.00	0.00	0.01		0.00	0.00	0.00	0.00
PHTHALIC ANHYDRIDE @ 500 POUNDS			0.20	500	148	0.03	0.01	0.00	0.16		0.00	0.00	0.00	0.00
						1.00	3.78	0.26				1.54	0.10	
HEAT UP & HOLD AT 230 C (446 F)	5	446								110				
ETHYLENE GLYCOL @ 5000 POUNDS			6.67	5000	104	0.38	2.54	0.17	76.24		1.34	0.64	0.04	10.84
NPG @ 5000 POUNDS			7.10	5000	104	0.38	2.70	0.18	81.15		1.74	0.88	0.06	14.98
ADIPIC ACID @ 400 POUNDS			3.42	400	146	0.02	0.07	0.01	3.13		0.03	0.00	0.00	0.01
ISOPHTHALIC ACID @ 4000 POUNDS			0.00	4000	166	0.19	0.00	0.00	0.01		0.00	0.00	0.00	0.00
PHTHALIC ANHYDRIDE @ 500 POUNDS			1.50	500	148	0.03	0.04	0.00	1.71		0.00	0.00	0.00	0.00
						1.00	5.35	0.36				1.51	0.10	
COOL AND ADJUST	3	383								110				
ETHYLENE GLYCOL @ 5000 POUNDS			5.16	5000	104	0.33	1.71	0.12	71.73		1.34	0.21	0.01	2.59
NPG @ 5000 POUNDS			5.63	5000	104	0.33	1.86	0.13	78.26		1.74	0.30	0.02	3.67
ADIPIC ACID @ 400 POUNDS			1.80	400	146	0.02	0.03	0.00	2.00		0.03	0.00	0.00	0.00
ISOPHTHALIC ACID @ 4000 POUNDS			0.00	4000	166	0.17	0.00	0.00	0.01		0.00	0.00	0.00	0.00
PHTHALIC ANHYDRIDE @ 500 POUNDS			0.30	500	148	0.02	0.01	0.00	0.42		0.00	0.00	0.00	0.00
XYLENE @ 2000 POUNDS			54.46	2000	106	0.13	7.08	0.48	302.81		0.40	0.26	0.02	3.27
						1.00	10.69	0.73				0.78	0.05	
TRANSFER TO DRUMS	1	320												
ETHYLENE GLYCOL @ 5000 POUNDS			3.92	5000	104	0.33	1.30	0.09	8.41	110	1.34	0.29	0.02	1.17
NPG @ 5000 POUNDS			4.40	5000	104	0.33	1.46	0.10	9.44		1.74	0.42	0.03	1.71
ADIPIC ACID @ 400 POUNDS			0.87	400	146	0.02	0.02	0.00	0.15		0.03	0.00	0.00	0.00
ISOPHTHALIC ACID @ 4000 POUNDS			0.00	4000	166	0.17	0.00	0.00	0.00		0.00	0.00	0.00	0.00
PHTHALIC ANHYDRIDE @ 500 POUNDS			0.13	500	148	0.02	0.00	0.00	0.03		0.00	0.00	0.00	0.00
XYLENE @ 2000 POUNDS			25.13	2000	106	0.13	3.26	0.22	21.57		0.40	0.22	0.01	0.90
						1.00	6.04	0.41				0.92	0.06	
TOTAL BATCH TIME	16 HOURS							TOTAL	756.72				TOTAL	87.00
SCRUBBER DISCHARGE	24	110												
ETHYLENE GLYCOL @ 50 POUNDS			1.34	50	104	0.02	0.02	0.00	3.78					
NPG @ 50 POUNDS			1.74	50	104	0.02	0.03	0.00	4.91					
WATER @ 500 POUNDS			1.28	500	18	0.96	1.23	0.08	36.12					
XYLENE @ 20 POUNDS			0.40	20	106	0.01	0.00	0.00	0.45					
						1.00	1.28	0.09						
								TOTAL	45.26					

(PNSsun89) 09-Jul-92

* BASED UPON 200 SCFH NITROGEN = 15 POUNDS PER HOUR = 0.54 LB. MOLES / HR.
VAPOR MASS = 0.54 / (1 - TOTAL VMF) * VMF * MOL. WT. * TIME

PENSACOLA PLANT EMISSIONS ESTIMATE

CYCLE SEQUENCE / PRODUCT CODE EXAMPLE DESCRIPTION	CYCLE TIME HOURS	TEMP. DEG F	BEFORE CONDENSER: VAPOR PRESSURE PSIA	LIQUID MASS POUNDS	MOLECULAR WEIGHT	LIQUID MOLE FRACTION	PARTIAL PRESSURE PSIA	VAPOR MOLE FRACTION (VMF)	* VAPOR MASS POUNDS	AFTER CONDENSER: TEMP. DEG F	VAPOR PRESSURE PSIA	PARTIAL PRESSURE PSIA	VAPOR MOLE FRACTION	* VAPOR MASS POUNDS
CHARGE RAW MATERIALS	3	180												
ETHYLENE GLYCOL @ 5000 POUNDS			1.98	5000	104	0.38	0.75	0.05	9.74	110	1.34	0.60	0.04	9.74
NPG @ 5000 POUNDS			2.42	5000	104	0.38	0.92	0.06	11.91		1.74	0.96	0.07	11.91
ADIPIC ACID @ 400 POUNDS			0.11	400	146	0.02	0.00	0.00	0.04		0.03	0.00	0.00	0.00
ISOPHTHALIC ACID @ 4000 POUNDS			0.0001	4000	166	0.19	0.00	0.00	0.00		0.00	0.00	0.00	0.00
PHTHALIC ANHYDRIDE @ 500 POUNDS			0.001	500	148	+$E$15/$F	+G15*D15	+H15/14.7	0.54/(1-$I$16)*I15*F		0.00	+L15*R15	+M15/14.7	0.54/(1-$N
						0.97	1.68	0.11				1.56	0.11	
HEAT UP & HOLD AT 180 C (360 F)														
ETHYLENE GLYCOL @ 5000 POUNDS														
NPG @ 5000 POUNDS														
ADIPIC ACID @ 400 POUNDS														
ISOPHTHALIC ACID @ 4000 POUNDS														
PHTHALIC ANHYDRIDE @ 500 POUNDS														
HEAT UP & HOLD AT 230 C (446 F)														
ETHYLENE GLYCOL @ 5000 POUNDS														
NPG @ 5000 POUNDS	CYCLE													
ADIPIC ACID @ 400 POUNDS														
ISOPHTHALIC ACID @ 4000 POUNDS														
PHTHALIC ANHYDRIDE @ 500 POUNDS														
COOL AND ADJUST														
ETHYLENE GLYCOL @ 5000 POUNDS														
NPG @ 5000 POUNDS														
ADIPIC ACID @ 400 POUNDS														
ISOPHTHALIC ACID @ 4000 POUNDS														
PHTHALIC ANHYDRIDE @ 500 POUNDS														
XYLENE @ 2000 POUNDS														
TRANSFER TO DRUMS	1	320												
ETHYLENE GLYCOL @ 5000 POUNDS			3.92	5000	104	0.33	1.30	0.09	8.41	110	1.34	0.29	0.02	1.17
NPG @ 5000 POUNDS			4.40	5000	104	0.33	1.46	0.10	9.44		1.74	0.42	0.03	1.71
ADIPIC ACID @ 400 POUNDS			0.87	400	146	0.02	0.02	0.00	0.15		0.03	0.00	0.00	0.00
ISOPHTHALIC ACID @ 4000 POUNDS			0.00	4000	166	0.17	0.00	0.00	0.00		0.00	0.00	0.00	0.00
PHTHALIC ANHYDRIDE @ 500 POUNDS			0.13	500	148	0.02	0.00	0.00	0.03		0.00	0.00	0.00	0.00
XYLENE @ 2000 POUNDS	B47		25.13	2000	106	0.13	3.26	0.22	21.57		0.40	0.22	0.01	0.90
						1.00	6.04	0.41				0.92	0.06	
TOTAL BATCH TIME	4 HOURS							TOTAL	61			TOTAL		25
SCRUBBER DISCHARGE	24	110												
ETHYLENE GLYCOL @ 50 POUNDS			1.34	50	104	0.02	0.02	0.00	3.78					
NPG @ 50 POUNDS			1.74	50	104	0.02	0.03	0.00	4.91					
WATER @ 500 POUNDS			1.28	500	18	0.96	1.23	0.08	36.12					
XYLENE @ 20 POUNDS			0.4	20	106	+$E$53/$F	G53*D55	+H53/14.7	I*I53*F53					
						+G51+G52+	+H51+H52+	+I51+I52+						
								TOTAL	44.81					

B10: TIME TO COMPLETE CYCLE

C10: AVG. TEMP. DURING CYCLE

D15: VAPOR PRESSURE OF CHEM. AT CYCLE TEMP. — ALSO D53

E15: CHEMICAL MASS OF CHEM. DURING CYCLE — ALSO E53

F15: MOLECULAR WEIGHT OF CHEM. — ALSO F53

G16: SUM OF LIQUID MOLE FRACTIONS

H16: SUM OF PARTIAL PRESSURES

I16: SUM OF VAPOR MOLE FRACTION INCLUDING NITROGEN

H15: +G15*D15

I15: +H15/14.7

K11: OUTLET TEMP. OF CONDENSER GASES

L15: VAPOR PRESSURE OF CHEM. AT CONDENSER OUTLET TEMP.

M15: +L15*R15

M16: SUM OF PARTIAL PRESSURES M16

N16: SUM OF VAPOR MOLE FRACTION INCLUDING NITROGEN

J15: 0.54/(1-$I$16)*I15*F15*$B$10

MOLE FLOWRATE OF NITROGEN DIVIDED BY MOLE FRACTION OF NITROGEN EQUALS TOTAL MOLE FLOWRATE OF GAS TIMES MOLE FRACTION OF CHEMICAL EQUALS MOLE FLOWRATE OF CHEMICAL TIMES MOLECULAR WEIGHT EQUALS MASS FLOWRATE TIMES CYCLE TIME EQUALS MASS OF CHEMICAL DURING CYCLE

G15: (+$E$15/$F$15)/(($E$15/$F$15)+($E$14/$F$14)+($E$13/$F$13)+($E$12/$F$12)+($E$11/$F$11))

O15: 0.54/(1-$N$16)*N15*F15*$B$10

J47: TOTAL

G53: (+$E$53/$F$53)/($E$50/$F$50+($E$51/$F$51)+($E$52/$F$52)+($E$53/$F$53))

O47: TOTAL FOR AFTER COND.

B49: TIME USED TO CALCULATE EMISSIONS

C49: OUTLET TEMP. OF SCRUBBER GASES

D53, E53, F53

G54: SEE G16

H54: SEE H16

I54: SEE I16

J56: TOTAL EMISSIONS

J53 SIMILAR CALCULATION TO J15 AND O15 EXCEPT USE 1.0 LB MOLE/HR FLOWRATE

ATTACHMENT NUMBER 7

(CHMLST99) RAW MATERIAL DESCRIPTION	15-Jul-92 CAS NO.	ESTIMATED ANNUAL CONSUMPTION TOTALS	EST. ANNUAL PERCENT OF TOTAL
12-HYDROXY STEARIC ACID	106-14-9	100	0.0001%
14-K-45		100	0.0001%
2-AMINO-2-ETHYL-1,3-PROPANEDIOL	115-70-8	1,000	0.0007%
2-ETHYL, 4-METHYL IMIDAZOLE (EMI 24)	931-36-2	200	0.0001%
2-ETHYL HEXYL ACRYLATE	103-11-7	5,799	0.0041%
2-HYDROXYETHYL ACRYLATE	818-61-1	442,134	0.3141%
2-MERCAPTOETHANOL	60-24-2	200	0.0001%
4-T-BUTYL PHENOL	585-34-2	100	0.0001%
5-SODIUM SULFO-ISOPHTHALIC ACID	6362-79-4	100	0.0001%
ABITOL	26266-77-3	1,605	0.0011%
ACETIC ACID	64-19-7	1,000	0.0007%
ACETONE	67-64-1	50,256	0.0357%
ACRYLIC ACID (X4-4078) (GLACIAL)	79-10-7	174,480	0.1239%
ACRYLOID DM-55 (ACRYLIC POLYMER)	MIXTURE	286,187	0.2033%
ADIPIC ACID	124-04-9	78,817	0.0560%
AEROSOL OT - 75%	577-11-7	241	0.0002%
AIE-M (ORGANIC CHELATE)	14732-75-3	33,955	0.0241%
ALLYL ALCOHOL PROPOXYLATE	9042-19-7	4,000	0.0028%
ALPHA METHYL STYRENE	98-83-9	7,331	0.0052%
ALPHA OLEFINS C16-C18	8002-05-9	100	0.0001%
ALUMINUM TRI SEC-BUTOXIDE	2269-22-9	100	0.0001%
AMINOETHYL ETHANOLAMINE	111-41-1	602	0.0004%
AMINOETHYL PIPERAZINE	140-31-8	840,306	0.5969%
AMMONIA	7664-41-7	100	0.0001%
AMMONIUM HYDROXIDE 26 DEG BAUME	1336-21-6	3,803	0.0027%
AMMONIUM PERSULFATE	7727-54-0	100	0.0001%
AROMATIC 100	64742-95-6	248,560	0.1766%
AROMATIC 150	64742-94-5	406,390	0.2887%
AROMATIC PETROLEUM		63,243	0.0449%
BDMA (BENZYL DIMETHYLAMINE)	103-83-3	7,980	0.0057%
BENZOIC ACID	65-85-0	651,852	0.4630%
BENZOPHENONE	119-61-9	18,908	0.0134%
BENZOPHENONE TETRA-CARBOXYLIC DIANHYDRIDE	2421-28-5	100	0.0001%
BENZYL ALCOHOL, NF	100-51-6	419,712	0.2981%
BHT (ANTIOXIDANT)	128-37-0	175	0.0001%
BIPHENYL	95-52-4	100	0.0001%
BISPHENOL A	80-05-7	1,396,990	0.9923%
BORON TRIFLUORIDE ETHERATE	109-63-7	365	0.0003%
BTDA	2421-28-5	18,908	0.0134%
BUTOXYTRIGLYCOL	143+22-6	7,623	0.0054%
BUTYL ACETATE (N)	123-86-4	31,795	0.0226%
BUTYL ACID PHOSPHATE		1,103	0.0008%
BUTYL ACRYLATE - (N)	141-32-2	742,803	0.5276%
BUTYL CARBITOL (DOWANOL DB)(DEG MONO-BUTYL ETHER)	112-34-5	8,228	0.0058%
BUTYL CELLOSOLVE ACETATE (EKTASOLVE EB ACETATE)	112-07-2	128,794	0.0915%
BUTYL CELLOSOLVE (EKTASOLVE EB)	111-76-2	3,311,310	2.3521%

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BUTYL GLYCIDYL ETHER	2426-08-6	53,257	0.0378%
BUTYL METHACRYLATE, MONO (N)	97-88-1	1,019,315	0.7240%
CALCIUM HYDROXIDE	1305-62-0	100	0.0001%
CALCIUM NAPHTHENATE, 4%	85763-67-3	5,191	0.0037%
CALCIUM OXIDE 98%	1305-78-8	1,374	0.0010%
CAPROLACTAM	105-60-2	25,178	0.0179%
CASTOR OIL, DEHYDRATED & DCO 23	64147-40-6	749,127	0.5321%
CASTOR OIL, USP	8001-79-4	109,598	0.0778%
CAUSTIC SODA 50%	1310-73-2	100	0.0001%
CELLOSOLVE ACETATE	111-15-9	110,536	0.0785%
CENWAX A	106-14-9	28,940	0.0206%
CETYL METHACRYLATE	2495-27-4	100	0.0001%
CHEMTALL 18 DIMER ACID	61788-89-4	7,623	0.0054%
CHLORENDIC ANHYDRIDE	115-27-5	246,875	0.1754%
CITRIC ACID	77-92-9	602	0.0004%
COBALT NAPHTHANATE 6%	61789-51-3	12,639	0.0090%
COCONUT OIL, EDIBLE	8001-31-8	582,982	0.4141%
CONJUGATED OIL 122G (SAFFLOWER)	8001-23-8	24,244	0.0172%
CORCAT P-12	9002-98-6	852	0.0006%
CRESYL GLYCIDYL ETHER	26447-14-3	172	0.0001%
CUMENE HYDROPEROXIDE	80-15-9	415	0.0003%
CYCLOHEXANEDIMETHANOL (CHDM-R)	105-08-8	3,862	0.0027%
CYCLOHEXANONE	108-94-1	9,829	0.0070%
DC-200 SILICONE OIL	63148-62-9	1,920	0.0014%
DER 542	40039-93-8	2,962	0.0021%
DER 661/662/664/667/668	25036-25-3	10,725	0.0076%
DESMODUR N-100	28182-81-2	75,334	0.0535%
DESMODUR N-3200	28182-81-2	25,178	0.0179%
DESMODUR N-3300	28182-81-2	87,872	0.0624%
DESMODUR N-75	28182-81-2	192	0.0001%
DESMODUR W	5124-30-1	75,334	0.0535%
DIAMINOCYCLOHEXANE	694-83-7	256,312	0.1821%
DIBUTYL PHTHALATE	84-72-2	2,608	0.0019%
DIBUTYL TIN DIACETATE	1067-33-0	12,639	0.0090%
DIBUTYL TIN OXIDE	818-08-6	2,134	0.0015%
DIETHYL SULFATE	64-67-5	100	0.0001%
DIETHYLENE GLYCOL	111-46-6	51,324	0.0365%
DIETHYLENE TRIAMINE	111-40-0	500,982	0.3559%
DIETHYLETHANOLAMINE	111-42-2	100	0.0001%
DIMETHYLAMINOETHYL METHACRYLATE	2867-47-2	265,490	0.1886%
DIMETHYLETHANOL AMINE	108-01-0	2,000	0.0014%
DIPROPYLENE GLYCOL	25265-71-8	148,780	0.1057%
DITERTIARY BUTYL PEROXIDE	110-05-4	389,196	0.2765%
DOWANOL DPM	34590-94-8	17,667	0.0125%
DYTEK A	15520-10-2	13,391	0.0095%
EBE=CRYL 3201	PROPRIETARY	80,349	0.0571%

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EBE=CRYL 53	52408-84-1	75,334	0.0535%
EE PROPIONATE (EKTAPRO EEP SOLVENT)	763-69-9	55,524	0.0394%
EMEROX 1144 - (AZELAIC ACID)	123-99-9	54,017	0.0384%
EMERSOL 6353	57-11-4	18,959	0.0135%
EMERY 610 SOYA FATTY ACID	68308-53-2	18,908	0.0134%
EMERY 626 FATTY ACID (COCONUT)	68938-15-8	18,908	0.0134%
EMPOL 1008 (CARBOXYLIC ACID)	68783-41-5	100	0.0001%
EMPOL 1014 DIMER ACID	61788-89-4	23,924	0.0170%
EPICLON 830-S	54208-63-8	12,473	0.0089%
EPOXIDE 8	68081-84-5	26,472	0.0188%
EPOXIDIZED CRESOL NOVOLAC (EPICLON N-690)	29690-82-2	2,000	0.0014%
EPOXIDIZED PHENOL NOVOLAC (DEN 438)	28064-14-4	10,000	0.0071%
EPOXY EPON 1001F (DER 661)	25036-25-3	141,858	0.1008%
EPOXY EPON 1002F (DER 662)	25068-38-6	7,623	0.0054%
EPOXY EPON 828/DER 331/INTER. 1234	25085-99-8	6,298,468	4.4739%
EPOXY ESTER RESIN (EPOTUF)	MIXTURE	100	0.0001%
EPOXY RESIN, LIQUID UNMODIFIED (DER 330)	25085-99-8	1,367	0.0010%
ESTERDIOL 204	1115-20-4	7,623	0.0054%
ETHANOLAMINE	141-43-5	100	0.0001%
ETHOXYLATED NPG (PHOTONOL 7160)		4,363	0.0031%
ETHYL ACRYLATE	140-88-5	9,434	0.0067%
ETHYL ALCOHOL, DENATURED/ANHYDROUS	64-17-5	27,555	0.0196%
ETHYL KETONE (MICHLER'S)	90-93-7	1,103	0.0008%
ETHYLBENZENE	100-41-4	100	0.0001%
ETHYLENE DIAMINE	107-15-3	1,000	0.0007%
ETHYLENE GLYCOL	107-21-1	1,911,749	1.3579%
ETHYLENE GLYCOL MONOPROPYL ETHER (EKTASOLVE EP)	2807-30-9	418,675	0.2974%
ETHYLENE OXIDE	75-21-8	100	0.0001%
ETHYLENEDIAMINE	107-15-3	14,144	0.0100%
ETHYLTRIPHENYLPHOSPHONIUM ACID ACETATE	35835-94-0	1,822	0.0013%
FASCAT 4100	2273-43-0	637	0.0005%
FASCAT 4101	13355-96-9	677	0.0005%
FASCAT 4201		50,256	0.0357%
FASCAT 4202	77-58-7	50,331	0.0358%
FOAMASTER DF-124-L	PROPRIETARY	300	0.0002%
FORMALDEHYDE	50-00-0	100	0.0001%
FUMARATED ROSIN ESTER FP-130	65997-11-7	20,162	0.0143%
FUMARIC ACID	110-17-8	13,369	0.0095%
GLUTARIC ACID	110-94-1	14,144	0.0100%
GLYCERINE, ANHYDROUS, USP 99.5% & NATURAL & SYNTHETIC	56-81-5	980,875	0.6967%
GLYCIDYL ETHER (P-TERTIARY BUTYL PHENOL)(PTBGE)	3101-60-8	58,712	0.0417%
GLYCIDYL METHACRYLATE (GMA MONOMER)	106-91-2	10,000	0.0071%
GLYCOL ETHER PM ACETATE	108-65-6	261,690	0.1859%
GUM ROSIN (WG)	8050-09-7	6,737	0.0048%
HEM-5	25736-81-1	13,391	0.0095%
HEPTANE (N)	142-82-5	75,334	0.0535%

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HEXAHYDROPHTHALIC ANHYDRIDE	85-42-7	5,116	0.0036%
HEXAMETHYLENEDIAMINE	124-09-4	270,428	0.1921%
HEXANE	110-54-3	2,608	0.0019%
HEXANEDIOL (1,6)	629-11-8	100	0.0001%
HMI (HEXAMETHYLENE IMINE)	111-49-9	7,623	0.0054%
HQMME (HYDROQUINONE MONOMETHYL ETHER)(MEHQ)	150-76-5	1,237	0.0009%
HYCAR 1300 X13	68891-46-3	5,175	0.0037%
HYDROCHLORIC ACID	7647-01-0	100	0.0001%
HYDROGENATED BISPHENOL A	80-04-6	7,623	0.0054%
HYDROQUINONE	123-31-9	5,868	0.0042%
HYDROXYETHYL 2-HEPTANEDECENYL IMIDAZOLINE (UNAMINE O)	27136-73-8	100	0.0001%
HYDROXYETHYL METHACRYLATE (ROCRYL 400)	868-77-9	22,908	0.0163%
HYDROXYPROPYL ACRYLATE	25584-83-2	175,581	0.1247%
INDUSTRENE 223	67701-05-7	18,959	0.0135%
ISOBORNYL METHACRYLATE	7534-94-3	18,908	0.0134%
ISOBUTYL ACETATE	110-19-0	145	0.0001%
ISOBUTYL ALCOHOL	78-83-1	713,950	0.5071%
ISOBUTYL METHACRYLATE	97-86-9	22,670	0.0161%
ISOOCTYL THIOGLYCOLATE	25103-09-7	11,302	0.0080%
ISOPHORONEDIAMINE	2855-13-2	218,864	0.1555%
ISOPHTHALIC ACID-99	121-91-5	389,178	0.2764%
ISOPROPYL ACETATE	108-21-4	7,623	0.0054%
ISOPROPYL ALCOHOL 99%	67-63-0	48,492	0.0344%
ISOPROPYL THIOXANTHONE	5495-84-1	150	0.0001%
JEFFAMINE D-230	9046-10-0	1,989,401	1.4131%
JEFFAMINE T403	39423-51-3	1,000	0.0007%
JONCRYL 678	PROPRIETARY	12,639	0.0090%
LACTOL SPIRITS	64742-89-8	31,447	0.0223%
LAURIC ACID (HYSTRENE 9512)	143-07-7	7,623	0.0054%
LINSEED FATTY ACID LT (INDUSTRENE 120)	61788-66-7	7,426	0.0053%
LINSEED OIL	8001-26-1	1,331,518	0.9458%
LITHIUM RICINOLEATE 50%	15467-06-8	51,529	0.0366%
LITHIUM TEN CHEM 2%	27253-30-1	2,554	0.0018%
LUPERSOL 531-80M	15667-10-4	37,313	0.0265%
LUPERSOL 533-M75	6575-23-1	1,000	0.0007%
LUPERSOL 575	686-31-7	100	0.0001%
MACROMELT 6238	68139-70-8	8,626	0.0061%
MAGGIE 500 OIL	64741-86-2	18,908	0.0134%
MAGIESOL 60	8042-47-5	312,996	0.2223%
MAGNESIUM OXIDE	1309-48-4	602	0.0004%
MALEIC ANHYDRIDE	108-31-6	139,202	0.0989%
META XYLENE DIAMINE REACTION PRODUCTS (AZAMINE 1328)	PROPRIETARY	1,000	0.0007%
META-TMXDI DIISOCYANATE	2778-42-9	19,410	0.0138%
METHACRYLIC ACID	79-41-4	899,382	0.6388%
METHANOL	67-56-1	12,639	0.0090%
METHOXY PHENOL	150-76-5	602	0.0004%

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METHYL AMYL KETONE	110-43-0	268,459	0.1907%
METHYL ETHYL KETONE	78-93-3	293,243	0.2083%
METHYL ETHYL KETOXIME	96-29-7	582	0.0004%
METHYL HEXAHYDRO PHTHALIC ANHYDRIDE	25550-51-0	50,256	0.0357%
METHYL ISOBUTYL KETONE	108-10-1	139,786	0.0993%
METHYL METHACRYLATE	80-62-6	3,146,164	2.2348%
METHYL N-PROPYL KETONE	107-87-9	119,786	0.0851%
METHYL TETRAHYDROPHTHALIC ANHYDRIDE	34090-76-1	2,629	0.0019%
METHYLENE BIS-(4-CYCLOHEXYLAMINE) [PACM 20]	1761-71-3	1,000	0.0007%
MINERAL SPIRITS	8052-41-3	6,930,608	4.9229%
MONDUR P	103-71-9	75,334	0.0535%
MONOETHANOLAMINE	141-43-5	12,639	0.0090%
MOREZ 101	PROPRIETARY	852	0.0006%
MTBHQ		13,391	0.0095%
NEOFAT 255		31,447	0.0223%
NEOFAT 265		18,908	0.0134%
NIREZ V-2040	PROPRIETARY	122,468	0.0870%
NONYL PHENOL	25154-52-3	2,132,218	1.5146%
NPG GLYCOL (NEOPENTYL) & NPG/EUTECTO BLEND	126-30-7	209,310	0.1487%
N-BUTYL ALCOHOL	71-36-3	338,538	0.2405%
N-DODECYLMERCAPTAN	122-55-0	200	0.0001%
N-METHYL MORPHOLINE	109024	2,000	0.0014%
N-METHYLDIETHANOLAMINE		6,620	0.0047%
N-PROPYL ACETATE	109-60-4	22,670	0.0161%
N-PROPYL ALCOHOL	71-23-8	22,670	0.0161%
N-VINYL PYRROLIDONE	88-12-0	37,717	0.0268%
OCTADECANOIC ACID	57-11-4	5,116	0.0036%
OTICICA OIL	8016-35-1	123	0.0001%
OXALIC ACID	144-62-7	2,339	0.0017%
PAMOLYN 200 (LINOLEIC ACID)	60-33-3	384,641	0.2732%
PAMOLYN 300 (LINOLEIC ACID)	MIXTURE	554,648	0.3940%
PARAFORMALDEHYDE	30525-89-4	94,129	0.0669%
PARAMETHYL STYRENE	622-97-9	7,028,677	4.9926%
PARA-TERT-BUTYL PHENOL	98-54-4	18,908	0.0134%
PELARGONIC ACID	112-05-0	12,639	0.0090%
PENTAERYTHRITOL	115-77-5	5,762,939	4.0935%
PENTAERYTHRITOLTRIACRYLATE	3524-68-3	125,489	0.0891%
PENTALYN 833		220,280	0.1565%
PETROLEUM DISTILLATE (EXXPRINT 3920)	64771-72-8	100	0.0001%
PHENOL	108-95-2	104,399	0.0742%
PHENOLIC RESIN CKS-1282 (BAKELITE)	28453-20-5	102,639	0.0729%
PHENOTHAZINE 1456	92-84-2	852	0.0006%
PHOSPHORIC ACID 85%	7664-38-2	2,895	0.0021%
PHOSPHORUS PENTOXIDE	1314-56-3	9,730	0.0069%
PHOTOMER 4017	13048-33-4	37,717	0.0268%
PHOTOMER 4028	56361-58-8	87,872	0.0624%

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PHOTOMER 4061/TPGDA (NON-DEO)	42978-66-5	42,732	0.0304%
PHOTOMER 4127	PMN P-81-163	87,872	0.0624%
PHTHALIC ANHYDRIDE	85-44-9	13,482,714	9.5770%
PIPERAZINE	110-85-0	9,524	0.0068%
POLYETHYLENE GLYCOL MONOMETHACRYLATE	25736-81-1	602	0.0004%
POLYPROPYLENE GLYCOL		20,841	0.0148%
POLY-G 55-56 (POLYALKOXYLATED POLYNOL)	9003-11-6	12,639	0.0090%
POTASSIUM PERMANGANATE	7722-64-7	602	0.0004%
PROPIONIC ACID	79-09-4	16,401	0.0116%
PROPOXY PROPANOL	159-01-3	12,639	0.0090%
PROPOXYLATED GLYCEROL TRIACRYLATE	052408-84-1	50,256	0.0357%
PROPYLENE GLYCOL	57-55-6	144,923	0.1029%
PROPYLENE GLYCOL METHYL ETHER (DOWANOL PM)	107-98-2	29,406	0.0209%
PROPYLENE GLYCOL MONO T-BUTYL ETHER (ARCOSOLV PTB)	57018-52-7	1,210	0.0009%
PROPYLENE OXIDE	75-56-9	20,714	0.0147%
P-TOLUENE SULFONIC ACID	104-15-4	852	0.0006%
Q1-3074 POLYSILOXANE	68957-04-0	852	0.0006%
Q-1301		14,144	0.0100%
RADIATION CURE (IRGACURE 907)	71868-10-5	1,103	0.0008%
RECLAIMED SOLVENT	MIXTURE	350,859	0.2492%
SAFFLOWER OIL	8001-23-8	191,370	0.1359%
SALICYLIC ACID	69-72-7	26,212	0.0186%
SANDOSTAB P-EPQ POWDER	NA	1,204	0.0009%
SEBACIC ACID	111-20-6	100	0.0001%
SEC-BUTYL ALCOHOL	78-92-2	577,517	0.4102%
SHELLAC, REFINED, WAX-FREE, VAC. DRIED	9000-59-3	1,605	0.0011%
SILICONE Z-6018	68037-90-1	15,298	0.0109%
SILWET L-7604		852	0.0006%
SILWET L-7605	68938-54-5	25,930	0.0184%
SODIUM ACETATE, ANHY.	127-09-3	407	0.0003%
SODIUM BICARBONATE	144-55-8	12,639	0.0090%
SODIUM CARBONATE, TECH.	497-19-8	7,643	0.0054%
SODIUM HYDROXIDE, TECH.	1310-73-2	43,986	0.0312%
SODIUM HYPOPHOSPHITE, MONOHYDRATE	10029-56-2	51,740	0.0368%
SODIUM PHOSPHATE	7558-79-4	25,178	0.0179%
SOYA LECITHIN	8002-43-5	50,214	0.0357%
SOYBEAN OIL	8001-22-7	9,607,104	6.8241%
STANNOUS CHLORIDE (ANHYD)	7772-99-8	30,762	0.0219%
STEARYL METHACRYLATE	32360-05-7	43,852	0.0311%
STYRENE	100-42-5	6,649,868	4.7235%
SUCCINIC ACID		22,305	0.0158%
SUCCINIC ANHYDRIDE	108-30-5	7,605	0.0054%
SULFOLE 120	25103-58-6	1,843	0.0013%
SULFURIC ACID	7664-93-9	105	0.0001%
SUNCURE 394		100	0.0001%
SYLFAT RD1		18,850	0.0134%

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SYLVADYM T-18 DIMER ACID (DIMERIZED FATTY ACID)	61788-89-4	3,456,216	2.4550%
SYLWET L-7604		11,861	0.0084%
TALL OIL FATTY ACID (ACINTOL EPG)(PAMAK 4A)	61790-12-3	158,902	0.1129%
TALL OIL FATTY ACID (ACONEW 500)	PROPRIETARY	15,594	0.0111%
TALL OIL FATTY ACID (DIACID 1550)	53980-88-4	7,647	0.0054%
TALL OIL FATTY ACID (EMPOL 1040)	68937-90-6	123	0.0001%
TALL OIL FATTY ACIDS, DISTILLED (ACONEW HR)	PROPRIETARY	4,683,392	3.3267%
TALL OIL ROSIN	PROPRIETARY	724,727	0.5148%
TEREPHTHALIC ACID	110-21-0	18,096	0.0129%
TETRA METHYL AMMONIUM CHLORIDE		1,088	0.0008%
TETRABROMO BISPHENOL A	79-94-7	3,000	0.0021%
TETRABUTYL PHOSPHONIUM ACETATE	17786-43-5	200	0.0001%
TETRAHYDRO PHTHALIC ANHYDRIDE	85-43-8	75,103	0.0533%
TETRAISOPROPYL ORTHOTITANATE	3087-37-4	342	0.0002%
TETRA-ETHYLENE PENTAMINE	112-57-2	143,732	0.1021%
THERMOLITE T-12 (DIBUTYL TIN DILAURATE)	77-58-7	1,272	0.0009%
THFA (SR-285) (TETRAHYDROFURFURYL ACRYLATE)	2399-48-6	37,602	0.0267%
TINUVIN 328	25973-55-1	368	0.0003%
TITANATE ESTER	5593-70-4	100	0.0001%
TK85-1761 (14-K-41)	PROPRIETARY	50,850	0.0361%
TK87-2676 R	PROPRIETARY	1,508	0.0011%
TNPP	26523-78-4	104	0.0001%
TOLUENE	108-88-3	8,718,580	6.1930%
TOLUENE DIISOCYANATE (2,4 ISOMER) (TDS)	584-84-9	27,246	0.0194%
TOLUENE DIISOCYANATE (LOW ACID)(TDI)	26471-62-5	22,600	0.0161%
TONE 0200	36890-68-3	20,170	0.0143%
TONE 0305	37625-56-2	12,662	0.0090%
TONE M-100 (HYDROXY POLYESTER ACRYLATE)	110489-05-9	7,639	0.0054%
TPGDA (DEODORIZED)	42978-66-5	155,818	0.1107%
TRIDECYL ALCOHOL	112-70-9	8,085	0.0057%
TRIETHANOLAMINE	102-71-6	85,574	0.0608%
TRIETHYLENE GLYCOL MONO-BUTYL ETHER	143-22-6	12,866	0.0091%
TRIETHYLENETETRAMINE (TETA)	112-24-3	1,737,156	1.2339%
TRIMELLITIC ANHYDRIDE	552-30-7	45,600	0.0324%
TRIMETHYL PENTANEDIOL	144-19-4	56,076	0.0398%
TRIMETHYLOL PROPANE TRIACRYLATE (TMPTA)	15625-89-5	19,024	0.0135%
TRIMETHYLOLETHANE (TME)	77-85-0	196,242	0.1394%
TRIMETHYLOLPROPANE (TMP)	77-99-6	118,306	0.0840%
TRIPHENYL PHOSPHINE	603-35-0	13,014	0.0092%
TRIPHENYL PHOSPHITE	101-02-0	2,735	0.0019%
TRIPROPYLENE GLYCOL TRIACRYLATE	42978-66-5	108	0.0001%
TUNG OIL (CHINAWOOD OIL)	68038-50-6	158,461	0.1126%
T-BUTYL ACETOACETATE	1694-31-1	1,093	0.0008%
T-BUTYL ALCOHOL	75-65-0	102	0.0001%
T-BUTYL AMINO ETHYL METHACRYLATE	3775-90-4	57,698	0.0410%
T-BUTYL HYDROPEROXIDE	75-91-2	12,779	0.0091%

(CHMLST99) RAW MATERIAL DESCRIPTION	15-Jul-92 CAS NO.	ESTIMATED ANNUAL CONSUMPTION TOTALS	EST. ANNUAL PERCENT OF TOTAL
T-BUTYL HYDROQUINONE	1948-33-0	1,139	0.0008%
T-BUTYL PERBENZOATE	614-45-9	13,194	0.0094%
T-BUTYL PEROCTOATE	13467-82-8	7,359	0.0052%
UFORMITE 27-810 (QR-336)		37,622	0.0267%
UNIREZ 710		20,217	0.0144%
UNITOL NCY (TALL OIL ROSIN)	8002-26-4	38,662	0.0275%
VAZO 64	78-67-1	27,106	0.0193%
VAZO 67	13472-08-7	56,523	0.0401%
VERSADYME 204 (HIGH MONOMERIC CONTENT DIMER ACID)	61788-89-4	5,931	0.0042%
VM&P NAPHTHA	8032-32-4	11,795,555	8.3786%
XYLENE	13330-20-7	15,588,743	11.0729%
ZINC ACETATE	557-34-6	60,288	0.0428%
ZINC OXIDE	1314-13-2	137	0.0001%
ZIRCONIUM DUSYN 20%		175	0.0001%
ZIRCONIUM HEX CEM 24% (ZIRCONIUM OCTOATE)	22464-99-9	2,028	0.0014%
TOTALS		140,782,245	100.00%

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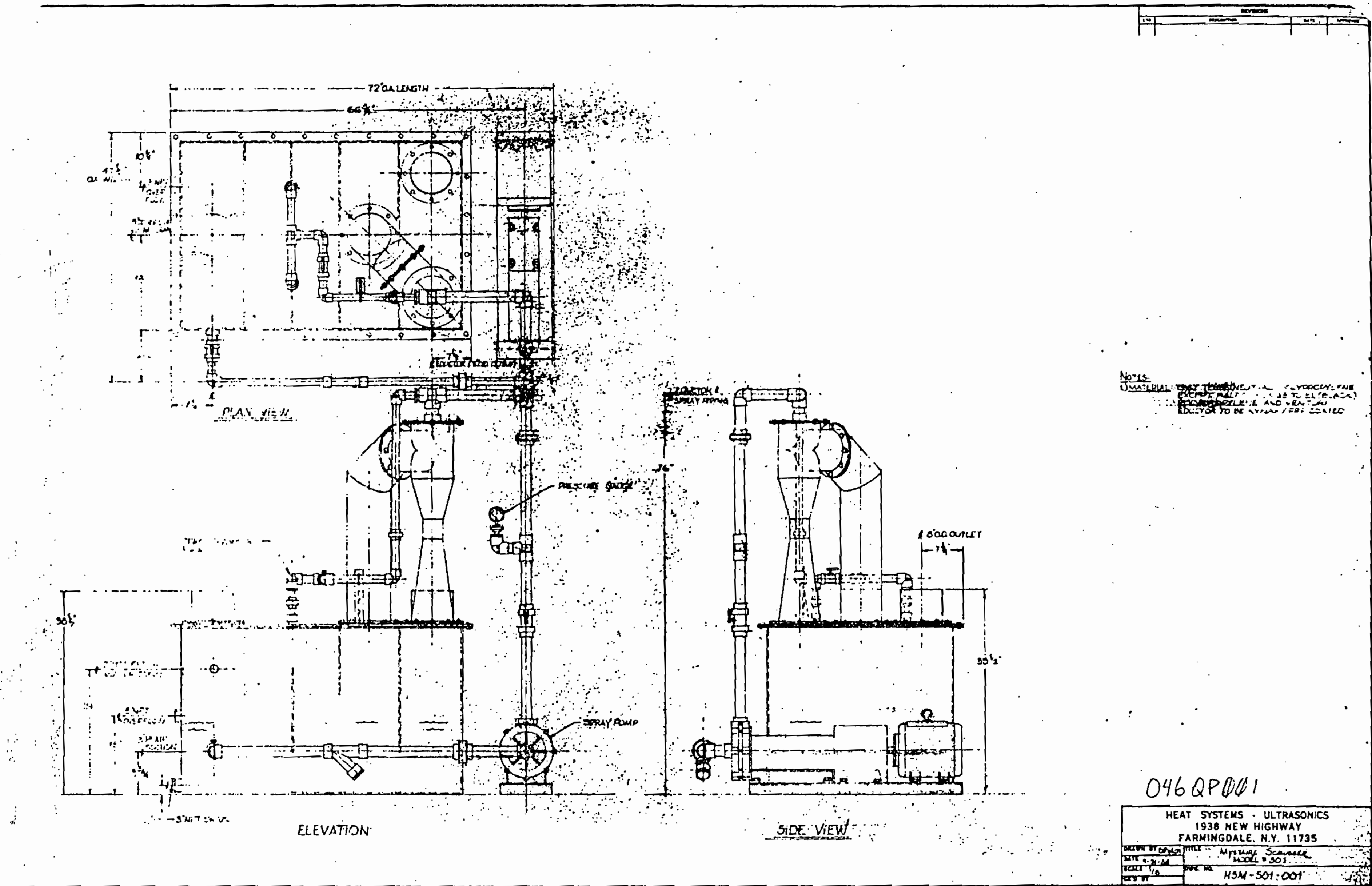
ATTACHMENT 8

NEW VENTURI SCRUBBER



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407 South Pace Boulevard
P.O. Box 1433
Pensacola, FL 32596

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Chemical Coatings Division
407 South Pace Boulevard
P.O. Box 1433
Pensacola, Florida 32596

BUREAU OF AIR REGULATION
FL DEPT. OF ENVIRONMENTAL REGULATION
2600 BLAIR STONE ROAD
TALLAHASSEE, FL 32399-2400

ATTN: MR. G. PRESTON LEWIS, P.E.

We realize the detail

THE FACE OF THIS DOCUMENT HAS A COLORED BACKGROUND ON WHITE PAPER

REICHHOLD COATING POLYMERS & RESINS DIVISION

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P.O. BOX 13582
RTP, NC 27709

CHECK DATE
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DOLLARS	CENTS
****1,250.00***	

PAY

REICHHOLD CHEMICALS, INC.

TO THE ORDER OF
FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
ATTN: AIR REGULATION
2600 BLAIR STONE ROAD
TALLAHASSEE, FL 32399-2400

MANUFACTURERS HANOVER, BANK (DELAWARE)

[redacted]

[redacted]