



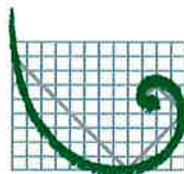
Clearon Corporation

Permit Modification Application

Plant ID: 03-054-03900011

Title V Permit: R30-03900011-2014

South Charleston, West Virginia



ERM

Prepared By:

**ENVIRONMENTAL RESOURCES MANAGEMENT, Inc.
Hurricane, West Virginia**

September 2015

October 12, 2015

Mr. William F. Durham, Director
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, West Virginia, 25304

**RE: Reg. 13 Class Modification Application
Clearon Corporation**

Dear Director Durham:

Clearon Corporation (Clearon) is pleased to submit the enclosed Rule 13 Modification Application for Clearon's Chlorinated Dry Bleach Plant near Charleston in Kanawha County, West Virginia. The original and two electronic copies (CD-ROM) of the complete application package are enclosed. A check for the application fee in the amount of \$1,000.00 made payable to the WVDEP – Division of Air Quality is also included in this package.

A public notice for the proposed project will be published in the Charleston Gazette within five days of the submittal of this application. Clearon will forward the original Affidavit of Publication to your attention once it is received from the publisher.

Clearon would like to clarify that the tank replacement proposed within the enclosed permit application is the replacement of an existing 3,200 gallon tank with a 3,000 gallon tank. Clearon acknowledges that this existing tank differs from the 18,000 gallon tank currently noted as T-1003 in the facility's existing Title V Permit. T-1003 has always served as a backup tank to T-1007 and is only used once annually to store sulfuric acid when T-1007 is down for servicing and inspection. T-1007 cannot be fully emptied by the process and requires a smaller storage tank to hold the remaining sulfuric acid. T-1003 is permitted with the same annual throughput as T-1007 to provide operational flexibility in the event T-1007 has to be quickly removed from service; however, the operational design of T-1003 has always been a backup tank to T-1007. At no time are T-1007 and T-1003 simultaneously utilized to feed the process at Clearon's chlorinated dry bleach plant.

If you should have any questions, please contact Amanda Marcks at (304) 746 – 3046.

Best Regards,



John McKitrick
Operations Manager

cc: Grant Morgan, ERM – Grant.morgan@erm.com
Enclosures

ICL-Clearon Corporation
95 MacCorkle Avenue, SW
South Charleston, WV 25303



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
 601 57th Street, SE
 Charleston, WV 25304
 (304) 926-0475
www.dep.wv.gov/daq

APPLICATION FOR NSR PERMIT
AND
TITLE V PERMIT REVISION
(OPTIONAL)

PLEASE CHECK ALL THAT APPLY TO NSR (45CSR13) (IF KNOWN):
 CONSTRUCTION MODIFICATION RELOCATION
 CLASS I ADMINISTRATIVE UPDATE TEMPORARY
 CLASS II ADMINISTRATIVE UPDATE AFTER-THE-FACT

PLEASE CHECK TYPE OF 45CSR30 (TITLE V) REVISION (IF ANY):
 ADMINISTRATIVE AMENDMENT MINOR MODIFICATION
 SIGNIFICANT MODIFICATION
 IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS ATTACHMENT S TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant (as registered with the WV Secretary of State's Office): Clearon Corporation		2. Federal Employer ID No. (FEIN):	
3. Name of facility (if different from above): South Charleston Chlorinated Dry Bleach Plant		4. The applicant is the: <input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH	
5A. Applicant's mailing address: 95 MacCorkle Avenue, South Charleston, WV 25303		5B. Facility's present physical address: 95 MacCorkle Avenue, South Charleston, WV 25303	
6. West Virginia Business Registration. Is the applicant a resident of the State of West Virginia? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO - If YES, provide a copy of the Certificate of Incorporation/Organization/Limited Partnership (one page) including any name change amendments or other Business Registration Certificate as Attachment A . - If NO, provide a copy of the Certificate of Authority/Authority of L.L.C./Registration (one page) including any name change amendments or other Business Certificate as Attachment A .			
7. If applicant is a subsidiary corporation, please provide the name of parent corporation: N/A			
8. Does the applicant own, lease, have an option to buy or otherwise have control of the <i>proposed site</i> ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO - If YES, please explain: Clearon owns the site. - If NO, you are not eligible for a permit for this source.			
9. Type of plant or facility (stationary source) to be constructed, modified, relocated, administratively updated or temporarily permitted (e.g., coal preparation plant, primary crusher, etc.): Tank (T-1003) replacement.		10. North American Industry Classification System (NAICS) code for the facility: 325180	
11A. DAQ Plant ID No. (for existing facilities only): 054-03900011		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only): R30-03900011-2014	

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction** or **Relocation permits**, please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

Exit 56 (Montrose Drive) on I-64. Turn right and go to the bottom of the hill and turn left at the light onto MacCorkle Avenue (Route 60). Go to 3rd stop light and turn right. Turn left at first driveway.

12.B. New site address (if applicable):

12C. Nearest city or town:

12D. County:

Charleston

Kanawha

12.E. UTM Northing (KM): **4,246.6**

12F. UTM Easting (KM): **438.4**

12G. UTM Zone: **17**

13. Briefly describe the proposed change(s) at the facility:

Clearon proposes to replace an 18,000 gallon polyethylene sulfuric acid storage tank (T-1003) with a 3,000 gallon polyethylene sulfuric acid storage tank.

14A. Provide the date of anticipated installation or change: **10/31/2015**

- If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: / /

14B. Date of anticipated Start-Up if a permit is granted:

10/31/2015

14C. Provide a **Schedule** of the planned **Installation of/Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:

Hours Per Day **24** Days Per Week **7** Weeks Per Year **52**

16. Is demolition or physical renovation at an existing facility involved? **YES** **NO**

17. **Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18. **Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (*if known*). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance (*if known*). Provide this information as **Attachment D**.

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to **Plot Plan Guidance**) .

- Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F**.

23. Provide a **Process Description** as **Attachment G**.

- Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H**.

– For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I**.

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J**.

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K**.

28. Check all applicable **Emissions Unit Data Sheets** listed below:

- | | | |
|--|--|--|
| <input type="checkbox"/> Bulk Liquid Transfer Operations | <input type="checkbox"/> Haul Road Emissions | <input type="checkbox"/> Quarry |
| <input type="checkbox"/> Chemical Processes | <input type="checkbox"/> Hot Mix Asphalt Plant | <input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities |
| <input type="checkbox"/> Concrete Batch Plant | <input type="checkbox"/> Incinerator | <input checked="" type="checkbox"/> Storage Tanks |
| <input type="checkbox"/> Grey Iron and Steel Foundry | <input type="checkbox"/> Indirect Heat Exchanger | |
| <input type="checkbox"/> General Emission Unit, specify | | |

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L**.

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

- | | | |
|--|---|--|
| <input type="checkbox"/> Absorption Systems | <input type="checkbox"/> Baghouse | <input type="checkbox"/> Flare |
| <input type="checkbox"/> Adsorption Systems | <input type="checkbox"/> Condenser | <input type="checkbox"/> Mechanical Collector |
| <input type="checkbox"/> Afterburner | <input type="checkbox"/> Electrostatic Precipitator | <input type="checkbox"/> Wet Collecting System |
| <input type="checkbox"/> Other Collectors, specify | | |

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M**.

30. Provide all **Supporting Emissions Calculations** as **Attachment N**, or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O**.

- Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and **Example Legal Advertisement** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

YES NO

- If YES, identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's "**Precautionary Notice – Claims of Confidentiality**" guidance found in the **General Instructions** as **Attachment Q**.

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

- | | |
|--|---|
| <input type="checkbox"/> Authority of Corporation or Other Business Entity | <input type="checkbox"/> Authority of Partnership |
| <input type="checkbox"/> Authority of Governmental Agency | <input type="checkbox"/> Authority of Limited Partnership |

Submit completed and signed **Authority Form** as **Attachment R**.

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

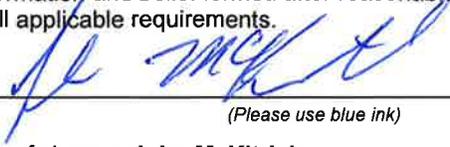
35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned **Responsible Official** / **Authorized Representative**, hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE  _____
 (Please use blue ink)

DATE: 10/15/15
 (Please use blue ink)

35B. Printed name of signee: John McKittrick		35C. Title: Operations Manager
35D. E-mail: NA	36E. Phone: (304) 746 - 3136	36F. FAX: (304) 675-6570
36A. Printed name of contact person (if different from above): Amanda Marcks		36B. Title: Environmental Engineer
36C. E-mail: Amanda.Marcks@lcl-Group.com	36D. Phone: 304 - 746 - 3046	36E. FAX: 304 - 746 - 3034

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Attachment A: Business Certificate | <input type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet |
| <input checked="" type="checkbox"/> Attachment B: Map(s) | <input checked="" type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s) |
| <input checked="" type="checkbox"/> Attachment C: Installation and Start Up Schedule | <input type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s) |
| <input checked="" type="checkbox"/> Attachment D: Regulatory Discussion | <input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations |
| <input checked="" type="checkbox"/> Attachment E: Plot Plan | <input checked="" type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans |
| <input checked="" type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s) | <input checked="" type="checkbox"/> Attachment P: Public Notice |
| <input checked="" type="checkbox"/> Attachment G: Process Description | <input type="checkbox"/> Attachment Q: Business Confidential Claims |
| <input checked="" type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS) | <input type="checkbox"/> Attachment R: Authority Forms |
| <input checked="" type="checkbox"/> Attachment I: Emission Units Table | <input checked="" type="checkbox"/> Attachment S: Title V Permit Revision Information |
| <input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet | <input checked="" type="checkbox"/> Application Fee |

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

- Forward 1 copy of the application to the Title V Permitting Group and:
- For Title V Administrative Amendments:
 - NSR permit writer should notify Title V permit writer of draft permit,
- For Title V Minor Modifications:
 - Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,
 - NSR permit writer should notify Title V permit writer of draft permit.
- For Title V Significant Modifications processed in parallel with NSR Permit revision:
 - NSR permit writer should notify a Title V permit writer of draft permit,
 - Public notice should reference both 45CSR13 and Title V permits,
 - EPA has 45 day review period of a draft permit.

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

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ATTACHMENT A

BUSINESS CERTIFICATE

**WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION
CERTIFICATE**

ISSUED TO:
**CLEARON CORP
95 MACCORKLE AVE SW
SOUTH CHARLESTON, WV 25303-1411**

BUSINESS REGISTRATION ACCOUNT NUMBER: **1007-6345**

This certificate is issued on: **06/30/2011**

*This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with Chapter 11, Article 12, of the West Virginia Code*

*The person or organization identified on this certificate is registered
to conduct business in the State of West Virginia at the location above.*

This certificate is not transferrable and must be displayed at the location for which issued.

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

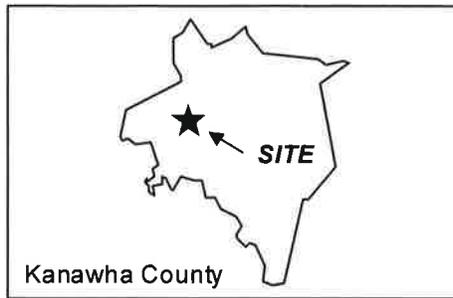
TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them.
CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

ATTACHMENT B

LOCATION MAP



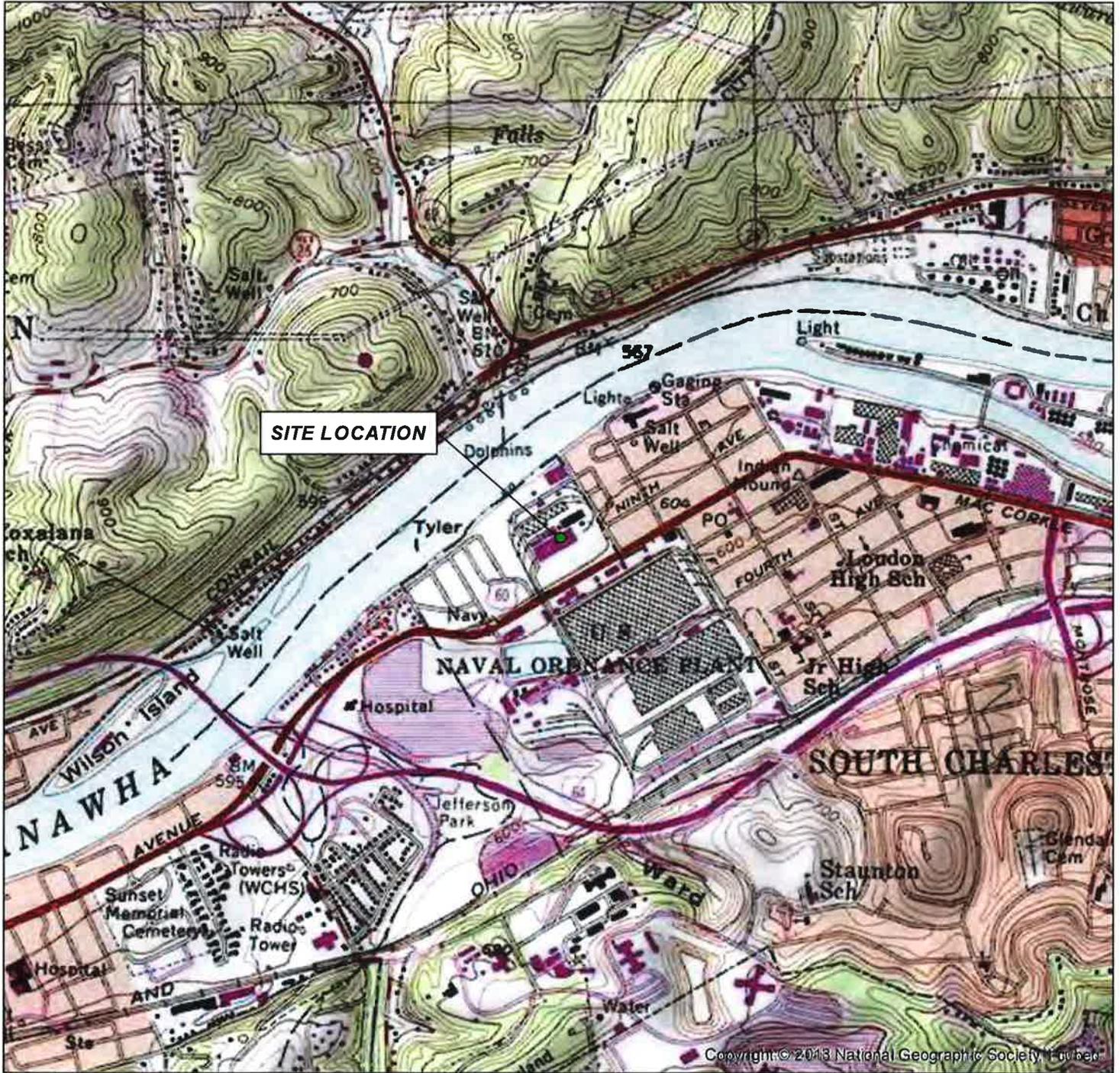
West Virginia



Kanawha County



LAT. 38.367 LON. -81.706
KANAWHA COUNTY
WEST VIRGINIA



USGS 1:24K 7.5' Quadrangle:
Charleston West, WV

SITE LOCATION MAP



South Charleston Facility
Clearon Corporation
Kanawha County, West Virginia

GIS Review:
CHK'D:
0307688

Drawn By:
SRV-8/24/15

Environmental Resources Management

FIGURE 1

J:\GIS\Projects\SiteLocationMap\MapInfo\MapInfo\MapInfo.mxd - 9/24/2015 9:58 AM

ATTACHMENT C

INSTALLATION SCHEDULE

SCHEDULE OF INSTALLATION

Equipment included in this permit application will be installed on or around October 31st, 2015.

ATTACHMENT D

REGULATORY DISCUSSION

REGULATORY DISCUSSION

This section outlines the State and Federal air quality regulations that could be reasonably expected to apply to the Clearon South Charleston facility and makes an applicability determination for each regulation based on activities conducted at the site and the emissions of regulated air pollutants. This review is presented to supplement and/or add clarification to the information provided in the WVDEP permit application forms.

The West Virginia State Regulations address applicable state (i.e. State Implementation Plan) rules as well as federal regulations, including Title I Prevention of Significant Deterioration Nonattainment New Source Review preconstruction permitting, Title V, New Source Performance Standards, and National Emission Standards for Hazardous Air Pollutants. The regulatory requirements in reference to Clearon's facility are described in detail in the below section.

WEST VIRGINIA STATE AIR REGULATIONS

45 CSR 4 – To Prevent and Control the Discharge of Air Pollutants into the Air Which Causes or Contributes to an Objectionable Odor

Operations conducted at Clearon are subject to this requirement. Based on the nature of the process, the presence of objectionable odors is unlikely.

45 CSR 6 – Control of Air Pollution from the Combustion of Refuse

There are no incinerators, flares, or open burning associated with the submission of this permit modification.

45 CSR 7 – To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associated Operations

Per 45 CSR 7.4.2 - Mineral acids shall not be released from any type source operation or duplicate source operation or from all air pollution control equipment installed on any type source operation or duplicate source operation in excess of the quantity given in Table 45-7B – Sulfuric Acid Mist <35 mg/dscm. An evaluation of sulfuric acid mist concentrations has been conducted as a component of this submittal. The operation of T-1003 will result in the release of sulfuric acid mist below the required threshold of the Rule.

This rule does apply; however Clearon does not have to control the tank to comply with the Rule.

45 CSR 13 – Permits for Construction, Modification, Relocation, and Operation of Stationary Sources of Air Pollutants

This Modification is being submitted for the operational activities associated with Clearon's production of chlorinated dry bleach. The proposed replacement of the sulfuric acid tank results in the applicant seeking the authorization to construct a new stationary source.

45 CSR 16 - Standards of Performance for New Stationary Sources (NSPS)

45CSR 16 applies to all registrants with affected facilities that are subject to any of the NSPS requirements.

The following NSPS included in this Modification are not applicable to the Clearon facility:

- 40 CFR 60 Subpart K, Ka, and Kb

The new storage vessel does not contain volatile organic liquid or petroleum liquid.

No additional NSPS are applicable to the changes at this facility.

45 CSR 30 – Requirements for Operating Permits

45 CSR 30 applies to the requirements of the federal Title V operating permit program (40 CFR 70). The major source thresholds with respect to the West Virginia Title V operating permit program regulations are 10 tons per year (tpy) of a single HAP, 25 tpy of any combination of HAPs, and 100 tpy of all other regulated pollutants.

The potential emissions of all regulated pollutants are above the corresponding threshold(s) at this facility. The facility is a major source with respect to the Title V operating permit program.

Clearon has provided Attachment S (Title V Revision) to revise section 7 (CA Purification) of 11 of Title V Operating Permit R30-03900011-2014 to include changes that are anticipated in this Title V administrative update.

45 CSR 34 – National Emission Standards for Hazardous Air Pollutants (NESHAP)

45 CSR 34 applies to all registrants that are subject to any of the NESHAP requirements.

NESHAP requirements are not applicable to the changes at Clearon facility.

ATTACHMENT E

PLOT PLAN

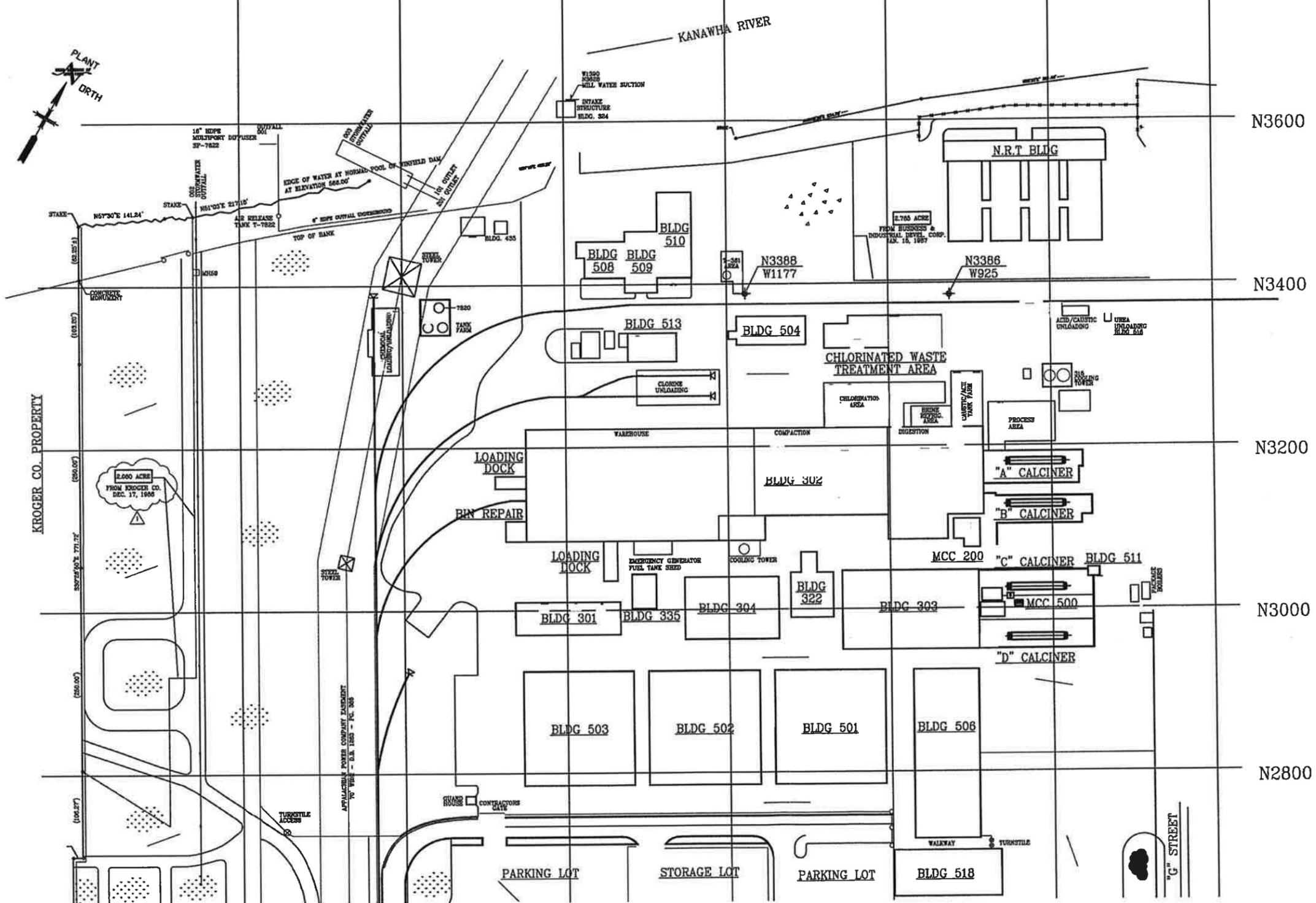
A B C D E F G H J K L M N O P

W1800 W1600 W1400 W1200 W1000 W800 W600

1
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LEGEND:

- CHAIN LINK FENCE
- PROPERTY BOUNDARY
- PROPERTY LOT SECTIONS
- TELEPHONE POLE/PEDESTAL
- POWER POLE
- GRASS
- STORM SEWER FLOW
- GRAVEL



FACILITY LAYOUT

Clearon Corp.
 PLANT: SOUTH CHARLESTON, W.Va.
 PROJECT NO. 0 CAR NO. - SCALE 1"=80'

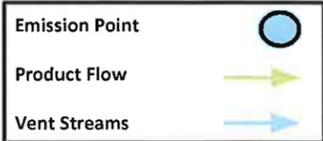
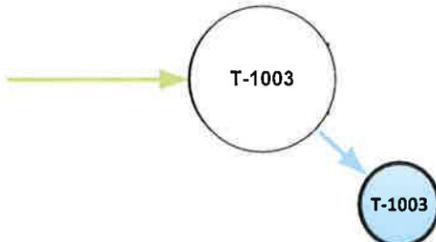
THIS DOCUMENT IS THE PROPERTY OF CLEARON CORP. AND THE INFORMATION CONTAINED THEREIN IS CONSIDERED CONFIDENTIAL. THIS DOCUMENT IS NOT TO BE USED, REPRODUCED OR DISCLOSED IN WHOLE OR IN PART WITHOUT THE PRIOR WRITTEN PERMISSION OF CLEARON CORP.

THIS IS AN AutoCAD DRAWING DO NOT REVISE MANUALLY !!!

ATTACHMENT F

PROCESS FLOW DIAGRAM

Attachment F
Clearon Corporation
Process Flow Diagram



ATTACHMENT G

PROCESS DESCRIPTION

PROCESS DESCRIPTION

Clearon Corporation's (Clearon) primary products are purified cyanuric acid and chlorinated isocyanurates also known as CDB. The facility operates on a year-round basis, 24 hours per day, and 365 days per year.

Cyanuric acid is produced from the pyrolysis of urea. The cyanuric acid is used as the feed stock to produce various types of CDB's at the South Charleston Plant. CDB's are produced by chlorinating the cyanuric acid. Cyanuric acid is also sold to other manufacturers for the production of their chlorinated dry bleaches or as CDB stabilizers.

Cyanuric acid and chlorinated dry bleaches are used in production of swimming pool treatment chemicals, cleansers, dishwashing detergents and various other products whose primary functions are cleaning, disinfecting, and sanitizing.

The sulfuric acid tank (T-1003) serves as a backup tank to the primary sulfuric acid tank (T-1007). Sulfuric acid is utilized in the production process to remove excess moisture that remains entrained within the chlorine gas.

A process flow diagram is included as Attachment F.

ATTACHMENT H

MATERIAL SAFETY DATA SHEETS (MSDS)

SULFURIC ACID 93% TECHNICAL

Revision:1 3/11/2015

Issuing date: 11/20/2014

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Trade name : SULFURIC ACID 93% TECHNICAL

1.2 Relevant identified uses of the substance or mixture and uses advised against

no data available

1.3 Details of the supplier of the safety data sheet

Company : Eco Services Operations LLC
 CN 9803
 Cranbury, NJ 08512
 Phone number : 844 812-1812

1.4 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT: CHEMTREC 800-424-9300 within the United States and Canada, or 703-527-3887 for international collect calls.

SECTION 2: Hazards identification

Although OSHA has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects.

2.1 Classification of the substance or mixture**HCS 2012 (29 CFR 1910.1200)**

Skin corrosion, Category 1A
 Serious eye damage, Category 1
 Specific target organ systemic toxicity - single exposure, Category 3, Respiratory system

H314: Causes severe skin burns and eye damage.

H318: Causes serious eye damage.

H335: May cause respiratory irritation.

2.2 Label elements**HCS 2012 (29 CFR 1910.1200)**

Pictogram



Signal Word

: Danger

Hazard Statements:

H314

Causes severe skin burns and eye damage.

H335

May cause respiratory irritation.

SAFETY DATA SHEET



SULFURIC ACID 93% TECHNICAL

Revision: 1 3/11/2015

Issuing date: 11/20/2014

Precautionary Statements:

Prevention

P261
P264
P271
P280

Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331
P303 + P361 + P353

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310
P363

Immediately call a POISON CENTER or doctor/ physician.
Wash contaminated clothing before reuse.

Storage

P403 + P233
P405

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal

P501

Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards which do not result in classification

Water Reactive

H402: Harmful to aquatic life.

H411: Toxic to aquatic life with long lasting effects.

SECTION 3: Composition/information on ingredients**3.1 Substance**

Not applicable, this product is a mixture.

3.2 Mixture**Hazardous Ingredients and Impurities**

Chemical Name	Identification number CAS-No.	Concentration [%]
Sulfuric acid	7664-93-9	93

Non Hazardous Ingredients and Impurities

Chemical Name	Identification number CAS-No.	Concentration [%]
Water	7732-18-5	7

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SECTION 4: First aid measures**4.1 Description of first-aid measures**

- If inhaled :
- Remove victim from exposure and then have him lie down in the recovery position.
 - In case of shortness of breath, give oxygen.
 - If victim has stopped breathing: administer CPR (cardio-pulmonary resuscitation)
 - Immediate medical attention is required.
- Skin contact :
- In case of contact, immediately flush skin with plenty of water for at least 30 minutes.
 - Remove all contaminated apparel under the shower.
 - Wash off with plenty of water.
 - Do not attempt to neutralize with chemical agents
 - Immediate medical attention is required.
- Eye contact :
- In case of contact, immediately flush eyes with plenty of water for at least 30 minutes.
 - Immediate medical attention is required.
- Ingestion :
- Do NOT induce vomiting.
 - If victim is conscious: Rinse mouth with water.
 - Do not leave the victim unattended.
 - Risk of product entering the lungs on vomiting after ingestion.
 - Lay victim on side.
 - Never give anything by mouth to an unconscious person.
 - Immediate medical attention is required.

4.2 Most important symptoms and effects, both acute and delayed

- Risks :
- Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis
 - Skin contact may aggravate existing skin disease

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician :
- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

SECTION 5: Firefighting measures

- Flash point :
- Not applicable
- Autoignition temperature :
- no data available
- Flammability / Explosive limit :
- no data available

5.1 Extinguishing media

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Suitable extinguishing media : Dry chemical

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting : Not combustible.
 Strong oxidizer. Contact with other material may cause fire.
 Reacts violently with water.
 Corrosive or suffocating vapors are released.
 On combustion or on thermal decomposition (pyrolysis), releases:
 Sulfur oxides

5.3 Advice for firefighters

Special protective equipment for fire-fighters : Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.
 Acid-resistant protective clothing

Specific fire fighting methods : Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Personal precautions, protective equipment and emergency procedures : The product must only be handled by specifically trained employees.

6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.
 Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
 Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies
 Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.

6.3 Methods and materials for containment and cleaning up

Recovery : Stop leak if safe to do so.
 Dam up with sand or inert earth (do not use combustible materials).

Decontamination / cleaning : Pump or collect any free spillage into an appropriate closed container. (see Section 7: Handling and Storage)
 Exercise caution during neutralization as considerable heat may be generated
 Carefully neutralize the remainder using:
 soda ash
 Soak up with inert absorbent material.
 Scrape up.
 Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

Reference to other sections : 7. HANDLING AND STORAGE

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

- Technical measures : Do not breathe mist or vapors.
Avoid contact with the skin and the eyes.
When diluting, always add the product to water. Never add water to the product.
Reacts violently with:
bases.
- Hygiene measures : Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
3) Wash exposed skin promptly to remove accidental splashes or contact with material.

7.2 Conditions for safe storage, including any incompatibilities**Storage conditions**

- Recommended : Keep tightly closed.
Store in an area:
dry
well-ventilated
diked
- Storage stability**
- Storage temperature : < 104 °F (< 40 °C)
- Other data : Corrosion rates increase at elevated temperatures.

7.3 Specific end use(s)

no data available

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SECTION 8: Exposure controls/personal protection

Introductory Remarks:

These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. While developing safe handling procedures, do not overlook the need to clean equipment and piping systems for maintenance and repairs. Waste resulting from these procedures should be handled in accordance with Section 13: Disposal Considerations.

Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

8.1 Control parameters

Ingredients with workplace control parameters

Ingredients	Value type	Value	Basis
Sulfuric acid	TWA	1 mg/m3	NIOSH
Sulfuric acid	TWA	0.2 mg/m3	ACGIH
Form of exposure : Thoracic fraction Pulmonary function, Classification refers to sulfuric acid contained in strong inorganic acid mists, Suspected human carcinogen			
Sulfuric acid	TWA	1 mg/m3	OSHA Z-1
Sulfuric acid	TWA	1 mg/m3	OSHA Z-1-A
Sulfuric acid	TWA	0.2 mg/m3	Eco Services

NIOSH IDLH (Immediately Dangerous to Life or Health Concentrations)

Ingredients	CAS-No.	Concentration
Sulfuric acid	7664-93-9	15 milligram per cubic meter

8.2 Exposure controls

Control measures

Engineering measures : Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures :

Effective exhaust ventilation system

Personal protective equipment

Respiratory protection : When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations.

Recommended Filter type: Acidic gas/vapor type

Eye protection : Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended

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for this material.

Eye contact should be prevented through the use of:

Wear protective eye glasses for protection against liquid splashes (goggles)

Skin and body protection

: Wear as appropriate:
Face-shield
Acid-resistant protective clothing
Acid resistant boots.

Hygiene measures

: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
3) Wash exposed skin promptly to remove accidental splashes or contact with material.

Protective measures

: Ensure that eyewash stations and safety showers are close to the workstation location.

SECTION 9: Physical and chemical properties

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

9.1 Information on basic physical and chemical properties

Appearance : Form : oily
Physical state: liquid
Color: colorless

Odor : odorless

Odor Threshold : no data available

pH : 1.0 (1 % (m/v))

Melting point/range : -26 °F (-32 °C)

Boiling point/boiling range : 529 °F (276 °C) (760 mmHg (1,013.25 hPa))

Flash point : Not applicable

Evaporation rate (Butylacetate = 1) : no data available

Flammability (solid, gas) : no data available

Flammability (liquids) : no data available

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Flammability / Explosive limit	:	no data available
Autoignition temperature	:	no data available
Vapor pressure	:	< 1 mmHg (1.33 hPa) (104 °F (40 °C))
Vapor density	:	no data available
Specific Gravity	:	1.836 (61 °F (16 °C))
Solubility	:	<u>Water solubility</u> : miscible
Partition coefficient: n-octanol/water	:	no data available
Thermal decomposition	:	no data available
Viscosity	:	no data available
Explosive properties	:	no data available
Oxidizing properties	:	no data available

9.2 Other information

Molecular weight	:	98.08 g/mol
Reactions with water / air	:	Reacts violently with water.

SECTION 10: Stability and reactivity**10.1 Reactivity**

no data available

10.2 Chemical stability

Chemical stability : Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous polymerization does not occur.

10.4 Conditions to avoid

no data available

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10.5 Incompatible materials

Materials to avoid : Water
 Strong reducing agents
 Halogenated compounds
 Bases
 metals
 Nitrogen oxides (NO_x)

10.6 Hazardous decomposition products

Decomposition products : On combustion or on thermal decomposition (pyrolysis), releases:
 Sulfur oxides

SECTION 11: Toxicological information**11.1 Information on toxicological effects****Acute toxicity**

Acute oral toxicity

Sulfuric acid

LD50 Oral : 2,140 mg/kg - Rat
 Gavage
 Published data

Acute inhalation toxicity

Sulfuric acid

: LC50 - 4 h (aerosol) : 0.375 mg/l - Rat , male and female
 Toxicity secondary to corrosive effects at site of contact.
 Published data

LC50 - 4 h (aerosol) : 0.85 mg/l - Mouse , male and female
 Toxicity secondary to corrosive effects at site of contact.
 Published data

(Mist) Humans

Symptoms: Potential health effects, Respiratory disorders, Symptoms may be delayed., Cough, Risk of delayed pulmonary edema.

Effects of breathing high concentration of respirable particles may include:

May cause irritation of respiratory tract.

Lung irritation

Published data

Acute dermal toxicity

Sulfuric acid

: Not classified as hazardous for acute toxicity according to GHS
 Not applicable
 Corrosive
 internal evaluation

Acute toxicity (other routes of administration) : no data available

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Skin corrosion/irritation

Skin irritation

Sulfuric acid : Causes severe burns.
Published data

Serious eye damage/eye irritation

Eye irritation

Sulfuric acid : Risk of serious damage to eyes.
Published data

Respiratory or skin sensitization

Sensitization

Sulfuric acid : Local lymph node assay
Not applicable
Corrosive
The product is not considered to be sensitizing by skin contact.
internal evaluation

Mutagenicity

Genotoxicity in vitro

Sulfuric acid : Mutagenicity (Salmonella typhimurium - reverse mutation assay)
with and without metabolic activation
negative
Method: OECD Test Guideline 471
Published data

Chromosome aberration test in vitro
Strain: Chinese hamster ovary cells
with and without metabolic activation
positive
Effects observed are due to the reduced pH in the test medium.
Published data

Product is not considered to be genotoxic

Genotoxicity in vivo

: no data available

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Carcinogenicity

Carcinogenicity

Sulfuric acid

: inhalation (mist)

Animal studies

Unpublished reports

Published data

No carcinogenic effects have been observed

Note: IARC Classification: Group 1
mists from strong inorganic acids

IARC and NTP classified "occupational exposure to strong inorganic acid mists containing sulfuric acid" as a known human carcinogen. ACGIH has also classified "sulfuric acid as contained in strong inorganic acid mists" as a suspected human carcinogen. There is still a debate on the studies reviewed by these agencies. We disagree with IARC's conclusion, in that more recent studies have failed to find association between "occupational exposure to strong inorganic acid mist containing sulfuric acid." and laryngeal or lung cancer. In fact, in 2012 IARC revised their classification dropping the "containing sulfuric acid" wording. Lifetime animal studies in hamsters, rats, and guinea pigs were conducted by the EPA and NIEHS and were all negative. However, they were not formally published by the agencies and not considered by IARC or NTP.

Ingredients	CAS-No.	Rating	Basis
Strong inorganic acid mists containing sulfuric acid		Group 1: Carcinogenic to humans	IARC
Strong inorganic acid mists containing sulfuric acid		Suspected human carcinogen	ACGIH
Strong inorganic acid mists containing sulfuric acid		Known to be human carcinogen	NTP
Sulfuric acid	7664-93-9	Suspected human carcinogen	ACGIH

This product does not contain any ingredient designated as probable or suspected human carcinogens by:

OSHA

NTP

IARC

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Toxicity for reproduction and development

Toxicity to reproduction / fertility

Sulfuric acid : Effects on fertility
fetotoxic effect
no observed effect

Developmental Toxicity/Teratogenicity

Sulfuric acid : Rabbit
Application Route: inhalation (mist)
NOAEC teratogenicity: 19.3 mg/m³

Method: OECD Test Guideline 414
no teratogenic effects have been observed

Mouse
Application Route: inhalation (mist)
NOAEC teratogenicity: 19.3 mg/m³

Method: OECD Test Guideline 414
no teratogenic effects have been observed
Published data

STOT

STOT-single exposure

Sulfuric acid Routes of exposure: inhalation (mist)
Target Organs: Respiratory Tract
Toxicology Assessment:
May cause respiratory irritation.

STOT-repeated exposure

Sulfuric acid : Toxicology Assessment:
The substance or mixture is not classified as specific target organ toxicant,
repeated exposure., internal evaluation

Sulfuric acid : inhalation (mist) 28 d - Rat
LOAEC: 0.3 mg/m³
Target Organs: Larynx
Method: OECD Test Guideline 412
Symptoms: Local irritation
Unpublished reports

inhalation (mist) 78 Weeks - Monkey
LOAEC: 0.38 mg/m³
Target Organs: Respiratory Tract
Symptoms: Local irritation, Respiratory disorders
Published data

Repeated inhalation of aerosols may cause adverse effects on health

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Experience with human exposure

Experience with human exposure : Inhalation

Sulfuric acid

: Target Organs: Respiratory Tract

Target Organs: Nose

Symptoms: Burning sensations in the nose and throat.

Breathing difficulties

Dental erosion

Mist

At high concentrations:

Irritating to the respiratory system and mucous membranes.

Published data

Carcinogenicity

Sulfuric acid

: Carcinogenicity classification not possible from current data.

Teratogenicity

Sulfuric acid

: Did not show teratogenic effects in animal experiments.

Aspiration toxicity

Aspiration toxicity

Sulfuric acid

: Not applicable

SECTION 12: Ecological information**12.1 Toxicity****Aquatic Compartment**

Acute toxicity to fish

Sulfuric acid

: LC50 - 96 h : 16 - 28 mg/l - *Lepomis macrochirus* (Bluegill sunfish)
static test

Non neutralized product

pH 3.5 - 3.25

Harmful to fish.

Published data

Acute toxicity to daphnia and other aquatic invertebrates.

Sulfuric acid

: EC50 - 48 h : > 100 mg/l - *Daphnia magna* (Water flea)
static test Method: OECD Test Guideline 202

Fresh water

Neutralized product

Not harmful to aquatic invertebrates. (EC50 > 100 mg/L)

Unpublished reports

EC50 - 24 h : 29 mg/l - *Daphnia magna* (Water flea)

Method: ISO 6341

Non neutralized product

Harmful to aquatic invertebrates.

Published data

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Toxicity to aquatic plants
 Sulfuric acid

: NOEC : 0.13 mg/l - Algae
 field study
 pH 5.6
 Non neutralized product
 Published data

ErC50 - 72 h : > 100 mg/l - Desmodesmus subspicatus (green algae)
 Growth inhibition
 Method: OECD Test Guideline 201
 Neutralized product
 Unpublished reports

Chronic toxicity to fish
 Sulfuric acid

: NOEC: 0.13 mg/l - 10 Months - Salvelinus fontinalis (brown trout)
 flow-through test
 pH 5.6
 Fresh water
 Non neutralized product
 Published data

Ecotoxicity assessment
Acute aquatic toxicity
 Sulfuric acid

: If the product is not neutralized, it may cause adverse effects to aquatic organisms due to its acidity.
 Neutralization will reduce ecotoxic effects.

Chronic aquatic toxicity
 Sulfuric acid

: If the product is not neutralized, it may cause adverse effects to aquatic organisms due to its acidity.

12.2 Persistence and degradability**Biodegradability**
 Biodegradability
 Sulfuric acid

: Not applicable, inorganic substance

Stability
 Stability in water
 Sulfuric acid

: Product dissociates rapidly to corresponding ions on contact with water.

12.3 Bioaccumulative potential
 Partition coefficient: n-octanol/water
 Sulfuric acid

: Not applicable, inorganic substance

 Bioconcentration factor (BCF)
 Sulfuric acid

: Not relevant
 internal evaluation

12.4 Mobility in soil

no data available

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12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment

Sulfuric acid

: This substance is not considered to be persistent, bioaccumulating, and toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

Environment assessment

Sulfuric acid

: Not classified as Dangerous for the Environment

SECTION 13: Disposal considerations**13.1 Waste treatment methods****Product Disposal**

Advice on Disposal

: Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

Waste Code

: EPA:
Hazardous Waste – YES

RCRA:

D002 - Corrosive waste – (C)

D003 - Reactive waste – (R)

SECTION 14: Transport information

Transportation status: IMPORTANT! Statements below provide additional data on listed transport classification.

The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

DOT**14.1 UN number**

UN 1830

14.2 Dangerous Good Description

UN 1830 SULFURIC ACID, 8, II

14.3 Transport hazard class

8

14.4 Packing group

Packing group

II

Label(s)

8

ERG No

137

14.5 Environmental hazards

NO

Marine pollutant

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14.6 Special precautions for user

This product contains one or more ingredients identified as a hazardous substance in Appendix A of 49 CFR 172.101. The product quantity, in one package, which triggers the RQ requirements under 49 CFR for each hazardous substance is shown.

Reportable quantities : RQ substance: Sulfuric acid
RQ limit for substance: 1,000 lb

TDG

14.1 UN number UN 1830

14.2 Dangerous Good Description UN 1830 SULFURIC ACID, 8, II

14.3 Transport hazard class 8

14.4 Packing group
Packing group II
Label(s) 8
ERG No 137

14.5 Environmental hazards NO
Marine pollutant

IMDG

14.1 UN number UN 1830

14.2 Dangerous Good Description UN 1830 SULPHURIC ACID, 8, II

14.3 Transport hazard class 8

14.4 Packing group
Packing group II
Label(s) 8
EmS F-A , S-B

14.5 Environmental hazards NO
Marine pollutant

14.6 Special precautions for user
For personal protection see section 8.

IATA

14.1 UN number UN 1830

14.2 Dangerous Good Description UN 1830 SULPHURIC ACID, 8, II

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14.3 Transport hazard class 8**14.4 Packing group**

Packing group	II
Label(s):	8
Packing instruction (cargo aircraft)	855
Max net qty / pkg	30.00 L
Packing instruction (passenger aircraft)	851
Max net qty / pkg	1.00 L

14.5 Environmental hazards NO**Marine pollutant****14.6 Special precautions for user**

For personal protection see section 8.

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.

SECTION 15: Regulatory information**15.1 Notification status**

United States TSCA Inventory	: YES (positive listing) On TSCA Inventory
Canadian Domestic Substances List (DSL)	: YES (positive listing) All components of this product are on the Canadian DSL.
Australia Inventory of Chemical Substances (AICS)	: YES (positive listing) On the inventory, or in compliance with the inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	: YES (positive listing) On the inventory, or in compliance with the inventory
Korea. Korean Existing Chemicals Inventory (KECI)	: YES (positive listing) On the inventory, or in compliance with the inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	: YES (positive listing) On the inventory, or in compliance with the inventory

15.2 Federal Regulations

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SARA 311/312 Hazards

Fire Hazard	no
Reactivity Hazard	yes
Sudden Release of Pressure Hazard	no
Acute Health Hazard	yes
Chronic Health Hazard	no

SARA 313

: The following components are subject to reporting levels established by SARA Title III, Section 313:
Sulfuric acid 7664-93-9 93 %

SARA 302

: The following components are subject to reporting levels established by SARA Title III, Section 302:

Ingredients	CAS-No.	Threshold planning quantity	Remarks
Sulfuric acid	7664-93-9	1000 lb	

EPCRA - Emergency Planning and Community Right-to-Know**CERCLA Reportable Quantity**

Ingredients	CAS-No.	Reportable quantity
Unlisted hazardous wastes - Characteristic of Corrosivity		100 lb
Unlisted hazardous wastes - Characteristic of Reactivity		100 lb
Sulfuric acid	7664-93-9	1000 lb

SARA 304 Reportable Quantity

Ingredients	CAS-No.	Reportable quantity
Sulfuric acid	7664-93-9	1000 lb

SARA 302 Reportable Quantity

Ingredients	CAS-No.	Reportable quantity
Sulfuric acid	7664-93-9	1000 lb

15.3 State Regulations**California Prop 65**

: WARNING! This product contains a chemical known in the State of California to cause cancer.
Strong inorganic acid mists containing sulfuric acid

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

SECTION 16: Other information

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NFPA-Classification

Health : 3 serious
 Flammability : 0 minimal
 Instability or Reactivity : 2 moderate

HMIS-Classification

Health : 3 serious
 Flammability : 0 minimal
 Reactivity : 2 moderate

Further information

Date Prepared : 11/20/2014
 Further information : Product classified under the US GHS format.

Key or legend to abbreviations and acronyms used in the safety data sheet

TWA : 8-hour, time-weighted average
 ACGIH : American Conference of Governmental Industrial Hygienists
 OSHA : Occupational Safety and Health Administration
 WHMIS : Workplace Hazardous Materials Information System
 NTP : National Toxicology Program
 IARC : International Agency for Research on Cancer
 SAEL : Solvay Acceptable Exposure Limit
 NIOSH : National Institute for Occupational Safety and Health
 NFPA : National Fire Protection Association
 HMIS : Hazardous Materials Identification System (Paint & Coating)

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose, and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in another manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.

ATTACHMENT I

EQUIPMENT LIST FORM

ATTACHMENT J

EMISSION POINTS DATA SUMMARY SHEET

Attachment J EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type ¹	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS ³ (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions ⁴		Maximum Potential Controlled Emissions ⁵		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used ⁶	Emission Concentration ⁷ (ppmv or mg/m ³)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
T-1003	Upward Vertical Stack	T-1003	Storage Tank	None	None	N/A	N/A	VOCs	<0.01	<0.01	N/A	N/A	Gas	EE	24 mg/dscm

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

¹ Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

² Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

³ List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. DO NOT LIST H₂, H₂O, N₂, O₂, and Noble Gases.

⁴ Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

⁵ Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

⁶ Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

⁷ Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m³) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO₂, use units of ppmv (See 45CSR10).

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data

Emission Point ID No. (Must match Emission Units Table)	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)			UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow ¹ (acfm) at operating conditions	Velocity (fps)	Ground Level (Height above mean sea level)	Stack Height ² (Release height of emissions above ground level)	Northing	Easting	
T-1003	0.33	65	0.38	2.54	590 ft	10.5 ft	4,246.6	438.4	

¹ Give at operating conditions. Include inerts.

² Release height of emissions above ground level.

ATTACHMENT K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

NOT APPLICABLE

ATTACHMENT L

EMISSIONS UNIT DATA SHEET

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT www.epa.gov/tnn/tanks.html), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (<http://www.epa.gov/tnn/chiefl/>).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name Sulfuric Acid Storage	2. Tank Name Sulfuric Acid Storage Tank
3. Tank Equipment Identification No. (as assigned on <i>Equipment List Form</i>) T-1003	4. Emission Point Identification No. (as assigned on <i>Equipment List Form</i>) T-1003
5. Date of Commencement of Construction (for existing tanks)	
6. Type of change <input checked="" type="checkbox"/> New Construction <input type="checkbox"/> New Stored Material <input type="checkbox"/> Other Tank Modification	
7. Description of Tank Modification (if applicable) Clearon proposes to replace an 3,200 gallon sulfuric acid storage tank (T-1003) with a 3,000 gallon polyethylene sulfuric acid storage tank (same emission unit ID).	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode). N/A	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): N/A	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. <p style="text-align: center;">71.5 bbl (3,000 gallon)</p>	
9A. Tank Internal Diameter (ft) <p style="text-align: center;">7.08</p>	9B. Tank Internal Height (or Length) (ft) <p style="text-align: center;">10.5</p>
10A. Maximum Liquid Height (ft) <p style="text-align: center;">9.67</p>	10B. Average Liquid Height (ft) <p style="text-align: center;">4.84</p>
11A. Maximum Vapor Space Height (ft) <p style="text-align: center;">4.83</p>	11B. Average Vapor Space Height (ft) <p style="text-align: center;">4.83</p>
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. <p style="text-align: center;">3,000.00</p>	

13A. Maximum annual throughput (gal/yr) 219,000.00	13B. Maximum daily throughput (gal/day) 3,000.00
14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume) 73.0	
15. Maximum tank fill rate (gal/min) 0.42	
16. Tank fill method <input checked="" type="checkbox"/> Submerged <input type="checkbox"/> Splash <input type="checkbox"/> Bottom Loading	
17. Complete 17A and 17B for Variable Vapor Space Tank Systems <input checked="" type="checkbox"/> Does Not Apply	
17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year
18. Type of tank (check all that apply): <input checked="" type="checkbox"/> Fixed Roof <input checked="" type="checkbox"/> vertical <input type="checkbox"/> horizontal <input type="checkbox"/> flat roof <input type="checkbox"/> cone roof <input checked="" type="checkbox"/> dome roof <input type="checkbox"/> other (describe) <input type="checkbox"/> External Floating Roof <input type="checkbox"/> pontoon roof <input type="checkbox"/> double deck roof <input type="checkbox"/> Domed External (or Covered) Floating Roof <input type="checkbox"/> Internal Floating Roof <input type="checkbox"/> vertical column support <input type="checkbox"/> self-supporting <input type="checkbox"/> Variable Vapor Space <input type="checkbox"/> lifter roof <input type="checkbox"/> diaphragm <input type="checkbox"/> Pressurized <input type="checkbox"/> spherical <input type="checkbox"/> cylindrical <input type="checkbox"/> Underground <input type="checkbox"/> Other (describe)	

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction: <input type="checkbox"/> Riveted <input type="checkbox"/> Gunite lined <input checked="" type="checkbox"/> Epoxy-coated rivets <input type="checkbox"/> Other (describe)		
20A. Shell Color Gray	20B. Roof Color Gray	20C. Year Last Painted 2015
21. Shell Condition (if metal and unlined): <input checked="" type="checkbox"/> No Rust <input type="checkbox"/> Light Rust <input type="checkbox"/> Dense Rust <input type="checkbox"/> Not applicable		
22A. Is the tank heated? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
22B. If YES, provide the operating temperature (°F)		
22C. If YES, please describe how heat is provided to tank.		
23. Operating Pressure Range (psig): Ambient to Ambient		
24. Complete the following section for Vertical Fixed Roof Tanks		<input type="checkbox"/> Does Not Apply
24A. For dome roof, provide roof radius (ft)		
24B. For cone roof, provide slope (ft/ft) 0.32		
25. Complete the following section for Floating Roof Tanks		<input checked="" type="checkbox"/> Does Not Apply
25A. Year Internal Floaters Installed:		
25B. Primary Seal Type: <input type="checkbox"/> Metallic (Mechanical) Shoe Seal <input type="checkbox"/> Liquid Mounted Resilient Seal <input type="checkbox"/> Vapor Mounted Resilient Seal <input type="checkbox"/> Other (describe):		
25C. Is the Floating Roof equipped with a Secondary Seal? <input type="checkbox"/> YES <input type="checkbox"/> NO		
25D. If YES, how is the secondary seal mounted? (check one) <input type="checkbox"/> Shoe <input type="checkbox"/> Rim <input type="checkbox"/> Other (describe):		
25E. Is the Floating Roof equipped with a weather shield? <input type="checkbox"/> YES <input type="checkbox"/> NO		

25F. Describe deck fittings; indicate the number of each type of fitting:		
ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:
LADDER WELL		
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:	
GAUGE-HATCH/SAMPLE PORT		
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:	
ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)
VACUUM BREAKER		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
RIM VENT		
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
DECK DRAIN (3-INCH DIAMETER)		
OPEN:	90% CLOSED:	
STUB DRAIN		
1-INCH DIAMETER:		
OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)		

26. Complete the following section for Internal Floating Roof Tanks <input checked="" type="checkbox"/> Does Not Apply	
26A. Deck Type: <input type="checkbox"/> Bolted <input type="checkbox"/> Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: <input type="checkbox"/> Continuous sheet construction 5 feet wide <input type="checkbox"/> Continuous sheet construction 6 feet wide <input type="checkbox"/> Continuous sheet construction 7 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 7.5 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 12 feet wide <input type="checkbox"/> Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft ²)
For column supported tanks:	26G. Diameter of each column:
26F. Number of columns:	

IV. SITE INFORMATION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. SEE TANKS SUMMARY
28. Daily Average Ambient Temperature (°F)
29. Annual Average Maximum Temperature (°F)
30. Annual Average Minimum Temperature (°F)
31. Average Wind Speed (miles/hr)
32. Annual Average Solar Insulation Factor (BTU/(ft ² ·day))
33. Atmospheric Pressure (psia)

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid:			
34A. Minimum (°F)	34B. Maximum (°F)		
35. Average operating pressure range of tank:			
35A. Minimum (psig)	35B. Maximum (psig)		
36A. Minimum Liquid Surface Temperature (°F)	36B. Corresponding Vapor Pressure (psia)		
37A. Average Liquid Surface Temperature (°F)	37B. Corresponding Vapor Pressure (psia)		
38A. Maximum Liquid Surface Temperature (°F)	38B. Corresponding Vapor Pressure (psia)		
39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.			
39A. Material Name or Composition			
39B. CAS Number			
39C. Liquid Density (lb/gal)			
39D. Liquid Molecular Weight (lb/lb-mole)			
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia)			
39G. Reid (psia)			
Months Storage per Year 39H. From			
39I. To			

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): Does Not Apply

- Carbon Adsorption¹
- Condenser¹
- Conservation Vent (psig)
 - Vacuum Setting
 - Pressure Setting
- Emergency Relief Valve (psig)
- Inert Gas Blanket of
- Insulation of Tank with
- Liquid Absorption (scrubber)¹
- Refrigeration of Tank
- Rupture Disc (psig)
- Vent to Incinerator¹
- Other¹ (describe):

¹ Complete appropriate Air Pollution Control Device Sheet.

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss		Annual Loss (lb/yr)	Estimation Method ¹
		Amount	Units		
Sulfuric Acid Mist	0.0003	0.0003	lbs	0.0006	EPA TANKS

¹ EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

ATTACHMENT M

AIR POLLUTION CONTROL DEVICE SHEET

NOT APPLICABLE

ATTACHMENT N

SUPPORTING EMISSIONS CALCULATIONS

Clearon Corporation
T- 1003 Replacement

Supporting calculations including in this attachment shows no increase in emissions that will trigger the permit modification threshold of 6 lbs/hr and 10 tpy. This application is being submitted to WVDAQ under 45 CSR 13 to seek authorization to construct a new stationary source subject to the requirements of WV 45 CSR 7. Under 45 CSR 7, the maximum concentration of sulfuric acid mist from the tank vent shall not exceed 35 mg/dscm. The requirements of 45 CSR 7 will continue to apply to the replacement tank.

45 CSR 7 Compliance

45.7.4.2. Mineral acids shall not be released from any type source operation or duplicate source operation or from all air pollution control equipment installed on any type source operation or duplicate source operation in excess of the quantity given in Table 45-7B found at the end of this rule.

TABLE 45-7B

	Allowable Stack Gas Concentration in Milligrams Per Dry Cubic Meter at Standard Conditions from Source Operations or Duplicate Source Operations in Existence on July 1, 1970	Allowable Stack Gas Concentration in Milligrams Per Dry Cubic Meter at Standard Conditions from Source Operations or Duplicate Source Operations Installed After July 1, 1970
Mineral Acid		
Sulfuric Acid Mist	70	<u>35</u>
Nitric Acid Mist and/or Vapor	140	70
Hydrochloric Acid Mist and/or Vapor	420	210
Phosphoric Acid Mist and/or Vapor	6	3

T-1003 is proposed to be replaced with an 18,000 gallon high density cross-linked polyethylene tank for the storage of sulfuric acid. Clearon's South Charleston facility qualifies as a type 'a' source operation, defined as "2.39.a. Type 'a' means any manufacturing process source operation involving glass melting, calcination or physical change except as noted in Type 'c' below." Type 'c' is defined as "2.39.c. Type 'c' means any wet cement manufacturing process source operation which is used for the primary purpose of calcination. Gray iron cupolas located in the areas of the state other than those defined in subsection 2.39.b shall be classified as Type 'c' source operations."

The concentration of sulfuric acid mist that will be emitted from the proposed tank installation has been determined using EPA Tanks. In the US EPA's AP-42 Emission Factors, Section 8.10 - Sulfuric acid, it states "In addition to exit gases, small quantities of sulfur oxides are emitted from storage tank vents and tank car and tank truck vents during loading operations, from sulfuric acid concentrators, and through leaks in process equipment. Few data are available on the quantity of emissions from these sources." When modeling inorganic compound, the EPA TANKS software states "Although the equations used in the model were developed to estimate evaporative losses from storage of organic liquids, it is possible to use the model if the inorganic liquid has a measurable vapor pressure and data are available for one of the vapor pressure options in the chemical database." Based upon the information presented by the US EPA, the use of EPA TANKS as the estimation method has been evaluated as the best available estimation method to determine sulfuric acid mist concentrations from T-1003. Clearon has a Safety Data Sheet (SDS) for 93% Sulfuric Acid (H₂SO₄) that provides a vapor pressure and molecular weight of the material used in the TANKS simulation model.

To determine compliance with the 35 mg/dscm requirement of 45 CSR 7, an EPA TANKS run has been conducted for 1 full turnover of T-1003. This will provide the potential to emit (PTE) for the concentration of sulfuric acid mist for the complete working and breathing losses of the tank. The concentration of sulfuric acid mist is determined by using this sulfuric acid mist PTE and to the volume of vapors displaced during the loading of the tank. The volume of vapors displaced during the loading of the tank must be equal to the volume of the fluid filling the tank ($\text{Volume}_{\text{in}} - \text{Volume}_{\text{out}}$). The volume of vent gases displaced from the tank can at no time be less than the volume of the fluid entering the tank.

Inputs From EPA TANKS

Tank Volume (gallons)	3,000
Total Tank Losses (lb)	0.0006

Concentration Calculation

Tank Volume (m ³)	11.36
Total Tank Losses (mg)	272.23

Sulfuric Acid Mist

Concentration (mg/scm)	<u>23.97</u>
------------------------	--------------

Based upon the PTE results of T-1003, this tank will not exceed the 35 mg/dscm requirement of WV 45 CSR 7 Table 1-B based upon the operation of an atmospheric sulfuric acid storage tank.

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	T-1003
City:	South Charleston
State:	West Virginia
Company:	Clearon
Type of Tank:	Vertical Fixed Roof Tank
Description:	3,000 gallon H2SO4 Tank

Tank Dimensions

Shell Height (ft):	10.50
Diameter (ft):	7.08
Liquid Height (ft) :	9.67
Avg. Liquid Height (ft):	4.84
Volume (gallons):	3,000.00
Turnovers:	73.00
Net Throughput(gal/yr):	219,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition:	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft)	1.13
Slope (ft/ft) (Cone Roof)	0.32

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meteorological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

T-1003 - Vertical Fixed Roof Tank
South Charleston, West Virginia

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg	Min.	Max.		Avg.	Min.	Max.					
Sulfuric Acid	All	61.57	52.97	70.16	57.22	0.0000	0.0000	0.0000	98.0800			98.08	

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

T-1003 - Vertical Fixed Roof Tank
South Charleston, West Virginia

Annual Emission Calculations	
Standing Losses (lb):	0.0036
Vapor Space Volume (cu ft):	237.5930
Vapor Density (lb/cu ft):	0.0000
Vapor Space Expansion Factor:	0.0018
Vented Vapor Saturation Factor:	1.0000
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	237.5930
Tank Diameter (ft):	7.0800
Vapor Space Outage (ft):	6.0350
Tank Shell Height (ft):	10.5000
Average Liquid Height (ft):	4.8400
Roof Outage (ft):	0.3750
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.3750
Roof Height (ft):	1.1250
Roof Slope (ft/ft):	0.3200
Shell Radius (ft):	3.5400
Vapor Density	
Vapor Density (lb/cu ft):	0.0000
Vapor Molecular Weight (lb/lb-mole):	98.0800
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Daily Avg. Liquid Surface Temp. (deg. R):	521.2427
Daily Average Ambient Temp. (deg. F):	54.9833
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	516.8933
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,250.5726
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0018
Daily Vapor Temperature Range (deg. R):	34.4127
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range (psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0000
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0000
Daily Avg. Liquid Surface Temp. (deg R):	521.2427
Daily Min. Liquid Surface Temp. (deg R):	512.6395
Daily Max. Liquid Surface Temp. (deg R):	529.8458
Daily Ambient Temp. Range (deg R):	21.5333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	1.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Vapor Space Outage (ft):	6.0350
Working Losses (lb):	
Vapor Molecular Weight (lb/lb-mole):	98.0800
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Annual Net Throughput (gal/yr.):	219,000.0000
Annual Turnovers:	73.0000
Turnover Factor:	0.5778
Maximum Liquid Volume (gal):	3,000.0000
Maximum Liquid Height (ft):	9.6700
Tank Diameter (ft):	7.0800
Working Loss Product Factor:	1.0000
Total Losses (lb):	0.0151

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

T-1003 - Vertical Fixed Roof Tank
South Charleston, West Virginia

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
Sulfuric Acid	0.01	0.00	0.02

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	T-1003
City:	South Charleston
State:	West Virginia
Company:	Clearon
Type of Tank:	Vertical Fixed Roof Tank
Description:	3,000 gallon H2SO4 Tank

Tank Dimensions

Shell Height (ft):	10.50
Diameter (ft):	7.08
Liquid Height (ft):	9.67
Avg. Liquid Height (ft):	4.84
Volume (gallons):	3,000.00
Turnovers:	1.00
Net Throughput(gal/yr):	3,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition:	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft)	1.13
Slope (ft/ft) (Cone Roof)	0.32

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meteorological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

T-1003 - Vertical Fixed Roof Tank
South Charleston, West Virginia

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg	Min.	Max.		Avg	Min	Max					
Sulfuric Acid	Aug	71.71	61.60	81.82	57.22	0.0000	0.0000	0.0000	98.0800			98.08	

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

T-1003 - Vertical Fixed Roof Tank
South Charleston, West Virginia

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):								0.0004				
Vapor Space Volume (cu ft):								237.5930				
Vapor Density (lb/cu ft):								0.0000				
Vapor Space Expansion Factor:								0.0719				
Vented Vapor Saturation Factor:								1.0000				
Tank Vapor Space Volume:								237.5930				
Vapor Space Volume (cu ft):								237.5930				
Tank Diameter (ft):								7.0800				
Vapor Space Outage (ft):								6.0350				
Tank Shell Height (ft):								10.5000				
Average Liquid Height (ft):								4.8400				
Roof Outage (ft):								0.3750				
Roof Outage (Cone Roof)								0.3750				
Roof Outage (ft):								0.3750				
Roof Height (ft):								1.1250				
Roof Slope (ft/ft):								0.3200				
Shell Radius (ft):								3.5400				
Vapor Density								0.0000				
Vapor Density (lb/cu ft):								0.0000				
Vapor Molecular Weight (lb/lb-mole):								98.0800				
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):								0.0000				
Daily Avg. Liquid Surface Temp. (deg. R):								531.3788				
Daily Average Ambient Temp. (deg. F):								73.9000				
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):								10.731				
Liquid Bulk Temperature (deg. R):								516.8933				
Tank Paint Solar Absorptance (Shell):								0.5400				
Tank Paint Solar Absorptance (Roof):								0.5400				
Daily Total Solar Insolation Factor (Btu/deg ft day):								1,675.5028				
Vapor Space Expansion Factor:								0.0719				
Vapor Space Expansion Factor:								0.0719				
Daily Vapor Temperature Range (deg. R):								40.4536				
Daily Vapor Pressure Range (psia):								0.0000				
Breather Vent Press. Setting Range (psia):								0.0600				
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):								0.0000				
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):								0.0000				
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):								0.0000				
Daily Avg. Liquid Surface Temp. (deg. R):								531.3788				
Daily Min. Liquid Surface Temp. (deg. R):								521.2654				
Daily Max. Liquid Surface Temp. (deg. R):								541.4922				
Daily Ambient Temp. Range (deg. R):								21.0000				
Vented Vapor Saturation Factor:								1.0000				
Vented Vapor Saturation Factor:								1.0000				
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):								0.0000				
Vapor Space Outage (ft):								6.0350				
Working Losses (lb):								0.0003				
Vapor Molecular Weight (lb/lb-mole):								98.0800				
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):								0.0000				
Net Throughput (gal/mo.):								3,000.0000				
Annual Turnovers:								1.0000				
Turnover Factor:								1.0000				
Maximum Liquid Volume (gal):								3,000.0000				
Maximum Liquid Height (ft):								9.6700				
Tank Diameter (ft):								7.0800				
Working Loss Product Factor:								1.0000				
Total Losses (lb):								0.0006				

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: August

T-1003 - Vertical Fixed Roof Tank
South Charleston, West Virginia

Components	Losses (lbs)		
	Working Loss	Breathing Loss	Total Emissions
Sulfuric Acid	0.00	0.00	0.00

ATTACHMENT O

MONITORING, REPORTING, RECORDKEEPING PLAN

Attachment O

Monitoring, Recordkeeping, Reporting, and Testing

Clearon Corporation will demonstrate compliance with the monitoring, recordkeeping, reporting, and testing requirements set forth by all applicable regulations.

ATTACHMENT P

PUBLIC NOTICE

Attachment P

AIR QUALITY PERMIT NOTICE Notice of Application

Notice is given that Clearon Corporation has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Modification Permit for a chlorinated dry bleach plant located on MacCorkle Avenue, South Charleston, in Kanawha County, West Virginia. The latitude and longitude coordinates are: 38.36784, -81.70657.

The applicant estimates the potential to discharge the following regulated air pollutants on a facility-wide basis will be:

Sulfuric Acid = <0.01 tpy

Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.

Dated this the XXth day of September, 2015.

By: Clearon Corporation
John Kadlec
Director of Operations
95 MacCorkle Avenue
South Charleston, WV 25303

ATTACHMENT Q

BUSINESS CONFIDENTIAL CLAIMS

NOT APPLICABLE

ATTACHMENT S

TITLE V PERMIT REVISION INFORMATION

Attachment S

Title V Permit Revision Information

1. New Applicable Requirements Summary	
Mark all applicable requirements associated with the changes involved with this permit revision:	
<input type="checkbox"/> SIP	<input type="checkbox"/> FIP
<input checked="" type="checkbox"/> Minor source NSR (45CSR13)	<input type="checkbox"/> PSD (45CSR14)
<input type="checkbox"/> NESHAP (45CSR15)	<input type="checkbox"/> Nonattainment NSR (45CSR19)
<input type="checkbox"/> Section 111 NSPS (Subpart(s) _____)	<input type="checkbox"/> Section 112(d) MACT standards (Subpart(s) _____)
<input type="checkbox"/> Section 112(g) Case-by-case MACT	<input type="checkbox"/> 112(r) RMP
<input type="checkbox"/> Section 112(i) Early reduction of HAP	<input type="checkbox"/> Consumer/commercial prod. reqts., section 183(e)
<input type="checkbox"/> Section 129 Standards/Reqts.	<input type="checkbox"/> Stratospheric ozone (Title VI)
<input type="checkbox"/> Tank vessel reqt., section 183(f)	<input type="checkbox"/> Emissions cap 45CSR§30-2.6.1
<input type="checkbox"/> NAAQS, increments or visibility (temp. sources)	<input type="checkbox"/> 45CSR27 State enforceable only rule
<input type="checkbox"/> 45CSR4 State enforceable only rule	<input type="checkbox"/> Acid Rain (Title IV, 45CSR33)
<input type="checkbox"/> Emissions Trading and Banking (45CSR28)	<input type="checkbox"/> Compliance Assurance Monitoring (40CFR64) ⁽¹⁾
<input type="checkbox"/> NO _x Budget Trading Program Non-EGUs (45CSR1)	<input type="checkbox"/> NO _x Budget Trading Program EGUs (45CSR26)
<p>⁽¹⁾ If this box is checked, please include Compliance Assurance Monitoring (CAM) Form(s) for each Pollutants Specific Emission Unit (PSEU) (See Attachment H to Title V Application). If this box is not checked, please explain why Compliance Assurance Monitoring is not applicable:</p>	

2. Non Applicability Determinations
<p>List all requirements, which the source has determined not applicable to this permit revision and for which a permit shield is requested. The listing shall also include the rule citation and a rationale for the determination. See Attachment D – Regulatory Discussion</p>
<p><input type="checkbox"/> Permit Shield Requested <i>(not applicable to Minor Modifications)</i></p>

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

3. Suggested Title V Draft Permit Language

Are there any changes involved with this Title V Permit revision outside of the scope of the NSR Permit revision? Yes No If Yes, describe the changes below.

Also, please provide **Suggested Title V Draft Permit language** for the proposed Title V Permit revision (including all applicable requirements associated with the permit revision and any associated monitoring /recordkeeping/ reporting requirements), OR attach a marked up pages of current Title V Permit. Please include appropriate citations (Permit or Consent Order number, condition number and/or rule citation (e.g. 45CSR§7-4.1)) for those requirements being added / revised.

4. Active NSR Permits/Permit Determinations/Consent Orders Associated With This Permit Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
R30-03900011-2014	06/10/2014	

5. Inactive NSR Permits/Obsolete Permit or Consent Orders Conditions Associated With This Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number

6. Change in Potential Emissions

Pollutant	Change in Potential Emissions (+ or -), TPY
Sulfuric Acid (H ₂ SO ₄)	No change in maximum potential <0.001 TPY

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

7. Certification For Use Of Minor Modification Procedures (Required Only for Minor Modification Requests)

Note: This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete. The criteria for allowing the use of Minor Modification Procedures are as follows:

- i. Proposed changes do not violate any applicable requirement;
- ii. Proposed changes do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;
- iii. Proposed changes do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient air quality impacts, or a visibility increment analysis;
- iv. Proposed changes do not seek to establish or change a permit term or condition for which there is no underlying applicable requirement and which permit or condition has been used to avoid an applicable requirement to which the source would otherwise be subject (synthetic minor). Such terms and conditions include, but are not limited to a federally enforceable emissions cap used to avoid classification as a modification under any provision of Title I or any alternative emissions limit approved pursuant to regulations promulgated under § 112(j)(5) of the Clean Air Act;
- v. Proposed changes do not involve preconstruction review under Title I of the Clean Air Act or 45CSR14 and 45CSR19;
- vi. Proposed changes are not required under any rule of the Director to be processed as a significant modification;

Notwithstanding subparagraph 45CSR§30-6.5.a.1.A. (items i through vi above), minor permit modification procedures may be used for permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, to the extent that such minor permit modification procedures are explicitly provided for in rules of the Director which are approved by the U.S. EPA as a part of the State Implementation Plan under the Clean Air Act, or which may be otherwise provided for in the Title V operating permit issued under 45CSR30.

Pursuant to 45CSR§30-6.5.a.2.C., the proposed modification contained herein meets the criteria for use of Minor permit modification procedures as set forth in Section 45CSR§30-6.5.a.1.A. The use of Minor permit modification procedures are hereby requested for processing of this application.

(Signed):


(Please use blue ink)

Date:

10 / 15 / 15
(Please use blue ink)

Named (typed):

John McKittrick

Title:

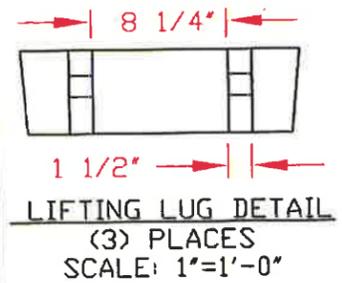
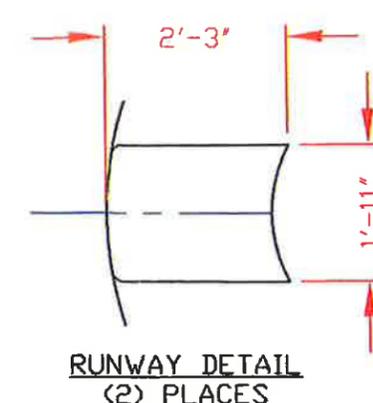
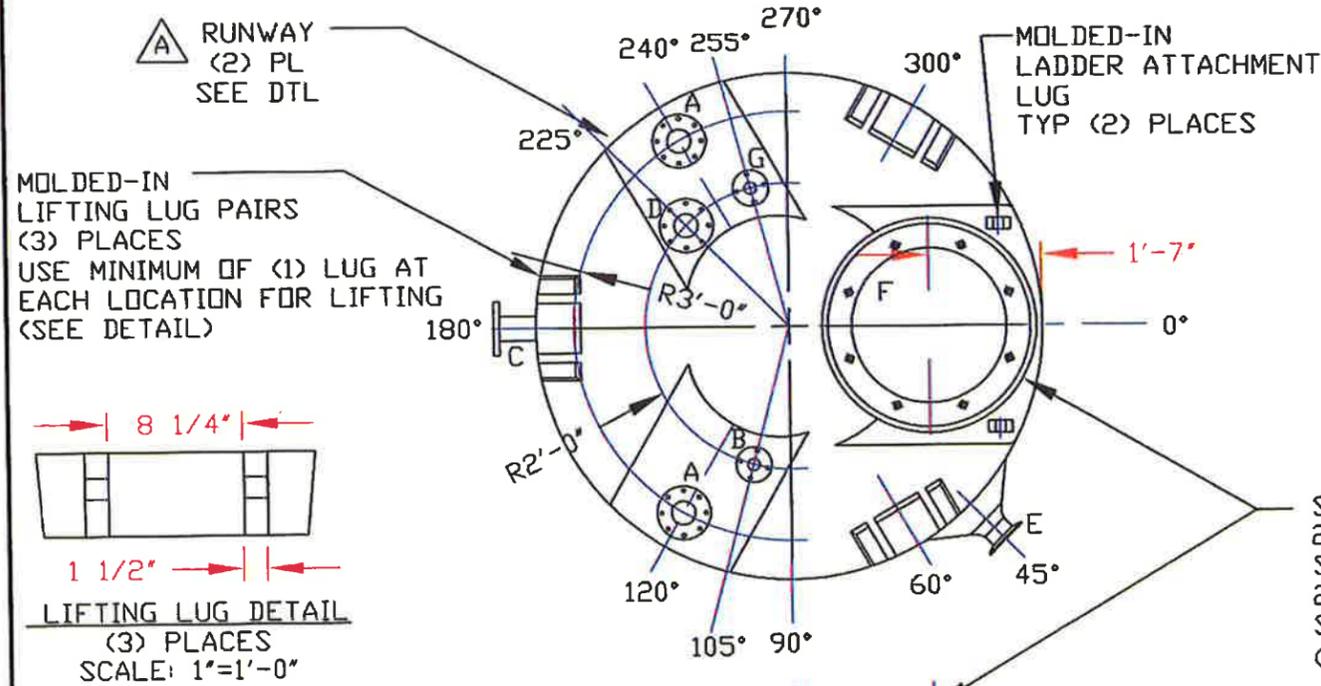
Operations Manager

Note: Please check if the following included (if applicable):

Compliance Assurance Monitoring Form(s)

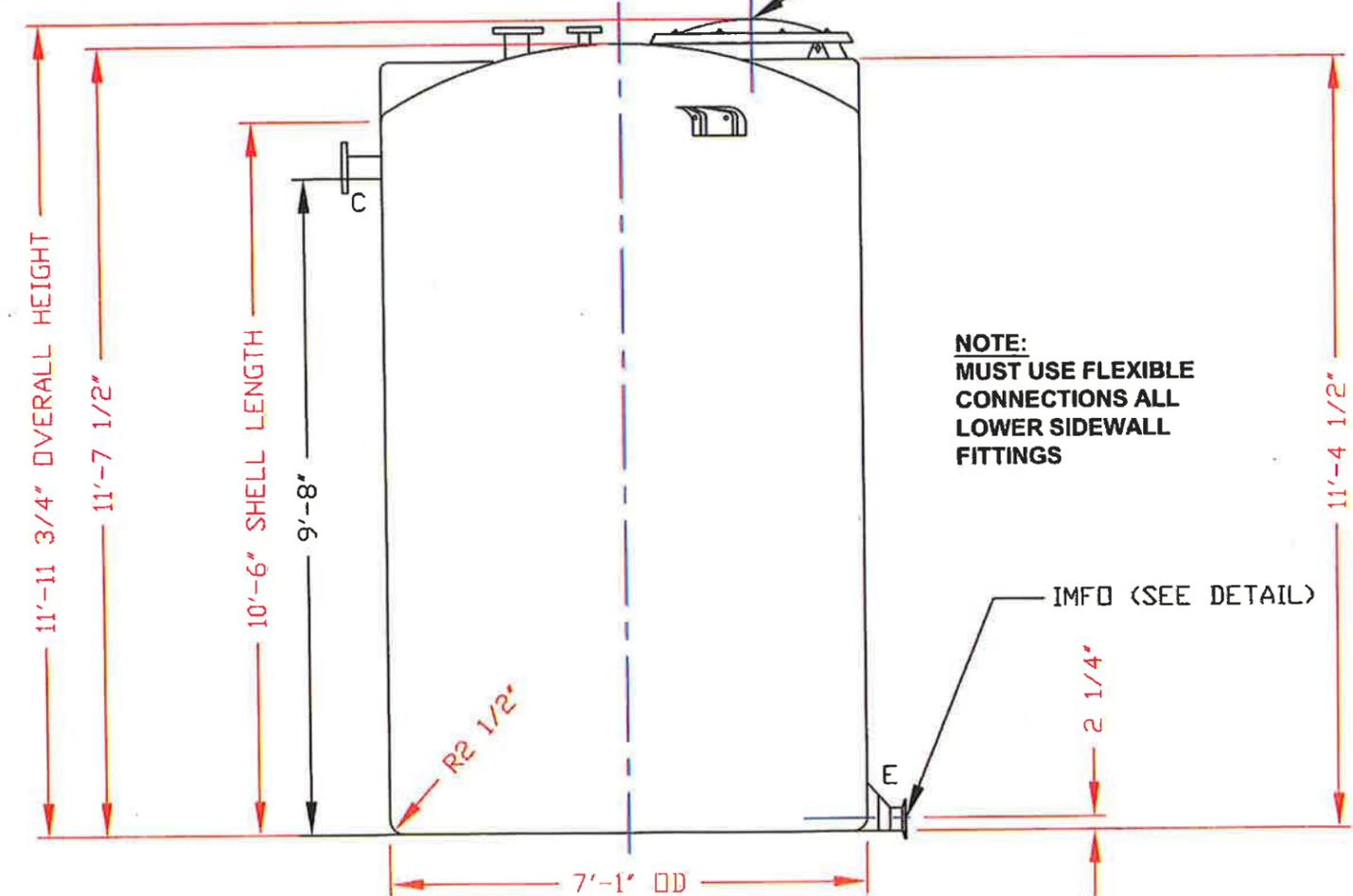
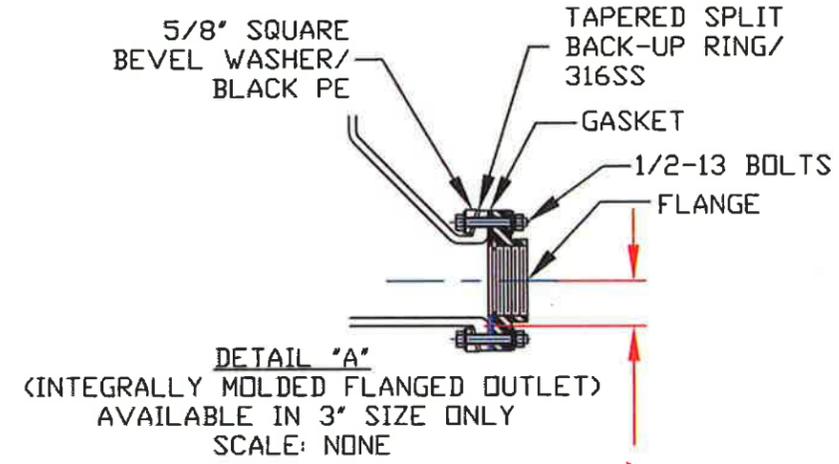
Suggested Title V Draft Permit Language

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.



STANDARD COVER:
 24"/(8) BOLT MANWAY COVER/PE (SHOWN)
 STOCK NO. 3218 OR
 24"/STRAPPED MANWAY COVER/PE
 STOCK NO. 3217
 (OPTIONAL 24" COVERS AVAILABLE)

NOZZLE SCHEDULE & ACCESSORIES						
SERVICE	MK	STOCK NO.	SIZE	FITTING	DEG	ELEV
Level (2)	A		4"	Flanged Sch 80 CPVC	120/240	Top
Fill	B		2"	Flanged Sch 80 CPVC	105	Top
Overflow	C		4"	Flanged Sch 80 CPVC	180	9'-8"
Vent	D		4"	Flanged Sch 80 CPVC	225	Top
Outlet	E		3"	Flanged Sch 80 CPVC	45	2-1/4"
Manway	F		24"	Flanged Sch 80 CPVC	0	Top
Recycle	G		2"	Flanged Sch 80 CPVC	255	Top



NOTE:
 MUST USE FLEXIBLE
 CONNECTIONS ALL
 LOWER SIDEWALL
 FITTINGS

- NOTES**
1. THIS IS A COMPUTER GENERATED DWG. DO NOT REVISE BY HAND.
 2. DIMENSIONS WILL VARY ±3% DUE TO VARIATIONS IN MULTIPLE MOLDS & CONDITIONS PREVALENT DURING MANUFACTURE & USAGE.
 3. MOLDED IN GALLONAGE MARKERS @ APPROX 60° IN 200 GAL INCREMENTS UP TO 2800 GAL.

CALCULATED CAPACITIES/ VOLUME IN U.S. GALLONS		
DESIGN CAP	DOME VOL	TOTAL VOL
3031	142	3173

CONFIDENTIAL PROPERTY OF
 POLY PROCESSING COMPANY
 NOT FOR REPRINT OR USE
 WITHOUT PERMISSION

DWG TITLE: 3000 GALLON IMFO TANK (LA)

SCALE: 3/8"=1'-0"

DATE: 8/11/09

CLEARON T-1003 SULFURIC ACID TANK

SHEET 1 OF 1

COMPUTER FILE 1103000L

REV A

DR: J. BRANTLEY

CK: W. MANUEL

Central Region
 P.O. Box 4150 (71211)
 2201 Elk Starington Rd.
 Monroe, LA 71209
 (504) 343-7565
 FAX (504) 343-8795

POLYPROCESSING
 SOLUTIONS, SIMPLIFIED.

REV "A" ADDED RUNWAYS BY:JB 9/22/09 CK:WM