New-Indy Catawba LLC
P.O. Box 7
5300 Cureton Ferry Road
Catawba, SC 29704
T 803-981-8000
New-indycb.com

February 8, 2021

Director of Air Permitting
South Carolina Department of Health and Environmental Control
Bureau of Air Quality
2600 Bull Street
Columbia, South Carolina 29201

Re: Title V Operating Permit TV-2440-0005 Modification Request
Incorporation of Construction Permit 2440-0005-DF
New-Indy Catawba LLC
Catawba, South Carolina 29704

Dear Sir/Madam:

Pursuant to the requirements of Construction Permit 2440-0005-DF, Condition J.4, the New-Indy Catawba LLC (New-Indy) facility located in Catawba, South Carolina is hereby requesting revisions to Title V Operating Permit TV-2440-0005 to incorporate changes to the facility completed in accordance with Construction Permit 2440-0005-DF. The appropriate Title V modification forms and supporting information are enclosed with this request.

This request is being submitted within 15 days after the date of New-Indy beginning operation of all equipment except the No. 2 Paper Machine. The startup date for the No. 2 Paper Machine has yet to be determined.

If you have any questions regarding this request please contact me at (803) 981-8010.

Sincerely,

Daniel Mallett
Environmental Manager

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**Bureau of Air Quality**
**Title V Operating Permit Application**
**Minor Permit Modification**


| FACILITY IDENTIFICATION | |
|---|---|
| SC Air Permit Number (8-digits only)<br><br>2440 - 0005 | Minor Modification Request Date<br><br>February 8, 2021 |
| Facility Name<br>*(This should be the name used to identify the facility)*<br>New-Indy Catawba LLC | |

**REASON FOR MINOR PERMIT MODIFICATION**
*(Check the appropriate reason(s) for this request.)*

1. ☒ Incorporation of preconstruction review permit requirements in accordance with S.C. Regulation 61-62.70, Title V Operating Permit Program, Section 70.7(d)(1)(v). The minor permit modification procedure is used for public noticed synthetic minor construction permits that establish "applicable requirements" to be incorporated into a Title V Permit. The minor permit modification procedure cannot be used to incorporate PSD and other Title I modifications.
2. ☒ Modification to install new emissions units of like kind to units in the current permit. The new emission units will use the same testing, monitoring, record keeping and reporting requirements to demonstrate compliance with applicable standards.
3. ☒ Modify an emission unit. The modification will not result in new standards and/or limitation. The testing, recordkeeping, monitoring and reporting requirements to demonstrate compliance will remain unchanged.
4. ☒ Install or modify an emission unit that is not a Title I modification.
5. ☒ Revise Testing, Monitoring, Recordkeeping or Reporting in a manner that is not required by the Department to be processed as a significant modification.

**MINOR PERMIT MODIFICATION DESCRIPTION**

1. Date of Change:
   February 1, 2021
2. Description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs:
   This change incorporates construction permit 2440-0005-DF authorizing changes to convert the Catawba Mill from manufacturing bleached paper and pulp grades to brown (unbleached) pulp, paper and linerboard. The emissions due to the change from bleached to brown will reduce the emissions from the Catawba Mill. This change will eliminate the bleaching system requirements under 40 CFR 63.445. This change will lower the applicable condensate collection and treatment requirements under 40 CFR 63.446 and change the compliance monitoring required under 40 CFR 63.453.
3. Explain in detail why this change does not constitute a Title I modification:
   This change does not require PSD modifications. This change does not change the applicability of 40 CFR Parts 60, 61 and 63 emissions standards to the Catawba Mill. This change requires more stringent emissions limits.
4. In accordance with S.C. Regulation 61-62.70.7(e)(2)(ii)(B), a marked up copy of the permit that clearly indicates the desired changes shall be submitted with this form to show requested changes. Location in Application:
   Attachment A

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**Bureau of Air Quality**
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**Minor Permit Modification**


| LIST OF UPDATED TITLE V APPLICATION FORMS<br>*(Updated Title V Operating Permit Applications Forms must be submitted with this form.)* | |
|---|---|
| **DHEC Form Number** | **Description of the Updated Information in Each Form** |
| D-2937 | Application contains confidential information, updated facility air contact |
| D-2940 | Remove Oxygen Delignification System (ID 5230), Knotting and Screening System (ID 5240), Bleaching System and Scrubber (ID 5300 and 5300C), Chlorine Dioxide Generator and Scrubbers (ID 1790, 1790C, 1790Ca), TMP Lines 1-6, TM Lines 1-3, TMP Lines 4-6 and Hydrogen Peroxide Bleaching System (ID 4400), No. 1 Paper Machine (ID 2000), No. 1 Paper Machine Rereeler and Trim Pulper (ID 2005), No. 1 Coater Dryer (ID 2010), No. 2 Coater Dryer (ID 4610), Air Flotation Dryer (ID 4110), Infrared dryer (ID 4120), Hot Oil Heating System (ID 4130), Four Starch Silos with Baghouses (ID 9700 and B-2000), Two 1,400-gallon Slurry Tanks (ID 9701A and 9701B), Starch Cooker (ID 9702), Flash Tank (ID 9703), 2,900-gallon Paste tank (ID 9703), Power Boiler (ID 2550), Condensate Steam Stripper (ID 9801), Stripper Off Gases Collection System (ID 9820), Methanol Tank (ID M10-223).<br><br>Modify Continuous Digester System (ID 5210), Pulp Washing System (ID 5230), No. 2 Paper Machine (ID 4600), No. 2 Paper Machine Rereeler and Trim Pulper (ID 4605), No. 3 Paper Machine (ID 4100), Pulp Dryer (ID 2100). No. 1 Multi-effect Evaporator (ID 2400), Aerated Biotreatment (ID 2901), 12 HD Pulp Storage Tanks (ID 1299).<br><br>Add Hard Pipe (ID 9802), 3-Stage Brownstock Washing Lines (2) with Filtrate Tanks (ID 5230), Brownstock Liquor Surge Tank (ID 5230), Washed Stock Storage Tank (ID 5230), Pulp Refining and Washing (ID 5255). |
| D-2942 | Updated facility products and SIC/NAICS codes |
| D-2943 | Updated emissions for new, modified, and retired equipment |
| D-2944 | Updated insignificant activities to include equipment retired in place |
| D-2946 | Updated regulatory requirements for new and modified equipment |
| D-2948 | Updated regulatory applicability of bleaching system provisions and condensate collection and treatment provisions |
| D-2949 | This form |

**CERTIFICATION OF CONSTRUCTION**

*(This form must be postmarked within 15 days after actual date of initial startup of each new or altered source.)*

The owner or operator or professional engineer in charge of the project shall certify that the construction under application has been completed in accordance with the specifications agreed upon in the construction permit issued by the Department. If construction is not built as specified in the permit application and associated construction permit(s), the owner or operator must submit to the Department a complete description of modifications that are at variance with the documentation of the construction permitting determination prior to commencing operation.

| Construction Permit ID | Equipment/Process/ Control Device ID | Equipment / Process / Control Device Description (Include the Make and Model if applicable.) | Initial Start-up Date |
|---|---|---|---|
| DF | 5210/5270 | Continuous Digester System | Feb. 1, 2021 |
| DF | 5230/5270 | Pulp Washing System | Feb. 1, 2021 |
| DF | 5255/5270 | Pulp Refining and Washing | Feb. 1, 2021 |
| DF | 4600 and 4605 | No. 2 Paper Machine and No. 2 Rereeler and Trim Pulper | TBD* |
| DF | 4100 | No. 3 Linerboard Machine | Feb. 1, 2021 |
| DF | 2100 | Pulp Dryer | Feb. 1, 2021 |
| DF | 2400 | No. 1 Evaporator Set | Feb. 1, 2021 |
| DF | 1299 | HD Pulp Storage Tanks | Feb. 1, 2021 |
| DF | 2901 | Aerated Biotreatment | Feb. 1, 2021 |
| DF | 9802 | Hard Pipe | Feb. 1, 2021 |

*no date has been determined. New-Indy will update this information when available.

Bureau of Air Quality
Title V Operating Permit Application
Minor Permit Modification


| SIGNATURE OF PERSON CERTIFYING CONSTRUCTION |
|---|
| *(Signature of the individual, either the Responsible Official or Professional Engineer (PE), who is certifying construction.)* *This signature is only required if this request is to incorporate a construction permit into the facility's Title V Operating Permit* |
| I certify, to the best of my knowledge and belief, and as a result of periodic observation during construction, the construction has been completed in accordance with the specifications agreed upon in the construction permit(s) issued by the Department. I understand that any statements and/or descriptions, which are found to be incorrect, may result in the immediate revocation of any permit issued. |

Signature Date

| PROFESSIONAL ENGINEER IN CHARGE OF PROJECT *This section is only required if the PE is signing the certification above.* | | | |
|---|---|---|---|
| Consulting Firm Name: | | | |
| Title/Position: | Salutation: | First Name: | Last Name: |
| Mailing Address: | | | |
| City: | | State: | Zip Code: |
| E-mail Address: | | Phone No.: | Cell No.: |
| SC License/Registration No.: | | | |

| RESPONSIBLE OFFICIAL | | | |
|---|---|---|---|
| Title/Position: Technical Manager | Salutation: Mr. | First Name: Charles | Last Name: Cleveland |
| Mailing Address: PO Box 7 | | | |
| City: Catawba | | State: SC | Zip Code: 29704 |
| E-mail Address: pete.cleveland@new-indycb.com | | Phone No.: 803-981-8206 | Cell No.: |

| RESPONSIBLE OFFICIAL SIGNATURE |
|---|
| *This signature is required for all Minor Modification Request* |
| I certify, to the best of my knowledge and belief, that no applicable standards and/or regulations will be contravened or violated. I certify that any application form, report, or compliance certification submitted in this permit application is true, accurate, and complete based on information and belief formed after reasonable inquiry. I understand that any statements and/or descriptions which are found to be incorrect may result in the immediate revocation of any permit issued for this application. |

Signature of Responsible Official Date

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# Bureau of Air Quality
# Title V Operating Permit Application
## Facility Information


| FACILITY IDENTIFICATION | |
|---|---|
| SC Air Permit Number (8-digits only)<br>2440 - 0005 | Application Date<br>February 8, 2021 |
| Facility Name<br>*(This should be the name used to identify the facility at the physical address listed below)*<br>New-Indy Catawba LLC | Facility Federal Tax Identification Number<br>*(Established by the U.S. Internal Revenue Service to identify a business entity)*<br>83-1904423 |

| FACILITY PHYSICAL ADDRESS | | |
|---|---|---|
| Physical Address: 5300 Cureton Ferry Road | | County: York |
| City: Catawba | State: SC | Zip Code: 29704 |
| Facility Coordinates *(Facility coordinates should be based at the front door or main entrance of the facility.)* | | |
| Latitude: 34°50'37"N | Longitude: 80°53'25"W | ☐ NAD27 *(North American Datum of 1927)*<br>Or<br>☒ NAD83 *(North American Datum of 1983)* |

| CO-LOCATION DETERMINATION |
|---|
| Are there other facilities in close proximity that could be considered co-located? ☒ No ☐ Yes* |
| List potential co-located facilities, including air permit numbers, if applicable: |
| If applicable, location in application for co-location determination: |

*(*If yes, please submit co-location applicability determination details in an attachment to this application.)*

| CONFIDENTIAL INFORMATION / DATA |
|---|
| Does this application contain confidential information or data? ☐ No ☒ Yes* |

**If yes, include a sanitized version of the application for public review and **ONLY ONE COPY OF CONFIDENTIAL INFORMATION SHOULD BE SUBMITTED***

| AIR PERMIT FACILITY CONTACT<br>*(Person who can answer technical questions about the facility and permit application.)* | | | |
|---|---|---|---|
| Title/Position: Environmental Manager | Salutation: Mr. | First Name: Dan | Last Name: Mallett |
| Mailing Address: PO Box 7 | | | |
| City: Catawba | | State: SC | Zip Code: 29704 |
| E-mail Address: dan.mallett@new-indycb.com | | Phone No.: 803-981-8010 | Cell No.: |

| RESPONSIBLE OFFICIAL | | | |
|---|---|---|---|
| Title/Position: Technical Manager | Salutation: Mr. | First Name: Charles | Last Name: Cleveland |
| Mailing Address: PO Box 7 | | | |
| City: Catawba | | State: SC | Zip Code: 29704 |
| E-mail Address: pete.cleveland@new-indycb.com | | Phone No.: 803-981-8206 | Cell No.: |
| **RESPONSIBLE OFFICIAL SIGNATURE** | | | |
| I certify, to the best of my knowledge and belief, that no applicable standards and/or regulations will be contravened or violated. I certify that any application form, report, or compliance certification submitted in this permit application is true, accurate, and complete based on information and belief formed after reasonable inquiry. I understand that any statements and/or descriptions, which are found to be incorrect, may result in the immediate revocation of any permit issued for this application. | | | |

Signature of Responsible Official Date

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Bureau of Air Quality
Title V Operating Permit Application
Facility Information


| H. AIR PERMIT CONSULTANT | | | |
|---|---|---|---|
| Consulting Firm Name: ALL4 | | | |
| Title/Position: Senior Project Manager | Salutation: Mr. | First Name: Steven | Last Name: Moore |
| Mailing Address: 630 Davis Drive | | | |
| City: Durham | | State: NC | Zip Code: 27560 |
| E-mail Address: smoore@all4inc.com | | Phone No.: 919.234.5981 | Cell No.: 864.616.4711 |
| SC Professional Engineer License/Registration No. (if applicable): | | | |

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**Bureau of Air Quality**
**Title V Operating Permit Application**
**Emission Unit, Equipment and Processes**
**Page 1 of 40**

**Please use a separate form for each Emission Unit ID**

| APPLICATION IDENTIFICATION<br>*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in the Title V application package.)* | | |
|---|---|---|
| Facility Name<br>*(This should be the name used to identify the facility)*<br>New-Indy Catawba LLC | SC Air Permit Number (8-digits only)<br>*(Leave blank if one has never been assigned)*<br>2440 - 0005 | Application Date<br>February 8, 2021 |

| EMISSION UNIT IDENTIFICATION | |
|---|---|
| **Emission Unit ID** | **Emission Unit Description** |
| 01 | Woodyard Area |



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Bureau of Air Quality
Title V Operating Permit Application
Emission Unit, Equipment and Processes


| ASSOCIATED EQUIPMENT / PROCESS INFORMATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 1300 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | - East and West Woodyard Long Wood Handling (2)<br>- West Woodyard Purchased Chip Handling<br>- East Woodyard Purchased Chip Handling (Rail)<br>- East Woodyard Purchased Chip Handling (Truck) with Cyclone<br>- East Woodyard Purchased Chip Handling (Rail) Chip Screen<br>- East Woodyard Chip Screen with Cyclone<br>- West Woodyard Chip Screen<br>- East and West Woodyard Debarking Drums (2)<br>- East Woodyard Purchased Chip (Rail) Rechipper with Cyclone<br>- East Woodyard Chipper with Cyclone<br>- West Woodyard Chipper with Cyclone<br>- East Woodyard Rechipper with Cyclone<br>- West Woodyard Rechipper<br>- TMP and Kraft Mill Chip Silos<br>- Long Term Storage Pile<br>- Outside Chip Storage (2)<br>- Hardwood Silos<br>- Hardwood Silos Cyclone | 1959/1985 and 1991 | N/A | None | N/A | N/A | 1300 |



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Bureau of Air Quality
Title V Operating Permit Application
Emission Unit, Equipment and Processes


| ASSOCIATED EQUIPMENT / PROCESS INFORMATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 1300 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Truck Dump | 2006 | N/A | None | N/A | N/A | 1300 |
| 1300 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Rail Dump | 2006 | N/A | None | N/A | N/A | 1300 |

| ASSOCIATED CONTROL DEVICE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| Control Device ID | Action | Control Device Description | Installation/Modification Date | Maximum Design Capacity (Units) | Inherent/Required/Voluntary (Explain) | Destruction / Removal Efficiency |
| N/A | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | None | N/A | N/A | N/A | N/A |

| FUEL INFORMATION | | | | |
|---|---|---|---|---|
| Equipment ID<br>Process ID<br>Control Device ID | Fuels Combusted | BTU Content | % Sulfur by Weight | % Ash by Weight |
| N/A | None | N/A | N/A | N/A |



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**Bureau of Air Quality**
**Title V Operating Permit Application**
**Emission Unit, Equipment and Processes**
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**Please use a separate form for each Emission Unit ID**

| APPLICATION IDENTIFICATION<br>*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in the Title V application package.)* | | |
|---|---|---|
| Facility Name<br>*(This should be the name used to identify the facility)* | SC Air Permit Number (8-digits only)<br>*(Leave blank if one has never been assigned)* | Application Date |
| New-Indy Catawba LLC | 2440 - 0005 | February 8, 2021 |

| EMISSION UNIT IDENTIFICATION | |
|---|---|
| **Emission Unit ID** | **Emission Unit Description** |
| 02 | Kraft Process – Kraft Pulp Mill |

**ASSOCIATED EQUIPMENT / PROCESS INFORMATION**

| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
|---|---|---|---|---|---|---|---|---|
| 5210 | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☒ Modify<br>☐ Other | Continuous Digester System: Digester Chip Bin, Continuous Digester, Pressure Refiners A and B, Chip Feed System, Blow Tank, Steam Economizer and Reboiler | 2003/2012/ 2019 | (b) (4) | 5270, 2605, 3705 | VOC, HAPs, TRS | HVLC Collection System | 2610S1, 2610S2 |
| 5220 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Turpentine Recovery System: Gas Cooler, Condenser, Decanter | 1981 | | 5260, 5260C, 5270, 2605, 3705 | VOC, HAPs, TRS | LVHC Collection System | 2610S1, 2610S2 |

| ASSOCIATED EQUIPMENT / PROCESS INFORMATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 5230 | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☒ Modify<br>☐ Other | Pulp Washing System: Pressure Diffuser, Filtrate Tank, 3-stage Brownstock Washer Lines w/Filtrate Tanks (2 lines in parallel, repurposed No. 1 Post O2 Washer, No. 2 Post O2 Washer, D0 Washer, D1 Washer, D2 Washer, Eop Washer), Brown Stock Liquor Surge Tank | 2003/2019 | (b) (4) | 5270, 2605, 3705 | VOC, HAPs, TRS | HVLC Collection System | 2610S1, 2610S2 |
| 5240 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Oxygen Delignification System: No. 1 O2 Reactor, Blow Tube, No. 1 Post O2 Washer, No. 1 Post O2 Filtrate Tank, No. 2 O2 Reactor, Blow Tube, No. 2 Post O2 Washer, No. 2 Post O2 Filtrate Tank, Post O2 Surge Tank, No. 1B O2 Reactor | 2003/2012 | | 5270, 2605, 3705 | VOC, HAPs, TRS | HVLC Collection System | 2610S1, 2610S2 |
| 5250 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Knotting and Screening System: HD Tank, Primary Knotters (2), Secondary Knotters (2), No. 1 Primary Screen, No. 2 Primary Screen, Secondary Screen, Tertiary Screen, Quaternary Screen, Cleaner, Shive Thickener, Screen Room Filtrate Tank, Screen Room Washer | 2003/2006 | | 5270, 2605, 3705 | VOC, HAPs, TRS | HVLC Collection System | 2610S1, 2610S2 |



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**Bureau of Air Quality**
**Title V Operating Permit Application**
**Emission Unit, Equipment and Processes**


| ASSOCIATED EQUIPMENT / PROCESS INFORMATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 5255 | ☐ Stay the Same<br>☒ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Pulp Refining and Washing: Washed Stock Storage Tank, Refiners (2), Screw Presses (2), Screw Press Filtrate Tank, Filtrate Screen | 2019 | (b) (4) | 5270, 2605, 3705 | VOC, HAPs, TRS | HVLC Collection System | 2610S1, 2610S2 |

| ASSOCIATED CONTROL DEVICE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| Control Device ID | Action | Control Device Description | Installation/Modification Date | Maximum Design Capacity (Units) | Inherent/Required/Voluntary (Explain) | Destruction / Removal Efficiency |
| 2605 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | B&W No. 1 Combination Boiler | 1959 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 98% |
| 3705 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | B&W No. 2 Combination Boiler | 1968 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 98% |
| 5260 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | LVHC Collection System | 2001 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 99.9% |
| 5260C | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | LVHC System Caustic Scrubber | 2000 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 50% |



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Bureau of Air Quality
Title V Operating Permit Application
Emission Unit, Equipment and Processes


| ASSOCIATED CONTROL DEVICE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| Control Device ID | Action | Control Device Description | Installation/Modification Date | Maximum Design Capacity (Units) | Inherent/Required/Voluntary (Explain) | Destruction / Removal Efficiency |
| 5270 | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☒ Modify<br>☐ Other | HVLC Collection System | 2003/2019 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 99.9% |

| FUEL INFORMATION | | | | |
|---|---|---|---|---|
| Equipment ID<br>Process ID<br>Control Device ID | Fuels Combusted | BTU Content | % Sulfur by Weight | % Ash by Weight |
| N/A | None | N/A | N/A | N/A |



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**Bureau of Air Quality**
**Title V Operating Permit Application**
**Emission Unit, Equipment and Processes**


**Please use a separate form for each Emission Unit ID**

| APPLICATION IDENTIFICATION<br>*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in the Title V application package.)* | | |
|---|---|---|
| Facility Name<br>*(This should be the name used to identify the facility)* | SC Air Permit Number (8-digits only)<br>*(Leave blank if one has never been assigned)* | Application Date |
| New-Indy Catawba LLC | 2440 - 0005 | February 8, 2021 |

| EMISSION UNIT IDENTIFICATION | |
|---|---|
| **Emission Unit ID** | **Emission Unit Description** |
| 03 | Kraft Process – Bleach Plant |

**ASSOCIATED EQUIPMENT / PROCESS INFORMATION**

| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
|---|---|---|---|---|---|---|---|---|
| 5300 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Four Stage DOEOPD1D2 Bleaching System: DO Tower and Washer; EOP Reactor, Washer and Filtrate Tank; D1 Tower, Washer, and Filtrate Tank; D2 Tower, Washer and Filtrate Tank; Acid Sewer; Alkaline Sewer | 2003/2012 | (b) (4) | 5300C | $CL_2$, Chlorinated HAPs | Bleaching System Scrubber | 5300S |

**ASSOCIATED CONTROL DEVICE INFORMATION**

| Control Device ID | Action | Control Device Description | Installation/Modification Date | Maximum Design Capacity (Units) | Inherent/Required/Voluntary (Explain) | Destruction / Removal Efficiency |
|---|---|---|---|---|---|---|
| 5300C | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Bleaching System Scrubber | 2003 | N/A | Source being retired, control device no longer required for compliance | Source being retired, control device no longer required for compliance |



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| FUEL INFORMATION | | | | |
|---|---|---|---|---|
| Equipment ID<br>Process ID<br>Control Device ID | Fuels Combusted | BTU Content | % Sulfur by Weight | % Ash by Weight |
| N/A | None | N/A | N/A | N/A |



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**Bureau of Air Quality**
**Title V Operating Permit Application**
**Emission Unit, Equipment and Processes**
**Page 10 of 40**

**Please use a separate form for each Emission Unit ID**

| APPLICATION IDENTIFICATION<br>*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in the Title V application package.)* | | |
|---|---|---|
| Facility Name<br>*(This should be the name used to identify the facility)* | SC Air Permit Number (8-digits only)<br>*(Leave blank if one has never been assigned)* | Application Date |
| New-Indy Catawba LLC | 2440 - 0005 | February 8, 2021 |

| EMISSION UNIT IDENTIFICATION | |
|---|---|
| **Emission Unit ID** | **Emission Unit Description** |
| 04 | Kraft Process – Chlorine Dioxide Plant |

**ASSOCIATED EQUIPMENT / PROCESS INFORMATION**

| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
|---|---|---|---|---|---|---|---|---|
| 1790 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Chlorine Dioxide Generator: Generator/Crystallizer/Reboiler, Saltcake Slurry Tank, Hydroclone and Saltcake Filter, Generator Dump Tank, Indirect Cooling Tower, ClO2 Adsorption Tower, Barometric Condenser, Seal Pot, ClO2 Storage Tanks (212,000 gallons), Filtrate Separation System | 1977/1997/ 2012 | (b) (4) | 1790C, 1790Ca | $CL_2$ | Chlorine Dioxide Generator Scrubber, chilled water and white liquor and Chlorine Dioxide Generator Tail Gas Scrubber, weak wash and white liquor | 1790S |

| ASSOCIATED CONTROL DEVICE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| Control Device ID | Action | Control Device Description | Installation/Modification Date | Maximum Design Capacity (Units) | Inherent/Required/Voluntary (Explain) | Destruction / Removal Efficiency |
| 1790C, 1790Ca | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Chlorine Dioxide Generator Scrubber, chilled water and white liquor and Chlorine Dioxide Generator Tail Gas Scrubber, weak wash and white liquor | 1997 | N/A | Source being retired, control device no longer required for compliance | Source being retired, control device no longer required for compliance |

| FUEL INFORMATION | | | | |
|---|---|---|---|---|
| Equipment ID<br>Process ID<br>Control Device ID | Fuels Combusted | BTU Content | % Sulfur by Weight | % Ash by Weight |
| N/A | None | N/A | N/A | N/A |



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| New-Indy Catawba LLC | 2440 - 0005 | February 8, 2021 |

| EMISSION UNIT IDENTIFICATION | |
|---|---|
| **Emission Unit ID** | **Emission Unit Description** |
| 05 | TMP Process |

**ASSOCIATED EQUIPMENT / PROCESS INFORMATION**

| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
|---|---|---|---|---|---|---|---|---|
| 4400 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | TMP Lines 1-6 (The following equipment is shared): Chip Conveyor, Chip Washing System: Chip Washer and Screens (3 sets), 3 Chip Storage Silos, Pin Chip Screen Cyclone, 2 Chip Surge Bins (7,481 gallons, ea.), Heat and Turpentine Recovery System: Flash Tanks, Surge Tanks, 3 Liquid Phase Separators (1,520 gallons, each), Condensers, 2,880-gallon Decanter | 1986 | (b) (4) | None | NA | NA | 4400 |



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| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 4400 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | TMP Line 1-3: Primary, Secondary, and Tertiary Refiner System, Peroxide Towers, Neutralization Chests, Screening and Cleaning Systems, Rejects Refiner Systems, Press System, Decker System, Sodium Hydrosulfite Bleaching System | 1986 | (b) (4) | None | NA | NA | 4400 |
| 4400 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | TMP Lines 4-6: Primary, Secondary, and Tertiary Refiner System, Screening and Cleaning Systems, Rejects Refiner Systems, Press System, Decker System, Sodium Hydrosulfite Bleaching System | 1986/2003 | | None | NA | NA | 4400 |
| 4400 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Hydrogen Peroxide Bleaching System | 2005 | | None | NA | NA | 4400 |



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| ASSOCIATED CONTROL DEVICE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| Control Device ID | Action | Control Device Description | Installation/Modification Date | Maximum Design Capacity (Units) | Inherent/Required/Voluntary (Explain) | Destruction / Removal Efficiency |
| N/A | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | None | N/A | N/A | N/A | N/A |

| FUEL INFORMATION | | | | |
|---|---|---|---|---|
| Equipment ID<br>Process ID<br>Control Device ID | Fuels Combusted | BTU Content | % Sulfur by Weight | % Ash by Weight |
| N/A | None | N/A | N/A | N/A |



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| EMISSION UNIT IDENTIFICATION | |
|---|---|
| **Emission Unit ID** | **Emission Unit Description** |
| 06 | Paper Mill |

**ASSOCIATED EQUIPMENT / PROCESS INFORMATION**

| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
|---|---|---|---|---|---|---|---|---|
| 2000 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | No. 1 Paper Machine: Cleaner System, Deculator System, Precondenser System, Vacuum Pump System, Screen System, Mix Tub, Headbox System, Forming Wire, Vacuum Blower, Vacuum Trench, Save-All System, Presses, Separators, Press Pulper, Dryer Systems, Dryer Pulper Calendar, Dry End Pulper, Reel, Slurry Mix Tanks, Mix Tanks | 1962 | (b) (4) | None | NA | NA | 2000 |
| 2005 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | No. 1 Paper Machine Rereeler and Trim Pulper | 1962 | | None | NA | NA | 2000 |

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|---|---|---|---|---|---|---|---|---|
| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 2010 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | No. 1 Coater Dryer, fired on Natural Gas, Propane, or Kerosene: Coater System, Coating Dryer, Screen/Filters, Reel, and Coated Broke Pulper | 1962 | (b) (4) | None | NA | NA | 2000 |
| 4600 | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☒ Modify<br>☐ Other | No.2 Paper Machine: Cleaner System, Deculator System, Precondenser, Vacuum Pump System, Screen System, Headbox System Forming Wire, Vacuum Blower, Vacuum Trench, Save-All System, Press System, Press Pulper, Dryer Systems, Dryer Pulper, Calendar, Dry End Pulper, Reel, Slurry Mix Tanks, Mix Tanks | 1986/2019 | | None | NA | NA | 4600 |
| 4605 | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☒ Modify<br>☐ Other | No. 2 Paper Machine Rereeler and Trim Pulper | 1986/2019 | | None | NA | NA | 4600 |
| 4610 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | No. 2 Coater Dryer, fired on Natural Gas, Propane or Kerosene: Coating System, Coating Dryer, Screens/Filters, Reel, and Coated Broke Pulper | 1986 | | None | NA | NA | 4600 |

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|---|---|---|---|---|---|---|---|---|
| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 4100 | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☒ Modify<br>☐ Other | No. 3 Linerboard Machine: Mixed Stock Chest, Stock Refining System, Cleaner System, Deculator System, Precondenser, Mixing Silo, Vacuum Pump System, Vacuum Trench, Screen System, Headbox System, Mix Eliminator, Vacuum Blowers, Forming Wire, Press System, Press Pulper, Dryer Systems, Economizer, Dry End Pulper, Steam Dryer, Reel, Reel Pulper, Winder, Trim Pulper | 1968/2003/ 2019 | (b) (4) | None | NA | NA | 4100 |
| 4110 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Air Flotation Dryer equipped with Low NOx burners (as BACT), fired on Natural Gas, Propane, or Kerosene | 2003 | | None | NA | NA | 4110 |
| 4120 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Infrared Dryer, fired on Natural Gas, Propane, or Kerosene | 2003 | | None | NA | NA | 4120 |
| 4130 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Hot Oil Heating System, fired on Natural Gas, Propane, or Kerosene | 2003 | | None | NA | NA | 4130 |

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| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 2100 | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☒ Modify<br>☐ Other | Pulp Dryer: Screen System, Decker, Headbox System, Cylinder Mold, Hood Exhaust System, Vacuum System, Press System, Press Pulper, Dryers, Economizer, Dry End Pulper, Steam heated Booster Oven on dry end, Cutter, Stacker | 1959/1999/ 2019 | (b) (4) | None | NA | NA | 2100 |
| 9700 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Four – Starch Silos, Slurry Mix Tanks, Starch Cookers, Flash Tank, Mix Tanks | 1962 | N/A | B-2000 | PM, PM10, PM2.5 | Two – Starch Silo Baghouses | B-2000 |
| 9701A, 9701B, 9702, 9703, 9704 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | 1,400 Gallon Slurry Tank, 1,400 Gallon Slurry Tank, Starch Cooker, Flash Tank, 2,900 Gallon Paste Tank | 2002 | N/A | None | NA | NA | 9701A, 9701B, 9702, 9703, 9704 |
| 9900 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Three - 5.304 million BTU/hr Air Makeup Units for No. 3 Paper Machine, natural gas or propane fired | 2000 | 5.304 million BTU/hr | None | NA | NA | 9900 |
| 9900 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Six – 5.46 million BTU/hr Air Makeup Units for No. 2 Paper Machine, natural gas or propane fired | 2000 | 5.46 million BTU/hr | None | NA | NA | 9900 |
| 9900 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Two – 6.253 million BTU/hr Air Makeup Units for No. 3 Paper Machine, natural gas or propane fired | 2000 | 6.253 million BTU/hr | None | NA | NA | 9900 |



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|---|---|---|---|---|---|---|---|---|
| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 9900 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Two – 7.02 million BTU/hr Air Makeup Units for No. 2 Paper Machine, natural gas or propane fired | 2000 | 7.02 million BTU/hr | None | NA | NA | 9900 |
| 9900 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | 7.28 million BTU/hr Air Makeup Unit for No. 2 Paper Machine, natural gas or propane fired | 2000 | 7.28 million BTU/hr | None | NA | NA | 9900 |
| 9900 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Four - 8.45 million BTU/hr Air Makeup Units for No. 1 Paper Machine, natural gas or propane fired | 2000 | 8.45 million BTU/hr | None | NA | NA | 9900 |
| 9900 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | 10.01 million BTU/hr Air Makeup Unit for No. 3 Paper Machine, natural gas or propane fired | 2000 | 10.01 million BTU/hr | None | NA | NA | 9900 |

| ASSOCIATED CONTROL DEVICE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| Control Device ID | Action | Control Device Description | Installation/Modification Date | Maximum Design Capacity (Units) | Inherent/Required/Voluntary (Explain) | Destruction / Removal Efficiency |
| B-2000 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Two – Starch Silo Baghouses | 1962 | NA | Source being retired, control device no longer required for compliance | Source being retired, control device no longer required for compliance |



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| FUEL INFORMATION | | | | |
|---|---|---|---|---|
| Equipment ID<br>Process ID<br>Control Device ID | Fuels Combusted | BTU Content | % Sulfur by Weight | % Ash by Weight |
| 9900 | Natural Gas | No change | No change | No change |
| 9900 | Propane | No change | No change | No change |



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| New-Indy Catawba LLC | 2440 - 0005 | February 8, 2021 |

| EMISSION UNIT IDENTIFICATION | |
|---|---|
| **Emission Unit ID** | **Emission Unit Description** |
| 07 | Chemical Recovery |

**ASSOCIATED EQUIPMENT / PROCESS INFORMATION**

| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
|---|---|---|---|---|---|---|---|---|
| 2505 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 2 NDCE Recovery Furnace: Furnace, Black Liquor Tanks | 1966 | (b) (4) | 2505C | No change | No change | 2505S |
| 2510 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 2 Smelt Dissolving Tank | 1966 | | 2511C | No change | No change | 2511S |
| 2515 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 2 Precipitator Mix Tank | 1966 | | None | N/A | N/A | 2515 |
| 2520 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 2 Salt Cake Mix Tank | 1966 | | 2505C | No change | No change | 2505S |



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| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 5105 | ☒ Stay the Same ☐ Add ☐ Remove ☐ Modify ☐ Other | No. 3 NDCE Recovery Furnace: Furnace, Black Liquor Tanks, Black Flash Tanks, Condensate Flash Tanks, Soap Stand Pipe, Stand Pipe Level Control Tank | 1983/2003/ 2007 | (b) (4) | 5105C | No change | No change | 5105S |
| 5110 | ☒ Stay the Same ☐ Add ☐ Remove ☐ Modify ☐ Other | No. 3 Smelt Dissolving Tank | 1983 | | 2511C | No change | No change | 2511S |
| 5115 | ☒ Stay the Same ☐ Add ☐ Remove ☐ Modify ☐ Other | No. 3 Precipitator Mix Tank | 1966 | | None | N/A | N/A | 5115 |
| 5120 | ☒ Stay the Same ☐ Add ☐ Remove ☐ Modify ☐ Other | No. 3 Salt Cake Mix Tank | 1966 | | 5105C | No change | No change | 5105S |
| 2723 | ☒ Stay the Same ☐ Add ☐ Remove ☐ Modify ☐ Other | No. 2 Lime Kiln with low NOx burners | 1995/2003/ 2010 | | 2723C | No change | No change | 2723 |



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| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 2700 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Green Liquor Blend Tank, White Liquor Storage Tank, No. 1 Green Liquor Clarifier, No. 2 Green Liquor Clarifier, No. 3 Green Liquor Clarifier, (M27-37) No. 2 Swing Tank for storing either White or Green Liquors, Dregs Filter, Ejector, Green Liquor Storage, Three Green Liquor Storage Causticizers, White Liquor Pressure Filters, Mud Washer, Lime Mud Precoat Filters | 1995/2003 | (b) (4) | None | N/A | N/A | 2700 |
| 2700 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 4 Causticizer | 2003 | | 2725C | No change | No change | 2700 |
| 2701 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Slaker | 1995 | | 2725C | No change | No change | 2701 |
| 2702 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Purchased Lime Silo | 1995 | | 2726C | No change | No change | 2702 |
| 2703 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Reburned Lime Silo | 1995 | | 2724C | No change | No change | 2703 |



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| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 2400 | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☒ Modify<br>☐ Other | No. 1 Multi-Effect Evaporator Set with concentrator | 1959/2006/ 2012/2019 | (b) (4) | 5260, 5260C, 2605, 3705 | VOC, HAPs, TRS | LVHC Collection System | 2610S1, 2610S2 |
| 2402 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Heavy Black Liquor Tank | 2006 | | None | N/A | N/A | 2400 |
| 2500 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 2 Multi-Effect Evaporator Set with concentrator | 1966 | | 5260, 5260C, 2605, 3705 | No change | No change | 2610S1, 2610S2 |
| 5100 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 3 Multi-Effect Evaporator Set with concentrator | 1982/2012 | | 5260, 5260C, 2605, 3705 | No change | No change | 2610S1, 2610S2 |
| 2722 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Lime Kiln Oxygen Enrichment system: Oxygen Lance (inside kiln), Oxygen Storage Tank, Two – Oxygen Mixers, and Piping | 2010 | | None | N/A | N/A | 2723 |

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|---|---|---|---|---|---|---|
| Control Device ID | Action | Control Device Description | Installation/Modification Date | Maximum Design Capacity (Units) | Inherent/Required/Voluntary (Explain) | Destruction / Removal Efficiency |
| 2505C | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 2 Recovery Furnace ESP | 1990 | N/A | No change | No change |
| 2511C | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Smelt Tanks Venturi Caustic Scrubber (Weak Wash and Caustic) | 1996 | N/A | No change | No change |
| 5105C | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 3 Recovery Furnace ESP | 1983/1992 | N/A | No change | No change |
| 2723C | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 2 Lime Kiln ESP | 1995 | N/A | No change | No change |
| 2725C | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Slaker Venturi Scrubber (Weak Wash and Caustic) | 1995 | N/A | No change | No change |
| 2726C | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Purchased Lime Silo Bag House | 1995 | N/A | No change | No change |
| 2724C | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Reburned Lime Silo Bag House | 1995 | N/A | No change | No change |

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|---|---|---|---|---|---|---|
| Control Device ID | Action | Control Device Description | Installation/Modification Date | Maximum Design Capacity (Units) | Inherent/Required/Voluntary (Explain) | Destruction / Removal Efficiency |
| 5260 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | LVHC Collection System | 2001 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 99.9% |
| 5260C | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | LVHC System Caustic Scrubber | 2000 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 50% |
| 2605 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 1 Combination Boiler | 1959 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 98% |
| 3705 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 2 Combination Boiler | 1968 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 98% |

| FUEL INFORMATION | | | | |
|---|---|---|---|---|
| Equipment ID<br>Process ID<br>Control Device ID | Fuels Combusted | BTU Content | % Sulfur by Weight | % Ash by Weight |
| 2505, 5105 | Black Liquor Solids | No change | No change | No change |
| 2505, 5105, 2723 | No. 6 Fuel Oil | No change | No change | No change |
| 5105, 2723 | Natural Gas | No change | No change | No change |



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| Facility Name<br>*(This should be the name used to identify the facility)*<br>New-Indy Catawba LLC | SC Air Permit Number (8-digits only)<br>*(Leave blank if one has never been assigned)*<br>2440 - 0005 | Application Date<br>February 8, 2021 |

| EMISSION UNIT IDENTIFICATION | |
|---|---|
| **Emission Unit ID** | **Emission Unit Description** |
| 08 | Utilities |

**ASSOCIATED EQUIPMENT / PROCESS INFORMATION**

| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
|---|---|---|---|---|---|---|---|---|
| 2550 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | 342–375 million BTU/hr Power Boiler, fired on natural gas, No. 6 fuel oil; 225,000 lb/hr maximum steaming rate on any fuel | 1959 | 342 mmBtu/hr (No. 6 fuel oil)<br>375 mmBtu/hr (natural gas) | none | N/A | N/A | 2550S |
| 2605 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | 392–405 million BTU/hr No. 1 Combination Boiler, fired on natural gas, No. 6 fuel oil, bark, TDF, Specification used oil, waste paper, paper cores (275,000 lb/hr maximum steaming rate on mixed fuels): Boiler, TRS Gas Cooler, TRS Gas Condenser, TRS Mist Eliminator, TRS Gas Reheater | 1959 | 392 mmBtu/hr (No. 6 fuel oil or bark/woodwaste)<br>405 mmBtu/hr (natural gas) | 2605C, 2610C1 | No change | No change | 2610S2 |



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| ASSOCIATED EQUIPMENT / PROCESS INFORMATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 3705 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | 420–720 million BTU/hr No. 2 Combination Boiler, fired on natural gas, No. 6 fuel oil, bark, TDF, Specification used oil, waste paper, paper cores (500,000 lb/hr maximum steaming rate on oil or gas only): Boiler, TRS Gas Cooler, TRS Gas Condenser, TRS Mist Eliminator, TRS Gas Reheater | 1968 | 498 mmBtu/hr (bark/wood waste)<br><br>700 mmBtu/hr (No. 6 fuel oil)<br><br>720 mmBtu/hr (natural gas) | 3705C, 3710C1 | No change | No change | 2610S1 |
| 5260 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | LVHC Collection System | 2001 | N/A | 5260C, 2605, 3705 | VOC, HAPs, TRS | LVHC System Caustic Scrubber, B&W No.1 Combination Boiler, B&W No. 2 Combination Boiler | 2610S1, 2610S2, Emergency Relief Valves: 24FL331, 24FL336, 24FL341, 51FL262, 26FL371 |
| 5270 | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☒ Modify<br>☐ Other | HVLC Collection System | 2003 | N/A | 2605, 3705 | VOC, HAPs, TRS | B&W No.1 Combination Boiler, B&W No. 2 Combination Boiler | 2610S1, 2610S2, Emergency Relief Valves: 52HS937, 42FL967, 52FL967 |



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| ASSOCIATED EQUIPMENT / PROCESS INFORMATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 5261, 5271 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Flame Arrestors, Mist Eliminators, Condensate Collection Tanks for LVHC and HVLC | 2001 / 2003 | N/A | None | VOC, HAPs, TRS | N/A | 5261, 5271 |

| ASSOCIATED CONTROL DEVICE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| Control Device ID | Action | Control Device Description | Installation/Modification Date | Maximum Design Capacity (Units) | Inherent/Required/Voluntary (Explain) | Destruction / Removal Efficiency |
| 2605C | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 1 Combination Boiler Centrifugal Cyclone | 1959 | N/A | No change | No change |
| 2610C1 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 1 Combination Boiler ESP | 1959 | N/A | No change | No change |
| 3705C | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 2 Combination Boiler Centrifugal Cyclone | 1968 | N/A | No change | No change |
| 3710C1 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | No. 2 Combination Boiler ESP | 1980 | N/A | No change | No change |

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| ASSOCIATED CONTROL DEVICE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| Control Device ID | Action | Control Device Description | Installation/Modification Date | Maximum Design Capacity (Units) | Inherent/Required/Voluntary (Explain) | Destruction / Removal Efficiency |
| 2605 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | B&W No.1 Combination Boiler | 1959 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 98% |
| 3705 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | B&W No. 2 Combination Boiler | 1968 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 98% |
| 5260C | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | LVHC System Caustic Scrubber | 2000 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 50% |

| FUEL INFORMATION | | | | |
|---|---|---|---|---|
| Equipment ID Process ID Control Device ID | Fuels Combusted | BTU Content | % Sulfur by Weight | % Ash by Weight |
| 2605, 3705 | Bark/Woodwaste | No change | No change | No change |
| 2605, 3705 | No. 6 Fuel Oil | No change | No change | No change |
| 2605, 3705 | Natural Gas | No change | No change | No change |
| 2605, 3705 | Tire Derived Fuel | No change | No change | No change |
| 2605, 3705 | Specification Used Oil | No change | No change | No change |
| 2605, 3705 | Waste Paper | No change | No change | No change |
| 2605, 3705 | Paper Cores | No change | No change | No change |

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**Bureau of Air Quality**
**Title V Operating Permit Application**
**Emission Unit, Equipment and Processes**


**Please use a separate form for each Emission Unit ID**

| APPLICATION IDENTIFICATION<br>*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in the Title V application package.)* | | |
|---|---|---|
| Facility Name<br>*(This should be the name used to identify the facility)* | SC Air Permit Number (8-digits only)<br>*(Leave blank if one has never been assigned)* | Application Date |
| New-Indy Catawba LLC | 2440 - 0005 | February 8, 2021 |

| EMISSION UNIT IDENTIFICATION | |
|---|---|
| **Emission Unit ID** | **Emission Unit Description** |
| 09 | Waste Treatment |

| ASSOCIATED EQUIPMENT / PROCESS INFORMATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Equipment/ Process ID** | **Action** | **Equipment / Process Description** | **Installation/ Modification Date** | **Maximum Design Capacity (Units)** | **Control Device ID(s)** | **Pollutants Controlled (Include CAS#)** | **Capture System Efficiency and Description** | **Emission Point ID(s)** |
| 2901 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Mix Box | 1959/1999 | N/A | None | N/A | N/A | 2901 |
| 2901 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Bar Screen | 1959/1999 | N/A | None | N/A | N/A | 2901 |
| 2901 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Primary Clarifier | 1959/1999 | N/A | None | N/A | N/A | 2901 |
| 2901 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Settling Pond | 1959/1999 | N/A | None | N/A | N/A | 2901 |



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| ASSOCIATED EQUIPMENT / PROCESS INFORMATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
| 2901 | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☒ Modify<br>☐ Other | Aerated Biotreatment | 1959/1999/ 2020 | N/A | None | N/A | N/A | 2901 |
| 2901 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Holding Basins | 1959/1999 | N/A | None | N/A | N/A | 2901 |
| 2901 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Tertiary Treatment Plant | 1959/1999 | N/A | None | N/A | N/A | 2901 |
| 9800 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Foul Condensate Collection Tank (from NCG Systems) | 1999 | (b) (4) | 9802 | VOC, TRS, HAP | Hard Pipe | 2610S1, 2610S2 |
| 9801 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Condensate Steam Stripper | 2000 | | 2605, 3705 | VOC, TRS, HAP | B&W No.1 Combination Boiler, B&W No. 2 Combination Boiler | 2610S1, 2610S2 |
| 9802 | ☐ Stay the Same<br>☒ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Hard Pipe | 2020 | | 2901 | VOC, TRS, HAP | Aerated Biotreatment | 2901 |
| 9820 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Stripper Off Gases (SOGs) Collection System | 2001 | N/A | 2605, 3705 | VOC, TRS, HAP | B&W No.1 Combination Boiler, B&W No. 2 Combination Boiler | 2610S1, 2610S2 |



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| ASSOCIATED CONTROL DEVICE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| Control Device ID | Action | Control Device Description | Installation/Modification Date | Maximum Design Capacity (Units) | Inherent/Required/Voluntary (Explain) | Destruction / Removal Efficiency |
| 2605 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | B&W No.1 Combination Boiler | 1959 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 98% |
| 3705 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | B&W No. 2 Combination Boiler | 1968 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 98% |
| 9820 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Stripper Off Gases (SOGs) Collection System | 2001 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 99.9% |
| 9820 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Condensate Steam Stripper | 2001 | N/A | Required to comply with 40 CFR Part 60, Subpart BB/BBa and 40 CFR Part 63, Subpart S | 99.9% |
| 9802 | ☐ Stay the Same<br>☒ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Hard Pipe | 2020 | (b) (4) | Required to comply with 40 CFR Part 63, Subpart S | >95% |
| 2901 | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☒ Modify<br>☐ Other | Aerated Biotreatment | 1959/1999/2020 | N/A | Required to comply with 40 CFR Part 63, Subpart S | >95% |

| FUEL INFORMATION | | | | |
|---|---|---|---|---|
| Equipment ID<br>Process ID<br>Control Device ID | Fuels Combusted | BTU Content | % Sulfur by Weight | % Ash by Weight |
| N/A | None | N/A | N/A | N/A |



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**Bureau of Air Quality**
**Title V Operating Permit Application**
**Emission Unit, Equipment and Processes**


**Please use a separate form for each Emission Unit ID**

| APPLICATION IDENTIFICATION<br>*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in the Title V application package.)* | | |
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| Facility Name<br>*(This should be the name used to identify the facility)*<br>New-Indy Catawba LLC | SC Air Permit Number (8-digits only)<br>*(Leave blank if one has never been assigned)*<br>2440 - 0005 | Application Date<br>February 8, 2021 |

| EMISSION UNIT IDENTIFICATION | |
|---|---|
| **Emission Unit ID** | **Emission Unit Description** |
| 10 | Storage Tanks |

| ASSOCIATED EQUIPMENT / PROCESS INFORMATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Equipment/ Process ID** | **Action** | **Equipment / Process Description** | **Installation/ Modification Date** | **Maximum Design Capacity (Units)** | **Control Device ID(s)** | **Pollutants Controlled (Include CAS#)** | **Capture System Efficiency and Description** | **Emission Point ID(s)** |
| M10-223 | ☐ Stay the Same<br>☐ Add<br>☒ Remove<br>☐ Modify<br>☐ Other | Methanol Tank | Post 1984 | (b) (4) | None | N/A | N/A | 1100 |

| ASSOCIATED CONTROL DEVICE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| **Control Device ID** | **Action** | **Control Device Description** | **Installation/Modification Date** | **Maximum Design Capacity (Units)** | **Inherent/Required/Voluntary (Explain)** | **Destruction / Removal Efficiency** |
| N/A | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | None | N/A | N/A | N/A | N/A |



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| FUEL INFORMATION | | | | |
|---|---|---|---|---|
| Equipment ID<br>Process ID<br>Control Device ID | Fuels Combusted | BTU Content | % Sulfur by Weight | % Ash by Weight |
| N/A | None | N/A | N/A | N/A |



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**Bureau of Air Quality**
**Title V Operating Permit Application**
**Emission Unit, Equipment and Processes**


**Please use a separate form for each Emission Unit ID**

| APPLICATION IDENTIFICATION<br>*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in the Title V application package.)* | | |
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| New-Indy Catawba LLC | 2440 - 0005 | February 8, 2021 |

| EMISSION UNIT IDENTIFICATION | |
|---|---|
| **Emission Unit ID** | **Emission Unit Description** |
| 11 | Miscellaneous |

**ASSOCIATED EQUIPMENT / PROCESS INFORMATION**

| Equipment/ Process ID | Action | Equipment / Process Description | Installation/ Modification Date | Maximum Design Capacity (Units) | Control Device ID(s) | Pollutants Controlled (Include CAS#) | Capture System Efficiency and Description | Emission Point ID(s) |
|---|---|---|---|---|---|---|---|---|
| 2900 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Landfill | 1959 | N/A | None | N/A | N/A | 2900 |
| 1000 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Road Activities | 1959 | N/A | None | N/A | N/A | 1000 |
| 1000 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Equipment Leaks and Cleaning Material Usage | 1959 | N/A | None | N/A | N/A | 1000 |
| 1000 | ☒ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | Miscellaneous Material Usage | 1959 | N/A | None | N/A | N/A | 1000 |



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| ASSOCIATED CONTROL DEVICE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| Control Device ID | Action | Control Device Description | Installation/Modification Date | Maximum Design Capacity (Units) | Inherent/Required/Voluntary (Explain) | Destruction / Removal Efficiency |
| N/A | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | None | N/A | N/A | N/A | N/A |

| FUEL INFORMATION | | | | |
|---|---|---|---|---|
| Equipment ID<br>Process ID<br>Control Device ID | Fuels Combusted | BTU Content | % Sulfur by Weight | % Ash by Weight |
| N/A | None | N/A | N/A | N/A |



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Bureau of Air Quality
Title V Operating Permit Application
Emission Unit, Equipment and Processes


**Please use a separate form for each Emission Unit ID**

| APPLICATION IDENTIFICATION<br>*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in the Title V application package.)* | | |
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| Facility Name<br>*(This should be the name used to identify the facility)* | SC Air Permit Number (8-digits only)<br>*(Leave blank if one has never been assigned)* | Application Date |
| New-Indy Catawba LLC | 2440 - 0005 | February 8, 2021 |

| EMISSION UNIT IDENTIFICATION | |
|---|---|
| **Emission Unit ID** | **Emission Unit Description** |
| 12 | HD Pulp Storage Tanks |

| ASSOCIATED EQUIPMENT / PROCESS INFORMATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Equipment/ Process ID** | **Action** | **Equipment / Process Description** | **Installation/ Modification Date** | **Maximum Design Capacity (Units)** | **Control Device ID(s)** | **Pollutants Controlled (Include CAS#)** | **Capture System Efficiency and Description** | **Emission Point ID(s)** |
| 1299 | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☒ Modify<br>☐ Other | Twelve – HD Pulp Storage Tanks | 1959-1986/ 2019 | N/A | None | N/A | N/A | 1299 |

| ASSOCIATED CONTROL DEVICE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| **Control Device ID** | **Action** | **Control Device Description** | **Installation/Modification Date** | **Maximum Design Capacity (Units)** | **Inherent/Required/Voluntary (Explain)** | **Destruction / Removal Efficiency** |
| N/A | ☐ Stay the Same<br>☐ Add<br>☐ Remove<br>☐ Modify<br>☐ Other | None | N/A | N/A | N/A | N/A |



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Title V Operating Permit Application
Emission Unit, Equipment and Processes


| FUEL INFORMATION | | | | |
|---|---|---|---|---|
| Equipment ID<br>Process ID<br>Control Device ID | Fuels Combusted | BTU Content | % Sulfur by Weight | % Ash by Weight |
| N/A | None | N/A | N/A | N/A |



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# Bureau of Air Quality
## Title V Operating Permit Application
## Facility Wide Raw Materials and Products


| APPLICATION IDENTIFICATION<br>*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in the Title V application package.)* | | |
|---|---|---|
| Facility Name<br>*(This should be the name used to identify the facility)*<br>New-Indy Catawba LLC | SC Air Permit Number (8-digits only)<br>*(Leave blank if one has never been assigned)*<br>2440 - 0005 | Application Date<br>February 8, 2021 |

| FACILITY WIDE RAW MATERIALS LIST<br>*(This section lists all of the raw materials used in the total process.)* | |
|---|---|
| **Raw Materials Used*** | **Quantity Used Annually**<br>*(Indicate units of measure.)* |
| Wood | (b) (4) [redacted] |

**NOTE:** *List all major raw materials which comprise 10% or more of the materials used in the total process. Other raw materials must be listed if they are a regulated pollutant or contribute to the formation of a regulated pollutant.

| FACILITY WIDE PRODUCTS LIST<br>*(This section lists all of the products manufactured at this facility.)* | | | |
|---|---|---|---|
| **Products Manufactured**<br>*(List products in order of major to minor.)* | SIC Code<br>*(Standard Industrial Classification Codes)* | NAICS Code<br>*(North American Industry Classification System)* | **Annual Production Rate**<br>*(Indicate units of measure.)* |
| Linerboard | 2631 | 322130 | (b) (4) [redacted] |
| Pulp | 2611 | 322110 | (b) (4) [redacted] |
| Paper | 2621 | 322121 | (b) (4) [redacted] |



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# Bureau of Air Quality
# Title V Operating Permit Application
# Facility Wide Emissions


| APPLICATION IDENTIFICATION<br>*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in the Title V application package.)* | | |
|---|---|---|
| Facility Name<br>*(This should be the name used to identify the facility)*<br>New-Indy Catawba LLC | SC Air Permit Number (8-digits only)<br>*(Leave blank if one has never been assigned)*<br>2440 – 0005 | Application Date<br>February 8, 2021 |

**EMISSION DATA FOR REGULATED POLLUTANTS**

| Equipment ID / Process ID | Emission Point ID | Type of Pollutant | Pollutant Name | CAS # | Maximum Uncontrolled | | Maximum Controlled | | Maximum PTE | | Calculation Methods / Limits Taken / Other Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | lbs/hr | tons/yr | lbs/hr | tons/yr | lbs/hr | tons/yr | |
| All | All | All | All | All | See Attach. B | See Attach. B | See Attach. B | See Attach. B | See Attach. B | See Attach. B | See Attachment B |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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Bureau of Air Quality
Title V Operating Permit Application
Facility Wide Emissions


| SUMMARY OF FACILITY WIDE TOTAL EMISSIONS | | | |
|---|---|---|---|
| Pollutants | Total Uncontrolled Emissions (tons/year) | Total Controlled Emissions (tons/year) | Total PTE Emissions (tons/year) |
| Particulate Matter (PM) | 109,695 | 1,991 | N/A |
| Particulate Matter <10 Microns ($PM_{10}$) | 76,606 | 1,113 | N/A |
| Particulate Matter <2.5 Microns ($PM_{2.5}$) | 64,922 | 862 | N/A |
| Sulfur Dioxide ($SO_2$) | 19,105 | 18,231 | N/A |
| Nitrogen Oxides ($NO_x$) | 2,818 | 2,818 | N/A |
| Carbon Monoxide (CO) | 3,108 | 3,108 | N/A |
| Total Volatile Organic Compounds (VOC) | 2,324 | 1,690 | N/A |
| Lead (Pb) | 14.3 | 14.3 | N/A |
| Highest HAP (CAS #: 67561) | 1,207 | 907 | N/A |
| Total HAP Emissions* | 1,447 | 1,091 | N/A |

(*All HAP emitted from the various equipment or processes must be listed in "Emission Data for Regulated Pollutants" table.)

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**Bureau of Air Quality**
**Title V Operating Permit Application**
**Insignificant Activity Equipment**


| APPLICATION IDENTIFICATION<br>*(Please ensure that the information listed in this table is the same on all of the forms and required information submitted in the Title V application package.)* | | |
|---|---|---|
| Facility Name *(This should be the name used to identify the facility)*<br>New-Indy Catawba LLC | SC Air Permit Number (8-digits only)<br>2440 - 0005 | Application Date<br>February 8, 2021 |

**INSIGNIFICANT ACTIVITY (IA) EQUIPMENT**

| IA Equipment ID | IA Equipment Description | On SC IA List | | IA Installation Date | Pollutant(s) | Emission Rate |
|---|---|---|---|---|---|---|
| | | Yes | No | | | |
| IA-5240 | Oxygen Delignification System: No. 1 O2 Reactor, Blow Tube, No. 2 O2 Reactor, Blow Tube, Post O2 Surge Tank, No. 1B O2 Reactor | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-5250 | Knotting and Screening System: Primary Knotters (2), Secondary Knotters (2), No. 1 Primary Screen, No. 2 Primary Screen, Secondary Screen, Tertiary Screen, Quaternary Screen, Cleaner, Shive Thickener, Screen Room Filtrate Tank, Screen Room Washer | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-5300 | Four Stage DOEOPD1D2 Bleaching System: DO Tower; EOP Reactor; D1 Tower; D2 Tower | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-1790 | Chlorine Dioxide Generator: Generator/Crystallizer/Reboiler, Saltcake Slurry Tank, Hydroclone and Saltcake Filter, Generator Dump Tank, Indirect Cooling Tower, ClO2 Adsorption Tower, Barometric Condenser, Seal Pot, ClO2 Storage Tanks, Filtrate Separation System | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-4400 | TMP Lines 1-6 (The following equipment is shared): Chip Conveyor, Chip Washing System: Chip Washer and Screens (3 sets), 3 Chip Storage Silos, Pin Chip Screen Cyclone, 2 Chip Surge Bins, Heat and Turpentine Recovery System: Flash Tanks, Surge Tanks, 3 Liquid Phase Separators (1,520 gallons, each), Condensers, 2,880-gallon Decanter | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-4400 | TMP Line 1-3: Primary, Secondary, and Tertiary Refiner System, Peroxide Towers, Neutralization Chests, Screening and Cleaning Systems, Rejects Refiner Systems, Press System, Decker System, Sodium Hydrosulfite Bleaching System | ☐ | ☒ | Source retired in place | N/A | N/A |

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Bureau of Air Quality
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Insignificant Activity Equipment


| INSIGNIFICANT ACTIVITY (IA) EQUIPMENT | | | | | | |
|---|---|---|---|---|---|---|
| IA Equipment ID | IA Equipment Description | On SC IA List | | IA Installation Date | Pollutant(s) | Emission Rate |
| | | Yes | No | | | |
| IA-4400 | TMP Lines 4-6: Primary, Secondary, and Tertiary Refiner System, Screening and Cleaning Systems, Rejects Refiner Systems, Press System, Decker System, Sodium Hydrosulfite Bleaching System | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-4400 | Hydrogen Peroxide Bleaching System | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-2000 | No. 1 Paper Machine: Deculator System, Precondenser System, Vacuum Pump System, Mix Tub, Headbox System, Forming Wire, Vacuum Blower, Vacuum Trench, Save-All System, Presses, Separators, Press Pulper, Dryer Systems, Dryer Pulper Calendar, Dry End Pulper, Reel, Slurry Mix Tanks, Mix Tanks | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-2005 | No. 1 Paper Machine Rereeler and Trim Pulper | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-2010 | No. 1 Coater Dryer, fired on Natural Gas, Propane, or Kerosene: Coater System, Coating Dryer, Screen/Filters, Reel, and Coated Broke Pulper | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-4610 | No. 2 Coater Dryer, fired on Natural Gas, Propane or Kerosene: Coating System, Coating Dryer, Screens/Filters, Reel, and Coated Broke Pulper | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-4130 | Hot Oil Heating System, fired on Natural Gas, Propane, or Kerosene | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-9700 | Four – Starch Silos, Slurry Mix Tanks, Starch Cookers, Flash Tank, Mix Tanks | ☐ | ☒ | Source retired in place | N/A | N/A |
| 9701A, 9701B, 9702, 9703, 9704 | 1,400 Gallon Slurry Tank, 1,400 Gallon Slurry Tank, Starch Cooker, Flash Tank, 2,900 Gallon Paste Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-2550 | 342–375 million BTU/hr Power Boiler, fired on natural gas, No. 6 fuel oil; 225,000 lb/hr maximum steaming rate on any fuel | ☐ | ☒ | Source retired in place | N/A | N/A |
| IA-9801 | Condensate Steam Stripper | ☐ | ☒ | Source retired in place | N/A | N/A |
| M10-223 | Methanol Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M19-135 | Clay Additive Supply Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M19-136 | Clay Additive Mix Tank | ☐ | ☒ | Source retired in place | N/A | N/A |

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| INSIGNIFICANT ACTIVITY (IA) EQUIPMENT | | | | | | |
|---|---|---|---|---|---|---|
| IA Equipment ID | IA Equipment Description | On SC IA List | | IA Installation Date | Pollutant(s) | Emission Rate |
| | | Yes | No | | | |
| M32-2 | Type 1 Clay Storage Tank No. 2 | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32- 34 | No. 1 Cooked Starch Holding Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-55 | No. 1 PM Coater Supply Tank No. 2 | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-56 | No. 1 PM Coater Supply Tank No. 1 | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-64 | No. 1 PM Coater Service Tank No. 1 | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-66 | No. 1 PM Coater Service Tank No. 2 | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-118 | No. 1 Latex Storage Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-119 | No. 2 Latex Storage Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-200 | No. 3 Latex Storage Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-254 | No. 5 Latex Storage Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-256 | No. 6 Latex Storage Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-257 | No. 4 Latex Storage Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-267 | No. 7 Calcined Clay Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-268 | No. 6 Calcined Clay Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-328 | No. 4 Delaminated Clay Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-330 | No. 4 Delaminated Clay Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-341 | No. 1 Starch Slurry Mix Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-342 | No. 2 Starch Slurry Mix Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-345 | No. 1 Starch Slurry Holding Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-346 | No. 2 Starch Slurry Holding Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M40-56 | Red Dye Mix Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M40-89 | Blue Dye Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M40-91 | Red Dye Storage Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M40-93 | Blue Dye Storage Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M45-100 | No. 1 East Dye Mix Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M45-102 | No. 2 West Dye Mix Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M45-104 | No. 1 Dye use Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M45-106 | No. 2 Dye use Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M45-110 | No. 3 Dye use tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M45-138 | Clay Mix tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M45-155 | Clay Use Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M45-566 | Calcined clay storage Tank | ☐ | ☒ | Source retired in place | N/A | N/A |

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| INSIGNIFICANT ACTIVITY (IA) EQUIPMENT | | | | | | |
|---|---|---|---|---|---|---|
| IA Equipment ID | IA Equipment Description | On SC IA List | | IA Installation Date | Pollutant(s) | Emission Rate |
| | | Yes | No | | | |
| M47-80 | No. 2 Coating supply Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M47-154 | No. 1 Dye Mix Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M47-156 | No. 2 Dye Mix tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M47-158 | No. 1 Dye Holding tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M47-160 | No. 2 Dye Holding Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M47-300 | No. 3 Filler clay Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M47-308 | No. 2 Dye Holding Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M48-31 | No. 1 Coating Service Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M48-259 | No. 2 Coating Service Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M48-280 | Coated Broke Alum Head Tank | ☐ | ☒ | Source retired in place | N/A | N/A |
| M32-32 | No. 2 Cooked Starch Tanks | ☐ | ☒ | Source retired in place | N/A | N/A |
| M19-108 | Color Tank North Row East | ☐ | ☒ | Source retired in place | N/A | N/A |
| M19-109 | Color Tank North Row Center | ☐ | ☒ | Source retired in place | N/A | N/A |
| M19-110 | Color Tank North Row West | ☐ | ☒ | Source retired in place | N/A | N/A |
| M19-111 | Color Tank South Row East | ☐ | ☒ | Source retired in place | N/A | N/A |
| M19-112 | Color Tank South Row West | ☐ | ☒ | Source retired in place | N/A | N/A |

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**Bureau of Air Quality**
**Title V Operating Permit Application**
**Regulatory Information**


| APPLICATION IDENTIFICATION<br>*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in the Title V application package.)* | | |
|---|---|---|
| Facility Name<br>*(This should be the name used to identify the facility)*<br>New-Indy Catawba LLC | SC Air Permit Number (8-digits only)<br>*(Leave blank if one has never been assigned)*<br>2440 - 0005 | Application Date<br>February 8, 2021 |

**EMISSIONS LIMITS AND STANDARDS**
*(This section summarizes the emission unit emission limits and standards.)*

| Emission Unit ID | Pollutant / Standard | Limit | Reference Method | Applicable Regulation* (Regulation Citation / Condition) |
|---|---|---|---|---|
| 5210-5255, 2400 | Opacity | <20% | N/A | SC Reg. 61-62.5, Std. 4, Section IX(B) |
| 5210-5220, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | TRS | ≤ 5 ppmv @ 10% $O_2$ (dry basis) | Method 16 | 40 CFR 60.282(a)(1)(iii) or 40 CFR 60.282a(a)(1)(iii) |
| 5210-5255, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | $SO_2$ | ≤ 10.1 lb $SO_2$/ADTUBP 3,364 tpy | Method 6 | SC Reg. 61-62.5, Std. 7 (PSD) |
| 5210-5255, 5260, 5270, 2400, 2500, 5100, 9800 | HAP - closed vent systems | 1% LVHC and 4% HVLC venting allowance | N/A | 40 CFR 63.443 and 40 CFR 63.453 |

| EMISSIONS LIMITS AND STANDARDS<br>*(This section summarizes the emission unit emission limits and standards.)* | | | | |
|---|---|---|---|---|
| **Emission Unit ID** | **Pollutant / Standard** | **Limit** | **Reference Method** | **Applicable Regulation* (Regulation Citation / Condition)** |
| 5210-5255, 2400, 2500, 5100, 5260, 5270, 2605, 3705 | HAP - closed collection systems | vent system negative pressure or vent system 500 ppm (positive pressure) collection system tank openings closed and collection system drains | N/A | 40 CFR 63.457 |
| 5210-5255, 2400, 2500, 5100, 9800, 9802, 2901 | HAP - condensate collection and treatment | collect at least 7.2 lb HAP/ODTP and remove at least 6.6 lb HAP/ODTP | N/A | 40 CFR 63.446 |
| 4600, 4650, 4100, 2100 | Opacity | ≤ 20% | N/A | SC Reg. 61-62.5, Std. 4, Section IX(B) |
| 4600, 4605 | PM | ≤ 39.9 lb/hr | N/A | SC Reg. 61-62.5, Std. 4 |
| 4100 | PM | ≤ 53.5 lb/hr | N/A | SC Reg. 61-62.5, Std. 4 |
| 2100 | PM | ≤ 41.0 lb/hr | N/A | SC Reg. 61-62.5, Std. 4 |

| COMPLIANCE AND PERMIT REQUIREMENTS<br>*(This section summarizes the emission unit compliance requirements.)* | | | | | |
|---|---|---|---|---|---|
| **Emission Unit ID** | **Applicable Requirement (Regulation Citation / Permit Condition)** | **In Compliance (Y/N)** | **Compliance Statement*** | **Compliance Date** | **First Submittal** |
| 5210-5255, 2400 | SC Reg. 61-62.5, Std. 4, Section IX(B) | Yes | N/A | N/A | N/A |

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| COMPLIANCE AND PERMIT REQUIREMENTS<br>*(This section summarizes the emission unit compliance requirements.)* | | | | | |
|---|---|---|---|---|---|
| **Emission Unit ID** | **Applicable Requirement (Regulation Citation / Permit Condition)** | **In Compliance (Y/N)** | **Compliance Statement*** | **Compliance Date** | **First Submittal** |
| 5210-5220, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | 40 CFR 60.282(a)(1)(iii) or 40 CFR 60.282a(a)(1)(iii) | Yes | N/A | N/A | N/A |
| 5210-5255, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | SC Reg. 61-62.5, Std. 7 (PSD) | Yes | N/A | N/A | N/A |
| 5210-5255, 5260, 5270, 2400, 2500, 5100, 9800 | 40 CFR 63.443 and 40 CFR 63.453 | Yes | N/A | N/A | N/A |
| 5210-5255, 2400, 2500, 5100, 5260, 5270, 2605, 3705 | 40 CFR 63.457 | Yes | N/A | N/A | N/A |
| 5210-5255, 2400, 2500, 5100, 9800, 9802, 2901 | 40 CFR 63.446 | Yes | N/A | N/A | N/A |
| 4600, 4650, 4100, 2100 | SC Reg. 61-62.5, Std. 4, Section IX(B) | Yes | N/A | N/A | N/A |
| 4600, 4605 | SC Reg. 61-62.5, Std. 4 | Yes | N/A | N/A | N/A |
| 4100 | SC Reg. 61-62.5, Std. 4 | Yes | N/A | N/A | N/A |
| 2100 | SC Reg. 61-62.5, Std. 4 | Yes | N/A | N/A | N/A |

* By initialing here, the Responsible Official certifies that this emission unit is in compliance with current applicable requirements and that the source will continue to comply with such requirements during the permit term. Further, for applicable requirements that will become effective during the permit term, the source will meet such requirements on a timely basis, unless a more detailed schedule is expressly required by the applicable requirement.

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| MONITORING / APPLICABLE REGULATION AND PERMIT / RULE REQUIREMENTS – PART I<br>*(This section summarizes the monitoring and reporting requirements. Parts I, II, III and IV must be completed for each emission unit.)* | | | | | |
|---|---|---|---|---|---|
| **Emission Unit ID** | **Pollutant / Parameter** | **Limit** | **Required Monitoring** | **Monitoring Frequency** | **Reporting Frequency** |
| 5210-5255, 2400 | Opacity | <20% | N/A | N/A | N/A |
| 5210-5220, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | TRS | ≤ 5 ppmv @ 10% $O_2$ (dry basis) | scrubber liquid flow<br>scrubber liquid pH | daily | Semiannual |
| 5210-5255, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | $SO_2$ | ≤ 10.1 lb $SO_2$/ADTUBP<br>3,364 tpy | scrubber liquid flow<br>scrubber liquid pH<br>bark firing<br>kraft pulp production<br>bark/kraft ratio<br>$SO_2$ emissions | daily<br>daily<br>daily<br>daily<br>daily<br>daily/monthly/12-month rolling sum | Semiannual |
| 5210-5255, 5260, 5270, 2400, 2500, 5100, 9800 | HAP - closed vent systems | 1% LVHC and 4% HVLC venting allowance | bypass lines | continuous | Semiannual |
| 5210-5255, 2400, 2500, 5100, 5260, 5270, 2605, 3705 | HAP - closed collection systems | vent system negative pressure or vent system 500 ppm (positive pressure) collection system tank openings closed and collection system drains | visual inspection<br>leak testing | monthly<br>annual | Semiannual |

| MONITORING / APPLICABLE REGULATION AND PERMIT / RULE REQUIREMENTS – PART I<br>*(This section summarizes the monitoring and reporting requirements. Parts I, II, III and IV must be completed for each emission unit.)* | | | | | |
|---|---|---|---|---|---|
| **Emission Unit ID** | **Pollutant / Parameter** | **Limit** | **Required Monitoring** | **Monitoring Frequency** | **Reporting Frequency** |
| 5210-5255, 2400, 2500, 5100, 9800, 9802, 2901 | HAP - condensate collection and treatment | collect at least 7.2 lb HAP/ODTP and remove at least 6.6 lb HAP/ODTP | Composite outlet soluble 5-day biochemical oxygen demand ($BOD_5$)*, Mixed liquor volatile suspended solids (MLVSS)*, Horsepower of aerator unit(s)*, Inlet liquid flow*, Inlet liquid temperature* **(New-Indy will propose alternative monitoring parameters following initial performance test per permit DF.R1 condition E.5 and 40 CFR §63.453(n))* | daily | Semiannual |
| 4600, 4650, 4100, 2100 | Opacity | ≤ 20% | VE | Annual | Semiannual |
| 4600, 4605 | PM | ≤ 39.9 lb/hr | VE | Annual | Semiannual |
| 4100 | PM | ≤ 53.5 lb/hr | VE | Annual | Semiannual |
| 2100 | PM | ≤ 41.0 lb/hr | VE | Annual | Semiannual |

| MONITORING / APPLICABLE REGULATION AND PERMIT / RULE REQUIREMENTS – PART II<br>*(This section summarizes the monitoring and reporting requirements.)* | | | | | | |
|---|---|---|---|---|---|---|
| **Emission Unit ID** | **Pollutant / Standard or Pollutant / Parameter** | **Limit** | **Recordkeeping Frequency** | **Averaging Time** | **Stack Test** | |
| | | | | | **Y/N** | **Frequency** |
| 5210-5255, 2400 | Opacity | <20% | annual | N/A | N | N/A |
| 5210-5220, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | TRS | ≤ 5 ppmv @ 10% $O_2$ (dry basis) | daily | N/A | N | N/A |
| 5210-5255, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | $SO_2$ | ≤ 10.1 lb $SO_2$/ADTUBP 3,364 tpy | daily/monthly/12-month rolling sum | 30-day rolling avg 12-month rolling sum | Y | one-time (completed) |

| MONITORING / APPLICABLE REGULATION AND PERMIT / RULE REQUIREMENTS – PART II<br>*(This section summarizes the monitoring and reporting requirements.)* | | | | | | |
|---|---|---|---|---|---|---|
| **Emission Unit ID** | **Pollutant / Standard or Pollutant / Parameter** | **Limit** | **Recordkeeping Frequency** | **Averaging Time** | **Stack Test** | |
| | | | | | **Y/N** | **Frequency** |
| 5210-5255, 5260, 5270, 2400, 2500, 5100, 9800 | HAP - closed vent systems | 1% LVHC and 4% HVLC venting allowance | continuous | N/A | N | N/A |
| 5210-5255, 2400, 2500, 5100, 5260, 5270, 2605, 3705 | HAP - closed collection systems | vent system negative pressure or vent system 500 ppm (positive pressure) collection system tank openings closed and collection system drains | monthly<br>annual | N/A | N | N/A |
| 5210-5255, 2400, 2500, 5100, 9800, 9802, 2901 | HAP - condensate collection and treatment | collect at least 7.2 lb HAP/ODTP and remove at least 6.6 lb HAP/ODTP | daily | 15-day minimum (TDB following initial performance test) | Y | Quarterly |
| 4600, 4650, 4100, 2100 | Opacity | ≤ 20% | Annual | N/A | N | N/A |
| 4600, 4605 | PM | ≤ 39.9 lb/hr | Annual | N/A | N | N/A |
| 4100 | PM | ≤ 53.5 lb/hr | Annual | N/A | N | N/A |
| 2100 | PM | ≤ 41.0 lb/hr | Annual | N/A | N | N/A |

| MONITORING / APPLICABLE REGULATION AND PERMIT / RULE REQUIREMENTS – PART III<br>*(This section summarizes the monitoring & reporting requirements not described in Parts I & II. Also summarizes applicable regulations that no monitoring & reporting is needed.)* | | | | |
|---|---|---|---|---|
| **Emission Unit ID** | **Pollutant / Parameter** | **Limit** | **If no monitoring required, why?** | **List any monitoring requirements not listed above** |
| 5210-5255, 2400 | Opacity | <20% | no potential visible emissions | N/A |

| MONITORING / APPLICABLE REGULATION AND PERMIT / RULE REQUIREMENTS – PART III<br>*(This section summarizes the monitoring & reporting requirements not described in Parts I & II. Also summarizes applicable regulations that no monitoring & reporting is needed.)* | | | | |
|---|---|---|---|---|
| **Emission Unit ID** | **Pollutant / Parameter** | **Limit** | **If no monitoring required, why?** | **List any monitoring requirements not listed above** |
| 5210-5220, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | TRS | ≤ 5 ppmv @ 10% $O_2$ (dry basis) | N/A | N/A |
| 5210-5255, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | $SO_2$ | ≤ 10.1 lb $SO_2$/ADTUBP 3,364 tpy | N/A | N/A |
| 5210-5255, 5260, 5270, 2400, 2500, 5100, 9800 | HAP - closed vent systems | 1% LVHC and 4% HVLC venting allowance | N/A | N/A |
| 5210-5255, 2400, 2500, 5100, 5260, 5270, 2605, 3705 | HAP - closed collection systems | vent system negative pressure or vent system 500 ppm (positive pressure) collection system tank openings closed and collection system drains | N/A | N/A |
| 5210-5255, 2400, 2500, 5100, 9800, 9802, 2901 | HAP - condensate collection and treatment | collect at least 7.2 lb HAP/ODTP and remove at least 6.6 lb HAP/ODTP | N/A | N/A |

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| MONITORING / APPLICABLE REGULATION AND PERMIT / RULE REQUIREMENTS – PART III<br>*(This section summarizes the monitoring & reporting requirements not described in Parts I & II. Also summarizes applicable regulations that no monitoring & reporting is needed.)* | | | | |
|---|---|---|---|---|
| **Emission Unit ID** | **Pollutant / Parameter** | **Limit** | **If no monitoring required, why?** | **List any monitoring requirements not listed above** |
| 4600, 4650, 4100, 2100 | Opacity | ≤ 20% | no potential visible emissions | N/A |
| 4600, 4605 | PM | ≤ 39.9 lb/hr | N/A | N/A |
| 4100 | PM | ≤ 53.5 lb/hr | N/A | N/A |
| 2100 | PM | ≤ 41.0 lb/hr | N/A | N/A |

| MONITORING / APPLICABLE REGULATION AND PERMIT / RULE REQUIREMENTS – PART IV<br>*(This section summarizes the monitoring and reporting requirements.)* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Emission Unit ID** | **Description (include equip/process ID)** | **Potential Uncontrolled Emissions** | | **Control Device ID** | **Potential Controlled Emissions** | **Subject to CAM Rule (40 CFR 64)?** | | | |
| | | **Pollutant** | **Tons/Year** | | **Tons/Year** | **Yes *** | **No** | **Exempt** | **Reason Exempt?** |
| 5210-5255, 2400 | N/A | N/A | | N/A | N/A | ☐ | ☐ | ☐ | |
| 5210-5220, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | Kraft Pulp Mill Continuous Digester System (5210) and Turpentine Recovery System (5220) Chemical Recovery Evaporator Set No. 1/No. 2/No. 3 (2400, 2500, 5100) | TRS – 1,039 TPY | | 5260, 5260C, 5270, 2605, 3705 | 5.98 | ☒ | ☐ | ☐ | |
| 5210-5255, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | N/A | N/A | | N/A | N/A | ☐ | ☐ | ☐ | |
| 5210-5255, 5260, 5270, 2400, 2500, 5100, 9800 | N/A | N/A | | N/A | N/A | | | | |
| 5210-5255, 2400, 2500, 5100, 5260, 5270, 2605, 3705 | N/A | N/A | | N/A | N/A | | | | |

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| MONITORING / APPLICABLE REGULATION AND PERMIT / RULE REQUIREMENTS – PART IV<br>*(This section summarizes the monitoring and reporting requirements.)* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Emission Unit ID** | **Description (include equip/process ID)** | **Potential Uncontrolled Emissions** | | **Control Device ID** | **Potential Controlled Emissions** | **Subject to CAM Rule (40 CFR 64)?** | | | |
| | | **Pollutant** | **Tons/Year** | | **Tons/Year** | **Yes *** | **No** | **Exempt** | **Reason Exempt?** |
| 5210-5255, 2400, 2500, 5100, 9800, 9802, 2901 | N/A | N/A | | N/A | N/A | | | | |
| 4600, 4650, 4100, 2100 | N/A | N/A | | N/A | N/A | | | | |
| 4600, 4605 | N/A | N/A | | N/A | N/A | | | | |
| 4100 | N/A | N/A | | N/A | N/A | | | | |
| 2100 | N/A | N/A | | N/A | N/A | | | | |

**NOTE:** * If yes, the applicant must submit additional information in the form of a CAM plan as required under 40 CFR 64.

| FACILITY WIDE LIMITS FOR REGULATORY AVOIDANCE – PART V<br>*(This section summarizes emission unit(s) covered under a limit to avoid an applicable regulation.)* | | | | |
|---|---|---|---|---|
| **Emission Unit ID** *(emission unit covered under the limit)* | **Pollutant / Parameter** | **Limit (Facility-Wide)** | **Parameter to Monitor** | **Applicable Regulation Avoidance** |
| 5210-5255, 2400 | N/A | N/A | N/A | N/A |
| 5210-5220, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | N/A | N/A | N/A | N/A |
| 5210-5255, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | N/A | N/A | N/A | N/A |
| 5210-5255, 5260, 5270, 2400, 2500, 5100, 9800 | N/A | N/A | N/A | N/A |
| 5210-5255, 2400, 2500, 5100, 5260, 5270, 2605, 3705 | N/A | N/A | N/A | N/A |

dhec

Bureau of Air Quality
Title V Operating Permit Application
Regulatory Information


| FACILITY WIDE LIMITS FOR REGULATORY AVOIDANCE – PART V<br>*(This section summarizes emission unit(s) covered under a limit to avoid an applicable regulation.)* | | | | |
|---|---|---|---|---|
| **Emission Unit ID** *(emission unit covered under the limit)* | **Pollutant / Parameter** | **Limit (Facility-Wide)** | **Parameter to Monitor** | **Applicable Regulation Avoidance** |
| 5210-5255, 2400, 2500, 5100, 9800, 9802, 2901 | N/A | N/A | N/A | N/A |
| 4600, 4650, 4100, 2100 | N/A | N/A | N/A | N/A |
| 4600, 4605 | N/A | N/A | N/A | N/A |
| 4100 | N/A | N/A | N/A | N/A |
| 2100 | N/A | N/A | N/A | N/A |

| ADDITIONAL INFORMATION FOR NESHAP SOURCES* – PART VI<br>*(This section allows for additional information or requirements for sources subject to a NESHAP Standard.)* | | | | |
|---|---|---|---|---|
| **Emission Unit ID** | **New or Existing Equipment** | **Control Device ID** | **Applicable NESHAP Standard** | **List any unit/equipment which is specifically exempt from the NESHAP Standard and state why.** |
| 5210-5255, 2400 | Existing | 5260, 5260C, 5270, 2605, 3705 | Subpart S | |
| 5210-5220, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | Existing | 5260, 5260C, 5270, 2605, 3705 | Subpart S | N/A |
| 5210-5255, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | Existing | 5260, 5260C, 5270, 2605, 3705 | Subpart S | N/A |
| 5210-5255, 5260, 5270, 2400, 2500, 5100, 9800 | Existing | 5260, 5260C, 5270, 2605, 3705 | Subpart S | N/A |
| 5210-5255, 2400, 2500, 5100, 5260, 5270, 2605, 3705 | Existing | 5260, 5260C, 5270, 2605, 3705 | Subpart S | N/A |
| 5210-5255, 2400, 2500, 5100, 9800, 9802, 2901 | Existing | 5260, 5260C, 5270, 2605, 3705 | Subpart S | N/A |

| ADDITIONAL INFORMATION FOR NESHAP SOURCES* – PART VI<br>*(This section allows for additional information or requirements for sources subject to a NESHAP Standard.)* | | | | |
|---|---|---|---|---|
| **Emission Unit ID** | **New or Existing Equipment** | **Control Device ID** | **Applicable NESHAP Standard** | **List any unit/equipment which is specifically exempt from the NESHAP Standard and state why.** |
| 4600, 4650, 4100, 2100 | N/A | N/A | N/A | N/A |
| 4600, 4605 | N/A | N/A | N/A | N/A |
| 4100 | N/A | N/A | N/A | N/A |
| 2100 | N/A | N/A | N/A | N/A |

| ADDITIONAL INFORMATION FOR NESHAP SOURCES* – PART VII<br>*(This section allows for additional requirements for sources subject to a NESHAP Standard.)* | |
|---|---|
| **Emission Unit ID** | **List Other NESHAP Requirements: Include compliance plans such as Operations, Maintenance and Monitoring (OM&M) Plans; Startup, Shutdown and Malfunction (SS&M) Plans; Leak Detection and Repair (LDAR) Plans; O&M plans; wastewater equipment requirements; training; etc.)** |
| 5210-5255, 2400 | No change |
| 5210-5220, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | No change |
| 5210-5255, 2400, 2500, 5100, 5260, 5260C, 5270, 2605, 3705 | No change |
| 5210-5255, 5260, 5270, 2400, 2500, 5100, 9800 | No change |
| 5210-5255, 2400, 2500, 5100, 5260, 5270, 2605, 3705 | No change |
| 5210-5255, 2400, 2500, 5100, 9800, 9802, 2901 | No change |
| 4600, 4650, 4100, 2100 | N/A |
| 4600, 4605 | N/A |
| 4100 | N/A |
| 2100 | N/A |

dhec

# Bureau of Air Quality
# Title V Operating Permit Application
# Permit Shield


| APPLICATION IDENTIFICATION<br>*(Please ensure that the information list in this table is the same on all of the forms and required information submitted in the Title V application package.)* | | |
|---|---|---|
| Facility Name<br>*(This should be the name used to identify the facility)*<br>New-Indy Catawba LLC | SC Air Permit Number (8-digits only)<br>*(Leave blank if one has never been assigned)*<br>2440 - 0005 | Application Date<br>February 8, 2021 |

**PERMIT SHIELD REQUEST**
*(This section summarizes the regulations)*

| Regulation Citation | Regulation Title | Applicable? Yes | Applicable? No | If applicable, list all applicable requirements in the regulation that the facility requests to be shielded. Include emission units and equipment subject. Include emission limits, testing, monitoring, record keeping, reporting, etc.<br><br>If not applicable, provide a detailed explanation of why the regulation is not applicable. |
|---|---|---|---|---|
| 63.440(d)(3) | Voluntary Advanced Technology Incentives Program for Effluent Limitation Guidelines in 40 CFR 430.24 | ☐ | ☒ | Bleaching system retired in place September 5, 2020 |
| 63.445 | Standards for the bleaching system | ☐ | ☒ | Bleaching system retired in place September 5, 2020 |
| 63.446(e)(4) | Standards for kraft pulping process condensates at unbleached mills | ☒ | ☐ | Bleaching system retired in place September 5, 2020 |
| 63.446(e)(5) | Standards for kraft pulping process condensates at bleached mills | ☐ | ☒ | Bleaching system retired in place September 5, 2020 |
| 63.446(e)(2) and (f) | Standards for kraft pulping process condensates – hard pipe | ☒ | ☐ | Compliance requirements for hard piping condensate to biological treatment system, Condensate steam stripper retired in place September 5, 2020. |
| 63.453(e) | Monitoring requirements – bleaching systems | ☐ | ☒ | Bleaching system retired in place September 5, 2020 |
| 63.453(g) and (h) | Monitoring requirements – condensate steam strippers | ☐ | ☒ | Condensate steam stripper retired in place September 5, 2020. |
| 63,453 (j), (n) and (p) | Monitoring requirements – open biological treatment systems | ☒ | ☐ | Monitoring requirements for hard piping condensate to biological treatment system, |
| | | ☐ | ☐ | |
| | | ☐ | ☐ | |

ATTACHMENT A
TV-2440-0005 Markup

CONFIDENTIAL BUSINESS INFORMATION

S.C. Department of Health and Environmental Control

# Bureau of Air Quality
# Title V Operating Permit

**New-Indy Catawba LLC**
**5300 Cureton Ferry Road**
**Catawba, SC 29704**
**York County**

In accordance with the provisions of the *Pollution Control Act*, Sections 48-1-50(5) , 48-1-100(A), and 48-1-110(a), the 1976 *Code of Laws of South Carolina*, as amended, and *South Carolina Regulation 61-62, Air Pollution Control Regulations and Standards,* the Bureau of Air Quality authorizes the operation of this facility and the equipment specified herein in accordance with valid construction permits, and the plans, specifications, and other information submitted in the Title V permit application received on January 9, 2013, as amended.

The operation of this facility is subject to and conditioned upon the terms, limitations, standards, and schedules contained herein or as specified by this permit and its accompanying attachments.

**Permit Number:** **TV-2440-0005**

| | | | |
|---|---|---|---|
| **Issue Date:** | **May 7, 2019** | **Effective Date:** | **July 1, 2019** |
| **Expiration Date:** | **June 30, 2024** | **Renewal Due Date:** | **December 31, 2023** |

**Steve McCaslin, P. E., Director**
**Air Permitting Division**
**Bureau of Air Quality**

CONFIDENTIAL

| RECORD OF REVISIONS | | | |
|---|---|---|---|
| Date | | Type | Description of Change |
| | | MM | Incorporate emission limits, monitoring, recordkeeping, and reporting from c/p-DF into the TV operating permit. |

AA Administrative Amendment
MM Minor Modification
SM Significant Modification

## A. EMISSION UNIT DESCRIPTION

| Emission Unit ID | Emission Unit Description |
|---|---|
| 01 | Woodyard Area |
| 02 | Kraft Process - Kraft Pulp Mill |
| 03 | VIOD - Kraft Process – Bleach Plant |
| 04 | VOID - Kraft Process – Chlorine Dioxide Plant |
| 05 | VOID - TMP Process |
| 06 | Paper Mill |
| 07 | Chemical Recovery |
| 08 | Utilities |
| 09 | Waste Treatment |
| 10 | VOID - Storage Tanks |
| 11 | Miscellaneous |
| 12 | HD Pulp Storage Tanks |

## B EQUIPMENT AND CONTROL DEVICE(S)

### B.1 EQUIPMENT FOR EMISSION UNIT ID 01 – Woodyard Area

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| 1300 | - East and West Woodyard Long Wood Handling (2)<br>- West Woodyard Purchased Chip Handling<br>- East Woodyard Purchased Chip Handling (Rail)<br>- East Woodyard Purchased Chip Handling (Truck) with Cyclone<br>- East Woodyard Purchased Chip Handling (Rail) Chip Screen<br>- East Woodyard Chip Screen with Cyclone<br>- West Woodyard Chip Screen<br>- East and West Woodyard Debarking Drums (2)<br>- East Woodyard Purchased Chip (Rail) Rechipper with Cyclone<br>- East Woodyard Chipper with Cyclone<br>- West Woodyard Chipper with Cyclone<br>- East Woodyard Rechipper with Cyclone<br>- West Woodyard Rechipper<br>- TMP and Kraft Mill Chip Silos<br>- Long Term Storage Pile | 1959/1985 and 1991 | None | 1300 |

## B EQUIPMENT AND CONTROL DEVICE(S)

### B.1 EQUIPMENT FOR EMISSION UNIT ID 01 – Woodyard Area

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| | - Outside Chip Storage (2)<br>- Hardwood Silos<br>- Hardwood Silos Cyclone | | | |
| 1300 | Truck Dump | 2006 | None | 1300 |
| 1300 | Rail Dump | 2006 | None | 1300 |

### B.2 EQUIPMENT FOR EMISSION UNIT ID 02 – Kraft Process – Kraft Pulp Mill

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| 5210 | ~~1,825 ADUBTP/day~~ Continuous Digester System: Digester Chip Bin, Continuous Digester, Chip Feed System, Blow Tank, Steam Economizer and Reboiler, Pressure Refiners A & B | 2003 / 2012 / 2019 | 5270, 2605, 3705 | 2610S1, 2610S2 |
| 5220 | Turpentine Recovery System: Gas Cooler, Condenser, Decanter | 2003 | 5260, 5260C, 5270, 2605, 3705 | 2610S1, 2610S2 |
| 5230 | Pulp Washing System: Pressure Diffuser, Filtrate Tank, 3-Stage Brownstock Washer Lines with Filtrate Tanks (2 Lines in parallel, repurposed No. 1 Post $O_2$ Washer, No. 2 Post $O_2$ Washer, D0 Washer, D1 Washer, D2 Washer, Eop Washer), Brown Stock Liquor Surge Tank, Washed Stock Storage Tank (repurposed HD Tank) | 2003 / 2019 | 5270, 2605, 3705 | 2610S1, 2610S2 |
| ~~5240~~ | ~~Oxygen Delignification System: No. 1 $O_2$ Reactor, Blow Tube, No. 1 Post $O_2$ Washer, No. 1 Post $O_2$ Filtrate Tank, No. 2 $O_2$ Reactor, Blow Tube, No. 2 Post $O_2$ Washer, No. 2 Post $O_2$ Filtrate Tank, Post $O_2$ Surge Tank, No. 1B $O_2$ Reactor~~ | ~~2003 / 2012~~ | ~~5270, 2605, 3705~~ | ~~2610S1, 2610S2~~ |
| ~~5250~~ | ~~Knotting and Screening System: HD Tank, Primary Knotters (2), Secondary Knotters (2), No. 1 Primary Screen, No. 2 Primary Screen, Secondary Screen, Tertiary Screen, Quaternary Screen, Cleaner, Shive Thickener, Screen Room Filtrate Tank, Screen Room Washer~~ | ~~2003 / 2006~~ | ~~5270, 2605, 3705~~ | ~~2610S1, 2610S2~~ |

## B.2 EQUIPMENT FOR EMISSION UNIT ID 02 – Kraft Process – Kraft Pulp Mill

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| 5255 | Pulp Refining and Washing: Deshive Refiners (2), Screw Presses (2), Screw Press Filtrate Tank, Filtrate Screen | 2019 | 5270, 2605, 3705 | 2610S1, 2610S2 |

## B.3 CONTROL DEVICE(S) FOR EMISSION UNIT ID 02 – Kraft Process – Kraft Pulp Mill

| Control Device ID | Control Device Description | Installation Date/ Modification Date | Pollutant(s) Controlled |
|---|---|---|---|
| 2605 | B&W No. 1 Combination Boiler | 1959 | VOC, TRS, HAP |
| 3705 | B&W No. 2 Combination Boiler | 1968 | VOC, TRS, HAP |
| 5260 | LVHC Collection System | 2001 | VOC, TRS, HAP |
| 5260C | LVHC System Caustic Scrubber | 2000 | VOC, TRS, HAP |
| 5270 | HVLC Collection System | 2003 | VOC, TRS, HAP |

## ~~B.4 EQUIPMENT FOR EMISSION UNIT ID 03 – Kraft Process – Bleach Plant~~

| ~~Equipment ID~~ | ~~Equipment Description~~ | ~~Installation Date/ Modification Date~~ | ~~Control Device ID~~ | ~~Emission Point ID~~ |
|---|---|---|---|---|
| ~~5300~~ | ~~Four Stage $D_0E_{op}D_1D_2$ Bleaching System: $D_0$ Tower and Washer; $E_{op}$ Reactor, Washer and Filtrate Tank; $D_1$ Tower, Washer, and Filtrate Tank; $D_2$ Tower, Washer and Filtrate Tank; Acid Sewer; Alkaline Sewer~~ | ~~2003 / 2012~~ | ~~5300C~~ | ~~5300S~~ |

## ~~B.5 CONTROL DEVICE(S) FOR EMISSION UNIT ID 03 – Kraft Process – Bleach Plant~~

| ~~Control Device ID~~ | ~~Control Device Description~~ | ~~Installation Date/ Modification Date~~ | ~~Pollutant(s) Controlled~~ |
|---|---|---|---|
| ~~5300C~~ | ~~Bleaching System Scrubber~~ | ~~2003~~ | ~~$Cl_2$, Chlorinated HAP~~ |

## ~~B.6 EQUIPMENT FOR EMISSION UNIT ID 04 – Kraft Process – Chlorine Dioxide Plant~~

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| 1790 | 40 ton/day Chlorine Dioxide Generator: Generator/Crystallizer/Reboiler, Saltcake Slurry Tank, Hydroclone and Saltcake Filter, Generator Dump Tank, Indirect Cooling Tower, $ClO_2$ Adsorption Tower, Barometric Condenser, Seal Pot, $ClO_2$ Storage Tanks (212,000 gallons), Filtrate Separation System | 1977 / 1997, 2012 | 1790C, 1790Ca | 1790S |

**B.7 CONTROL DEVICE(S) FOR EMISSION UNIT ID 04 Kraft Process Chlorine Dioxide Plant**

| Control Device ID | Control Device Description | Installation Date/ Modification Date | Pollutant(s) Controlled |
|---|---|---|---|
| 1790C, 1790Ca | Chlorine Dioxide Generator Scrubber, chilled water and white liquor and Chlorine Dioxide Generator Tail Gas Scrubber, weak wash and white liquor | 1997 | $Cl_2$ |

**B.8 EQUIPMENT FOR EMISSION UNIT ID 05 TMP Process**

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| 4100 | 1,054.5 ADTP/day TMP Lines 1-6 (The following equipment is shared): Chip Conveyor, Chip Washing System: Chip Washer and Screens (3 sets), 3 Chip Storage Silos, Pin Chip Screen Cyclone, 2 Chip Surge Bins (7,481 gallons, ea.), Heat and Turpentine Recovery System: Flash Tanks, Surge Tanks, 3 Liquid Phase Separators (1,520 gallons, each), Condensers, 2,880 gallon Decanter | 1986 | None | 4400 |
| 4100 | TMP Line 1-3: Primary, Secondary, and Tertiary Refiner System, Peroxide Towers, Neutralization Chests, Screening and Cleaning Systems, Rejects Refiner Systems, Press System, Decker System, Sodium Hydrosulfite Bleaching System | 1986 | None | 4400 |
| 4100 | TMP Lines 4-6: Primary, Secondary, and Tertiary Refiner System, Screening and Cleaning Systems, Rejects Refiner Systems, Press System, Decker System, Sodium Hydrosulfite Bleaching System | 1986 / 2003 | None | 4400 |
| 4100 | 375 ADTP/day Hydrogen Peroxide Bleaching System | 2005 | None | 4400 |

## B.9 EQUIPMENT FOR EMISSION UNIT ID 06 – Paper Mill

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| ~~2000~~ | ~~171,850 ADT Paper/Year No. 1 Paper Machine: Cleaner System, Deculator System, Precondenser System, Vacuum Pump System, Screen System, Mix Tub, Headbox System, Forming Wire, Vacuum Blower, Vacuum Trench, Save-All System, Presses, Separators, Press Pulper, Dryer Systems, Dryer Pulper Calendar, Dry End Pulper, Reel, Slurry Mix Tanks, Mix Tanks~~ | ~~1962~~ | ~~None~~ | ~~2000~~ |
| ~~2005~~ | ~~No. 1 Paper Machine Rereeler and Trim Pulper~~ | ~~1962~~ | ~~None~~ | ~~2000~~ |
| ~~2010~~ | ~~No. 1 Coater Dryer, 48 million BTU/hr fired on Natural Gas, Propane, or Kerosene: Coater System, Coating Dryer, Screen/Filters, Reel, and Coated Broke Pulper~~ | ~~1962~~ | ~~None~~ | ~~2000~~ |
| 4600 | ~~261,600 ADT Paper/Year~~ No.2 Paper Machine: Cleaner System, Deculator System, Precondenser, Vacuum Pump System, Screen System, Headbox System Forming Wire, Vacuum Blower, Vacuum Trench, Save-All System, Press System, Press Pulper, Dryer Systems, Dryer Pulper, Calendar, Dry End Pulper, Reel, Slurry Mix Tanks, Mix Tanks | 1986 / 2019 | None | 4600 |
| 4605 | No. 2 Paper Machine Rereeler and Trim Pulper | 1986 / 2019 | None | 4600 |
| ~~4610~~ | ~~No. 2 Coater Dryer, 64 million BTU/hr fired on Natural Gas, Propane or Kerosene: Coating System, Coating Dryer, Screens/Filters, Reel, and Coated Broke Pulper~~ | ~~1986~~ | ~~None~~ | ~~4600~~ |
| 4100 | ~~382,917 ADT Paper/Year~~ No. 3 ~~Lightweight Coated~~ Paper Machine: Mixed Stock Chest, Stock Refining System, ~~Die Mix Tank, Filters,~~ Cleaner System, Deculator System, Precondenser, Mixing Silo, Vacuum Pump System, Vacuum Trench, Screen System, Headbox System, Mix Eliminator, Vacuum Blowers, Forming Wire, Press System, Press Pulper, Dryer Systems, Economizer, Dry End Pulper, ~~Two-sided Rod Coater System, Coating Preparation System, Coating Mix Tank, Coating Supply Tank,~~ Steam Dryer, ~~Calendars, Calendar Pulper,~~ Reel, Reel Pulper, Winder, Trim Pulper | 1968 / 2003 / 2019 | None | 4100 |
| ~~4110~~ | ~~16 million BTU/hr Air Flotation Dryer equipped with Low NOx burners (as BACT), fired on Natural Gas, Propane, or Kerosene~~ | ~~2003~~ | ~~None~~ | ~~4110~~ |
| ~~4120~~ | ~~Infrared Dryer with total heat input of 22.6 million BTU/hr, fired on Natural Gas, Propane, or Kerosene~~ | ~~2003~~ | ~~None~~ | ~~4120~~ |

## B.9 EQUIPMENT FOR EMISSION UNIT ID 06 – Paper Mill

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| ~~4130~~ | ~~9.1 million BTU/hr Hot Oil Heating System, fired on Natural Gas, Propane, or Kerosene~~ | ~~2003~~ | ~~None~~ | ~~4130~~ |
| 2100 | ~~296,300 ADT Paper/Year~~ Pulp Dryer: Stock Cleaning, Refining and Screening System, Decker, Headbox System, Cylinder Mold, Hood Exhaust System, Vacuum System, Press System, Press Pulper, Dryers, Economizer, Dry End Pulper, Steam heated Booster Oven on dry end, Cutter, Stacker | 1959 / 1999 / 2019 | None | 2100 |
| 9900 | Three - 5.304 million BTU/hr Air Makeup Units for No. 3 Paper Machine, natural gas or propane fired | 2000 | None | 9900 |
| 9900 | Six – 5.46 million BTU Air Makeup Units for No. 2 Paper Machine, natural gas or propane fired | 2000 | None | 9900 |
| 9900 | Two – 6.253 million BTU/hr Air Makeup Units for No. 3 Paper Machine, natural gas or propane fired | 2000 | None | 9900 |
| 9900 | Two – 7.02 million BTU/hr Air Makeup Units for No. 2 Paper Machine, natural gas or propane fired | 2000 | None | 9900 |
| 9900 | 7.28 million BTU/hr Air Makeup Unit for No. 2 Paper Machine, natural gas or propane fired | 2000 | None | 9900 |
| 9900 | Four - 8.45 million BTU/hr Air Makeup Units for No. 1 Paper Machine, natural gas or propane fired | 2000 | None | 9900 |
| 9900 | 10.01 million BTU/hr Air Makeup Unit for No. 3 Paper Machine, natural gas or propane fired | 2000 | None | 9900 |
| ~~9700~~ | ~~Four – Starch Silos, Slurry Mix Tanks, Starch Cookers, Flash Tank, Mix Tanks~~ | ~~1962~~ | ~~B-2000~~ | ~~B-2000~~ |
| ~~9701A~~ | ~~1,400-gallon Slurry Tank~~ | ~~2002~~ | ~~None~~ | ~~9701A~~ |
| ~~9701B~~ | ~~1,400-gallon Slurry Tank~~ | ~~2002~~ | ~~None~~ | ~~9701B~~ |
| ~~9702~~ | ~~Starch Cooker~~ | ~~2002~~ | ~~None~~ | ~~9702~~ |
| ~~9703~~ | ~~Flash Tank~~ | ~~2002~~ | ~~None~~ | ~~9703~~ |
| ~~9704~~ | ~~2,900-gallon Paste Tank~~ | ~~2002~~ | ~~None~~ | ~~9704~~ |

## ~~B.10 CONTROL DEVICE(S) FOR EMISSION UNIT ID 06 – Paper Mill~~

| ~~Control Device ID~~ | ~~Control Device Description~~ | ~~Installation Date/ Modification Date~~ | ~~Pollutant(s) Controlled~~ |
|---|---|---|---|
| ~~B-2000~~ | ~~Two – Starch Silo Bag Houses~~ | ~~1962~~ | ~~PM, $PM_{10}$~~ |

## B.11 EQUIPMENT FOR EMISSION UNIT ID 07 – Chemical Recovery

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| 2505 | ~~412,140 ton BLS/year~~ No. 2 NDCE Recovery Furnace (315,000 lb/hr maximum steaming rate on black liquor only): Furnace, Black Liquor Tanks | 1966 | 2505C | 2505S |
| 2510 | ~~412,140 ton BLS/year~~ No. 2 Smelt Dissolving Tank | 1966 | 2511C | 2511S |
| 2515 | No. 2 Precipitator Mix Tank | 1966 | None | 2515 |
| 2520 | No. 2 Salt Cake Mix Tank | 1966 | 2505C | 2505S |
| 5105 | ~~744,600 ton BLS/year~~ No. 3 NDCE Recovery Furnace (560,000 lb/hr maximum steaming rate on black liquor only): Furnace, Black Liquor Tanks, Black Flash Tanks, Condensate Flash Tanks, Soap Stand Pipe, Stand Pipe Level Control Tank | 1983 / 2003, 2007 | 5105C | 5105S |
| 5110 | ~~744,600 ton BLS/year~~ No. 3 Smelt Dissolving Tank | 1983 | 2511C | 2511S |
| 5115 | No. 3 Precipitator Mix Tank | 1966 | None | 5115 |
| 5120 | No. 3 Salt Cake Mix Tank | 1966 | 5105C | 5105S |
| 2723 | ~~465 ton CaO/day~~ No. 2 Lime Kiln with low NOx burners | 1995 / 2003, 2010 | 2723C | 2723 |
| 2700 | Green Liquor Blend Tank, 470,000-gallon White Liquor Storage Tank, 172,730 No. 1 Green Liquor Clarifier, 845,000-gallon No. 2 Green Liquor Clarifier, 845,000-gallon No. 3 Green Liquor Clarifier, (M27-37) No. 2 Swing Tank for storing either White or Green Liquors, Dregs Filter, Ejector, Green Liquor Storage, Three – 18,394-gallons, each, Green Liquor Storage Causticizers, White Liquor Pressure Filters, Mud Washer, Lime Mud Precoat Filters | 1995 / 2003 | None | 2700 |
| 2700 | 62,555-gallon No. 4 Causticizer | 2003 | 2725C | 2700 |
| 2701 | ~~465 ton CaO/day~~ Slaker | 1995 | 2725C | 2701 |
| 2702 | Purchased Lime Silo | 1995 | 2726C | 2702 |
| 2703 | Reburned Lime Silo | 1995 | 2724C | 2703 |
| 2400 | ~~1,105.9 ton BLS/day~~ No. 1 Multi-Effect Evaporator Set with concentrator | 1959 / 2006, 2012 / 2019 | 5260, 5260C, 2605, 3705 | 2610S1, 2610S2 |
| 2402 | Heavy Black Liquor Tank | 2006 | None | 2400 |
| 2500 | ~~985.6 ton BLS/day~~ No. 2 Multi-Effect Evaporator Set with concentrator | 1966 | 5260, 5260C, 2605, 3705 | 2610S1, 2610S2 |
| 5100 | ~~1,077.5 ton BLS/day~~ No. 3 Multi-Effect Evaporator Set with concentrator | 1982 / 2012 | 5260, 5260C, 2605, 3705 | 2610S1, 2610S2 |

## B.11 EQUIPMENT FOR EMISSION UNIT ID 07 – Chemical Recovery

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| 2722 | Lime Kiln Oxygen Enrichment system: Oxygen Lance (inside kiln), Oxygen Storage Tank, Two – Oxygen Mixers, and Piping | 2010 | None | 2723 |

## B.12 CONTROL DEVICE(S) FOR EMISSION UNIT ID 07 – Chemical Recovery

| Control Device ID | Control Device Description | Installation Date/ Modification Date | Pollutant(s) Controlled |
|---|---|---|---|
| 2505C | No. 2 Recovery Furnace ESP | 1990 | PM, $PM_{10}$, HAP Metals |
| 2511C | Smelt Tanks Venturi Caustic Scrubber (Weak Wash and Caustic) | 1996 | PM, $PM_{10}$, HAP Metals, TRS |
| 5105C | No. 3 Recovery Furnace ESP | 1983 / 1992 | PM, $PM_{10}$, HAP Metals |
| 2723C | No. 2 Lime Kiln ESP | 1995 | PM, $PM_{10}$, $PM_{2.5}$, HAP Metals |
| 2725C | Slaker Venturi Scrubber (Weak Wash and Caustic) | 1995 | PM, $PM_{10}$ |
| 2726C | Purchased Lime Silo Bag House | 1995 | PM, $PM_{10}$ |
| 2724C | Reburned Lime Silo Bag House | 1995 | PM, $PM_{10}$ |
| 5260 | LVHC Collection System | 2001 | VOC, TRS, HAP |
| 5260C | LVHC System Caustic Scrubber | 2000 | VOC, TRS, HAP |
| 2605 | No. 1 Combination Boiler | 1959 | VOC, TRS, HAP |
| 3705 | No. 2 Combination Boiler | 1968 | VOC, TRS, HAP |

## B.13 EQUIPMENT FOR EMISSION UNIT ID 08 - Utilities

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| ~~2550~~ | ~~342–375 million BTU/hr Power Boiler, fired on natural gas, No. 6 fuel oil; 225,000 lb/hr maximum steaming rate on any fuel~~<br><br>~~•342 million BTU/hr – No. 6 fuel oil;~~<br>~~•375 million BTU/hr – natural gas~~ | ~~1959~~ | ~~none~~ | ~~2550S~~ |

## B.13 EQUIPMENT FOR EMISSION UNIT ID 08 - Utilities

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| 2605 | 392–405 million BTU/hr No. 1 Combination Boiler, fired on natural gas, No. 6 fuel oil, bark, TDF, Specification used oil, waste paper, paper cores (275,000 lb/hr maximum steaming rate on mixed fuels): Boiler, TRS Gas Cooler, TRS Gas Condenser, TRS Mist Eliminator, TRS Gas Reheater<br><br>•392 million BTU/hr – No. 6 fuel oil or bark/woodwaste;<br>•405 million BTU/hr – natural gas | 1959 | 2605C, 2610C1 | 2610S2 |
| 3705 | 420–720 million BTU/hr No. 2 Combination Boiler, fired on natural gas, No. 6 fuel oil, bark, TDF, Specification used oil, waste paper, paper cores (500,000 lb/hr maximum steaming rate on oil or gas only): Boiler, TRS Gas Cooler, TRS Gas Condenser, TRS Mist Eliminator, TRS Gas Reheater<br><br>•498 million BTU/hr – bark/wood waste;<br>•700 million BTU/hr - No. 6 fuel oil;<br>•720 million BTU/hr - natural gas | 1968 | 3705C, 3710C1 | 2610S1 |
| 5260 | LVHC Collection System | 2001 | 5260C, 2605, 3705 | 2610S1, 2610S2, Emergency Relief Valves: 24FL331, 24FL336, 24FL341, 51FL262, 26FL371 |
| 5270 | HVLC Collection System | 2003 | 2605, 3705 | 2610S1, 2610S2, Emergency Relief Valves: 52HS937, 42FL967, 52FL967 |
| 5261, 5271 | Flame Arrestors, Mist Eliminators, Condensate Collection Tanks for LVHC and HVLC | 2001 / 2003 | None | 5261, 5271 |

### B.14 CONTROL DEVICE(S) FOR EMISSION UNIT ID 08 - Utilities

| Control Device ID | Control Device Description | Installation Date/ Modification Date | Pollutant(s) Controlled |
|---|---|---|---|
| 2605C | No. 1 Combination Boiler Centrifugal Cyclone | 1959 | PM, $PM_{10}$, $PM_{2.5}$ |
| 2610C1 | No. 1 Combination Boiler ESP | 1959 | PM, $PM_{10}$, $PM_{2.5}$ |
| 3705C | No. 2 Combination Boiler Centrifugal Cyclone | 1968 | PM, $PM_{10}$, $PM_{2.5}$ |
| 3710C1 | No. 2 Combination Boiler ESP | 1980 | PM, $PM_{10}$, $PM_{2.5}$ |
| 2605 | B&W No.1 Combination Boiler | 1959 | VOC, TRS, HAP |
| 3705 | B&W No. 2 Combination Boiler | 1968 | VOC, TRS, HAP |
| 5260C | LVHC System Caustic Scrubber | 2000 | VOC, TRS, HAP |

### B.15 EQUIPMENT FOR EMISSION UNIT ID 09 – Waste Treatment

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| 2901 | Mix Box | 1959 / 1999 | None | 2901 |
| 2901 | Bar Screen | 1959 / 1999 | None | 2901 |
| 2901 | Primary Clarifier | 1959 / 1999 | None | 2901 |
| 2901 | Settling Pond | 1959 / 1999 | None | 2901 |
| 2901 | Aerated Biotreatment | 1959 / 1999 / 2020 | None | 2901 |
| 2901 | Holding Basins | 1959 / 1999 | None | 2901 |
| 2901 | Tertiary Treatment Plant | 1959 / 1999 | None | 2901 |
| 9800 | 180,000-gallon Foul Condensate Collection Tank (from NCG Systems) | 1999 | 2605, 3705 | 2610S1, 2610S2 |
| 9802 | Hard Pipe | 2020 | None | 2901 |
| ~~9801~~ | ~~800-gallon/minute Condensate Steam Stripper~~ | ~~2000~~ | ~~2605, 3705~~ | ~~2610S1, 2610S2~~ |
| ~~9820~~ | ~~Stripper Off Gases (SOGs) Collection System~~ | ~~2001~~ | ~~2605, 3705~~ | ~~2610S1, 2610S2~~ |

### B.16 CONTROL DEVICE(S) FOR EMISSION UNIT ID 09 – Waste Treatment

| Control Device ID | Control Device Description | Installation Date/ Modification Date | Pollutant(s) Controlled |
|---|---|---|---|
| 2605 | B&W No. 1 Combination Boiler | 1959 | VOC, TRS, HAP |
| 3705 | B&W No. 2 Combination Boiler | 1968 | VOC, TRS, HAP |

### B.16 CONTROL DEVICE(S) FOR EMISSION UNIT ID 09 – Waste Treatment

| Control Device ID | Control Device Description | Installation Date/ Modification Date | Pollutant(s) Controlled |
|---|---|---|---|
| ~~9820~~ | ~~Stripper Off Gases (Collection)~~ | ~~2001~~ | ~~VOC, TRS, HAP~~ |
| ~~9801~~ | ~~Condensate Steam Stripper~~ | ~~2001~~ | ~~VOC, TRS, HAP~~ |

### ~~B.17 EQUIPMENT FOR EMISSION UNIT ID 10 – Storage Tanks~~

| ~~Equipment ID~~ | ~~Equipment Description~~ | ~~Installation Date/ Modification Date~~ | ~~Control Device ID~~ | ~~Emission Point ID~~ |
|---|---|---|---|---|
| ~~M10-223~~ | ~~39,023-gallon Methanol Tank~~ | ~~post-1984~~ | ~~None~~ | ~~1100~~ |

### B.18 EQUIPMENT FOR EMISSION UNIT ID 11 - Miscellaneous

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| 2900 | Landfill | 1959 | None | 2900 |
| 1000 | Road Activities | 1959 | None | 1000 |
| 1000 | Equipment Leaks and Cleaning Material Usage | 1959 | None | 1000 |
| 1000 | Miscellaneous Material Usage | 1959 | None | 1000 |

### B.19 EQUIPMENT FOR EMISSION UNIT ID 12 - HD Pulp Storage Tanks

| Equipment ID | Equipment Description | Installation Date/ Modification Date | Control Device ID | Emission Point ID |
|---|---|---|---|---|
| 1299 | ~~Twelve~~ HD Pulp Storage Tanks | 1959 - 1986 / 2019 | None | 1299 |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| C.1 | **Emission Unit ID:** All<br><br>**Equipment/Control Device ID:** All<br><br>Equipment capacities provided under the Equipment Description column of the Equipment Tables above are not intended to be permit limits unless otherwise specified within the Table of Conditions for the particular equipment. However, this condition does not exempt the facility from the construction permitting process, from PSD review, nor from any other applicable requirements that must be addressed prior to increasing production rates. |
| C.2 | **Emission Unit ID:** All<br><br>**Equipment/Control Device ID:** All<br><br>(S.C. Regulation 61-62.1, Section II.J.1.g) A copy of the Department issued construction and/or operating permit must be kept readily available at the facility at all times. The owner or operator shall maintain such operational records; make reports; install, use, and maintain monitoring equipment or methods; sample and analyze emissions or discharges in accordance with prescribed methods at locations, intervals, and procedures as the Department shall prescribe; and provide such other information as the Department reasonably may require. All records required to demonstrate compliance with the limits established under this permit shall be maintained on site for a period of at least 5 years from the date the record was generated and shall be made available to a Department representative upon request. |
| C.3 | **Emission Unit ID:** 02, 03, 04, 06, 07, 08, 09<br><br>**Equipment/Control Device ID:** 5210, 5220, 5230, ~~5240, 5250,~~ 5255, 5300, 5300C, 1790, 1790C, 1790Ca, 9700, B-2000, 2505, 2510, 2520, 5105, 5110, 5120, 2723, 2700 (No. 4 Causticizer), 2701, 2702, 2703, 2400, 2500, 5100, 2505C, 5105C, 2723C, 2511C, 2725C, 2726C, 2724C, 2605, 3705, 5260, 5260C, 5270, 2605C, 2610C, 3705C, 3710C1, 9800, 9801, 9802<br><br>The owner/operator shall inspect, calibrate, adjust, and maintain continuous monitoring systems, monitoring devices, and gauges in accordance with manufacturer's specifications or good engineering practices. The owner or operator shall maintain on file all measurements including continuous monitoring system or monitoring device performance measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required in a permanent form suitable for inspection by Department personnel. |
| C.4 | **Emission Unit ID:** 02, 03, 04, 06, 07, 08, 09 |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | **Equipment/Control Device ID:** 5210, 5220, 5230, ~~5240, 5250,~~ 5255, 5300, 5300C, 1790, 1790C, 1790Ca, 9700, B-2000, 2505, 2510, 2520, 5105, 5110, 5120, 2723, 2700 (No. 4 Causticizer), 2701, 2702, 2703, 2400, 2500, 5100, 2505C, 5105C, 2723C, 2511C, 2725C, 2726C, 2724C, 2605, 3705, 5260, 5260C, 5270, 2605C, 2610C, 3705C, 3710C1, 9800, 9801, 9802<br><br>All gauges shall be readily accessible and easily read by operating personnel and Department personnel (i.e. on ground level or easily accessible roof level). Monitoring parameter readings (i.e., pressure drop readings, etc.) and inspection checks shall be maintained in logs (written or electronic), along with any corrective action taken when deviations occur. Each incidence of operation outside the operational ranges, including date and time, cause, and corrective action taken, shall be recorded and kept on site. Exceedance of operational range shall not be considered a violation of an emission limit of this permit, unless the exceedance is also accompanied by other information demonstrating that a violation of an emission limit has taken place. Reports of these incidences shall be submitted semiannually. If no incidences occurred during the reporting period, then a letter shall indicate such.<br><br>Any alternative method for monitoring control device performance must be preapproved by the Bureau and shall be incorporated into the permit as set forth in SC Regulation 61-62.70.7. |
| C.5 | **Emission Unit ID:** 02, 03, 04, 06, 07, 08, 09<br><br>**Equipment/Control Device ID:** 5210, 5220, 5230, ~~5240, 5250,~~ 5255, 5300, 5300C, 1790, 1790C, 1790Ca, 9700, B-2000, 2505, 2510, 2520, 5105, 5110, 5120, 2723, 2700 (No. 4 Causticizer), 2701, 2702, 2703, 2400, 2500, 5100, 2505C, 5105C, 2723C, 2511C, 2725C, 2726C, 2724C, 2605, 3705, 5260, 5260C, 5270, 2605C, 2610C, 3705C, 3710C1, 9800, 9801, 9802<br><br>This Title V operating permit requires that initially established, modified, and/or updated monitoring ranges and/or limitation as well as changes in emission factors used in monitoring be submitted to the Director of Air Permitting, Bureau of Air Quality. Monitoring ranges and emission factor changes should be sent to:<br><br>**SCDHEC - BAQ**<br>**Director of Air Permitting Division**<br>**2600 Bull Street**<br>**Columbia, SC 29201**<br><br>The required submittals for monitoring ranges and/or limitations should include Title V ID, Equipment No., and permit condition where the monitoring is used, a description of the equipment and control devices involved, the old monitoring ranges and/or limitations, the new monitoring ranges and/or limitations, the methods used to develop the new ranges and/or limitations, the rational used to select the new, modified, and/or updated ranges and/or limitations as well as all information and data used in the development of new, modified, and/or updated ranges and or limitations. NESHAP Part 61 and 63 monitoring ranges and/or limitations should also be sent with the information specified above to the Air Toxics Section. |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | The submittals of emission factor changes should include the Title V ID, Equipment No., and permit condition where the emission factors are used for monitoring, the source (source test data, continuous monitoring system data, AP42 emission factor, NCASI emission factor etc.) of the old and new emissions factors, the reason for changing the emission factors, and the rational used to select the new emissions factors. |
| C.6 | **Emission Unit ID:** All NSPS Sources<br><br>**Equipment/Control Device ID:** All NSPS Sources<br><br>The owner or operator shall furnish the Director of Air Permitting, Bureau of Air Quality (BAQ) written notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant, unless that change is specifically exempted under 40 CFR 60.14 (e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced. The report shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change and expected completion date of the change. The BAQ may request additional relevant information subsequent to this notice. |
| C.7 | **Emission Unit ID:** 02, 07, 08, 09<br><br>**Equipment/Control Device ID:** ~~5210, 5230, 5250,~~ 5105, 5110, 2723, 5100, 2605, 3705, 5260, 5270, 2605C, 5260C, 2610C1, 3705C, 3710C1, 5105C, 2511C, 2723C, 9800, ~~9801, 9820~~<br><br>These sources are subject to New Source Performance Standards (NSPS), 40 CFR 60 Subpart A, General Conditions and Subpart BB, Standards of Performance for Kraft Pulp Mills, and S.C. Regulation 61-62.60 Subparts A and BB, Standards of Performance for Kraft Pulp Mills, as applicable. These sources shall comply with all applicable requirements of these Subparts A and BB. |
| C.7 | **Emission Unit ID:** 02, 07, 08, 09<br><br>**Equipment/Control Device ID:** 5210, 5230, 5255, 2400, 2605, 3705, 5260, 5270, 2605C, 5260C, 2610C1, 3705C, 3710C1, 5105C, 2511C, 2723C, 9800, 9802<br><br>These sources are subject to New Source Performance Standards (NSPS), 40 CFR 60 Subpart A, General Conditions and Subpart BBa, Standards of Performance for Kraft Pulp Mills, and S.C. Regulation 61-62.60 Subparts A and BBa, Standards of Performance for Kraft Pulp Mills, as applicable. These sources shall comply with all applicable requirements of these Subparts A and BBa. |
| C.8 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 5105<br><br>These sources are subject to New Source Performance Standards (NSPS), 40 CFR 60 Subpart A, General Conditions and Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, and S.C. Regulation 61-62.60 Subparts A and Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, as applicable. These sources shall comply with all applicable requirements |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | of these Subparts A and Db. |
| C.9 | **Emission Unit ID:** 06, 07, 08<br><br>**Equipment/Control Device ID:** ~~2010, 4610, 4110, 4120,~~ 9900 (10.01 million Btu/hr Air Make-up Unit), ~~2505,~~ 2605, 3705<br><br>(S. C. Regulation 61-62.5, Standard No. 5.2) Any existing source where a burner assembly is replaced with another burner assembly after June 25, 2004, regardless of size or age of the burner assembly to be replaced shall be replaced with a low $NO_X$ burner assembly or equivalent technology, and shall achieve a 30 percent reduction from uncontrolled $NO_X$ emission levels based upon manufacturer's specifications. An exemption from this requirement shall be granted when a single burner assembly is being replaced in an existing source with multiple burners due to non-routine maintenance. The replacement of individual components such as burner heads, nozzles, or windboxes does not trigger this requirement.<br><br>The owner or operator shall notify and register the burner assembly replacement with the Department, in writing, within 7 days of replacing the existing burner assembly. Notification will be provided on the Department's *Low $NO_x$ Burner Assembly Replacement Notification* Form D-2935. Those affected sources that wish to receive an emission reduction credit for the control device will be required to submit a construction permit application. Those affected sources requesting an alternative control methodology must receive written approval prior to burner replacement.<br><br>If the burner assembly is replaced as detailed above, the owner or operator shall perform tune-ups every twenty-four (24) months in accordance with manufacturer's specifications or with good engineering practices. The first tune-up shall be conducted no more than twenty-four (24) months from replacement of a burner assembly for affected existing sources. Each subsequent tune-up shall be conducted no more than twenty-four (24) months after the previous tune-up.<br><br>All tune-up records are required to be maintained on site and available for inspection by the Department for a period of five (5) years from the date generated.<br><br>The owner or operator shall develop and retain a tune-up plan on file. |
| C.10 | **Emission Unit ID:** 07, 08<br><br>**Equipment/Control Device ID:** 5105, 5110, 2723, 2550, 2605, 3705, 2605C, 2610C1, 3705C, 3710C1<br><br>For any source test required under an applicable standard or permit condition, the owner, operator, or representative shall comply with S.C. Regulation 61-62.1, Section IV - Source Tests.<br><br>Unless approved otherwise by the Department, the owner, operator, or representative shall ensure that source tests are conducted while the source is operating at the maximum expected production rate or other production rate or operating parameter which would result in the highest emissions for the pollutants being tested. Some |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | sources may have to spike fuels or raw materials to avoid being subjected to a more restrictive feed or process rate. Any source test performed at a production rate less than the rated capacity may result in permit limits on emission rates, including limits on production if necessary.<br><br>The owner or operator shall comply with any limits that result from conducting a source test at less than rated capacity. A copy of the most recent Department issued source test summary letter imposing a limit shall be maintained with the operating permit, for each source that is required to be limited. Any operating restrictions imposed by the Department become effective upon the date the source receives the source test summary letter from the Department.<br><br>Site-specific test plans and amendments, notifications, and source test reports shall be submitted to the Manager of the Source Evaluation Section, Bureau of Air Quality. |
| C.11 | **Emission Unit ID:** 01<br><br>**Equipment/Control Device ID:** 1300<br><br>The affected sources are subject to all applicable limits and requirements of the following regulations (reg.):<br>●*SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)*<br>●*SC Reg. 61-62.6 {Control of Fugitive Particulate Matter} (SC Std. 62.6)*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.<br><br>**SC Std 4 Non-Enclosed Operations and SC Reg. 62.6 Fugitive Emissions:** (S.C. Regulation 61-62.5, Standard No. 4, Section X) All non-enclosed operations shall be conducted in such a manner that a minimum of particulate matter (PM) becomes airborne. In no case shall established air quality standards be exceeded at or beyond the property line. The owner or operator of all such operations shall maintain dust control on the premises and any roadway owned or controlled by the owner/operator by paving or other suitable measures. Oil treatment is prohibited.<br><br>(S.C. Regulation 61-62.6) Fugitive particulate matter (PM) emissions from material handling, process equipment, or storage piles will be controlled by proper housekeeping and/or wet suppression or other suitable measures.<br><br>**SC Std. 4 Opacity:** (S.C. Regulation 61-62.5, Standard No. 4, Section IX) Where construction or modification began after December 31, 1985; emissions from this source (including fugitive emissions) shall not exhibit an opacity greater than 20%.<br><br>**SC Std. 4 Particulate Matter:** (S.C. Regulation 61-62.5, Standard No. 4, Section VIII) Particulate matter (PM) emissions shall be limited to the rate specified by use of the following equations:<br>1) when process weight rates are less than or equal to 30 tons per hour:<br>$E = 4.10P^{0.67}$ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

<table>
<tr><th>Condition Number</th><th>Condition</th></tr>
<tr><td></td><td>or 2) when process weight rates are greater than 30 tons per hour<br>$E = 55.0P^{0.11} - 40$<br>where E = the allowable emission rate in pounds per hour, and P = process weight rate in tons per hour. For the purposes of compliance with this condition, the process boundaries are defined below. There are no control devices for the affected sources.<br><br><table><tr><th colspan="2">TV ID 01</th></tr><tr><th>Process</th><th>Process Weight Rate (tons/hr)</th></tr><tr><td>Woodyard</td><td>593</td></tr></table><br>The owner or operator shall perform visual emissions inspections (VE) on at least a semiannual basis to show reasonable assurance of continuing compliance with SC Std. 4 opacity and fugitive emission limitations. Logs shall be kept to record all visual inspections, noting color, duration, density (heavy or light), cause, and corrective action taken for any abnormal emissions. If a source did not operate during the required visual inspection time frame, the log shall indicate such. The owner/operator shall submit semiannual reports. The report shall include records of abnormal emissions, if any, and corrective action taken. If the unit did not operate during the semiannual period, the report shall state so.<br><br>Visual inspection means a qualitative observation of opacity during daylight hours. The observer does not need to be certified to conduct valid visual inspections. However, at a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions cause by background contrasts, ambient lighting, and observer position relative to lighting, wind, and the presence of uncombined water.</td></tr>
<tr><td>C.12</td><td>Emission Unit ID: 02<br><br>Equipment/Control Device ID: 5210, 5220, 5230, ~~5240, 5250~~5255<br><br>The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):<br>• SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)<br><br>(S.C. Regulation 61-62.5, Standard No. 4, Section IX) Where construction or modification began after December 31, 1985, emissions from these sources (including fugitive emissions) shall not exhibit an opacity greater than 20%.</td></tr>
<tr><td>C.13</td><td>Emission Unit ID: 02<br><br>Equipment/Control Device ID: 5210, ~~5250~~5255, 2605, 3705, 5270<br><br>The affected sources are subject to all applicable limits and requirements of the following regulations (reg.):<br>•NSPS 40 CFR 60, Subparts A {General Provisions}; BBa {Standards Of Performance For Kraft Pulp Mills}; and SC</td></tr>
</table>

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | *Reg. 61-62.60 Subparts A and BBa (NSPS BBa)*<br>●*40 CFR 64{Compliance Assurance Monitoring} (CAM)*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *SC Std. 4.* |
| | In accordance with *NSPS 40 CFR 60.283a(a)(1)(iii)*, TRS gases from a digester system (ID 02-5210) must be less than or equal to 5 parts per million by volume on a dry basis, corrected to 10 percent oxygen [5 ppmv (dry basis) 10% $O_2$] unless the gases are combusted with other waste gases in an incinerator or other device and are subjected to a minimum temperature of 650 °C (1200 °F) for at least 0.5 second or as specified in *§60.283a(a)(1)(vi)*, the uncontrolled exhaust gases from a new or modified digester system shall contain TRS less than 0.01 pounds TRS per ton of air dried pulp. |
| | In accordance with *NSPS 40 CFR 60.283a(a)(1)(iii)*, TRS gases from knotting and screening system (ID 02-5250) must be less than or equal to 5 parts per million by volume on a dry basis, corrected to 10 percent oxygen [5 ppmv (dry basis) 10% $O_2$] unless the gases are combusted with other waste gases in an incinerator or other device and are subjected to a minimum temperature of 650 °C (1200 °F) for at least 0.5 second. The TRS gases are routed to No. 1 or No. 2 Combination Boiler for incineration.<br><br>The affected TRS gases shall be routed to the No. 1 Combination Boiler (2605) or No. 2 Combination Boiler (3705) and combusted for TRS reduction. The TRS gases are collected and routed to the boilers in the high volume low concentration (HVLC) closed vent collection system (5270). The TRS gases are subject to a minimum combustion temperature of 1200° F for at least 0.5 second.<br><br>A caustic scrubber in the LVHC collection system prior to the combination boilers (5260C-LVHC System Caustic Scrubber) is used as part of the control to reduce TRS and sulfur dioxide ($SO_2$) from LVHC sources. The scrubber is not vented to the atmosphere; gaseous emissions from the caustic scrubber shall be vented to the LVHC system.<br><br>The specific sources in affected systems that require collection and control are listed in ATTACHMENT - TRS and HAP Sources Routed to Combination Boilers for Incineration which is considered a Federally enforceable part of this condition and permit. *[NSPS BBa: §60.280a; §60.281a; §60.283a(a)(1)]* |
| | **CAM TRS Monitoring for NSPS BBa Reduction:**<br>■Note: For streamlining purposes the monitoring for NSPS BBa uses *Part 63* monitoring methods; however, this is a NSPS BBa condition and not a *Part 63 (MACT)* condition.<br><br>These sources are subject to *40 CFR 64, Compliance Assurance Monitoring (CAM)*, and shall comply with all applicable provisions. The Bureau considers the required use of boiler with heat input capacity greater than or equal to 44 megawatts (150 million British thermal units per hour) by introducing the HAP emission stream with the combustion air required by *NESHAP 40 CFR 63, Subparts A and S* (*MACT S*), along with recording any bypass |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | vent times and other TRS collection system losses to be presumptively acceptable *CAM* monitoring pursuant to 40 CFR 64.2(b)(1)(i) for reasonable assurance of compliance with the TRS limitations of *NSPS BBa*.<br><br>To meet the requirements of 40 CFR 64 for the affected sources, the indicator for TRS reduction will be the status of TRS venting or losses from the collection system of affected TRS sources required to be routed to boilers. The owner or operator will keep records of all venting, bypasses, and/or TRS losses that are exhausted to the atmosphere without being combusted in the boilers. The venting time period and source of the venting event shall be determined and recorded. As approved by the Department, the owner or operator shall continue to operate and maintain a flame failure system for the No. 1 Combination Boiler (2605) and No. 2 Combination Boiler (3705) to provide positive indication of vents when there is an absence of a flame in a boiler. The status of affected TRS streams shall be used to provide reasonable assurance of continuing compliance with *NSPS BBa* TRS reduction requirements.<br><br>A summary of the approved monitoring method, sampling frequency, monitor requirements, and data collection method is shown below. |

| **Kraft Pulp Mill Parameter Monitoring for Boilers 2605 and 3705 and HVLC Collection System 5270** | |
|---|---|
| **•Control Device(s): Type Monitoring:**<br>•Combination Boiler #1: 2605, Combination Boiler #2: 3705, and HVLC Collection System: 5270<br>•CAM/NSPS BBa: TRS Vent status tracking<br>•Streamline monitoring [*MACT S* requirement used] | **•Regulatory Requirement(s): Pollutant(s):**<br>•*NSPS BBa*: TRS |
| **•CAM Indicator(s):**<br>• CAM/NSPS BBa: Vent status tracking<br>•Affected streams to source:<br>•By pass and vent valves status<br>•Rupture disks status | **•Monitoring Frequency: Averaging Time:**<br>**Frequency**: Continuous - The duration and source of each TRS venting episode >5 minutes determined<br>**Averaging:** No averaging |
| **•Monitor Operation and Maintenance:**<br>•*NSPS BBa: §60.284a; §60.13*<br>•*NSPS 40 CFR Part 60, Appendix B* | **•Data Collection Methods:**<br>•Computer system/ manual record keeping |

| | |
|---|---|
| | For streamlining purposes, a CAM excursion will have the same definition as an excess emission defined by NSPS BBa. To meet these requirements for the affected sources, the indicator for TRS reduction will be the status of TRS venting or losses from the collection system of affected TRS sources required to be routed to the boilers.<br><br>Operational ranges for the monitored parameters for the control options defined above have been established |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | to indicate proper operation of the listed control devices and to provide a reasonable assurance of regulatory compliance (See ATTACHMENT - Pollution Control Equipment-Parameter Ranges). The operational ranges for the monitored parameters, as indicated above for the control options defined above, were derived from stack test data, vendor information, operational history, and visual inspections, which demonstrate the proper operation of the equipment. The facility shall maintain the established ranges, any range re-evaluations, and supporting documentation for these monitored parameters. Operating ranges may be updated following submittal to the Director of Air Permitting in accordance with Condition C.6.<br><br>Upon detecting an excursion, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions).<br><br>For QA/QC purposes the owner or operator shall check the operation of the flame failure systems and the systems that indicate and/or record vents of TRS gases to the atmosphere on a monthly basis. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.<br><br>A semiannual report for monitoring shall be submitted to the Bureau in accordance with the requirements in Part J of the Title V operating permit. The report shall include, at a minimum, the information required under *SC Reg. 61-62.70.6(a)(3)(iii)* and the following information as applicable:<br><br>• Summary information of the number, duration, source, and cause (including unknown cause, if applicable) of excursions, as applicable, and the corrective actions taken; excess emissions for South Carolina Standard 4 and NSPS BBa will also be reported.<br>• Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero span or other daily calibration checks, if applicable)<br><br>If required by the Department pursuant to *40 CFR 64.8*, a description of the actions taken to implement a Quality Improvement Plan (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions occurring.<br><br>**(B): NSPS Records:** In addition to the reporting requirements above, the owner or operator shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. *[NSPS BBa: §60.7(b)]* |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | **(C): NSPS Reports:** In addition to the reporting requirements above, the owner or operator shall meet the applicable reporting requirements of *NSPS BBa*. The owner or operator shall submit a semiannual excess emissions and monitoring systems performance report and/or a summary report for the affected sources in accordance with the requirements of *NSPS BBa: §60.284a(d), §60.7(c) and (d).* If the total duration of excess emissions for the reporting period is less than one percent (1%) of the total operating time for the reporting period and CMS downtime for the reporting period is less than five percent (5%) of the total operating time for the reporting period, only the summary report form shall be submitted. If the total duration of excess emissions for the reporting period is 1% or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5% or greater of the total operating time for the reporting period, the summary report and the excess emission report shall both be submitted. Semiannual reports shall include the information required by *§60.7(c)* and *§60.7(d)* and shall be submitted in accordance with the requirements of Part J of this Title V operating permit. If there are no excess emissions during the reporting period, the report shall indicate such. |
| ~~C.14~~ | ~~**Emission Unit ID:** 02, 08~~<br><br>~~**Equipment/Control Device ID:** 5210, 5240, 2400, 5100, 2605, 3705, 5260, 5260C~~<br><br>~~The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~•*SC Reg. 61-62.5 Standard No. 7 (Prevention of Significant Deterioration) (SC Std. 7)*~~<br><br>~~The daily unbleached pulp production is limited to the following rate:~~<br><br>~~•Daily Unbleached Production: ≤ 1,825 air dried tons of unbleached pulp per day (12-month rolling average)~~<br>~~≤ = Less than or equal to~~<br><br>~~The daily unbleached pulp production shall be recorded each day and used to calculate the average daily unbleached pulp production each month. The monthly data will be used to calculate a 12-month rolling average each month. Records shall be kept for all data and calculations and made available to the Department on request. Semiannual reports that include any periods where the monthly 12-month rolling average is above 1,825 air dried tons of unbleached pulp per day along with any corrective actions taken in accordance with Part J of this permit. If no incidences occurred during the reporting period, then the report shall indicate such information.~~ |
| ~~C.15~~ | ~~**Emission Unit ID:** 03~~<br><br>~~**Equipment/Control Device ID:** 5300, 5300C~~<br><br>~~The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~• *SC Reg. 61-62.5, Standard No. 4(Emissions from Process Industries) (SC Std. 4)*~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ~~▪Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *SC Std. 4.*~~<br><br>~~(S.C. Regulation 61-62.5, Standard No. 4, Section IX) Where construction or modification began after December 31, 1985, emissions from this source (including fugitive emissions) shall not exhibit an opacity greater than 20%.~~<br><br>~~▪Note: For streamlining purposes the monitoring for *SC Std. 4* opacity uses *Part 63* monitoring methods; however, this is a *SC Std. 4* condition and not a *Part 63 (MACT)* condition.~~<br><br>~~To show reasonable assurance of continuing compliance with the opacity requirements of *SC Std. 4*, the owner or operator shall use the continuous parameter monitoring system (CPMS) used as the monitoring method for the required periodic PM monitoring for *40 CFR Part 63, Subparts A and S*. Liquid recirculation (influent) flow, Scrubber pH (effluent) flow, and fan operational status (on/off) as measured by the CPMS will be the monitored parameters for opacity. Under the authority of §63.453(m) and §63.8(f), the owner or operator has been granted approval to monitor scrubber fan operational status (on/off) as an alternative to scrubber gas inlet flow for MACT S.~~<br><br>~~To meet the requirements for Title V monitoring the owner or operator shall maintain the monitoring methods, sampling frequencies, data collection procedures, averaging time(s) (where appropriate), and operation and maintenance practices summarized below. The scrubber shall be in place and operational whenever processes controlled by the scrubber are running, except during periods of scrubber malfunction or mechanical failure. Corrective actions shall be taken for any excursions of the established operational ranges. *[§64.6(c)(1)(iii) and 64.3(b); SC Reg. 61-62.70(6)(a)(3)(i)(A) (Streamlining)]*~~ |

| ~~**Kraft Bleach Plant Parameter Monitoring for Scrubber 5300C**~~ | |
|---|---|
| ~~**•Type Monitoring:**<br>•Title V; Parametric monitoring~~ | ~~**Regulatory Requirement(s) Monitored:**<br>•*SC Std. 4: Opacity*~~ |
| ~~**•Monitoring Method(s): Parameter(s):**<br>•CPMS: Liquid recirculation (influent) flow<br>•CPMS: Scrubber pH (effluent) flow<br>•CPMS: Fan operation (on/off)~~ | ~~**Monitoring Frequency: Averaging Time:**<br>•Minimum of once every 15 minutes<br>•Averaging Time: 3-hour averages~~ |
| ~~**•Monitoring Operation and Maintenance:**<br>•40 CFR 63.8; §63.453(c)<br>•Approved alternative MACT S monitoring~~ | ~~**•Data Collection Methods:**<br>Computer system/ manual record keeping~~ |

~~Operational ranges for the monitored parameters have been established to ensure proper operation of the pollution control equipment and to provide a reasonable assurance of compliance (See ATTACHMENT – Pollution Control Equipment Parameter Ranges). Unless otherwise stated in a condition, these operational~~

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

<table>
<tr><th>Condition Number</th><th>Condition</th></tr>
<tr><td></td><td>ranges for the monitored parameters shall be derived from stack test data, vendor certification, and/or operational history and visual inspections, which demonstrate the proper operation of the equipment. The facility shall maintain the established ranges, any range re-evaluations, and supporting documentation for these monitored parameters. Operating ranges may be updated following submittal to the Director of Air Permitting in accordance with Condition C.6.<br><br>Semiannual reports of any exceedances of established ranges for operational parameters, and any corrective actions taken during the reporting period shall be submitted in accordance with the requirements of Part J of this Title V operating permit. If no incidences of operation outside of established range occurred during the reporting period, then the report shall indicate such information.</td></tr>
<tr><td>C.16</td><td>Emission Unit ID: 04<br><br>Equipment/Control Device ID: 1790, 1790C, 1790Ca<br><br>The affected source is subject to all applicable limits and requirements of the following regulation (reg.):<br>• SC Reg. 61-62.5, Standard No. 4 (Emissions from Process Industries) (SC Std. 4)<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. (SC Std. 4).<br><br>(S.C. Regulation 61-62.5, Standard No. 4, Section IX) Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20%.<br><br>The owner or operator shall continue to operate and maintain pressure drop indicators, liquid flow meters, and liquid pH indicators on Chlorine Dioxide Generator Tail Gas Scrubber. The operating parameters for the scrubbers shall be recorded as shown below during source operation. The scrubbers shall be in place and operational whenever processes controlled by the scrubbers are running, except during periods of scrubber malfunction or mechanical failure.
<table>
<tr><th colspan="2">$ClO_2$ Generator Parameter Monitoring for Scrubber 1790Ca</th></tr>
<tr><td>•Type Monitoring:<br>•Title V: Parametric monitoring</td><td>•Reg. Requirement(s) Monitored: Pollutant(s):<br>•SC Std. 4: Opacity</td></tr>
<tr><td>Monitoring Method(s): Parameter(s):<br>•CPMS: Scrubber pressure drop indicator<br>•CPMS: Scrubber liquid flow indicator<br>•CPMS: Scrubber liquid pH indicator</td><td>Monitoring Frequency: Averaging Time:<br>•Frequency: At least once daily<br>•Averaging Time: None</td></tr>
<tr><td>Monitoring Operation and Maintenance:</td><td>Data Collection Methods:<br>•Computer system/ manual record</td></tr>
</table>
</td></tr>
</table>

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ~~CPMS calibration and QA/QC program~~ ~~keeping~~<br><br>~~Operational ranges for the monitored parameters have been established to ensure proper operation of the pollution control equipment and to provide a reasonable assurance of compliance (See ATTACHMENT – Pollution Control Equipment Parameter Ranges). Unless otherwise stated in a condition, these operational ranges for the monitored parameters shall be derived from stack test data, vendor certification, and/or operational history and visual inspections, which demonstrate the proper operation of the equipment. The facility shall maintain the established ranges, any range re-evaluations, and supporting documentation for these monitored parameters. Operating ranges may be updated following submittal to the Director of Air Permitting in accordance with Condition C.6.~~<br><br>~~Semiannual reports, including any variances (any operating parameter outside the established range) from established parameters and appropriate corrective action taken during the reporting period shall be submitted to the Department. If no incidences of operation outside of established range occurred during the reporting period, then the report shall indicate such information.~~ |
| ~~C.17~~ | ~~**Emission Unit ID:** 04~~<br><br>~~**Equipment/Control Device ID:** 1790~~<br><br>~~The affected source is subject to all applicable limits and requirements of the following regulation(s) (reg.):~~<br>~~• *[SC Regulation 61-62.68 (Chemical Accident Prevention Provisions)]*~~<br><br>~~It has been determined that this facility is subject to S.C. Regulation 61-62.68, Chemical Accident Prevention Provisions, due to in-process storage or use of a regulated substance in quantities above the specified threshold and that a Risk Management Plan (RMP) has already been submitted to the EPA; therefore, the following must be completed:~~<br><br>~~• Submittal of subsequent revisions/corrections/updates of the RMP in accordance with S.C. Regulation 61-62.68.190 and 68.195.~~<br><br>~~• For Program 1 processes, the owner/operator shall submit along with the RMP the certification statement provided in Section 68.12(b)(4). For all other covered processes, the owner/operator shall submit along with the RMP a single certification that, to the best of the signer's knowledge, information, and belief formed after reasonable inquiry, the information submitted is true, accurate, and complete.~~<br><br>~~If it is determined by the implementing agency (or other delegated authority) that additional relevant information is needed, this facility will be required to submit the information in a timely manner.~~ |
| ~~C.18~~ | ~~**Emission Unit ID:** 05~~<br><br>~~**Equipment/Control Device ID:** 4400~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ~~The affected source is subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~●*SC Regulation 61-62.5, Standard No. 4(Emissions from Process Industries (SC Std. 4))*~~<br><br>~~(S.C. Regulation 61-62.5, Standard No. 4, Section IX) Where construction or modification began after December 31, 1985, emissions from these sources (including fugitive emissions) shall not exhibit an opacity greater than 20%.~~ |
| ~~C 19~~ | ~~**Emission Unit ID:** 05~~<br><br>~~**Equipment/Control Device ID:** 4400~~<br><br>~~The affected source is subject to all applicable limits and requirements of the following regulation (Reg.):~~<br>~~●*SC Reg. 61-62.5, Standard 7 (Prevention of Significant Deterioration (PSD)) (SC Std. 7)*~~<br><br>~~■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *SC SM*.~~<br><br>~~Construction Permit 2440-0005-CY for the modification to the thermo-mechanical pulp bleaching project resulted in the *SC Std.* 7 limits for the TMP Process. The TMP Process is limited to a yearly production of 384,900 Air-Dried Tons of Thermo-Mechanical Pulp (ADTP). Any increase in production shall require prior written approval from the Bureau.~~<br><br>~~**TV ID 05**~~<br>~~**Annual Production Limit** \| **Units**~~<br>~~≤ 384,900 \| Air-Dried Tons TM Pulp/year (ADTP/yr)~~<br>~~≤ Less than or equal to~~<br><br>~~The owner or operator shall maintain the actual total air-dried Tons of Thermo-Mechanical Pulp production records on a monthly basis. A twelve month rolling sum shall be calculated for actual total air-dried Tons of Thermo-Mechanical Pulp production. The twelve month rolling sum shall be less than or equal to 384,900 air dried tons thermo-mechanical pulp /year (384,900 ADTP/yr). The owner or operator shall maintain all records on site. Semiannual reports including all recorded parameters and calculated values shall be submitted in accordance with the procedures in Part J of this Title V permit.~~ |
| C 20 | **Emission Unit ID:** 06<br><br>**Equipment/Control Device ID:** 4600, 4605, 4610, 4100, ~~4110,~~ 2100, ~~9701A, 9701B, 9702, 9703, 9704~~<br><br>The affected sources are subject to all applicable limits and requirements of the following regulation (reg.): |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | • *SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries (SC Std. 4)}*<br><br>(S.C. Regulation 61.62.5, Standard No. 4, Section IX) Where construction or modification began after December 31, 1985, emissions from these sources (including fugitive emissions) shall not exhibit an opacity greater than 20%, each. |

**TV ID 06 – Paper Mill Opacity Limitations for Various Equipment**

| Equipment | Affected Source Description | Opacity Limit (%) |
|---|---|---|
| 4600 | No. 2 Paper Machine | ≤ 20 |
| 4605 | No. 2 Paper Machine Rereeler and Trim Pulper | ≤ 20 |
| ~~4610~~ | ~~No. 2 Coater Dryer~~ | ~~≤ 20~~ |
| 4100 | No. 3 Paper Machine | ≤ 20 |
| ~~4110~~ | ~~No. 3 Paper Machine Air Flotation Dryer~~ | ~~≤ 20~~ |
| 2100 | Pulp Dryer | ≤ 20 |
| ~~9701A~~ | ~~Slurry Tank~~ | ~~≤ 20~~ |
| ~~9701B~~ | ~~Slurry Tank~~ | ~~≤ 20~~ |
| ~~9702~~ | ~~Starch Cooker~~ | ~~≤ 20~~ |
| ~~9703~~ | ~~Flash Tank~~ | ~~≤ 20~~ |
| ~~9704~~ | ~~Paste Tank~~ | ~~≤ 20~~ |

| | |
|---|---|
| ~~C.21~~ | ~~**Emission Unit ID:** 06~~<br><br>~~**Equipment/Control Device ID:** 2000, 2005, 2010~~<br><br>~~The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~• *SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries (SC Std. 4)}*~~<br><br>~~(S.C. Regulation 61.62.5, Standard No. 4, Section IX) Where construction or modification began on or before December 31, 1985, emissions from these sources (including fugitive emissions) shall not exhibit an opacity greater than 40%, each.~~ |

~~**TV ID 06 – Paper Mill Opacity Limitations for Various Equipment**~~

| ~~Equipment~~ | ~~Affected Source Description~~ | ~~Opacity Limit (%)~~ |
|---|---|---|
| ~~2000~~ | ~~No. 1 Paper Machine~~ | ~~≤ 40~~ |
| ~~2005~~ | ~~No. 1 Paper Machine Rereeler and Trim Pulper~~ | ~~≤ 40~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ~~2010~~ \| ~~No. 1 Coater Dryer~~ \| ~~≤ 40~~ |
| C.22 | **Emission Unit ID:** 06<br><br>**Equipment/Control Device ID:** ~~2000, 2005, 2010,~~ 4600, 4605, ~~4610,~~ 4100, ~~4110,~~ 2100, ~~9701A, 9701B, 9702, 9703, 9704~~<br><br>The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):<br>• *SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries (SC Std. 4)}*<br><br>(S.C. Regulation 61-62.5, Standard No. 4, Section VIII) Particulate matter emissions from a process shall be limited to the rate specified by use of the following equations:<br>1) when process weight rates are less than or equal to 30 tons per hour:<br>$E = (F)\ 4.10P^{0.67}$<br>or 2) when process weight rates are greater than 30 tons per hour:<br>$E = (F)\ 55.0P^{0.11} - 40$<br>where E = the allowable emission rate in pounds per hour, P = process weight rate in tons per hour, and F = effect factor from Table B in S.C. Regulation 61-62.5, Standard No. 4. For the purposes of compliance with this condition, the process boundaries are defined as follows: *[SC Reg. 61-62.5, Std. 4, Sec. VIII(A) and VIII(B)]*<br><br>**TV ID 06 – Paper Mill**<br>**Process/ Equipment IDs** \| **Max. Process Weight Rate (tons/hr)**<br>~~Total for 2000, 2005, and 2010~~ \| ~~19.6~~<br>Total of 4100 ~~and 4110*~~ \| 43.7<br>2100 \| 33.82<br>Total of 4600~~,~~ and 4605~~, and 4610~~ \| 29.9<br>~~Total for 9701A, 9701B, 9702, 9703, and 9704~~ \| ~~0.53~~<br><br>*Informational Note: The *Air Flotation Dryer* (4110) is also subject to a prevention of significant deterioration (PSD) best available control technology (BACT) PM limit which must be met. |
| C.23 | **Emission Unit ID:** 06<br><br>**Equipment/Control Device ID:** 4600, 4605, ~~4610,~~ 4100, ~~4110,~~ 2100, ~~9701A, 9701B, 9702, 9703, 9704, 2000, 2005, 2010~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | The owner/operator shall perform a visual inspection on a semiannual basis shown in the table below during source operation. No periodic monitoring for opacity will be required during periods of burning natural gas or propane only. Logs shall be kept to record all visual inspections, noting color, duration, density (heavy or light), including cause and corrective action taken for any abnormal emissions. The owner/operator shall submit semiannual reports. The reports shall include records of abnormal emissions, if any, and corrective actions taken. If only natural gas or propane was combusted or if the unit did not operate during the semiannual period, the report shall state so.<br><br>Visual inspection means a qualitative observation of opacity during daylight hours. The observer does not need to be certified to conduct valid visual inspections. However, at a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, and observer position relative to lighting, wind, and the presence of uncombined water. |

**TV ID 06 – Paper Mill Opacity Monitoring for Various Equipment**

| Equip. No. | Pollutant | Equipment Description | VE Frequency |
|---|---|---|---|
| 4600 | Opacity | No. 2 Paper Machine | Semiannual |
| 4605 | Opacity | No. 2 Paper Machine Rereeler | Semiannual |
| ~~4610~~ | ~~Opacity~~ | ~~No. 2 Coater Dryer~~ | ~~Semiannual~~ |
| 4100 | Opacity | No. 3 Paper Machine | Semiannual |
| ~~4110~~ | ~~Opacity~~ | ~~No. 3 Paper Machine Air Flotation Dryer (while burning kerosene)~~ | ~~Semiannual~~ |
| 2100 | Opacity | Pulp Dryer | Semiannual |
| ~~9701A~~ | ~~Opacity~~ | ~~Slurry Tank~~ | ~~Semiannual~~ |
| ~~9701B~~ | ~~Opacity~~ | ~~Slurry Tank~~ | ~~Semiannual~~ |
| ~~9702~~ | ~~Opacity~~ | ~~Starch Cooker~~ | ~~Semiannual~~ |
| ~~9703~~ | ~~Opacity~~ | ~~Flash Tank~~ | ~~Semiannual~~ |
| ~~9704~~ | ~~Opacity~~ | ~~Paste Tank~~ | ~~Semiannual~~ |
| ~~2000~~ | ~~Opacity~~ | ~~No. 1 Paper Machine~~ | ~~Semiannual~~ |
| ~~2005~~ | ~~Opacity~~ | ~~No. 1 Paper Machine Rereeler~~ | ~~Semiannual~~ |
| ~~2010~~ | ~~Opacity~~ | ~~No. 1 Coater Dryer~~ | ~~Semiannual~~ |

| | |
|---|---|
| ~~C.24~~ | ~~**Emission Unit ID:** 06~~<br><br>~~**Equipment/Control Device ID:** 2010~~<br><br>~~The No. 1 Coater Dryer is permitted to burn only natural gas as primary fuel, with propane and kerosene as a backup fuel. The use of any other substances as fuel is prohibited without prior written approval from the~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | | Condition |
|---|---|---|
| | | ~~Bureau of Air Quality. The owner/operator must record fuel consumption on a monthly basis. Records of fuel consumption shall be maintained on site.~~ |
| ~~C 25~~ | | ~~**Emission Unit ID:** 06~~<br><br>~~**Equipment/Control Device ID:** 2010~~<br><br>~~The affected source is subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~• *[SC Reg. 61-62.5, Standard No. 5 (Volatile Organic Compounds) (SC Std. 5)]*~~<br><br>~~▪Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.~~<br><br>~~The affected unit is subject to all applicable requirements of SC Std. 5. The affected paper web coater shall not discharge into the atmosphere any volatile organic compounds (VOC) in excess of 2.9 pounds per gallon (0.35 kilograms per liter) of coating, excluding water and exempt solvents, delivered to the paper coating applicator system. The facility will use the low solvent technology option allowed by this regulation to comply with the VOC emission requirements. *[SC Reg. 61-62.5, Std. 5, Section. I(A), Section I(B), and Section II(C)]*~~<br><br>~~The owner or operator shall maintain daily records of operations. The records shall include, but not be limited to, the following: *[SC Reg. 61-62.5, Section I(F)]*:~~<br><br>~~• The standard number and part applicable to the operation for which the records are being maintained.~~<br>~~• The application method and substrate type (metal, plastic, paper, etc.).~~<br>~~• The amount and type of adhesive, coatings (including catalyst and reducer for multicomponent coatings), solvent, and/or graphic arts material used at each point of application, including exempt compounds.~~<br>~~• The VOC content as applied in each adhesive coating, solvent, and/or graphic arts material.~~<br>~~• The date for each application of adhesive coating, solvent, and/or graphic arts material.~~<br>~~• The amount of surface preparation, clean-up, or wash-up solvent (including exempt compounds) used and the VOC content of each.~~<br><br>~~VOC content shall be calculated using a percent solids basis (less water and exempt solvents) for adhesives, coatings, and inks; using EPA Reference Method 24, July 1, 1989. Once initial VOC content calculations have been made for existing adhesives, coatings, and inks, only new or modified adhesives, coatings, and inks must be tested for VOC content. Records must be kept in units necessary to verify compliance, i.e. lb VOC/gal of coating less water and exempt solvents for surface coating.~~ |
| ~~C 26~~ | | ~~**Emission Unit ID:** 06~~<br><br>~~**Equipment/Control Device ID:** 4610~~<br><br>~~The No. 2 Coater Dryer is permitted to burn only natural gas (no limit), 3,000,000 gallons of kerosene per year, and 475,000 gallons propane per year. The use of any other substances as fuel is prohibited without prior~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

<table>
<tr><th>Condition Number</th><th>Condition</th></tr>
<tr><td></td><td>~~written approval from the Bureau of Air Quality. The owner/operator must record fuel consumption on a monthly basis and calculate a twelve month rolling sum for each fuel combusted. Records of fuel consumption shall be maintained on site. Reports of fuel usage for the No. 2 Coater Dryer shall be submitted semiannually.~~</td></tr>
<tr><td>~~C.27~~</td><td>~~**Emission Unit ID:** 06~~<br><br>~~**Equipment/Control Device ID:** 9700, B-2000~~<br><br>~~The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~• *SC Reg. 61-62.5, Standard No. 4 (Emissions from Process Industries (SC Std. 4))*~~<br><br>~~(S.C. Regulation 61.62.5, Standard No. 4, Section IX) Where construction or modification began after December 31, 1985, emissions from these sources (including fugitive emissions) shall not exhibit an opacity greater than 20%, each.~~<br><br>~~**TV ID 06 – Paper Mill Opacity Limitation for Starch Silos**~~<br>~~**Equipment** | **Affected Source Description** | **Opacity Limit (%)**~~<br>~~9700 | Starch Silos | ≤ 20~~<br>~~≤ – Less than or equal to~~<br><br>~~The owner/operator shall perform a visual inspection on a daily basis for the Starch Silos (Equipment ID 9700) while unloading. Logs shall be kept to record all visual inspections, noting color, duration, density (heavy or light), cause, and corrective action taken for any abnormal emissions. If a source did not operate during the required visual inspection time frame, the log shall indicate such. The owner/operator shall submit semiannual reports. The report shall include records of abnormal emissions, if any, and corrective actions taken. If the unit did not operate during the semiannual period, the report shall state so.~~<br><br>~~Visual inspection means a qualitative observation of opacity during daylight hours. The observer does not need to be certified to conduct valid visual inspections. However, at a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, and observer position relative to lighting, wind, and the presence of uncombined water.~~</td></tr>
<tr><td>~~C.28~~</td><td>~~**Emission Unit ID:** 06~~<br><br>~~**Equipment/Control Device ID:** 9700, B-2000~~<br><br>~~The affected sources are subject to all applicable limits and requirements of the following regulations (reg.):~~</td></tr>
</table>

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

•~~*SC Reg. 61-62.5, Standard No. 4 (Emissions from Process Industries (SC Std. 4))*~~
•~~*40 CFR 64(Compliance Assurance Monitoring) (CAM)*~~

~~(S.C. Regulation 61-62.5, Standard No. 4, Section VIII) Particulate matter emissions from a process shall be limited to the rate specified by use of the following equations:~~

~~1) when process weight rates are less than or equal to 30 tons per hour:~~

~~$E = (F)\ 4.10P^{0.67}$~~

~~or 2) when process weight rates are greater than 30 tons per hour:~~

~~$E = (F)\ 55.0P^{0.11} - 40$~~

~~where E = the allowable emission rate in pounds per hour, P = process weight rate in tons per hour, and F = effect factor from Table B in S.C. Regulation 61-62.5, Standard No. 4. For the purposes of compliance with this condition, the process boundaries are defined as follows: *[SC Reg. 61-62.5, Std. 4, Sec. VIII(A) and VIII(B)]*~~

| ~~TV ID 06 – Paper Mill~~ | |
|---|---|
| ~~Process/ Equipment IDs~~ | ~~Max. Process Weight Rate (tons/hr)~~ |
| ~~9700~~ | ~~36.0~~ |

~~The affected source, Starch Silos (4), is subject to 40 CFR 64, Compliance Assurance Monitoring (CAM) and shall comply with all applicable provisions. To meet the requirements of 40 CFR 64, for the baghouses (B-2000) and for the starch silos (B-2000), the indicator for PM will be visual inspections (VE), which will be used to provide reasonable assurance of compliance with South Carolina Standard 4 requirements.~~

~~To meet the requirements of 40 CFR 64 the owner or operator shall maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] as shown below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT – Pollution Control Equipment Parameter Ranges. [§64.6(c)(1)(iii) and 64.3(b)]~~

| ~~Starch Silos CAM Parameter Monitoring for Bag Houses (2) B-2000~~ | |
|---|---|
| ~~•Control Device(s): Type Monitoring:~~<br>~~•Baghouses: B-2000~~<br>~~•CAM~~ | ~~•Regulatory Requirement(s):~~<br>~~Pollutant(s):~~<br>~~•*SC Std. 4*: PM~~ |
| ~~CAM Monitoring Method(s):~~<br>~~Indicator(s):~~<br>~~•Starch Silos visual inspection (VE)~~ | ~~•Monitoring – Frequency: – Averaging Time:~~<br>~~•Once per day while unloading: No averaging~~ |
| ~~•Monitoring Operation and Maintenance:~~<br>~~•Develop and use QA/QC practices that~~ | ~~•Data Collection Methods:~~<br>~~•Manual record keeping~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ~~ensure the continuing validity of the data; keep records of QA/QC activities~~ |
| | ~~Operational ranges for the CAM indicator have been established to indicate proper operation of the control devices (See ATTACHMENT - Pollution Control Equipment Parameter Ranges). These operational ranges for the monitored parameters were derived from vendor information and visual observations, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Air Permitting, Bureau of Air Quality for approval in accordance with Condition C.6.~~<br><br>~~Upon detecting an excursion, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions).~~<br><br>~~A semiannual report for monitoring shall include, at a minimum, the information required under § 70.6(a)(3)(iii) and the following information as applicable:~~<br><br>~~• Summary information of the number, duration and cause (including unknown cause, if applicable) of excursions, as applicable, and the corrective actions taken;~~<br>~~• Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero span or other daily calibration checks, if applicable);~~<br>~~• If applicable, a description of the actions taken to implement a Quality Improvement Plan (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions occurring.~~<br>~~The owner or operator shall maintain records of monitoring data, monitor performance data, corrective action, and quality improvement plans.~~ |
| ~~C.29~~ | ~~**Emission Unit ID:** 06~~<br><br>~~**Equipment/Control Device ID:** 4120, 4130~~<br><br>~~The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~• *SC Reg. 61-62.5, Standard No. 1 (Emissions from Fuel Burning Operations (SC Std. 1))*~~<br><br>~~(S.C. Regulation 61-62.5, Standard No. 1, Section I) The fuel burning sources shall not discharge into the ambient air smoke which exceeds opacity of 20%. The owner/operator shall, to the extent practicable, maintain and~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ~~operate any source including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions.~~ |

~~TV ID 06 Opacity Limitations for Various Equipment~~

| ~~Equipment~~ | ~~Affected Source Description~~ | ~~Opacity Limit (%)~~ |
|---|---|---|
| ~~4120~~ | ~~Infrared Dryer~~ | ~~≤ 20~~ |
| ~~4130~~ | ~~Hot Oil Heating System~~ | ~~≤ 20~~ |

~~≤ Less than or equal to~~

~~The owner or operator shall maintain a log of the time, magnitude, duration and any other pertinent information to determine periods of startup and shutdown and make these records available to a Department representative upon request.~~

~~The owner/operator shall perform a visual inspection on a basis shown in the table below during source operation. No periodic monitoring for opacity will be required during periods of burning natural gas or propane only. Logs shall be kept to record all visual inspections, noting color, duration, density (heavy or light), cause, and corrective action taken for any abnormal emissions. The owner/operator shall submit semiannual reports. The reports shall include records of abnormal emissions, if any, and corrective actions taken. If only natural gas or propane was combusted or if the unit did not operate during the semiannual period, the report shall state so.~~

~~TV ID 06 Paper Mill Opacity Monitoring Frequency~~

| ~~Equip. No.~~ | ~~Pollutant~~ | ~~Equipment Description~~ | ~~VE Frequency~~ |
|---|---|---|---|
| ~~4120~~ | ~~Opacity~~ | ~~Infrared Dryer~~ | ~~Semiannual~~ |
| ~~4130~~ | ~~Opacity~~ | ~~Hot Oil Heating System~~ | ~~Semiannual~~ |

~~Visual inspection means a qualitative observation of opacity during daylight hours. The observer does not need to be certified to conduct valid visual inspections. However, at a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, and observer position relative to lighting, wind, and the presence of uncombined water.~~

| | |
|---|---|
| ~~C.30~~ | ~~**Emission Unit ID:** 06~~<br><br>~~**Equipment/Control Device ID:** 4120, 4130~~<br><br>~~The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~• *SC Reg. 61-62.5, Standard No. 1 (Emissions from Fuel Burning Operations) (SC Std. 1)*~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ~~(S.C. Regulation 61-62.5, Standard No. 1, Section II) The allowable discharge of particulate matter (PM) resulting from the fuel burning operations is 0.6 pounds per million Btu input for the affected sources.~~<br><br>~~(S.C. Regulation 61-62.5, Standard No. 1, Section III) The allowable discharge of sulfur dioxide ($SO_2$) resulting from these sources is 2.3 pounds per million BTU input.~~<br><br>~~The affected sources are allowed to burn only natural gas as a primary fuel, with propane and kerosene as a backup fuel. The use of any other substances as fuel is prohibited without prior written approval from the Bureau of Air Quality. The owner or operator shall record the monthly use of each fuel and calculate a twelve-month rolling sum for each fuel combusted by affected source. Records of fuel shall be kept on site. Reports of fuel usage shall be submitted to the Department semiannually.~~ |
| C.31 | **Emission Unit ID:** 06<br><br>**Equipment/Control Device ID:** 9900<br><br>The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):<br>• *SC Reg. 61-62.5, Standard No. 1 {Emissions from Fuel Burning Operations (SC Std. 1)}*<br><br>(S.C. Regulation 61-62.5, Standard No. 1, Section I) The fuel burning sources shall not discharge into the ambient air smoke which exceeds opacity of 20%. The owner/operator shall, to the extent practicable, maintain and operate any source including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. |
| C.32 | **Emission Unit ID:** 06<br><br>**Equipment/Control Device ID:** 9900<br><br>The affected sources, the Paper Machine Air Make Up Units, are subject to all applicable limits and requirements of the following regulation (reg.):<br>▪ *SC Reg. 61-62.5, Standard No. 1 {Emissions from Fuel Burning Operations} (SC Std. 1)*<br><br>(S.C. Regulation 61-62.5, Standard No. 1, Section II) The allowable discharge of particulate matter (PM) resulting from the fuel burning operations is 0.6 pounds per million Btu input for the affected sources. |

**TV ID 06 Opacity Limitations for Various Equipment**

| Equipment | Affected Source Description | Opacity Limit (%) |
|---|---|---|
| 9900 | Air Makeup Units | ≤ 20 |

≤ = Less than or equal to

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | (S.C. Regulation 61-62.5, Standard No. 1, Section III) The allowable discharge of sulfur dioxide ($SO_2$) resulting from these sources is 2.3 pounds per million BTU input.<br><br>This source is permitted to burn 631,540,000 standard cubic feet of natural gas/year (total for all units) and 1,428,571-gallons propane per year (total for all units). The facility must record fuel consumption and calculate a twelve-month rolling sum. Records of fuel consumption shall be maintained on site. Reports of fuel usage shall be submitted to the Department semiannually. |
| ~~C.33~~ | ~~**Emission Unit ID:** 06~~<br><br>~~**Equipment/Control Device ID:** 4110~~<br><br>~~The affected source, the Air Flotation Dryer, is subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~• *SC Reg. 61-62.5, Standard No. 7 {PSD (SC Std. 7)}*~~<br><br>~~■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.~~<br><br>~~The affected source is subject to all applicable requirements of SC Std. 7. The particulate matter (PM) emissions from the affected source is limited to 0.0164 pounds per million Btu or less in order to meet prevention of significant deterioration (PSD) best available control technology (BACT) requirements. This source is also subject to less stringent PM requirements of SC Std. 4, which must also be met.~~<br><br>~~This source is permitted to burn only natural gas as the primary fuel and propane and kerosene as backup. The owner or operator shall record fuel usage on a monthly basis. These records shall be summed for annual fuel usage (per fuel) and the records shall be maintained on site. Semiannual reports of fuel usage and compliance with the PSD BACT limit of 0.0164 lbs/million Btu input shall be submitted to the Department semiannually.~~ |
| ~~C.34~~ | ~~**Emission Unit ID:** 06~~<br><br>~~**Equipment/Control Device ID:** 4110~~<br><br>~~The affected source, the Air Flotation Dryer, is subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~• *SC Reg. 61-62.5, Standard No. 7 {PSD (SC Std. 7)}*~~<br><br>~~■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.~~<br><br>~~The affected source is subject to all applicable requirements of SC Std. 7 (PSD). This source must utilize low nitrogen oxides ($NO_x$) Burner(s) to meet prevention of significant deterioration (PSD) best available control technology (BACT) requirements. The requirement is only to install and operate low $NO_x$ burners.~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

<table>
<tr><th>Condition Number</th><th>Condition</th></tr>
<tr><td>C.35</td><td>
Emission Unit ID: 06<br><br>
Equipment/Control Device ID: ~~4610,~~ 9900<br><br>
The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):<br>
• [SC Reg. 61-62.1, Section. II(E) {General Requirements-Synthetic Minor} (SM)]<br><br>
The affected sources, the ~~No. 2 Coater Dryer and the~~ Paper Machine Air Make Up Units, are subject to all applicable requirements of SC Synthetic Minor permitting. The emissions of Nitrogen Oxides ($NO_X$) for each affected source (~~4610 and~~ 9900) subject to a South Carolina synthetic minor limitation of less than 40.0 tons per year in order to avoid prevention of significant deterioration (PSD) review.<br><br>
<table>
<tr><th colspan="2">TV ID 06 NOx Limitations for No. 2 Coater Dryer and Air Make-Up Units (4610 and 9900)</th></tr>
<tr><th>Equipment ID</th><th>$NO_X$ Limit, tons per year</th></tr>
<tr><td>~~4610~~</td><td>~~< 40.0~~</td></tr>
<tr><td>9900</td><td>< 40.0</td></tr>
</table>
< = less than<br><br>
~~The No. 2 Coater Dryer (4610) is permitted to burn natural gas (no limit); 3,000,000 gallons of kerosene per year and 475,000 gallons propane per in paper machine coater No. 2. The facility must record fuel consumption and calculate a twelve-month rolling sum. Records of fuel consumption shall be maintained on site. Semiannual reports of fuel usage shall be submitted to the Department semiannually~~<br><br>
The Paper Machine Air Make Up Units (9900) are permitted to burn 631,540,000 standard cubic feet of natural gas/year (total for all units) and 1,428,571-gallons propane per year (total for all units). The facility must record fuel consumption and calculate a twelve-month rolling sum. Records of fuel consumption shall be maintained on site. Semiannual reports of fuel usage shall be submitted to the Department semiannually.
</td></tr>
<tr><td>C.36</td><td>
Emission Unit ID: 07<br><br>
Equipment/Control Device ID: 2400, 2402, 2500, 5100<br><br>
(S.C. Regulation 61.62.5, Standard No. 4, Section IX) Where construction or modification began on or before December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 40% for the affected sources. Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. As such, opacity limitations for the affected sources are shown below:<br><br>
<table>
<tr><th colspan="3">ID 07 Opacity Limitations for Various Equipment</th></tr>
<tr><th>Equipment</th><th>Affected Source Description</th><th>Opacity Limit</th></tr>
</table>
</td></tr>
</table>

**C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS**
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

| | | (%) |
|---|---|---|
| 2500 | No. 2 Multi-Effect Evaporator Set | ≤ 40 |
| 2400 | No. 1 Multi-Effect Evaporator Set | ≤ 20 |
| 2402 | Heavy Black Liquor Tank | ≤ 20 |
| 5100 | No. 3 Evaporator Set | ≤ 20 |

≤ = Less than or equal to

This equipment processes and/or stores various pulp liquor with a low probability of visible emissions.

C.37

**Emission Unit ID:** 07

**Equipment/Control Device ID:** 2515, 2520, 2700, 2702, 2703, 5115, 5120

The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):
• *[SC Reg. 61-62.5 Standard No. 4 {Emissions from Process Industries} {SC Std. 4}]*

■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.

(S.C. Regulation 61.62.5, Standard No. 4, Section IX) Where construction or modification began on or before December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 40% for the affected sources. Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. As such, opacity limitations for the affected sources are shown below:

| ID 07 Opacity Limitations for Various Equipment | | |
|---|---|---|
| **Equipment** | **Affected Source Description** | **Opacity Limit (%)** |
| 2515 | No. 2 Recovery Furnace Precipitator Mix Tank | ≤ 40 |
| 2520 | No. 2 Salt Cake Mix Tank | ≤ 40 |
| 5115 | No. 3 Recovery Furnace Precipitator Mix Tank | ≤ 40 |
| 5120 | No. 3 Salt Cake Mix Tank | ≤ 40 |
| 2700 | Causticizing Equipment | ≤ 20 |
| 2702 | Purchased Lime Silo | ≤ 20 |
| 2703 | Reburned Lime Silo | ≤ 20 |

≤ = Less than or equal to

**Visible Emissions Inspections (VE): Affected Sources: [2515, 2520, 5115, 5120, 2700, 2702, 2703]:** The

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

<table>
<tr><th>Condition Number</th><th>Condition</th></tr>
<tr><td></td><td>owner or operator shall conduct visual inspections during source operation to show reasonable assurance of continuing compliance with SC Std. 4 opacity limitations in accordance with the listed frequencies below. Logs shall be kept to record all visual inspections, noting color, duration, density (heavy or light), cause, and corrective action taken for any abnormal emissions. If a source did not operate during the required visual inspection time frame, the log shall indicate such. The owner or operator shall submit semiannual reports in accordance with Part J of this Title V operating permit. The report shall include records of abnormal emissions, if any, and corrective actions taken. If the unit did not operate during the semiannual period, the report shall state so.<br><br>
<table>
<tr><th colspan="4">ID 07 Visual Emissions Inspection (VE) Requirements</th></tr>
<tr><th>Equip. No.</th><th>Pollutant</th><th>Equipment Description</th><th>VE Frequency</th></tr>
<tr><td>2515</td><td>Opacity</td><td>No. 2 Recovery Furnace Precipitator Mix Tank</td><td>Semiannual</td></tr>
<tr><td>2520</td><td>Opacity</td><td>Salt Cake Mix Tank</td><td>Semiannual</td></tr>
<tr><td>5115</td><td>Opacity</td><td>No. 3 Recovery Furnace Precipitator Mix Tank</td><td>Semiannual</td></tr>
<tr><td>5120</td><td>Opacity</td><td>No. 3 Recovery Furnace Precipitator Mix Tank</td><td>Semiannual</td></tr>
<tr><td>2700</td><td>Opacity</td><td>Causticizing Equipment</td><td>Semiannual</td></tr>
<tr><td>2702</td><td>Opacity</td><td>Purchased Lime Silo</td><td>Daily</td></tr>
<tr><td>2703</td><td>Opacity</td><td>Reburned Lime Silo</td><td>Daily</td></tr>
</table>
<br>Visual inspection means a qualitative observation of opacity during daylight hours. The observer does not need to be certified to conduct valid visual inspection. However, at a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, and observer position relative to lighting, wind, and the presence of uncombined water.</td></tr>
<tr><td>C.38</td><td>Emission Unit ID: 07<br><br>Equipment/Control Device ID: 2700 (No. 4 Causticizer) 2701, 2725C<br><br>The affected source is subject to all applicable limits and requirements of the following regulation (reg.):<br>• [SC Reg. 61-62.5 Standard No. 4 {Emissions from Process Industries} {SC Std. 4}]<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. (SC Std. 4).<br><br>(S.C. Regulation 61.62.5, Standard No. 4, Section IX) Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. As such, opacity limitations for the affected sources are shown below:</td></tr>
</table>

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

| ID 07 Opacity Limitations for No. 4 Causticizer (2700) and Slaker (2701) | |
|---|---|
| **Affected Source Description** | **Opacity Limit (%)** |
| No. 4 Causticizer | ≤ 20 |
| Slaker | ≤ 20 |

≤ = Less than or equal to

**Continuous Parameter Monitoring for Opacity: Affected Source: Slaker Scrubber [2725C]** - The owner or operator shall continue to operate and maintain liquid flow indicators on Slaker Venturi Scrubber 2725C. To meet the requirements of *SC Std. 4* opacity the owner or operator shall maintain the indicator(s) below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT - Pollution Control Equipment – Parameter Ranges.

| ID 07 Parameter Monitoring for Slaker Scrubber 2725C | |
|---|---|
| **Monitoring Method/Data Collection** | **Sampling Frequency/Averaging Time** |
| **•Control Device(s): Type Monitoring:**<br>•Slaker Scrubber: 2725C<br>•Title V | **•Regulatory Requirement(s): Pollutant(s):**<br>•*SC Std. 4*: PM |
| **Monitoring Method(s): Indicator(s):**<br>•Liquid flow indicator | **•Monitoring Frequency: Averaging Time:**<br>•Minimum once per shift: No averaging |
| **•Monitoring Operation and Maintenance:**<br>•Develop and use QA/QC practices that ensure the continuing validity of the data; keep records of QA/QC activities | **•Data Collection Methods:**<br>•Computer System and/or Manual Record Keeping |

Operational ranges for the monitored parameters have been established for excursions to indicate proper operation of the control devices (See ATTACHMENT - Pollution Control Equipment – Parameter Ranges). These operational ranges for the monitored parameters were derived from stack test data, vendor information, and engineering assessments, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Air Permitting, Bureau of Air Quality for approval in accordance with Condition C.6.

Upon detecting an excursion (any parameter value outside of the established excursion range), the owner or

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

<table>
<tr><th>Condition Number</th><th>Condition</th></tr>
<tr><td></td><td>operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions).</td></tr>
<tr><td>C.39</td><td>Emission Unit ID: 07<br><br>Equipment/Control Device ID: 2505, 2505C, 2723, 2723C<br><br>The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):<br>• [SC Reg. 61-62.5 Standard No. 4 {Emissions from Process Industries} {SC Std. 4}]<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. (SC Std. 4).<br><br>(S.C. Regulation 61.62.5, Standard No. 4, Section IX) Where construction or modification began on or before December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 40% for the affected sources. Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. As such, opacity limitations for the affected sources are shown below:<br><br>
<table>
<tr><th colspan="2">ID 07 Opacity Limitations for Various Equipment</th></tr>
<tr><th>Equipment</th><th>Opacity Limit (%)</th></tr>
<tr><td>2505</td><td>≤ 40</td></tr>
<tr><td>2723</td><td>≤ 20</td></tr>
</table>
≤ = Less than or equal to<br><br>■Note: For streamlining purposes the monitoring for SC Std. 4 uses Part 63 monitoring methods; however, this is a SC Std. 4 condition and not a Part 63 (MACT) condition.<br><br>Continuous Opacity Monitoring: Affected Sources: No. 2 Recovery Furnace [2505] and No. 2 Lime Kiln [2723] -The opacity measurements from the continuous opacity monitoring system (COMS) used for showing continuing compliance with NESHAP 40 CFR 63, Subpart MM (MACT MM), will also be used as a direct indicator for showing compliance with SC Std. 4 opacity requirements for the affected sources. All applicable MACT MM QA/QC, calibration, sampling frequency, averaging time, data reduction, record keeping, and operation and maintenance requirements for the COMS will apply for the use of the COMS for SC Std. 4 Opacity monitoring. SC Reg. 61-62.70(6)(a)(3)(i)(A) {Streamlining; NESHAP 40 CFR 63.864(d)]</td></tr>
</table>

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

<table>
<tr><th>Condition Number</th><th>Condition</th></tr>
<tr><td></td><td>
<table>
<tr><th colspan="2">ID 07 No. 2 Recovery Furnace [2505] and No. 2 Lime Kiln [2723] Parameter Monitoring for ESPs 2505C and 2723C</th></tr>
<tr><th>PM Monitoring Method/Data Collection</th><th>Sampling Frequency/Averaging Time</th></tr>
<tr><td>•Control Device(s): Type Monitoring:<br>•Electrostatic Precipitators (ESP): 2505C, 2723C<br>•Title V: Direct opacity measurement<br>•Streamline monitoring [MACT MM used]</td><td>•Regulatory Requirement(s): Pollutant(s):<br>•SC Std. 4: Opacity</td></tr>
<tr><td>•Monitoring Method(s): Parameter(s):<br>•COMS: Opacity direct measurement</td><td>•Monitoring Frequency: Averaging Time:<br>•Every 10 seconds: 6-minute block averages</td></tr>
<tr><td>•Monitoring Operation and Maintenance:<br>•MACT MM: §63.864(e); §63.8</td><td>•Data Collection Methods:<br>•Computer system/ manual record keeping</td></tr>
</table>
<br>All six-minute block averages for opacity that are above the applicable SC Std. 4 opacity limitations will be considered reportable exceedances. Semiannual reports including any exceedances from established parameters and appropriate corrective action taken shall be submitted to the Bureau. The report shall include the following minimum information:<br><br>
• All integrated six-minute opacity measurements for periods during which the applicable provisions of SC Regulation 61-62.5, Standard 4 have been exceeded, together with their nature, cause, and corrective action taken.<br><br>
• For periods of monitoring system malfunction:<br>
i) The date and time identifying each period during which the monitoring system was inoperative, except for zero and span checks.<br><br>
ii) The nature of monitoring system repairs or adjustments.<br><br>
iii) Proof of opacity monitoring system performance if required by the Department after repairs or adjustments have been made.<br><br>
• Records of recovery boiler or recovery boiler control device, lime kiln or lime kiln control device system repairs or adjustments made to correct violations of the provisions of SC Regulation 61-62.5, Std. 4.<br><br>
• Excluding unit startup and shutdown, if any three-hour block average opacity value exceeds the opacity
</td></tr>
</table>

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

<table>
<tr><th>Condition Number</th><th>Condition</th></tr>
<tr><td></td><td>limitation shall, as appropriate, initiate an inspection of the control equipment and/or the COMS system and make the necessary repairs.<br><br>If there are no excess emissions during the reporting period, such information shall be stated in the report.</td></tr>
<tr><td>C.40</td><td>Emission Unit ID: 07<br><br>Equipment/Control Device ID: 2510, 5110, 2511C<br><br>The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):<br>• [SC Reg. 61-62.5 Standard No. 4 {Emissions from Process Industries} {SC Std. 4}]<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. (SC Std. 4).<br><br>(S.C. Regulation 61.62.5, Standard No. 4, Section IX) Where construction or modification began on or before December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 40% for the affected sources. Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. As such, opacity limitations for the affected sources are shown below:<br><br><table><tr><th colspan="2">ID 07 Opacity Limitations for Various Equipment</th></tr><tr><th>Equipment</th><th>Opacity Limit (%)</th></tr><tr><td>2510</td><td>≤ 20</td></tr><tr><td>5110</td><td>≤ 20</td></tr></table>≤ = Less than or equal to<br><br>■Note: For streamlining purposes the monitoring for SC Std. 4 uses Part 63 monitoring methods; however, this is a SC Std. 4 condition and not a Part 63 (MACT) condition.<br><br>Continuous Parameter Monitoring for Opacity: Affected Sources: No. 2 and No. 3 Smelt Dissolving Tank Scrubber [2511C]-The owner or operator shall continue to operate and maintain the continuous parametric monitoring systems (CPMS) used for 40 CFR 63, Subparts A and MM to monitor for compliance with SC Std. 4 opacity the affected sources during source operation. All applicable MACT MM QA/QC, calibration, sampling frequency, averaging time, data reduction, record keeping, and operation and maintenance requirements for the CPMS will apply for the use of the CPMS for SC Std. 4 opacity monitoring. The scrubber operating parameters shall be measured as shown in the table below. The scrubber shall be in place and operational whenever processes controlled by the scrubber are running, except during periods of scrubber malfunction or mechanical failure. This scrubber is used for both smelt dissolving tanks (2510 and 5110). SC Reg. 61-62.70(6)(a)(3)(i)(A) {Streamlining}]</td></tr>
</table>

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | **ID 07 Smelt Tanks Parameter Monitoring for Scrubber 2511C**<br>**Opacity Monitoring Method/Requirements**: **Monitoring:** • Scrubber pressure drop CPMS • Scrubber liquid flow CPMS; **Monitor requirements**: 40 CFR 63.8; §63.864(e)(10)<br>**Sampling Frequency/Averaging Time**: **Frequency**: Minimum of once every 15 minutes; **Averaging**: 3-hour averages<br><br>Operational ranges for the monitored parameters have been established to indicate proper operation of the control devices (See ATTACHMENT - Pollution Control Equipment – Parameter Ranges). These operational ranges for the monitored parameters were derived from stack test data and or vendor certification, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Air Permitting, Bureau of Air Quality for approval in accordance with Condition C.6.<br><br>All three-hour averages that are outside the established ranges will be considered as reportable monitoring parameter excursion. Each incidence of operation outside the operational ranges, including date and time, cause, monitoring data, and corrective action taken, shall be recorded and kept on site. Reports of variances from established parameters and appropriate corrective action taken during the reporting period shall be submitted to the Department semiannually. If there are no monitoring parameter excursions during the reporting period, such information shall be stated in the report. |
| C.41 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 5105<br><br>The affected source is subject to all applicable limits and requirements of the following regulations (reg.):<br>• *[South Carolina Regulation 61-62.5, Standard No. 4 {Visible emissions from Kraft Pulp and Paper Manufacturing (SC Std. 4)];*<br>• *[NSPS 40 CFR 60, Subparts A; BB-Standards of Performance for Kraft Pulp Mills}; and SC Reg. 61-62.60 Subparts A and BB (NSPS BB)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4).*<br><br>The owner or operator shall meet the *SC Std. 4* and *NSPS BB* opacity limits shown in the table below: [*SC Reg. 61-62.5, Std. 4, Section III; 40 CFR 60.282(a)(1)(ii)]* |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

| ID 07 Opacity Limitations for No. 3 Recovery Furnace (5105) | |
|---|---|
| **Opacity Limit (%)** | **Regulation** |
| ≤ 40 | SC Std. 4 |
| ≤ 35 | NSPS BB |

≤ = Less than or equal to

■Note: For streamlining purposes the monitoring for *SC Std. 4* uses *Part 63* monitoring methods; however, this is a *SC Std. 4* condition and not a *Part 63 (MACT)* condition.

**Continuous Opacity Monitoring** -The opacity measurements from the continuous opacity monitoring system (COMS) used for compliance with *NESHAP 40 CFR 63, Subpart MM (MACT MM)* and *NSPS 40 CFR 60, Subpart BB*, will be used as a direct indicator for showing compliance with *SC Std. 4* and *NSPS BB* opacity requirements for the affected source. All applicable *MACT MM* QA/QC, calibration, sampling frequency, averaging time, data reduction, record keeping, and operation and maintenance requirements for the COMS will apply for the use of the COMS for *SC Std. 4* and *NSPS BB* opacity monitoring. *[SC Reg. 61-62.70(6)(a)(3)(i)(A) {Streamlining}; NESHAP 40 CFR 63.864(d); §63.8]*

All applicable record keeping, notification, and reporting requirements for *NSPS 40 CFR 60, Subpart BB* shall be followed for the No. 3 Recovery Furnace opacity. All six-minute (6-min.) averages for opacity that are above the *SC Std. 4* and/or the NSPS opacity limitation must be reported as excess emissions. Periods of excess emissions will not be considered to be indicative of a violation of the NSPS BB opacity limit if the percent of the total number of possible contiguous periods of excess emissions in a quarter (excluding periods of startup, shutdown, or malfunction and periods when the facility is not operating) during which excess emissions occur does not exceed six percent (6 %) for average opacities from No. 3 Recovery Furnace. *[§60.282(a)(1)(ii); §60.284(a)(1), (d)(1)(ii), (e)]*

The owner or operator shall submit a semiannual excess emissions and monitoring systems performance report and/or summary report for the affected source with report content in accordance with 40 CFR 60.7(c) and (d). If the total duration of excess emissions for the reporting period is less than one percent (1 %) of the total operating time for the reporting period and CMS downtime for the reporting period is less than five percent (5 %) of the total operating time for the reporting period, only the summary report form shall be submitted. If the total duration of excess emissions for the reporting period is 1 % or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5 % or greater of the total operating time for the reporting period, the summary report and the excess emission report shall both be submitted to the Department. If there are no excess emissions during the reporting period, such information shall be stated in the report. For the purposes of SC Std. 4, the following additional requirements must be met: [*40 CFR 60.7(c); §60.7(d)]*

• The summary report must include all integrated six-minute opacity measurements for periods during which the

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | applicable provisions of SC Regulation 61-62.5, Standard 4 or NSPS Subpart BB have been exceeded, together with their nature, cause, and corrective action taken.<br>• The summary report must include the date and time identifying each period during which the monitoring system was inoperative, except for zero and span checks.<br>• The summary report must include the nature of monitoring system repairs or adjustments.<br>• Proof of opacity monitoring system performance must be submitted if required by the Department after repairs or adjustments have been made.<br>• Records of recovery furnace or recovery furnace control device system repairs or adjustments made to correct violations of the provisions of SC Regulation 61-62.5, Std. 4 must be kept.<br>• Excluding unit startup and shutdown, if any three-hour block average opacity value exceeds the applicable opacity limitation, the owner or operator shall, as appropriate, initiate an inspection of the control equipment and/or the COMS and make the necessary repairs or operational changes to bring the opacity within the applicable limit.<br><br>The owner or operator shall keep on site records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative as well as all applicable records required by 40 CFR 60.7(b). |
| C.42 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 5105<br><br>The affected source is subject to all applicable limits and requirements of the following regulation(s) (reg.):<br>• *[SC Reg.61-62.5, Standard 7 {PSD} (SC Std. 7)];*<br>• *[NSPS 40 CFR 60, Subparts A {General Provisions}; BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)];*<br>• *[40 CFR 64{Compliance Assurance Monitoring} (CAM)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4).*<br><br>The owner or operator shall meet all of the *NSPS BB* and *SC Std. 7* prevention of significant deterioration best available control technology (SC PSD BACT) particulate matter (PM) and/or particulate matter less than 10 microns ($PM_{10}$) limitations as shown in the table below: *[NSPS 40 CFR 60.282(a)(i)]* |

**$PM/PM_{10}$ Limitations for ID 07 No. 3 Recovery Furnace (5105)**

| Pollutant | Limit | Units | Regulation |
|---|---|---|---|
| PM | ≤ 0.044 | gr/dscf@8% $O_2$ | NSPS BB |
| $PM/PM_{10}$ | ≤ 0.025 | gr/dscf@8% $O_2$ | SC Std. 7 (PSD BACT) |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

| | | | |
|---|---|---|---|
| $PM/PM_{10}$ | ≤ 237.0 | tpy | SC Std. 7 (PSD BACT) |

gr/dscf@ 8% $O_2$ = grains per dry standard cubic foot corrected to 8 percent oxygen
tpy = tons per year
≤ = less than or equal to

■Note: For streamlining purposes the monitoring for *NSPS BB uses Part 63* monitoring methods; however, this is a *NSPS BB* condition and not a *Part 63 (MACT)* condition.

**Testing:** Compliance with the PM emission limits shall be demonstrated through source testing once every two years in accordance with SC Regulation 61-62.1, Section IV [See Condition C.11] and Federal requirements, when applicable. EPA Method 5 will be used to show compliance. Alternative test methods may be allowed, provided Department approval is granted during the test plan submittal and approval process described in *SC Regulation 61-62.1, Section IV - Source Tests* and *§70.7 - Permit Issuance, Renewal, Reopenings and Revisions*, as appropriate.

**Parameter Compliance Assurance Monitoring (CAM) for PM-**The affected source is subject to 40 CFR 64, CAM (large unit) and shall comply with all applicable provisions. The facility shall utilize a continuous opacity monitoring system (COMS) for PM monitoring requirements of NESHAP 40 CFR 63, Subparts A and MM, which is considered by the Department as presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) for showing reasonable assurance of continuing compliance with the limitations of NSPS 40 CFR Subpart BB, South Carolina Standard 7 PSD BACT. The PSD BACT limit is more stringent than the MACT MM limit, the excursion level for opacity assures reasonable assurance of compliance with the more stringent South Carolina PSD BACT limitations.

To meet the requirements of 40 CFR 64 the owner or operator shall maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the table below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT - Pollution Control Equipment – Parameter Ranges. *[§64.6(c)(1)(iii) and 64.3(b)]*

| No. 3 Recovery Furnace CAM Parameter Monitoring for ESP 5105C | |
|---|---|
| **PM Monitoring Method/Requirements** | **Sampling Frequency/Averaging Time** |
| **CAM Indicators:** [SC Std 7, NSPS BB]<br>• COMS (Opacity)<br>**Data Collection**: Computer System and Manual Record Keeping | **Frequency**: Minimum of one cycle of sampling and analyzing every successive 10-second period |
| **Monitor requirements**:<br>• 40 CFR 63.8; 63.864(d) | **Averaging**: One cycle of data averaged each successive 6-minute period |

Operational ranges for the CAM indicator have been established for excursions to indicate proper operation of

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | the control devices (See ATTACHMENT - Pollution Control Equipment – Parameter Ranges) for compliance with *NSPS BB*. These operational ranges for the monitored parameters were derived from *MACT MM* limitations, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure (including source test data), following submittal to the Director of Air Permitting, Bureau of Air Quality for approval in accordance with Condition C.6.<br><br>To meet the requirements of 40 CFR 64 the owner or operator has developed operating ranges for CAM indicators parameters for compliance with SC Std. 7 PSD BACT limitations. These operational ranges and excursion level for the monitored parameter were derived from data which demonstrate compliance. Process and capture system operational parameters shall be monitored during the stack tests and operational ranges or inspection and maintenance activities shall be developed for these parameters to reflect proper operation and maintenance of the control device and capture system. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure (including source test data), following submittal to the Director of Air Permitting, Bureau of Air Quality for approval, in accordance with Condition C.6.<br><br>Upon detecting an excursion (when any ten (10) consecutive 6-minute averages are greater than the excursion opacity range), the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions).<br><br>The owner or operator shall follow all applicable quality control/quality assurance, calibration, operation and maintenance, record keeping, and reporting requirements of 40 CFR 63, Subparts A and MM. In addition to required information for MACT MM, record keeping and CAM reporting information will include indication of NSPS BB excursions as well as information for the *SC Std. 7 PSD BACT* limits (number, duration and cause (including unknown cause, if applicable) of excursions/exceedances, as applicable, and the corrective actions taken, etc.). *[NESHAP 40 CFR 63.864(d); §63.864(d)(3); §63.864(d)(4); §63.8; §63.10(c)]*<br><br>**Additional Large CAM Unit Monitoring Requirements -** If the COMS data (excluding startup and shutdown as well as bad COMS data) averaged over a six (6) minute period shows excursions over 35 % opacity for six (6) percent or more of the operating time within any quarterly period, the owner or operator shall perform a stack test in the following calendar quarter to demonstrate compliance with the *SC Std. 7* and *NSPS BB* PM standards. The owner or operator shall submit and have Department approval for a compliance test protocol representative of operational conditions during the period in question as required by SC Regulation 62.1, Section IV - "Source Tests" before conducting any tests.<br><br>**PSD BACT Annual Emissions Monitoring** - The owner or operator shall show continuing compliance with |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | applicable PSD BACT, particulate matter/particulate matter less than 10 microns ($PM/PM_{10}$), ton per year (tpy) limits for the *No. 3 Recovery Furnace* using record keeping. The owner or operator shall maintain production records along with the best available emission data from Bureau approved emission factors, emission factors based on compliance source tests, and/or emission factors based on certified CEMS data, and the actual monthly tons of black liquor solids and/or fuels fired for the *No. 3 Recovery Furnace* to determine PM and $PM_{10}$ emissions. $PM/PM_{10}$ shall be calculated on a monthly basis, and a twelve-month rolling average shall be calculated for total PM and $PM_{10}$ emissions. Emissions from malfunctions are required to be quantified and included in the calculations. The twelve-month rolling average shall be less than 237.0 tons for each, PM and $PM_{10}$. Reports of the calculated values and the twelve-month rolling average, calculated each month in the reporting period, shall be kept on site. The Manager of the Technical Management Section shall be notified within 30 days if the twelve-month rolling average is over the ton per year limit.<br><br>An algorithm, including example calculations and emission factors, explaining the method used to determine emission rates shall be prepared and kept with the twelve-month rolling sum. Submittals of the algorithm are required upon request. Updates to emission factors from the latest stack test used in emissions calculations shall be included in the algorithm. |
| C.43 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 5110<br><br>The affected source is subject to all applicable limits and requirements of the following regulations (reg.):<br>• *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]*<br>• *[NSPS 40 CFR 60, Subparts A {General Provisions}; BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]*<br>• *[40 CFR 64{Compliance Assurance Monitoring} (CAM)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.<br><br>The owner or operator shall meet the *NSPS BB* and *SC Std. 7* prevention of significant deterioration (PSD) best available control technology (BACT) particulate matter and/or particulate matter less than 10 microns ($PM/PM_{10}$) limitations as shown in the table below: *[NSPS 40 CFR 60.282(a); §60.282(a)(2)]* |

**PM Limitations for ID 07 No. 3 Smelt Dissolving Tank (5110)**

| Pollutant | PM Limit | PM Units | Applicable Regulation |
|---|---|---|---|
| PM | ≤ 0.2 | lb/TBLS (dry weight) | NSPS BB |
| $PM/PM_{10}$ | ≤ 0.20 | lb/TBLS (dry | SC Std. 7 (PSD BACT) |

**C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS**
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | weight) |

lb/TBLS (dry weight) = pounds per ton of black liquor solids dry weight
≤ = less than or equal to

■Note: For streamlining purposes the monitoring for *NSPS BB* uses *Part 63* monitoring methods; however, this is a *NSPS BB* condition and not a *Part 63 (MACT)* condition.

**Testing:** Compliance with the PM emission limits shall be demonstrated through source testing once every four years in accordance with SC Regulation 61-62.1, Section IV - Source Tests [See Condition C.11 and Federal requirements, when applicable. EPA Method 5 will be used to show compliance. Alternative test methods may be allowed, provided Department approval is granted during the test plan submittal and approval process described in *SC Regulation 61-62.1, Section IV - Source Tests* and *§70.7 - Permit Issuance, Renewal, Reopenings and Revisions*, as appropriate.

**Parameter Compliance Assurance Monitoring (CAM) for PM -** The affected source is subject to 40 CFR 64, CAM and shall comply with all applicable provisions. The facility will utilize the continuous parametric monitoring system (CPMS) for scrubber operating parameters used for monitoring requirements of MACT MM, which is considered by the Department as presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) for showing reasonable assurance of continuing compliance with the limitations of *SC Std. 7* and *NSPS BB*.

To meet the requirements of 40 CFR 64 the owner or operator shall maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the table below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT - Pollution Control Equipment – Parameter Ranges. This scrubber is used for both smelt dissolving tanks (2510 and 5110). *[§64.6(c)(1)(iii) and 64.3(b)]*

| Smelt Tank CAM Parameter Monitoring for Scrubber 2511C | |
|---|---|
| **PM Monitoring Method/Data Collection** | **Sampling Frequency/Averaging Time** |
| **Monitoring:** *[SC Std. 7; NSPS BB]*<br>• Scrubber pressure drop CPMS<br>• Scrubber liquid flow CPMS | **Frequency**: Minimum of one cycle of sampling and analyzing every successive 15-minute period |
| **Data collection**: Computer System and Manual Record Keeping | **Averaging**: One cycle of data averaged each successive 3-hour period |
| **Monitor requirements**: 40CFR63.864(e)(10); §63.8 | |

Operational ranges for the CAM indicators have been established for excursions to indicate proper operation of the control devices (See ATTACHMENT - Pollution Control Equipment – Parameter Ranges). These operational

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ranges for the monitored parameters were derived from stack test data and/or *MACT MM* range limitations, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure (including source test data, vendor information, and engineering assessments), following submittal to the Director of Air Permitting, Bureau of Air Quality for approval in accordance with Condition C.6.<br><br>Upon detecting an excursion (when any 3-hour average is outside established CAM scrubber excursion ranges), the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions).<br><br>The owner or operator shall follow all applicable quality control/quality assurance, calibration, operation and maintenance, record keeping, and reporting requirements of 40 CFR 63, Subparts A and MM. For CAM, reporting shall include indications of SC Std. 7, and NSPS BB excursions. *[40 CFR 63.864; §63.866; §63.867; §63.8; §63.10]* |
| C.44 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 2723, 2723C<br><br>The affected source is subject to all applicable limits and requirements of the following regulations (reg.):<br>• *[SC Reg. 61-62.1, Sec II, E {Synthetic Minor} (SC SM)]*<br>• *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]*<br>• *[NSPS 40 CFR 60, Subparts A {General Provisions}; BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]*<br>• *[40 CFR 64 {Compliance Assurance Monitoring} (CAM)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.<br><br>The owner or operator shall meet all of the *NSPS BB*, *SC SM*, and *SC Std 7* prevention of significant deterioration (PSD) best available control technology (BACT) particulate matter (PM) limitations as in the table below: [*SC Reg. 61-62.2, Section II(E), NSPS 40 CFR 60.282(a); §60.282(a)(3)]* |

| PM Limitations for ID 07 No. 2 Lime Kiln (2723) | | | |
|---|---|---|---|
| **Pollutants** | **Limit** | **Units** | **Applicable Regulation** |
| PM | ≤ 0.13 | gr/dscf@10%$O_2$, limit | NSPS BB |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

| | | | |
|---|---|---|---|
| | | when burning liquid fossil fuel | |
| PM | ≤ 0.066 | gr/dscf@10%$O_2$, limit when burning gaseous fossil fuel | NSPS BB |
| PM/$PM_{10}$ | < 123.0 | tpy | SC SM |
| PM/$PM_{10}$ | ≤ 0.030 | gr/dscf@10%$O_2$ | SC Std. 7 (PSD BACT) |
| PM/$PM_{10}$ | ≤ 123.0 | tpy | SC Std. 7 (PSD BACT) |

gr/dscf@10%$O_2$ = grains per dry standard cubic foot at 10 percent Oxygen
tpy = tons per year
≤ = less than or equal to

■Note: For streamlining purposes the monitoring for *NSPS BB* uses *Part 63* monitoring methods; however, this is a *NSPS BB* condition and not a *Part 63 (MACT)* condition.

**Testing:** Compliance with the PM emission limits shall be demonstrated through source testing every two years in accordance with SC Regulation 61-62.1, Section IV - Source Tests [See Condition C.11] and Federal requirements, when applicable. EPA Method 5 will be used to show compliance. Alternative test methods may be allowed, provided Department approval is granted during the test plan submittal and approval process described in *SC Regulation 61-62.1, Section IV - Source Tests* and *§70.7 - Permit Issuance, Renewal, Reopenings and Revisions*, as appropriate.

**Parameter Compliance Assurance Monitoring (CAM) for PM -** The affected source is subject to 40 CFR 64, CAM and shall comply with all applicable provisions. The facility shall utilize presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) [COMS] per the monitoring requirements of NESHAP 40 CFR 63, Subparts A and *MM* to meet CAM requirements for *NSPS BB*, *SC SM*, and *SC Std. 7*.

To meet the requirements of 40 CFR 64 the owner or operator shall maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the table below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT - Pollution Control Equipment – Parameter Ranges. *[§64.6(c)(1)(iii) and 64.3(b)]*

| Lime Kiln CAM Parameter Monitoring for ESP 2723C | |
|---|---|
| **PM Monitoring Method/Requirements** | **Sampling Frequency/Averaging Time** |
| **Monitoring:** [SC Std. 7; NSPS BB]<br>• COMS (Opacity)<br>**Data Collection:** Computer System and Manual Record Keeping | **Frequency:** Minimum of one cycle of sampling and analyzing every successive 10-second period |
| **Monitor requirements:** | **Averaging:** One cycle of data |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | 40CFR63.864(d); §63.8 \| averaged each successive 6-minute period<br><br>Operational ranges for the CAM indicator have been established for excursions to indicate proper operation of the control devices (See ATTACHMENT - Pollution Control Equipment – Parameter Ranges). These operational ranges for the monitored parameters were derived from stack test data, and *MACT MM* limitations, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure (including source test data, vendor information, and engineering assessments), following submittal to the Director of Air Permitting, Bureau of Air Quality for approval in accordance with Condition C.6.<br><br>To meet the requirements of 40 CFR 64 for SC Std. 7, the owner or operator shall use the presumptive COMS as CAM.<br><br>Upon detecting an excursion (When any ten (10) consecutive 6-minute averages are outside of the opacity excursion ranges), the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions).<br><br>The owner or operator shall follow all applicable quality control/quality assurance, calibration, operation and maintenance, record keeping, and reporting requirements of 40 CFR 63, Subparts A and MM. In addition to required information for *MACT MM*, CAM record keeping and reporting information will include indication of *NSPS BB* excursions/exceedances as well as information for the PSD BACT limits. (Number, duration and cause (including unknown cause, if applicable) of excursions, as applicable, and the corrective actions taken, etc.). *[NESHAP 40 CFR 63.864(d); §63.864(d)(3); §63.864(d)(4); §63.8; §63.10(c)]*<br><br>**Production Monitoring** - The owner or operator shall show continuing compliance with applicable SC SM and *SC Std. 7* $PM/PM_{10}$ limitations for the affected source (2723) using record keeping. The owner or operator shall maintain monthly production rate records for the No. 2 Lime Kiln and calculate the average ton per day lime production on a 12-month rolling average basis. The average ton per day lime production shall be less than or equal to 465.0 tons per day. Reports of the calculated values and the twelve-month rolling average, calculated each month in the reporting period, shall be submitted semiannually. |
| C.45 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 2700, 2701, 2725C<br><br>The affected sources are subject to all applicable limits and requirements of the following regulations (reg.): |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | • *[SC Reg. 61-62.5, Standard No. 4 {Emissions From Process Industries} (SC Std. 4)]*<br>• *[40 CFR 64{Compliance Assurance Monitoring} (CAM)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.<br><br>(S.C. Regulation 61-62.5, Standard No. 4, Section VIII) Particulate matter emissions from a process shall be limited to the rate specified by use of the following equations:<br>1) when process weight rates are less than or equal to 30 tons per hour:<br>$E = (F)\ 4.10P^{0.67}$<br>or 2) when process weight rates are greater than 30 tons per hour:<br>$E = (F)\ 55.0P^{0.11} - 40$<br>where E = the allowable emission rate in pounds per hour, P = process weight rate in tons per hour, and F = effect factor from Table B in S.C. Regulation 61-62.5, Standard No. 4. For the purposes of compliance with this condition, the process boundaries are defined as follows: *[SC Reg. 61-62.5, Std. 4, Sec. VIII(A) and VIII(B)]* |

| PM Limitations for ID 07 No. 4 Causticizer and Slaker (2700, 2701) | |
|---|---|
| **Process/ Equipment IDs** | **Max. Process Weight Rate (tons/hr)** |
| 2701 and 2700 (total) | 25.0 |

**Parameter Compliance Assurance Monitoring (CAM) for PM: Affected Source: Slaker Scrubber [2725C]** - The affected source is subject to 40 CFR 64, Compliance Assurance Monitoring (CAM) (other source) and shall comply with all applicable provisions. The owner or operator shall continue to operate and maintain liquid flow indicators on Slaker Venturi Scrubber 2725C to show reasonable assurance of continuing compliance with *SC Std. 4*.

To meet the requirements of 40 CFR 64 the owner or operator shall maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the table below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT - Pollution Control Equipment – Parameter Ranges. [§64.6(c)(1)(iii) and 64.3(b)]

| CAM Parameter Monitoring for Slaker Scrubber 2725C | |
|---|---|
| **PM Monitoring Method/Data Collection** | **Sampling Frequency/Averaging Time** |
| **CAM Indicators:** [*SC Std. 4*]<br>• Liquid flow indicator<br>**Data Collection:** Computer System | **Frequency:** Minimum of once per shift |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

<table>
<tr><td>and Manual Record Keeping</td><td></td></tr>
<tr><td>Monitor requirements:<br>• Installed to provide representative data<br>• Develop operation maintenance, and QA/QC control and assurance practices to ensure continuing validity of data.</td><td>Averaging: No averaging</td></tr>
</table>

Operational ranges for the CAM indicator PM have been established for excursions to indicate proper operation of the control devices (See ATTACHMENT - Pollution Control Equipment – Parameter Ranges). These operational ranges for the monitored parameters were derived from stack test data, vendor information, and engineering assessments, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Air Permitting, Bureau of Air Quality for approval in accordance with Condition C.6.

Upon detecting an excursion (any parameter value outside of the established excursion range), the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions).

A semiannual report for monitoring shall include, at a minimum, the information required under § 70.6(a)(3)(iii) and the following information as applicable:

- Summary information of the number, duration and cause (including unknown cause, if applicable) of excursions, as applicable, and the corrective actions taken;
- Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero span or other daily calibration checks, if applicable);
- If applicable, a description of the actions taken to implement a Quality Improvement Plan (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions occurring.

The owner or operator shall maintain records of monitoring data, monitor performance data, corrective action, and quality improvement plans.

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| C.46 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 2702, 2703, 2726C, 2724C<br><br>The affected sources are subject to all applicable limits and requirements of the following regulations (reg.):<br>• *[SC Reg. 61-62.5, Standard No. 4 {Emissions From Process Industries} (SC Std. 4)]*<br>• *[40 CFR 64{Compliance Assurance Monitoring} (CAM)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.<br><br>S.C. Regulation 61-62.5, Standard No. 4, Section VIII) Particulate matter emissions from a process shall be limited to the rate specified by use of the following equations:<br>1) when process weight rates are less than or equal to 30 tons per hour:<br>$E = (F)\ 4.10P^{0.67}$<br>or 2) when process weight rates are greater than 30 tons per hour:<br>$E = (F)\ 55.0P^{0.11} - 40$<br>where E = the allowable emission rate in pounds per hour, P = process weight rate in tons per hour, and F = effect factor from Table B in S.C. Regulation 61-62.5, Standard No. 4. For the purposes of compliance with this condition, the process boundaries are defined as follows: *[SC Reg. 61-62.5, Std. 4, Sec. VIII(A) and VIII(B)]*<br><br>**TV ID 07 – Chemical Recovery**<br>**Process/ Equipment IDs** \| **Max. Process Weight Rate (tons/hr)**<br>2702 \| 25.0<br>2703 \| 15.0<br><br>**Parameter Compliance Assurance Monitoring (CAM) for PM: Affected Sources: Fresh and Reburned Lime Silo Baghouses [2726C; 2724C]** - The affected sources (Fresh and Reburned Lime Silos) are subject to 40 CFR 64, Compliance Assurance Monitoring (CAM) and shall comply with all applicable provisions. To meet the requirements of 40 CFR 64 for the bag houses for the Lime Silos, the indicator for PM will be visual inspections (VE), which will be used to provide reasonable assurance of continuing compliance with *SC Std. 4* requirements.<br><br>Visual inspection means a qualitative observation of opacity during daylight hours. The observer does not need to be certified to conduct valid visual inspections. However, at a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, and observer position relative to lighting, wind, and the presence of uncombined water.<br><br>To meet the requirements of 40 CFR 64 the owner or operator shall maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the table below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT - Pollution Control Equipment – Parameter Ranges. *[§64.6(c)(1)(iii) and 64.3(b)]*

| Lime Silos CAM Monitoring for Bag Houses 2726C and 2724C | |
|---|---|
| **PM Monitoring Method/Data Collection** | **Sampling Frequency/Averaging Time** |
| **CAM Indicator:** (*SC Std. 4*):<br>• Visual Inspections (VE)<br>**Data Collection:** [Manual Record Keeping] | **Frequency:** At least once per day while unloading lime<br>**Averaging:** No averaging |

Operational ranges for the CAM indicator have been established to indicate proper operation of the control devices (See ATTACHMENT - Pollution Control Equipment – Parameter Ranges). These operational ranges for the monitored parameters were derived from vendor information and visual observations, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Air Permitting, Bureau of Air Quality for approval in accordance with Condition C.6.

Upon detecting an excursion (any visual emission), the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions).

A semiannual report for monitoring shall include, at a minimum, the information required under § 70.6(a)(3)(iii) and the following information as applicable:

- Summary information of the number, duration and cause (including unknown cause, if applicable) of excursions, as applicable, and the corrective actions taken;
- Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero span or other daily calibration checks, if applicable);
- If applicable, a description of the actions taken to implement a Quality Improvement Plan (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions occurring.

The owner or operator shall maintain records of monitoring data, monitor performance data, corrective action,

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | and quality improvement plans. |
| C.47 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 5105<br><br>The affected source is subject to all applicable limits and requirements of the following regulation (reg.):<br>• *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.<br><br>The affected source is subject to *SC Std. 7* prevention of significant deterioration (PSD) best available control technology (BACT) sulfur dioxide ($SO_2$) limitations as shown in the table below: |

| $SO_2$ Limitations for ID 07: 5105 | | |
|---|---|---|
| **$SO_2$ Limit** | **Limit Units** | **Applicable Regulation** |
| ≤ 50.0 | ppmv (dry basis) | SC Std 7 (PSD BACT) |
| ≤ 551.0 | tpy | SC Std 7 (PSD BACT) |

ppmv (dry basis) = parts per million volume basis and dry
tpy = tons per year
≤ = less than or equal to

**Testing:** Periodic source testing will be used to show continuing compliance with the applicable PSD BACT $SO_2$ emission limits for the affected source (5105). Source testing shall be conducted every four years (4) in accordance with SC Regulation 62.1, Section IV [see Condition C.11] and Federal requirements, when applicable. EPA Method 6/6C will be used to show compliance. Alternative test methods may be allowed, provided Department approval is granted during the test plan submittal and approval process described in *SC Regulation 61-62.1, Section IV - Source Tests* and *§70.7 - Permit Issuance, Renewal, Reopenings and Revisions*, as appropriate.

If an emission unit exceeds fifty (50) percent of its emission limit during a stack test, stack tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four (4) years.

**Fuel Use: Affected Source: No. 3 Recovery Furnace [5105]**-The affected source (5105) is permitted to burn only No. 6 fuel oil with a maximum sulfur content 2.1%, natural gas and black liquor solids as fuel. The owner/operator shall record on a monthly basis No. 6 fuel oil, black liquor solids, and natural gas usage. These records shall be summed for annual fuel usage (per fuel) and these records shall be maintained on site.

**Annual PSD Emission Monitoring: Affected Source: No. 3 Recovery Furnace [5105]**-The owner or operator

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

<table>
<tr><th>Condition Number</th><th>Condition</th></tr>
<tr><td></td><td>shall show continuing compliance with applicable annual PSD BACT $SO_2$ limitations for the affected source (5105) using record keeping. The owner or operator shall maintain the actual monthly tons of black liquor solids and/or fuels fired in the No. 3 Recovery Furnace and calculate a 12-month rolling average for $SO_2$. The production information along with the best available emission data from Bureau approved emission factors and/or emission factors based on compliance source tests shall be used to calculate the 12-month rolling average $SO_2$ emissions. The $SO_2$ emissions shall be less than or equal to 551.0 tons per year. Reports of the calculated values and the twelve-month rolling average, calculated each month in the reporting period shall be kept on site. The Manager of the Technical Management Section shall be notified within 30 days if any of the twelve-month rolling emission average is over the ton per year limit.<br><br>An algorithm, including example calculations and emission factors, explaining the method used to determine emission rates shall be prepared and kept with the twelve-month rolling sum. Submittals of the algorithm are required upon request. Updates to emission factors from the latest stack test used in emissions calculations shall be included in the algorithm.</td></tr>
<tr><td>C.48</td><td>Emission Unit ID: 07<br><br>Equipment/Control Device ID: 2723<br><br>The affected source is subject to all applicable limits and requirements of the following regulation (reg.):<br>• [SC Reg. 61-62.1, Section II(E) {General Requirements-Synthetic Minor} (SC SM)];<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. (SC Std. 4).<br><br>The affected sources are subject to SC SM sulfur dioxide ($SO_2$) limitation as shown in the table below:<br><br>
<table>
<tr><th colspan="3">$SO_2$ Limitations for ID 07: 2723</th></tr>
<tr><th>$SO_2$ Limit</th><th>Limit Units</th><th>Applicable Regulation</th></tr>
<tr><td>≤ 18.7</td><td>Lb/hr</td><td>SC SM</td></tr>
<tr><td>≤ 82.0</td><td>tpy</td><td>SC SM</td></tr>
</table>
tpy = tons per year<br>≤ = less than or equal to<br><br>The No. 2 Lime Kiln is presently subject to a SC SM (PSD avoidance) limit for $SO_2$ (less than 82.0 tons per year).<br><br>Testing: Periodic source testing will also be used to show continuing compliance with the applicable SC SM $SO_2$ emission limits for the affected source (2723). Source testing shall be conducted every four years (4) in accordance with SC Regulation 62.1, Section IV [see Condition C.11] and Federal requirements, when applicable. EPA Method 6/6C will be used to show compliance. Alternative test methods may be allowed, provided Department approval is granted during the test plan submittal and approval process described in SC Regulation</td></tr>
</table>

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | *61-62.1, Section IV - Source Tests* and *§70.7 - Permit Issuance, Renewal, Reopenings and Revisions*, as appropriate.<br><br>If an emission unit exceeds fifty (50) percent of its emission limit during a stack test, stack tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four (4) years.<br><br>**Fuel Use: Affected Source: No. 2 Lime Kiln [2723]-**The affected source (2723) is permitted to burn only No. 6 fuel oil (maximum sulfur content 2.1%), natural gas, and propane as fuel. The owner or operator shall record on a monthly basis No. 6 fuel oil, natural gas, and propane usage. These records shall be summed for annual fuel usage (per fuel) and these records shall be maintained on site.<br><br>**Production Monitoring: Affected Source: No. 2 Lime Kiln [2723]**- The owner or operator shall show continuing compliance with applicable SC SM $SO_2$ limitations for the affected source (2723) using record keeping. The owner or operator shall maintain monthly production rate records for the No. 2 Lime Kiln and calculate the lime production on a twelve-month rolling sum basis. The twelve-month rolling sum shall be less than or equal to 169,725 tons. Reports of the calculated values and the twelve-month rolling sum, calculated each month in the reporting period, shall be submitted semiannually. The owner or operator shall also use source test data and actual annual production levels to calculate a twelve-month rolling sum for $SO_2$ emissions (in TPY). The twelve-month rolling sum shall not exceed 82.0 tons $SO_2$ per year.<br><br>An algorithm, including example calculations and emission factors, explaining the method used to determine emission rates shall only be prepared and kept with tht twelve month rolling sum. Submittals of the algorithm are required upon request. Updates to emission factors from the latest stack test used in emissions calculations shall be included in the algorithm. |
| C.49 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 5105<br><br>The affected source is subject to all applicable limits and requirements of the following regulations (reg.):<br>• *[SC Reg. 61-62.1, Section II(E) {General Requirements-Synthetic Minor Construction Permits (SC SM);*<br>• *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.<br><br>The owner or operator shall meet all of the *SC SM* and *SC Std. 7* prevention of significant deterioration (PSD) best available control technology (BACT) carbon monoxide (CO) limitations as shown in the table below:<br><br>**CO Limitations for ID 07: 5105** |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

| CO Limit | CO Units | Applicable Regulation |
|---|---|---|
| ≤ 1,000 | ppm | SC Std. 7 (PSD BACT) |
| ≤ 235.0 | lb/hr | SC SM |
| ≤ 1,029.0 | tpy | SC SM |

ppm = parts per million
lb/hr = pounds per hour
tpy = tons per year
≤ = less than or equal to

**Testing:** Periodic source testing will be used to show continuing compliance with the applicable *SC SM* and PSD BACT CO emission limits for the affected source (5105). Source testing shall be conducted every four years (4) in accordance with SC Regulation 62.1, Section IV [see Condition C.11] and Federal requirements, when applicable. EPA Method 6/6C will be used to show compliance. Alternative test methods may be allowed, provided Department approval is granted during the test plan submittal and approval process described in *SC Regulation 61-62.1, Section IV - Source Tests* and *§70.7 - Permit Issuance, Renewal, Reopenings and Revisions*, as appropriate.

If an emission unit exceeds fifty (50) percent of its emission limit during a stack test, stack tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four (4) years.

**Fuel Use: Affected Source: No. 3 Recovery Furnace [5105]-**The affected source (5105) is permitted to burn only No. 6 fuel oil with a maximum sulfur content 2.1%, natural gas and black liquor solids as fuel. The owner/operator shall record on a monthly basis No. 6 fuel oil, black liquor solids, and natural gas usage. These records shall be summed for annual fuel usage (per fuel) and these records shall be maintained on site.

**Annual PSD Emission Monitoring: Affected Source: No. 3 Recovery Furnace [5105]-** The owner or operator shall show continuing compliance with applicable annual Synthetic Minor CO limitations for the affected source (5105) using record keeping. The owner or operator shall maintain monthly tons of black liquor solids and/or fuels fired in the *No. 3 Recovery Furnace* and calculate a 12-month rolling average for CO. The production information along with the best available emission data from Bureau approved emission factors and/or emission factors based on compliance source tests shall be used to calculate the 12-month rolling average CO emissions. Emissions from malfunctions are required to be quantified and included in the calculations. The CO emissions shall be less than or equal to 1,029.0 tons per year. Reports of the calculated values and the twelve-month rolling average, calculated each month in the reporting period shall be kept on site. The Manager of the Technical Management Section shall be notified within 30 days if the twelve-month rolling average is over the ton per year limit.

An algorithm, including example calculations and emission factors, explaining the method used to determine emission rates shall be prepared and kept with the twelve-month rolling sum. Submittals of the algorithm are

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

<table>
<tr><th>Condition Number</th><th>Condition</th></tr>
<tr><td></td><td>required upon request. Updates to emission factors from the latest stack test used in emissions calculations shall be included in the algorithm.</td></tr>
<tr><td>C.50</td><td>
Emission Unit ID: 07<br><br>
Equipment/Control Device ID: 2723<br><br>
The affected source is subject to all applicable limits and requirements of the following regulation (reg.):<br>
• [SC Reg. 61-62.1, Section II(E) {General Requirements-Synthetic Minor Construction Permits (SC SM);<br><br>
■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. (SC Std. 4).<br><br>
The owner or operator shall meet all of the SC SM carbon monoxide (CO) limitations as shown in the table below:<br><br>
<table>
<tr><th colspan="3">CO Limitations for ID 07: 2723</th></tr>
<tr><th>CO Limit</th><th>CO Units</th><th>Applicable Regulation</th></tr>
<tr><td>≤ 26.0</td><td>lb/hr</td><td>SC SM</td></tr>
<tr><td>≤ 114.0</td><td>tpy</td><td>SC SM</td></tr>
</table>
lb/hr = pounds per hour<br>
tpy = tons per year<br>
≤ = less than or equal to<br><br>
Testing: Periodic source testing will be used to show continuing compliance with the applicable SC SM CO emission limits for the affected source (2723). Source testing shall be conducted every four years (4) in accordance with SC Regulation 62.1, Section IV [see Condition C.11] and Federal requirements, when applicable. EPA Method 6/6C will be used to show compliance. Alternative test methods may be allowed, provided Department approval is granted during the test plan submittal and approval process described in SC Regulation 61-62.1, Section IV - Source Tests and §70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate.<br><br>
If an emission unit exceeds fifty (50) percent of its emission limit during a stack test, stack tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four (4) years.<br><br>
Fuel Use: Affected Source: No. 2 Lime Kiln [2723]-The affected source is permitted to burn only No. 6 fuel oil (maximum sulfur content 2.1%), natural gas, and propane as fuel. The owner or operator shall record on a monthly basis No. 6 fuel oil, natural gas, and propane usage. These records shall be summed for annual fuel usage (per fuel) and these records shall be maintained on site.
</td></tr>
</table>

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

<table>
<tr><th>Condition Number</th><th>Condition</th></tr>
<tr><td></td><td>Production Monitoring: Affected Source: No. 2 Lime Kiln [2723]- The owner or operator shall show continuing compliance with applicable SC SM CO limitations for the affected source (2723) using record keeping. The owner or operator shall maintain monthly production rate records for the No. 2 Lime Kiln and calculate the lime production on a twelve-month rolling sum basis. The twelve-month rolling sum shall be less than or equal to 169,725 tons. Reports of the calculated values and the twelve-month rolling sum, calculated each month in the reporting period, shall be submitted semiannually. The owner or operator shall also use source test data and actual annual production levels to calculate a twelve-month rolling sum for CO emissions (in TPY). The twelve-month rolling sum shall not exceed 114.0 tons CO per year.<br><br>An algorithm, including example calculations and emission factors, explaining the method used to determine emission rates shall only be prepared and kept with tht twelve month rolling sum. Submittals of the algorithm are required upon request. Updates to emission factors from the latest stack test used in emissions calculations shall be included in the algorithm.</td></tr>
<tr><td>C.51</td><td>Emission Unit ID: 07<br><br>Equipment/Control Device ID: 5105<br><br>The affected source is subject to all applicable limits and requirements of the following regulations (reg.):<br>• [SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)];<br>• [SC Reg. 61-62.5, Standard No. 7.1 {NSR} (SC Std. 7.1)]<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. (SC Std. 4).<br><br>Nitrogen Oxides Limitations: The owner or operator must meet all of the SC Std. 7 prevention of significant deterioration (PSD) best available control technology (BACT), and SC Std. 7.1 Non-attainment New Source Review (NSR) lowest achievable emissions rate (LAER) Nitrogen Oxides ($NO_X$) limitations as shown in the table below:<br><br>
<table>
<tr><th colspan="3">$NO_X$ Limitations for ID 07: 5105</th></tr>
<tr><th>NOx Limit</th><th>Units</th><th>Applicable Regulation</th></tr>
<tr><td>≤ 78</td><td>ppmv @8%$O_2$<br>(10-day rolling average)</td><td>SC Std. 7 (PSD BACT)</td></tr>
<tr><td>≤ 78</td><td>ppmv @8 $O_2$<br>(10-day rolling average)</td><td>SC Std. 7.1 (NSR LAER)</td></tr>
<tr><td>≤ 618.0</td><td>tpy</td><td>SC Std. 7 (PSD BACT)</td></tr>
<tr><td>≤ 618.0</td><td>tpy</td><td>SC Std. 7.1 (NSR LAER)</td></tr>
</table>
ppmv@8%$O_2$ = parts per million volume basis at 10 percent Oxygen<br>tpy = tons per year</td></tr>
</table>

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ≤ = less than or equal to<br><br>The affected source (5105) is subject to all the limits above (when applicable) as well as all applicable requirements of *SC Std. 7*, and *SC Std. 7.1*, regulations.<br><br>**Additional LAER Requirement:** In addition to the limitations in the table above, PSD BACT and NSR LAER require the use of four levels of air in the No. 3 Recovery Furnace (5105) for combustion control for $NO_X$ reduction. These $NO_X$ control methods are considered BACT and LAER for these units.<br><br>**Testing:** Periodic source testing will be used to show continuing compliance with the applicable $NO_X$ emission limits for the affected source (5105). Source testing shall be conducted every four (4) years in accordance with SC Regulation 62.1, Section IV [see Condition C.11 and Federal requirements, when applicable. EPA Method 7-7E will be used to show compliance. Alternative test methods may be allowed, provided Department approval is granted during the test plan submittal and approval process described in *SC Regulation 61-62.1, Section IV - Source Tests* and *§70.7 - Permit Issuance, Renewal, Reopenings and Revisions*, as appropriate.<br><br>**Continuous Emissions Monitoring: Affected Source: No. 3 Recovery Furnace [5105]-**Good combustion control (for $NO_X$) for the applicable PSD BACT and NSR LAER $NO_X$ limits for the affected sources will be demonstrated by use of a $NO_X$ continuous emissions monitoring system (CEMS) on the affected emission unit (5105). The owner or operator shall continue to calibrate, maintain and operate continuous emissions monitoring system (CEMS) to monitor and record the concentration of $NO_X$ emissions on a dry basis and the percent oxygen by volume on a dry basis in the gases discharged into the atmosphere for the affected source. The CEMS shall be certified annually and certification reports with supporting data sent to the Manager of the Source Evaluation Section within thirty (30) days of the certification.<br><br>CEMS operation, calibration, maintenance, quality assurance, and data handling procedures shall be established and implemented by the facility on guidance from 40 CFR 60, Appendix B-Performance Specification-2 as well as manufactures recommendations. The procedures shall include record keeping for these CEMS support activities. The procedures and generated records shall be kept on site.<br><br>The CEMS shall provide $NO_X$ values at least once every fifteen minutes and have the capability of calculating $NO_X$ concentration as part per million volume corrected to eight (8) percent oxygen for the *No. 3 Recovery Furnace* (5105). The $NO_X$ information shall be recorded and available for contemporaneous use for good combustion practices. Twenty-four (24) hour averages of the $NO_X$ data shall be determined each day and the daily averages used to calculate ten-day (10) rolling averages for $NO_X$ concentration for the *No. 3 Recovery Furnace*. Any 10-day rolling average for the *No. 3 Recovery Furnace* above the applicable limits shall be recorded along with corrective actions taken to correct the exceedance. All $NO_X$ data generated by the CEMS shall be kept on site. Semiannual reports including any exceedances of standards and appropriate corrective action taken shall be submitted to the Department.<br><br>**Annual Emission Monitoring: Affected Source: No. 3 Recovery Furnace [5105] -** The owner or operator |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | shall show continuing compliance with applicable annual NSR LAER and PSD BACT $NO_X$ limitations for the affected source (5105) using record keeping. The owner or operator shall maintain monthly tons of black liquor solids and/or fuels fired in the *No. 3 Recovery Furnace* and calculate a 12-month rolling sum for annual NSR LAER and PSD BACT $NO_X$ limitations. The production information along with the best available emission data from Bureau approved emission factors and/or emission factors based on compliance source tests shall be used to calculate the 12-month rolling average $NO_X$ emissions. Emissions from malfunctions are required to be quantified and included in the calculations. The $NO_X$ emissions shall be less than or equal to 618.0 tons per year. Reports of the calculated values and the twelve-month rolling average, calculated each month in the reporting period, shall be kept on site. The Manager of the Technical Management Section shall be notified within 30 days if the twelve-month rolling average is over the ton per year limit.<br><br>An algorithm, including example calculations and emission factors, explaining the method used to determine emission rates shall be prepared and kept with the twelve-month rolling sum. Submittals of the algorithm are required upon request. Updates to emission factors from the latest stack test used in emissions calculations shall be included in the algorithm. |
| C.52 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 2723<br><br>The affected source is subject to all applicable limits and requirements of the following regulation (reg.):<br>• *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.<br><br>**(A) Nitrogen Oxides Limitations:** The owner or operator must meet all of the *SC Std. 7* prevention of significant deterioration (PSD) best available control technology (BACT) Nitrogen Oxides ($NO_X$) limitations as shown in the table below:<br><br>**$NO_X$ Limitations for ID 07: 2723**<br>**NOx Limit** \| **Units** \| **Applicable Regulation**<br>≤ 152 \| ppmv @ 10% $O_2$ \| SC Std. 7 (PSD BACT)<br>ppmv@10%$O_2$ = parts per million volume basis at 10 percent Oxygen<br>≤ = less than or equal to<br><br>**Testing:** Periodic source testing will be used to show continuing compliance with the applicable $NO_X$ emission limits for the affected source (2723). Source testing shall be conducted every two (2) years in accordance with SC Regulation 62.1, Section IV and Federal requirements, when applicable. EPA Method 7-7E will be used to show compliance. Alternative test methods may be allowed, provided Department approval is granted during the test plan submittal and approval process described in *SC Regulation 61-62.1, Section IV - Source Tests* and |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | *61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions*, as appropriate.<br><br>If an emission unit exceeds fifty (50) percent of its emission limit during a stack test stack tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every two years.<br><br>**Production Monitoring: Affected Source: No. 2 Lime Kiln [2723]** - The owner or operator shall show continuing compliance with applicable SC PSD BACT $NO_X$ limitations for the affected source (2723) using record keeping. The owner or operator shall maintain monthly production rate records for the No. 2 Lime Kiln and calculate the lime production on a twelve-month rolling sum basis. The twelve-month rolling sum shall be less than or equal to 169,725 tons. Reports of the calculated values and the twelve-month rolling sum, calculated each month in the reporting period, shall be submitted semiannually.<br><br>An algorithm, including example calculations and emission factors, explaining the method used to determine emission rates shall only be prepared and kept with tht twelve month rolling sum. Submittals of the algorithm are required upon request. Updates to emission factors from the latest stack test used in emissions calculations shall be included in the algorithm. |
| C.53 | **Emission Unit ID:** 07, 08<br><br>**Equipment/Control Device ID:** 2400, 2500, 5100, 5260, 5260C, 2605, 3705<br><br>The affected sources are subject to all applicable limits and requirements of the following regulation(s) (reg.):<br>• *[SC Reg. 61-62.5, Standard No. 4 {Emissions From Process Industries} (SC Std. 4)];*<br>• *[NSPS 40 CFR 60, Subparts A {General Provisions}; BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4).*<br><br>No. 1 and No. 3 Multi-Effect Evaporator Sets (2400 and 5100) are subject to all applicable limitations as well as notification, testing, monitoring, record keeping, and reporting requirements of *NSPS BB*. No. 2 Multi-Effect Evaporator Set (2500) *is* subject to all applicable TRS reduction requirements of *SC Std. 4*.<br><br>A caustic scrubber (5260C- LVHC System Caustic Scrubber) in the LVHC Collection System (5260) prior to the combination boilers is used as part of the control to reduce TRS and sulfur dioxide ($SO_2$) in streams from the evaporators and concentrators (also digesters).<br><br>The TRS content of the gases from the affected sources for the multi-effect evaporator systems shall be less than or equal to 5 parts per million by volume on a dry basis corrected to 10 percent oxygen or each of these |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

sources must be combusted in the No. 1 Combination Boiler (2605) and/or No. 2 Combination Boiler (3705) for TRS reduction. The TRS gases are subject to a minimum temperature of 1200° F for at least 0.5 second. The specific sources in affected systems that require collection and control are listed in ATTACHMENT - TRS and HAP Sources Routed to Combination Boilers for Incineration, which is considered a Federally enforceable part of this condition and permit. *[SC Reg. 61-62.5, Std. 4, Section XI; NSPS 40 CFR 60.280; §60.281; §60.283(a); §60.238(a)(1), §60.283(a)(1)(iii)]*

**Continuous Parameter Monitoring for TRS: Affected Source: LVHC Scrubber [5260C]**-The owner or operator shall continue to operate and maintain liquid flow and liquid pH indicators on each module of the LVHC System Caustic Scrubber (5260C). These scrubber operating parameters shall be recorded at the frequency in the table below during source operation. The scrubber shall be in place and operational whenever processes controlled by the scrubber are running, except during periods of scrubber malfunction or mechanical failure.

| ID 07 LVHC Parameter TRS Monitoring for 5260C Scrubber | |
|---|---|
| **Monitoring Method/Requirements** | **Sampling Frequency/Averaging Time** |
| **Monitoring:** (*SC Std. 4* and *NSPS BB*)<br>• Scrubber liquid flow indicator<br>• Scrubber liquid pH indicator | **Frequency**: At least once daily<br><br>**Averaging**: No averaging |

Operational ranges for the monitored parameters have been established to indicate proper operation of the control devices (See ATTACHMENT - Pollution Control Equipment – Parameter Ranges). These operational ranges for the monitored parameters were derived from stack test data and/or vendor certification, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Air Permitting, Bureau of Air Quality for approval.

Semiannual reports, including any variances from established parameters and appropriate corrective action taken during the reporting period shall be submitted to the Department. If no incidences occurred during the reporting period, then the report shall indicate such information.

**Compliance Assurance Monitoring (CAM) for TRS-**The affected sources (2400, 2500, 5100, 5260, 5260C, 2605, 3705) sources are subject to 40 CFR 64, CAM and shall comply with all applicable provisions. To meet the requirements of 40 CFR 64 for the affected sources, the indicator for TRS reduction will be the status of TRS venting or losses from the collection system of affected TRS sources required to be routed to boilers. The owner or operator will keep records of all venting, bypasses, and/or TRS losses that are exhausted to the atmosphere without being combusted in the boilers. The venting time period and source of the venting event shall be determined and recorded. As approved by the Department, the owner or operator shall continue to operate, and maintain a flame failure system for these boilers provide positive indication of vents when there is an absence of a flame in a boiler. The status of affected TRS streams shall be used to provide reasonable assurance of continuing compliance with *SC Std. 4* and *NSPS BB* TRS reduction requirements.

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

To meet the requirements of 40 CFR 64 the owner or operator shall maintain the parameters and indicator(s) [monitoring methods, sampling frequencies, date collection procedures, and averaging time(s) (where appropriate)] in the table below as well as take corrective action based on the excursion level(s) shown in ATTACHMENT - Pollution Control Equipment – Parameter Ranges.

| ID 07 CAM TRS Parameter Monitoring Methods for Boilers 2605 and 3705 | |
|---|---|
| **Monitoring Method/Data Collection** | **Sampling Frequency/Averaging Time** |
| **CAM Indicator:** [*SC Std.* 4 and *NSPS BB*]<br>• TRS Venting Status<br>**Data Collection**: Computer systems and manual record keeping | **Frequency**: Continuous-The duration and source of each TRS venting episode greater than 5 minutes determined<br>**Averaging:** No averaging |

For streamlining purposes, a CAM excursion will have the same definition as an excess emission defined by *NSPS BB*, that is, periods in excess of 5 minutes during which the combustion temperature at the point of incineration is less than 1200 °F for any TRS gases from affected sources (venting of untreated gases).

Upon detecting an excursion, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions).

For QA/QC purposes the owner or operator shall check the operation of the flame failure systems and the systems that indicate and/or record vents of TRS gases to the atmosphere on a monthly basis. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.

A semiannual report for monitoring shall include, at a minimum, the information required under § 70.6(a)(3)(iii) and the following information as applicable:

- Summary information of the number, duration, source, and cause (including unknown cause, if applicable) of excursions, as applicable, and the corrective actions taken; excess emissions for *SC Std. 4* and *NSPS BB* will also be reported.
- Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero span or other daily calibration checks, if applicable);

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

<table>
<tr><th>Condition Number</th><th>Condition</th></tr>
<tr><td></td><td>• If applicable, a description of the actions taken to implement a Quality Improvement Plan (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions occurring.<br><br>The owner or operator shall maintain records of monitoring data, monitor performance data, excursions, corrective actions, and quality improvement plans. In addition, records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment.</td></tr>
<tr><td>C.54</td><td>Emission Unit ID: 07<br><br>Equipment/Control Device ID: 2505<br><br>The affected source is subject to all applicable limits and requirements of the following regulation (reg.):<br>• [SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)]<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. (SC Std. 4).<br><br>The owner or operator shall meet the SC Std. 4 total reduced sulfur (TRS) limitations as shown in the table below: [SC Reg. 61-62.5, Std. 4, Section XI]<br><br>
<table>
<tr><th colspan="2">TRS Limitations for ID 07: 2505</th></tr>
<tr><th>TRS Limit</th><th>TRS Units</th></tr>
<tr><td>≤ 20</td><td>ppmv@8 %$O_2$ (dry weight)</td></tr>
</table>
ppmv@8%$O_2$ (dry weight) = parts per million volume basis at 8 percent Oxygen (dry weight)<br><br>TRS Continuous Monitoring: The owner or operator shall continue to calibrate, maintain and operate continuous emissions monitoring system (CEMS) to monitor and record the concentration of TRS emissions on a dry basis and the percent oxygen by volume on a dry basis in the gases discharged into the atmosphere for the affected source. The CEMS must be calibrated, maintained, and operated in accordance with the applicable requirements of 40 CFR 60.284 (f), 40 CFR 60.13, and Performance Specification 1, 3, and 5 of Appendix B of 40 CFR, Part 60. The owner or operator shall calculate and record on a daily 12-hour average TRS concentrations and $O_2$ concentrations for the two consecutive periods of each operating day. Excess emissions for the No. 2 Recovery Furnace are as follows: [SC Reg. 61-62.5, Std. 4, Section XI(D)(3)(a)]<br><br>• No. 2 Recovery Furnace excess emissions are defined as all 12-hour averages of TRS concentrations above 20 parts per million volume corrected to 8 percent oxygen (ppmv @ 8% $O_2$) [calculated in accordance with SC Reg. 62.5, Std. 4, Section XI, D.2.a-c]</td></tr>
</table>

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

<table>
<tr><th>Condition Number</th><th>Condition</th></tr>
<tr><td></td><td>Semiannual reports shall be submitted to the Department for No. 2 Recovery Furnace. Reports shall include all excess emissions above the applicable standard, monitor maintenance and monitor downtime. If no excess emissions occurred during the reporting period, the report should state such information. [SC Reg. 61-62.5, Std. 4, Section XI(D)]</td></tr>
<tr><td>C.55</td><td>Emission Unit ID: 07<br><br>Equipment/Control Device ID: 5105<br><br>The affected source is subject to all applicable limits and requirements of the following regulations (reg.):<br>• [NSPS 40 CFR 60, Subparts A {General Provisions}; BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 91-62.60, Subparts A and BB (NSPS BB)];<br>• [SC Reg. 61-62.5, Standard 7 {PSD} (SC Std. 7)]<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. (SC Std. 4).<br><br>The owner or operator shall meet all of the NSPS BB and SC Std. 7 prevention of significant deterioration (PSD) best available control technology (BACT) for total reduced sulfur (TRS) limitations as shown in the table below: [NSPS 40 CFR 60.283(a)(2)]<br><br>
<table>
<tr><th colspan="3">TRS Limitations for ID 07: 5105</th></tr>
<tr><th>TRS Limit</th><th>TRS Units</th><th>Applicable Regulation</th></tr>
<tr><td>≤ 5</td><td>ppmv @ 8% $O_2$ (dry basis)</td><td>NSPS BB</td></tr>
<tr><td>≤ 5</td><td>ppmv @ 8% $O_2$ (dry basis)</td><td>SC Std. 7 (PSD BACT)</td></tr>
</table>
≤ = less than or equal to<br>
ppmv@8%$O_2$ (dry weight) = parts per million volume basis at 8 percent Oxygen (dry weight)<br><br>TRS Continuous Monitoring: The owner or operator shall continue to calibrate, maintain and operate continuous emissions monitoring system (CEMS) to monitor and record the concentration of TRS emissions on a dry basis and the percent oxygen by volume on a dry basis in the gases discharged into the atmosphere for the affected source. The CEMS must be calibrated, maintained, and operated in accordance with the applicable requirements of 40 CFR 60.284 (f), 40 CFR 60.13, and Performance Specification 1, 3, and 5 of Appendix B of 40 CFR, Part 60. The owner or operator shall calculate and record on a daily 12-hour average TRS concentrations and $O_2$ concentrations for the two consecutive periods of each operating day. Excess emissions for each emission unit are as follows: [NSPS 40 CFR §60.284(a); §60.284(a)(1); §60.284(a)(2)]<br><br>• No. 3 Recovery Furnace excess emissions are defined as all 12-hour averages of TRS concentrations above 5 ppmv @ 8% $O_2$ [calculated in accordance with 40 CFR 60.284(c)(1) - (c)(4)].</td></tr>
</table>

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | The Department will not consider periods of excess emissions to be indicative of a violation of 40 CFR 60, Subpart BB if:<br><br>• The number of 12 hour exceedances from *No. 3 Recovery Furnace* is less than or equal to 1% of the total number of contiguous 12 hour periods in a quarter (excluding periods of startup, shutdown, or malfunction and periods when the recovery furnace is not operating).<br>• The Department determines that the affected equipment, including air pollution control equipment, is maintained and operated in a manner which is consistent with good air pollution control practice for minimizing emissions during periods of excess emissions. *[NSPS 40 CFR; §60.284(e)]*<br><br>The owner or operator shall submit a semiannual excess emissions and monitoring systems performance report and/or a summary report for the affected source. If the total duration of excess emissions for the reporting period is less than one percent (1 %) of the total operating time for the reporting period and CMS downtime for the reporting period is less than five percent (5 %) of the total operating time for the reporting period, only the summary report form shall be submitted. If the total duration of excess emissions for the reporting period is 1 % or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5 % or greater of the total operating time for the reporting period, the summary report and the excess emission report shall both be submitted. *[NSPS 40 CFR 60.7(c); 60.7(d)]*<br><br>Reports shall include the information required by §60.7(c) and §60.7(d) and shall be submitted to the Department. If no excess emissions occurred during the reporting period, the report should state such information.<br><br>The owner or operator shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative as well as records required by NSPS 40 CFR 60.7(f). *[NSPS 40 CFR 60.7(b)]* |
| C.56 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 5105<br><br>The affected source is subject to all applicable limits and requirements of the following regulations (reg.):<br>●*NSPS 40 CFR 60, Subparts A {General Provisions}; Db {Standards Of Performance For Industrial-Commercial-Institutional Steam Generating Units}; and SC Reg. 61-62.60, Subparts A and Db (NSPS Db)*<br>●*SC Reg. 61-62.1, Sec. II(J)(2) {Special Permit Conditions (Special)*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.<br><br>The affected source is permitted to burn only black liquor solids, No. 6 fuel oil with a maximum sulfur content |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | 2.1%, and natural gas as fuel. The use of natural gas and No. 6 fuel oil shall be limited to an annual capacity factor of 10% total or less. Annual capacity factor means the ratio between the actual heat input to the boiler from natural gas and No. 6 fuel oil during a calendar year and the potential heat input to the boiler had it operated for 8760 hours during a calendar year on natural gas and No. 6 fuel oil.<br><br>In accordance with *NSPS Db* and EPA determinations, the primary purpose of a recovery furnace is not considered to be a steam generation unit with respect to *NSPS* regulations if the annual capacity factor of fossil fuels is less than 10% based on the heat input of fuels combusted in the furnace. Thus, no owner or operator of an affected facility that combusts fuel oil or natural gas with a byproduct shall cause to be discharged into the atmosphere any gases that contain $NO_x$ in excess of the emission limit determined by the formula in 40 CFR 60.44b(e) unless the affected facility has an annual capacity factor for fuel oil and natural gas of 10 percent (0.10) or less. Therefore, the the No. 3 Recovery Furnace is limited to an annual capacity factor of less than or equal to 10% to avoid *NSPS Db* requirements.<br><br>The use of any substances other than those above as fuel is prohibited without prior written approval from the Bureau.<br><br>**Fuel Use:** The owner/operator shall record black liquor solids, No. 6 fuel oil, and natural gas usage monthly. These records shall be summed for annual fuel usage (per fuel) and these records shall be maintained on site.<br><br>**(A2): Fossil Fuel Capacity Factor:** The owner or operator shall record and maintain records of the amounts of each fuel combusted each day and calculate an annual capacity factor individually for No. 6 fuel oil and natural gas for the reporting period. The combined annual capacity factor shall be less than or equal to 10%. The annual capacity factor is determined on a twelve-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month. Semiannual reports of the annual capacity factor over the previous 12 months, calculations, any variances or exceedances of limitations, and/or any corrective actions shall be submitted. If no variances or exceedances occurred during the reporting period then the report shall indicate such. |
| C.57 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 2510, 5110, 2511C<br><br>The affected sources are subject to all applicable limits and requirements of the following regulations (reg.):<br>• *[SC Reg. 61-62.5, Standard No. 4 (SC Std. 4)];*<br>• *[NSPS 40 CFR 60, Subparts A {General Provisions} and BB {Standards Of Performance For Kraft Pulp Mills} (NSPS BB)];*<br>• *[SC Reg. 61-62.5, Standard No. 7 (SC Std. 7)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4).* |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

The owner or operator shall meet the *SC Std. 4*, *NSPS BB*, and *SC Std. 7* total reduced sulfur (TRS) limitations as shown in the table below. *[SC Reg. 61-62.5, Std. 4, Section XI]*

| TRS Limitations for ID 07: 2510 and 5110 | | | |
|---|---|---|---|
| **Equip. No** | **TRS Limit** | **Limit Units** | **Applicable Regulation** |
| 2510 | ≤ 0.033 | lbs/T BLS (dry weight) | SC Std. 4 |
| 5110 | ≤ 0.033 | lbs/T BLS (dry weight) | NSPS BB (Pulp TRS) |
| 5110 | ≤ 0.033 | lbs/T BLS (dry weight) | SC Std. 7 (PSD BACT) |

≤ = less than or equal to
lbs/T BLS (dry weight) = pounds per ton of black liquid solids (dry weight)

■Note: For streamlining purposes the monitoring for *SC Std. 4* and *NSPS BB* uses *Part 63* monitoring methods; however, this is a *SC Std. 4* and *NSPS BB* condition and not a *Part 63 (MACT)* condition.

**Continuous Parameter Monitoring for TRS:** The continuous parametric monitoring system(s) CPMS calibrated, maintained and operated for NESHAP 40 CFR 63, Subpart MM (*MACT MM*) requirements for the smelt dissolving tanks will also be used to show compliance with applicable TRS of *SC Std. 4* for 2510, and *SC Std. 7* and/or *NSPS BB* for 5110.

One scrubber is used for both smelt dissolving tanks (2510 and 5110). The scrubber operating parameters shall be recorded at the frequency in the table below during source operation. The scrubber shall be in place and operational whenever processes controlled by the scrubber are running, except during periods of scrubber malfunction or mechanical failure. *[SC Reg. 61-62.70(6)(a)(3)(i)(A) {Streamlining}]*

| Smelt Tank Parameter Monitoring for Scrubber 2510C | |
|---|---|
| **TRS Monitoring Method/Requirements** | **Sampling Frequency/Averaging Time** |
| **Monitoring:** (SC Std. 4; SC Std. 7; NSPS BB)<br>• Scrubber pressure drop CPMS<br>• Liquid flow CPMS | **Frequency:** Minimum of one cycle of sampling and analyzing every successive 15-minute period |
| **Monitor requirements:** 40 CFR 63.864(e)(10); §63.8 | **Averaging:** 3-hour averages |

Operating ranges for the scrubber parameters have been established to show reasonable assurance of compliance with the TRS limitations of *SC Std.4, SC Std. 7*, and *NSPS BB* based on test data or vendor data, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Air Permitting Division, Bureau of Air Quality for approval. Monitoring parameter readings (i.e., pressure drop readings, etc.) and inspection checks shall be maintained in logs (written or electronic), along with any corrective action taken when deviations occur. Each incidence of operation

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | outside the operational ranges, including date and time, cause, and corrective action taken, shall be recorded and kept on site.<br><br>**SC Std. 4 Reporting: Affected Source: No. 2 Smelt Dissolving Tank [2510]-**Semiannual reports including any variances from established parameters (any three (3)-hour average value outside the established ranges) and appropriate corrective action taken during the reporting period shall be submitted to the Department. If no incidences occurred during the reporting period, then the report shall indicate such.<br><br>**NSPS BB Reporting: Affected Source: No. 3 Smelt Dissolving Tank [5110]-**The owner or operator shall submit a semiannual excess emissions and monitoring systems performance report and/or a summary report for the affected source. If the total duration of excess emissions for the reporting period is less than one percent (1 %) of the total operating time for the reporting period and CMS downtime for the reporting period is less than five percent (5 %) of the total operating time for the reporting period, only the summary report form shall be submitted. If the total duration of excess emissions for the reporting period is 1 % or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5 % or greater of the total operating time for the reporting period, the summary report and the excess emission report shall both be submitted. *[NSPS 40 CFR 60.7(c); 60.7(d)]*<br><br>Reports shall include the information required by §60.7(c) and §60.7(d) and shall be submitted to the Department. If no excess emissions occurred during the reporting period, the report should state such information.<br><br>The owner or operator shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative as well as records required by NSPS 40 CFR 60.7(f). *[NSPS 40 CFR 60.7(b)]* |
| C.58 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 2723<br><br>The affected source is subject to all applicable limits and requirements of the following regulations (reg.):<br>• *[SC Reg. 61-62.1, Section II(E) {General Requirements-Synthetic Minor Construction Permits} (SC SM)];*<br>• *[NSPS 40 CFR 60, Subparts A {General Provisions}; {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.<br><br>The owner or operator shall meet all of the *SC SM* and *NSPS BB* total reduced sulfur (TRS) limitations as shown in the table below: *[NSPS 40 CFR 60.283(a)(5)]* |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

| TRS Limitations for ID 07: 2723 | | |
|---|---|---|
| **TRS Limit** | **Units** | **Applicable Regulation** |
| ≤ 8 | ppmv @ 10% $O_2$(dry basis) | NSPS BB |
| ≤ 9.0 | tpy | SC SM |

≤ = less than or equal to
ppmv@10%$O_2$(dry weight) = parts per million volume basis at 10 percent Oxygen (dry weight)
tpy = tons per year

**TRS Continuous Monitoring -**The owner or operator shall continue to calibrate, maintain and operate continuous emissions monitoring system (CEMS) to monitor and record the concentration of TRS emissions on a dry basis and the percent oxygen by volume on a dry basis in the gases discharged into the atmosphere for the affected source. The CEMS must be calibrated, maintained, and operated in accordance with the applicable requirements of 40 CFR 60.284 (f), 40 CFR 60.13, and Performance Specification 1, 3, and 5 of Appendix B of 40 CFR, Part 60. The owner or operator shall calculate and record on a daily basis, 12-hour average TRS concentrations and $O_2$ concentrations for the two consecutive periods of each operating day. Excess emissions for each emission unit are as follows: [*NSPS 40 CFR §60.284(a); §60.284(a)(2)]*

- *No. 2 Lime Kiln* (2723) excess emissions are defined as 12-hour averages of TRS concentrations above 8 ppmv @ 10% $O_2$ [calculated in accordance with *40 CFR 60.284(c)(1) -(c)(4)]. [NSPS 40 CFR 60.284(c); §60.284(d)]*

The Department will not consider periods of excess emissions to be indicative of a violation of 40 CFR 60, Subpart BB if:

- The Department determines that the affected equipment, including air pollution control equipment, is maintained and operated in a manner which is consistent with good air pollution control practice for minimizing emissions during periods of excess emissions. *[NSPS 40 CFR; §60.284(e)(2)]*

The owner or operator shall submit a semiannual excess emissions and monitoring systems performance report and/or a summary report for the affected source. If the total duration of excess emissions for the reporting period is less than one percent (1 %) of the total operating time for the reporting period and CMS downtime for the reporting period is less than five percent (5 %) of the total operating time for the reporting period, only the summary report form shall be submitted. If the total duration of excess emissions for the reporting period is 1 % or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5 % or greater of the total operating time for the reporting period, the summary report and the excess emission report shall both be submitted. *[NSPS 40 CFR 60.7(c); 60.7(d)]*

Reports shall include the information required by §60.7(c) and §60.7(d) and shall be submitted to the Department. If there are no excess emissions during the reporting period, the report should state such information.

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | The owner or operator shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative as well as records required by NSPS 40 CFR 60.7(f). *[NSPS 40 CFR 60.7(b)]*<br><br>**Production Monitoring** - The owner or operator shall show continuing compliance with the applicable *SC SM* TRS annual limitations using record keeping. The owner or operator shall maintain monthly production rate records for the No. 2 Lime Kiln and calculate the lime production on a twelve-month rolling sum basis. The twelve-month rolling sum shall be less than or equal to 169,725 tons. Reports of the calculated values and the twelve-month rolling sum, calculated each month in the reporting period, shall be submitted semiannually.<br><br>An algorithm, including example calculations and emission factors, explaining the method used to determine emission rates shall be prepared and kept with tht twelve month rolling sum. Submittals of the algorithm are required upon request. Updates to emission factors from the latest stack test used in emission calculations shall be included in the algorithm. |
| C.59 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 2723<br><br>The affected source is subject to all applicable limits and requirements of the following regulation (reg.):<br>• *[SC Reg. 61-62.1, Section II(E) {General Requirements-Synthetic Minor Construction Permits} (SC SM)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.<br><br>In order to avoid triggering prevention of significant deterioration (PSD), emissions from the affected source (2723) shall be less than or equal to a *SC SM* limitation for volatile organic compounds (VOC) of 57.0 tons per year and a beryllium limitation of 0.00071 tons per year. The affect source is subject to all applicable requirements of *SC SM* regulations.<br><br>**Production Monitoring** - The owner or operator shall show continuing compliance with applicable *SC SM* VOC and Beryllium annual limitations for *No. 2 Lime Kiln* using record keeping. The owner or operator shall maintain monthly production rate records for the No. 2 Lime Kiln and calculate the lime production on a twelve-month rolling sum basis. The twelve-month rolling sum shall be less than or equal to 169,725 tons. Reports of the calculated values and the twelve-month rolling sum, calculated each month in the reporting period, shall be submitted semiannually.<br><br>An algorithm, including example calculations and emission factors, explaining the method used to determine emission rates shall only be prepared and kept with tht twelve month rolling sum. Submittals of the algorithm |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | are required upon request. Updates to emission factors from the latest stack test used in emissions calculations shall be included in the algorithm. |
| C.60 | **Emission Unit ID:** 07<br><br>**Equipment/Control Device ID:** 2723<br><br>The No. 2 Lime Kiln is allowed to burn natural gas, propane, and No. 6 fuel oil as fuel. The facility is allowed to co-fire natural gas and No. 6 fuel oil. The use of any other substances as fuel is prohibited without prior written approval from the Bureau of Air Quality.<br><br>The facility is also allowed to use an Oxygen Enrichment System to improve the efficiency for the conversion of lime mud to lime. Up to 250 cubic feet per minute of Oxygen may be injected into the kiln just above the bed at the dry end of the kiln to increase the temperature at the surface of the lime. The facility shall keep on site records of periods when oxygen is used as well as the monthly use of oxygen (monthly average cubic feet per minute when oxygen is used). Usage of Oxygen above 250 cubic feet per minute shall be noted in the records. The records shall be made available to the Bureau upon request. |
| ~~C.61~~ | ~~**Emission Unit ID:** 08~~<br><br>~~**Equipment/Control Device ID:** 2550~~<br><br>~~The affected source is subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~• *SC Reg. 61-62.5, Standard No. 1 (Emissions From Fuel Burning Operations) (SC Std. 1)*~~<br><br>~~(S.C. Regulation 61-62.5, Standard No. 1, Section I) The fuel burning source shall not discharge into the ambient air smoke which exceeds opacity of 40%. The opacity limit may be exceeded for sootblowing, but may not be exceeded for more than 6 minutes in a one-hour period nor be exceeded for more than a total of 24 minutes in a 24-hour period. Emissions caused by sootblowing shall not exceed an opacity of 60%.~~<br><br>~~Owners and operators shall, to the extent practicable, maintain and operate any source including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. In addition, the owner or operator shall maintain a log of the time, magnitude, duration, and any other pertinent information to determine periods of startup and shutdown and make available to the Department upon request.~~<br><br>~~The owner/operator shall perform a visual inspection on a daily basis during source operation when burning No. 6 fuel oil. No periodic monitoring for opacity will be required during periods of burning natural gas only. Logs shall be kept to record all visual inspections, noting color, duration, density (heavy or light), cause, and corrective action taken for any abnormal emissions. If a source did not operate during the required visual inspection time frame, the log shall indicate such. The owner/operator shall submit semiannual reports. The reports shall include records of abnormal emissions, if any, and corrective actions taken. If only natural gas or propane was combusted or if the unit did not operate during the semiannual period, the report shall state so.~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ~~Visual inspection means a qualitative observation of opacity during daylight hours. The observer does not need to be certified to conduct valid visual inspections. However, at a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, and observer position relative to lighting, wind, and the presence of uncombined water.~~ |
| ~~C.62~~ | ~~**Emission Unit ID:** 08~~<br><br>~~**Equipment/Control Device ID:** 2550~~<br><br>~~The affected source is subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~• *SC Reg. 61-62.5, Standard No. 1 (Emissions from Fuel Burning Operations) (SC Std. 1)*~~<br><br>~~(S.C. Regulation 61-62.5, Standard No. 1, Section II) The maximum allowable discharge of particulate matter resulting from this source is 0.6 pounds per million Btu input.~~<br><br>~~Provided the Power Boiler maintains its status as a "limited use" boiler under 40 CFR 63, Subpart DDDDD, National Emissions Standard for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (Boiler MACT) and complies with the "limited use" Boiler MACT requirements, a biennial source test will not be required. If at any time the Power Boiler fails to comply with the Boiler MACT requirements for a "limited use" boilers, a PM source test must be completed within 180 days of being notified by the Department to source test.~~ |
| ~~C.63~~ | ~~**Emission Unit ID:** 08~~<br><br>~~**Equipment/Control Device ID:** 2550~~<br><br>~~The affected source is subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~• *SC Reg. 61-62.5, Standard No. 1 (Emissions From Fuel Burning Operations) (SC Std. 1)*~~<br><br>~~(S.C. Regulation 61-62.5, Standard No. 1, Section III) The maximum allowable discharge of sulfur dioxide ($SO_2$) resulting from this source is 2.3 pounds per million Btu/input.~~<br><br>~~The affected source, the Power Boiler (2550), is permitted to burn only No. 6 fuel oil (maximum sulfur content 2.1%) and natural gas as fuel. The use of any other substances as fuel is prohibited without prior written approval from the Bureau of Air Quality. The owner or operator record monthly No. 6 oil (sulfur content less than or equal to 2.1%) and natural gas usage. Fuel oil supplier certification shall be obtained for each batch of oil received and stored on site. These records shall be maintained on site. *[SC Reg. 61-62.5, Std. 1, Section III]*~~ |
| C.64 | **Emission Unit ID:** 08<br><br>**Equipment/Control Device ID:** 2605, 3705<br><br>The affected sources are subject to all applicable limits and requirements of the following regulation (reg.): |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | • *SC Reg. 61-62.5, Standard No. 1 {Emissions From Fuel Burning Operations} (SC Std. 1)*<br><br>(S.C. Regulation 61-62.5, Standard No. 1, Section I) The fuel burning source shall not discharge into the ambient air smoke which exceeds opacity of 40%. The opacity limit may be exceeded for sootblowing, but may not be exceeded for more than 6 minutes in a one-hour period nor be exceeded for more than a total of 24 minutes in a 24-hour period. Emissions caused by sootblowing shall not exceed an opacity of 60%.<br><br>Owners and operators shall, to the extent practicable, maintain and operate any source including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. In addition, the owner or operator shall maintain a log of the time, magnitude, duration, and any other pertinent information to determine periods of startup and shutdown and make available to the Department upon request.<br><br>The owner or operator shall continue to calibrate, operate, and maintain a continuous opacity monitoring system (COMS) on the affected sources. The COMS shall conform with the performance specifications of South Carolina Regulation 61-62.5, Standard 1, Section IV.D and in 40 CFR Subpart 60, Appendix B Performance Specification 1, as revised July 1, 1986. The COMS shall complete a minimum of one cycle of operation for each successive ten second period. The owner or operator shall record and adjust the zero and span as required by South Carolina Regulation 61-62.5, Standard 1, Section IV.D. [SC Reg. 61-62.5, Standard 1, Section IV(A)]<br><br>Semiannual continuous opacity monitor reports shall be submitted. The report shall include the following minimum information:<br><br>• All integrated six-minute opacity measurements for periods during which the applicable provisions of SC 62.5, Std. 1, Section I have been exceeded, together with their nature and cause.<br>• For periods of monitoring system malfunction:<br>i) The date and time identifying each period during which the monitoring system was inoperative, except for zero and span checks.<br>ii) The nature of monitoring system repairs or adjustments.<br>iii) Proof of opacity monitoring system performance may be required by the Department whenever repairs or adjustments have been made.<br>• Boiler system repairs or adjustments made to correct violations of the provisions of SC Regulation 61-62.5, Standard No. 1, Section I.<br><br>A letter shall be sent in lieu of a semiannual report if no incidences occurred during the reporting period. [SC Reg. 61-62.5, Section IV(B)]<br><br>The owner or operator shall maintain a file of all information contained in the semiannual reports, calibration data for the COMS, relevant records of adjustments and maintenance performed on such system(s), and all data generated by the COMS. |
| C.65 | **Emission Unit ID:** 08 |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

**Equipment/Control Device ID:** 2605, 3705

The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):

- *SC Reg. 61-62.5, Standard No. 1 {Emissions From Fuel Burning Operations} (SC Std. 1)*

■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.

(S.C. Regulation 61-62.5, Standard No. 1, Section II) The maximum allowable discharge of particulate matter resulting from these sources is 0.6 pounds per million Btu input.

**Testing:** S.C. Regulation 61-62.5, Standard No. 1 requires a PM source test every two (2) years after the initial source test. This requirement shall be deferred to the testing required by 40 CFR 63, Subpart DDDDD – National Emissions Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters. Should the applicability to Subpart DDDDD change or if the testing requirements are modified to be less stringent, the permit may be revised to reflect the Standard No. 1 testing requirements. All source tests should be completed to ensure the results are acceptable for use in demonstrating compliance with Standard No. 1 allowable PM emission limits.

**Parameter Continuous Compliance Assurance (CAM) for PM: Affected Sources: No. 1 and No. 2 Combination Boilers with ESPs [2610C1; 3710C1] -** The affected sources (2605 and 3705) are subject to *40 CFR 64, Compliance Assurance Monitoring (CAM)* (large units) and shall comply with all applicable provisions. The owner or operator shall continue to operate, calibrate, and maintain a continuous opacity monitoring systems (COMS) for showing compliance with *SC Std. 1* opacity standards for the CAM for the affected sources. Opacity as determined by each COMS and conditional source testing will be used as the CAM indicators to show reasonable assurance of continuing compliance with *SC Std 1* PM limitations.

To meet the requirements of 40 CFR 64 the owner or operator shall maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the table below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT - Pollution Control Equipment – Parameter Ranges. *[§64.6(c)(1)(iii) and 64.3(b)]*

| Combination Boiler CAM Parameter Monitoring for Combination Boilers No. 1 and No. 2 (2605 and 3705) | |
|---|---|
| **PM Monitoring Method/Data Collection** | **Sampling Frequency/Averaging Time** |
| **CAM Indicator:** (*SC Std. 1*)<br>• COMS (Opacity)<br>**Data Collection**: Computer System | **Frequency**: Minimum of one cycle of sampling and analyzing every successive 10-second period |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

| and Manual Record Keeping | |
|---|---|
| **Monitor requirements**:<br>• 40 CFR 60, Appendix B-Performance Specification 1<br>• *SC Std. 1* | **Averaging:** One cycle of data averaged each successive 6-minute period |

Operational ranges for the *CAM* indicator have been established for *CAM* excursions to indicate proper operation of the control devices [2610C1, 3710C1] and to provide a reasonable assurance of regulatory compliance (See ATTACHMENT - Pollution Control Equipment – Parameter Ranges). This *CAM* indicator operational range was derived from stack test data, vendor information, visual inspection, and operational history, which demonstrates the proper operation of the equipment in compliance with required regulatory limitations. The owner or operator shall maintain this approved monitored *CAM* indicator at or above the approved maximum value to assure reasonable assurance of continuing compliance with *SC Std 1* limitations. The established operating limitations for *CAM* indicators may be updated using this procedure, following submittal of a request for a change in the established monitored *CAM* indicator limitation(s) to the Director of Air Permitting in accordance with Condition C.6.

Upon detecting an excursion, (when any ten (10) consecutive 6-minute averages over the opacity excursion range) the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions). The readings shall be maintained in logs (written or electronic), along with any corrective action taken when deviations occur. Each incidence of operation outside these operational ranges, including date and time, cause, and corrective action taken, based on the defined excursion range(s) shown in ATTACHMENT - Pollution Control Equipment – Parameter Ranges, shall be recorded.

The owner or operator shall follow all applicable quality control/quality assurance, calibration, operation and maintenance, record keeping, requirements used for opacity monitoring required by South Carolina Regulation 61-62.5, Standard 1.

A semiannual report for monitoring shall be submitted in accordance with the requirements of Part J. of this Title V operating permit. If there were no CAM indicator range excursions during the reporting period, the report shall indicate such. The report shall include, at a minimum, the information required under *SC Reg. 61-62.70.6(a)(3)(iii)* and the following information as applicable:

- Summary information of the number, duration and cause (including unknown cause, if applicable) of excursions, as applicable, and the corrective actions taken;
- Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | downtime incidents (other than downtime associated with zero span or other daily calibration checks, if applicable);<br><br>If required by the Department pursuant to *40 CFR 64.8*, a description of the actions taken to implement a Quality Improvement Plan (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions occurring.<br><br>**Additional Large CAM Unit Monitoring Requirements: Affected Sources: Combination Boilers [2605; 3705] -** If the COMS data (excluding startup and shutdown as well as bad COMS data) averaged over a six (6) minute periods shows excursions over the 40 % opacity for six (6) percent or more of the operating time within any quarterly period above the defined CAM excursion level, the permittee shall perform a stack test in the following calendar quarter to demonstrate compliance with *SC Std. 1* PM standard. The owner or operator shall submit and have Bureau approval of a compliance test protocol as required by *SC Reg. 61-62.1, Sec. IV - "Source Tests"* before conducting any tests. Test plans, protocols, and required reports shall be submitted in accordance with Condition C.11 of this Title V operating permit.<br><br>**Operational Venting Requirement: Affected Source: Combination Boilers [2605; 3705]** - Prior to venting through the bypass stack(s) at boiler, the owner or operator shall terminate the combustion of wood waste in the boiler until such time as emissions are diverted back to the main stack. |
| C.66 | **Emission Unit ID:** 02, 08<br><br>**Equipment/Control Device ID:** 5210, ~~5240,~~ 5250, 2400, 5100, 2605, 3705, 5260, 5260C - affected sources and control devices for the optimization project to increase Kraft pulp yield (as permitted under construction permit-DC).<br><br>The affected sources and control devices are subject to all applicable limits and requirements of the following regulations (reg.):<br>●*SC Reg. 61-62.5 Standard No. 1 {Emissions from Process Industries} (SC Std. 1)*<br>●*SC Reg. 61-62.5 Standard No. 7 {Prevention of Significant Deterioration (PSD)} (SC Std. 7)*<br><br>The affected existing sources for this project are subject to PSD best available control technology (BACT) requirements because the project involved a change in method of operation and/or physical changes that resulted in increases in sulfur dioxide ($SO_2$) emissions for the total project above the PSD significance level. The increases for total project involve potential increases at the modified units as well as unmodified units as a result of a potential incremental pulp production increased through all of the units. The $SO_2$ emissions increase will not be emitted directly at the modified units for the project but are the result of combusting incremental increases in total reduced sulfur (TRS) streams routed to the control devices, No. 1 and No. 2 Combination Boilers, where the TRS and any other sulfur containing compounds are incinerated and converted to $SO_2$ on a stoichiometric basis. The combustion of specific TRS and hazardous air pollutant (HAP) is required by State |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | and/or Federal regulations.<br><br>PSD BACT was determined to be the continued use of the existing LVHC System Caustic Scrubber [CD-5260C] located ahead of the combination boilers in the LVHC Collection System, and the continued use of the sulfur capture capability of ash in biomass boilers when combusting TRS/HAP streams. The wet caustic pre-scrubber technology is used to reduce the sulfur content of rich TRS/HAP gas streams prior to incineration which reduces the sulfur load to the control devices. The sulfur reduction efficiency scrubbing sulfur rich gases prior to combustion is estimated at approximately 50 percent. None of the HVLC streams and a portion of the LVHC streams pass through a pre-scrubber. Studies show that a portion of the sulfur in fuels combusted with wood will be captured by the wood ash in the boiler. The amount of sulfur captured is a function of the wood to fuel sulfur content ratio. At typical operating conditions for the combination boilers the sulfur capture efficiency estimated at approximately 32.5 percent. Since $SO_2$ was also triggered as a regulated indirect precursor pollutant for $PM_{2.5}$, the $SO_2$ BACT requirements below will also apply to $SO_2$ as a PSD regulated precursor pollutant for $PM_{2.5}$.<br><br>PSD BACT limits for the incineration of TRS and hazardous air pollutant (HAP) streams in either one of the two combination boilers was established as follows:<br><br>●CD-2605: ≤ 10.1 pounds of $SO_2$ per air dried ton of unbleached pulp from combustion of TRS/HAP streams only<br>●CD-2605: ≤ 3,364.0 tons of $SO_2$ per year from combustion of TRS/HAP streams only<br>●CD-3705: ≤ 10.1 pounds of $SO_2$ per air dried ton of unbleached pulp from combustion of TRS/HAP streams only<br>●CD-3705: ≤ 3,364.0 tons of $SO_2$ per year from combustion of TRS/HAP streams only<br>≤ = Less than or equal to<br><br>In order to make the PSD BACT limits above practically enforceable, the PSD BACT limits are only for $SO_2$ emissions created by the combustion of TRS/HAP steams in either boiler, and they apply for all of the $SO_2$ emissions created by combustion of all TRS/HAP streams, not just the affected streams for this project. The $SO_2$ emissions from the combustion of other sulfur containing fuels, i.e. fuel oil, are not included in the PSD BACT limits above.<br><br>In addition to PSD BACT limits when functioning as control devices, the combination boilers are also subject to the $SO_2$ limitations of SC Std. 1 as follows:<br><br>●CD-2605: ≤ 2.3 pounds of $SO_2$ per million Btu for the combustion of any and all fuels [SC Std. 1]<br>●CD-3705: ≤ 2.3 pounds of $SO_2$ per million Btu for the combustion of any and all fuels [SC Std. 1]<br><br>**TRS Pre-Scrubber Monitoring/Record Keeping/Reporting:** The owner or operator shall continue to operate and maintain liquid flow and liquid pH indicators for LVHC System Caustic Scrubber (5260C). These scrubber operating parameters shall be recorded at the frequency listed below during source operation. The scrubber |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | shall be in place and operational whenever processes controlled by the scrubbers are running, except during periods of scrubber malfunction or mechanical failure.<br><br>**•Type Monitoring:**<br>•Title V; Parametric monitoring<br>•PSD BACT monitoring<br>**•Monitoring Method(s): Parameter(s):**<br>•CPMS: Scrubber Liquid flow indicator<br>•CPMS: Scrubber Liquid pH indicator<br>**•Monitoring Operation and Maintenance:**<br>•CPMS calibration and QA/QC program<br>**•Reg. Requirement(s) Monitored: Pollutant(s):**<br>•*SC Std. 7 [PSD BACT]*<br>**•Monitoring Frequency: Averaging Time:**<br>•Frequency: At least once daily<br>•Averaging Time: None<br>**•Data Collection Methods:**<br>•Computer system/ manual record keeping<br><br>Operating ranges for the scrubber parameters have been established to show reasonable assurance of compliance with the $SO_2$ limitations of *SC Std 1* and *SC Std. 7* based on test data or vendor data, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Air Permitting Division, Bureau of Air Quality for approval. Monitoring parameter readings (i.e., pressure drop readings, etc.) and inspection checks shall be maintained in logs (written or electronic), along with any corrective action taken when deviations occur. Each incidence of operation outside the operational ranges, including date and time, cause, and corrective action taken, shall be recorded and kept on site.<br><br>Records of all monitoring data, variances from established parameters, corrective actions taken, and any data and information used to develop ranges shall be kept and made available to the Department on request. Semiannual reports, including any variances from established parameters and appropriate corrective action taken during the reporting period shall be submitted to the Department in accordance with Part J of this permit. If no incidences occurred during the reporting period then the report shall indicate such information.<br><br>**$SO_2$ Capture by Wood Ash Monitoring, Record Keeping, and Reporting:** In order to show reasonable assurance of compliance with the PSD BACT limits for combustion of TRS/HAP streams, when TRS/HAP gas streams are combusted in either combination boiler, the wood use rate must be maintained above the following minimum wood rate to Kraft production ratio:<br><br>•CD-2605: Minimum Wood Rate/Kraft Pulp Production Ratio: ≥ 0.2965 when combusting TRS/HAP streams<br>•CD-3705: Minimum Wood Rate/Kraft Pulp Production Ratio: ≥ 0.2965 when combusting TRS/HAP streams<br>> = Greater than or equal to<br><br>For each operating day, the owner or operator shall monitor and record the combination boiler that is combusting TRS/HAP [NCG] streams, the daily bark fired in each combination boiler, and the daily Kraft pulp |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | production (air dried tons of unbleached pulp (ADTUBP). For each operating day, the owner or operator shall calculate the daily bark/Kraft pulp production ratio by dividing the daily bark fired in the combination boiler incinerating NCG streams by the daily Kraft pulp production. For each operating day, the owner or operator shall calculate the 30-day rolling average bark/Kraft pulp production ratio, excluding any operating days when the Kraft pulp mill is down (zero production in the denominator).<br><br>Record of the above required monitoring data along with supporting information and calculations as well as any excursions below the minimum 30-day rolling average wood rate/Kraft pulp production ratio and any corrective actions taken shall be maintained on-site for a period of at least five (5) years and made available to Department personnel upon request. Semiannual reports, including any daily periods of NCG combustion where any excursions of the 30-day rolling average wood fired/Kraft pulp production ratio below the minimum level of 0.2965 for either combination boiler and any corrective action taken during the reporting period shall be submitted to the Department in accordance with Part J of this permit. If no incidences occurred during the reporting period then the report shall indicate such information.<br><br>**SC Std. 1 Fuel Use Monitoring and Record Keeping:** The combination boilers are permitted to burn only No. 6 fuel oil (maximum sulfur content 2.1%); natural gas; Tire Derived Fuel (TDF), LVHC gases, cores, wastepaper (not office), wood waste and specification oil as fuel. The use of any other substances as fuel is prohibited without prior written approval from the Bureau of Air Quality. The owner or operator must record monthly fuel usage (sulfur content less than or equal to 2.1%). Fuel oil supplier certification shall be obtained for each batch of oil received and stored on site. *[SC Reg. 61-62.5, Std. 1, Section VI]*<br><br>**Annual $SO_2$ Emissions Monitoring, Record Keeping, and Reporting:** The pounds of $SO_2$ per air dried ton of unbleached Kraft pulp emissions rate determined during initial source testing will be used along with the daily Kraft pulp production and the combination boiler used to combust TRS/HAP streams to calculate daily $SO_2$ emissions from the combustion of TRS/HSP streams in either combination boiler. Each month the daily $SO_2$ emissions data will be used to determine the total $SO_2$ emissions from TRS combustion for the month as well as the 12-month rolling sum for these emissions.<br><br>Records of the information, data, and calculations shall be kept and made available to the Department on request. Semiannual reports that include any monthly 12-month sums that are above the annual $SO_2$ PSD BACT limit [3,364.0 tons of $SO_2$ per year] as well as corrective actions taken shall be submitted to the Department in accordance with Part J of this permit. If no incidences occurred during the reporting period, then the report shall indicate such information. |
| C.67 | **Emission Unit ID:** 08<br><br>**Equipment/Control Device ID:** 2605, 3705<br><br>The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):<br>• *[SC Reg. 61-62.5, Standard No. 3 {Waste Combustion and Reduction} (SC Std. 3)]* |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.<br><br>The owner or operator is subject to applicable requirements of *SC Std. 3* for burning used oil. The affected sources (2605 and 3705) are allowed to burn specification used oil (spec oil) that is purchased or generated on-site. Spec oil is oil that has been refined from crude or synthetic oil and as a result of use, storage, or handling, has become unsuitable for its original purpose due to the presence of impurities or loss of original properties, but which may be suitable for further use and may be economically recyclable. This also includes absorbent material contaminated with used oil such as oily rags or absorbent blankets. Spec oil burned in the combination boilers must meet the following specifications: |

| Standard 3 Specification Oil Limits for ID 08: 2605 and 3705 | |
|---|---|
| **Pollutant** | **Specification Oil Limit** |
| arsenic | 5 parts per million (ppm) maximum |
| cadmium | 2 parts per million (ppm) maximum |

| |
|---|
| *Used oil containing more than 1000 parts per million total halogens is presumed to be a hazardous waste. The burden of proof that this is not true rests with the user. For this emission limitation, the procedures in South Carolina Regulations 61-62.5, Standard 3, Section V, A and H shall be used to define and quantify compliance with requirements for these units. *[SC Reg. 61-62.1, Section I {Definitions}; SC Reg. 63-62.5, Std. 3, Section I]*<br><br>The affected sources (2605 and 3705) are permitted to burn only spec oil and TDF as fuel, which are subject to *SC Std. 3* requirements. The affected sources are also permitted to burn No. 6 fuel oil (maximum sulfur content 2.1%); natural gas; low volume high concentration (LVHC) gases, high volume low concentration (HVLC) gases, total reduced sulfur (TRS) gases, cores, wastepaper (not office), and wood waste as fuel, which are not subject to *SC Std. 3* or are exempted from *SC Std. 3* requirements. The use of any other substances as fuel is prohibited without prior written approval from the Bureau of Air Quality. On an annual basis, the facility shall test representative samples of specification oil that are to be burned for the following:<br><br>• Classify as either hazardous or non-hazardous on an annual basis for site generated spec oil.<br>• Classify site generated spec oil as spec oil or non-spec oil and analyze for heat value; total halogen; flash point; percent nitrogen; percent sulfur annually.<br>• Each batch of spec oil that is to be burned (purchased from off-site) must be classified as spec oil or non-spec oil and analyzed for heat value; total halogen; flash point; percent nitrogen; percent sulfur.<br><br>Analytical methods shall be in accordance with South Carolina Regulation 61-62.5, Standard 3, Section V(H), unless alternative methods are approved by the Bureau of Air Quality. Records of all analyses shall be maintained and annual reports of the analysis (as required above) shall be submitted to Department. *[SC Reg. 61-62.5, Std. 3, Section V]* |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | |
| C.68 | **Emission Unit ID:** 08<br><br>**Equipment/Control Device ID:** 2605, 3705<br><br>The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):<br>• *[SC Reg. 61-62.5, Standard No. 3 {Waste Combustion and Reduction} (SC Std. 3)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *(SC Std. 4)*.<br><br>The affected sources (2605 and 3705) are allowed to burn tire-derived fuel (TDF). When TDF is combusted the pollutant limitations in *SC Std. 3* must be met. Emission limitations for TDF, specified as lbs/million Btu total heat input from all fuels being burned are as follows: [*SC Reg. 61-62.5, Std. 3, Section I; SC Reg. 61-62.5, Std. 3, Section III.J]* |

**Standard 3 Waste Burning (TDF) Limits for ID 08: 2605 and 3705**

| Pollutant | Emission Limit (lb/million Btu input) |
|---|---|
| Arsenic (As) | $\leq 1.7 \times 10^{-3}$ |
| Cadmium (Cd) | $\leq 1.0 \times 10^{-4}$ |
| Chromium (Cr) | $\leq 7.4 \times 10^{-4}$ |
| Lead (Pb) | $\leq 5.0 \times 10^{-3}$ |
| Nickel (Ni) | $\leq 6.0 \times 10^{-3}$ |
| Hydrogen Chloride (HCl) | ≤ 0.45 |

≤ = less than or equal to

TDF fuel usage shall be less than or equal to 1.5 tons per hour of TDF (each boiler), unless supported by source testing.

The owner or operator was required to perform an initial source test to show compliance with the limits for metals and hydrogen chloride. The results of the required testing have been approved by the Bureau. TDF fuel usage shall be less than or equal to 1.5 tons per hour of TDF (each boiler), unless supported by source testing. *[SC Reg. 61-62.5, Std. 3, Sec. VIII]*

The affected sources (2605 and 3705) are permitted to burn only spec oil and TDF as fuel, which are subject to *SC Std. 3* requirements. The affected sources are also permitted to burn No. 6 fuel oil (maximum sulfur content 2.1%); natural gas; low volume high concentration (LVHC) gases, high volume low concentration (HVLC) gases, total reduced sulfur (TRS) gases, cores, wastepaper (not office), and wood waste as fuel, which are not subject to

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | *SC Std. 3* or are exempted from *SC Std. 3* requirements. The use of any other substances as fuel is prohibited without prior written approval from the Bureau of Air Quality. Whenever TDF is being used as a fuel, the feed rate will be monitored hourly TDF fuel usage, and the TDF use shall be less than or equal to 1.5 tons per hour of TDF (each boiler), unless supported by source testing. For each new TDF waste stream (new TDF supplier) or for changes in throughput being evaluated, the facility shall:<br><br>• Classify all TDF waste burned as either hazardous or non-hazardous.<br>• Each TDF waste stream and each TDF waste batch/shipment that is to be burned shall be identified by waste analysis or special knowledge of the waste for those air toxic compounds identified in SC Regulation 62.5, Standard 8.<br>• Each TDF waste stream shall be analyzed for heat value; total halogen; percent nitrogen; percent sulfur. *[SC Reg. 61-62.5, Std. 3, Sec. I; SC Reg. 61-62.5, Std. 3, Section V]*<br><br>Analytical methods shall be in accordance with South Carolina Regulation 61-62.5, Standard 3, Section V(H), unless alternative methods are approved by the Bureau of Air Quality. Records of all analyses and TDF fuel usage shall be maintained on site. Semiannual reports where the hourly TDF rates were exceeded or if no exceedances occurred shall be submitted to the Bureau. |
| ~~C.69~~ | ~~**Emission Unit ID:** 08, 09~~<br><br>~~**Equipment/Control Device ID:** 2605, 3705, 5260, 5270, 9820, 5260C~~<br><br>~~The affected sources are subject to all applicable limits and requirements of the following regulations (reg.):~~<br>~~• *[NSPS 40 CFR 60, Subparts A (General Provisions) and BB (Standards Of Performance For Kraft Pulp Mills) (NSPS BB)]*~~<br>• *[40 CFR 64(Compliance Assurance Monitoring) (CAM)]*~~<br><br>~~The owners or operators are permitted to combust TRS gases collected from sources (5260, 5260C, 5270, and 9820) that are required to be collected and incinerated by NSPS BB. As required by these regulations the TRS shall be subjected to a minimum temperature of 1200° F for at least 0.5 seconds. *[NSPS 40 CFR 60.280; §60.281; §60.283(a); §60.283(a)(1); §60.283(a)(1)(iii)]*~~<br><br>~~The specific sources in affected systems that require collection and control are listed in ATTACHMENT - TRS and HAP Sources Routed to Combination Boilers for Incineration, which is considered a Federally enforceable part of this condition and permit.~~<br><br>~~**Compliance Assurance Monitoring (CAM) for TRS** - The affected sources (2605, 3705, 5560, 5260C, 5270, 9820) are subject to 40 CFR 64, CAM and shall comply with all applicable provisions. To meet the requirements of 40 CFR 64 for the affected sources, the indicator for TRS reduction will be the status of TRS venting or losses from the collection system of affected TRS sources required to be routed to boilers. The owner or operator will keep records of all venting, bypasses, and/or TRS losses that are exhausted to the atmosphere without being combusted in the boilers. The venting time period and source of the venting event shall be determined and~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|

recorded. As approved by the Department, the owner or operator shall continue to operate, and maintain a flame failure system for these boilers provide positive indication of vents when there is an absence of a flame in a boiler. The status of affected TRS streams shall be used to provide reasonable assurance of continuing compliance with *NSPS BB* TRS reduction requirements.

To meet the requirements of 40 CFR 64 the owner or operator shall maintain the parameters and indicator(s) [monitoring methods, sampling frequencies, date collection procedures, and averaging time(s) (where appropriate)] in the table below as well as take corrective action based on the excursion level(s) shown in ATTACHMENT – Pollution Control Equipment – Parameter Ranges.

| **CAM TRS Parameter Monitoring Methods for Boilers 2605 and 3705** | |
|---|---|
| **Monitoring Method/Data Collection** | **Sampling Frequency/Averaging Time** |
| **CAM Indicator:** [NSPS BB]<br>• TRS Venting Status<br>**Data Collection**: Computer systems and manual record keeping | **Frequency**: Continuous The duration and source of each TRS venting episode greater than 5 minutes determined<br>**Averaging:** No averaging |

For streamlining purposes, a CAM excursion will have the same definition as an excess emission defined by *NSPS BB*, that is, any TRS gases from affected sources that are not exposed to the specified combustion temperatures for a period of five (5) minutes (venting of untreated gases).

Upon detecting an excursion, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions).

For QA/QC purposes the owner or operator shall check the operation of the flame failure systems and the systems that indicate and/or record vents of TRS gases to the atmosphere on a monthly basis. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.

A semiannual report for monitoring shall include, at a minimum, the information required under § 70.6(a)(3)(iii) and the following information as applicable:

• Summary information of the number, duration, source, and cause (including unknown cause, if applicable) of excursions, as applicable, and the corrective actions taken; excess emissions for *NSPS BB* will also be reported.
• Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ~~downtime incidents (other than downtime associated with zero span or other daily calibration checks, if applicable);~~<br>~~• If applicable, a description of the actions taken to implement a Quality Improvement Plan (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions occurring.~~<br><br>~~The owner or operator shall maintain records of monitoring data, monitor performance data, excursions, corrective actions, and quality improvement plans. In addition, records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment.~~ |
| C.70 | **Emission Unit ID:** 09<br><br>**Equipment/Control Device ID:** 2901, 9800, ~~9801, 9820,~~ 9802, 2605, 3705<br><br>The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):<br>• *SC Reg. 61-62.5, Standard No. 4 {Emissions From Process Industries} (SC Std. 4)*<br><br>(S.C. Regulation 6-62.5, Standard No. 4, Section IX) Where construction or modification began after December 31, 1985, emissions from these sources (including fugitive emissions) shall not exhibit opacity greater than 20%, each. |
| C.71 | **Emission Unit ID:** 09<br><br>**Equipment/Control Device ID:** 9800, ~~9801, 9820,~~ 2605, 3705<br><br>The affected source is subject to all applicable limits and requirements of the following regulations (reg.):<br>• *NSPS 40 CFR 60, Subparts A {General Provisions), and BB {Standards Of Performance For Kraft Pulp Mills} (NSPS BB)*<br>• *[40 CFR 64{Compliance Assurance Monitoring} (CAM)]*<br><br>■Note: The abbreviations in parenthesis above at the end of each cited regulation are used to reference the cited regulations above in this condition, e.g. *SC Std. 4.*<br><br>The affected sources are subject to all applicable requirements of *NSPS BB* for total reduced sulfur (TRS) reduction. The TRS content of the gases from the affected sources shall be less than or equal to 5 parts per million by volume on a dry basis corrected to 10 percent oxygen or each of these sources must be combusted in the *No. 1 Combination Boiler* (2605) and/or *No. 2 Combination Boiler* (3705) for TRS reduction. The TRS gases are subject to a minimum temperature of 1200° F for at least 0.5 second. *[NSPS 40 CFR 60.280; §60.281; §60.283(a); §60.283(a)(1); §60.283(a)(1)(iii)]*<br><br>The specific sources in affected systems that require collection and control are listed in ATTACHMENT - TRS and |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | HAP Sources Routed to Combination Boilers for Incineration, which is considered a Federally enforceable part of this condition and permit.<br><br>**Compliance Assurance Monitoring (CAM) for TRS -** The affected sources (9800, 9801, 9820, 2605, 3705) sources are subject to 40 CFR 64, CAM and shall comply with all applicable provisions. To meet the requirements of 40 CFR 64 for the affected sources, the indicator for TRS reduction will be the status of TRS venting or losses from the collection system of affected TRS sources required to be routed to boilers. The owner or operator will keep records of all venting, bypasses, and/or TRS losses that are exhausted to the atmosphere without being combusted in the boilers. The venting time period and source of the venting event shall be determined and recorded. As approved by the Department, the owner or operator shall continue to operate, and maintain a flame failure system for these boilers provide positive indication of vents when there is an absence of a flame in a boiler. The status of affected TRS streams shall be used to provide reasonable assurance of continuing compliance with *NSPS BB* TRS reduction requirements.<br><br>To meet the requirements of 40 CFR 64 the owner or operator shall maintain the parameters and indicator(s) [monitoring methods, sampling frequencies, date collection procedures, and averaging time(s) (where appropriate)] in the below as well as take corrective action based on the excursion level(s) shown in ATTACHMENT - Pollution Control Equipment-Parameter Ranges.<br><br>**CAM TRS Parameter Monitoring Methods for Boilers 2605 and 3705**<br><br>**Monitoring Method/Data Collection**: **CAM Indicator:** [NSPS BB] • TRS Venting Status **Data Collection**: Computer systems and manual record keeping<br><br>**Sampling Frequency/Averaging Time**: **Frequency**: Continuous-The duration and source of each TRS venting episode greater than 5 minutes determined **Averaging:** No averaging<br><br>For streamlining purposes, a CAM excursion will have the same definition as an excess emission defined by *NSPS BB*, that is, any TRS gases from affected sources that are not exposed to the specified combustion temperatures for a period of five (5) minutes (venting of untreated gases).<br><br>Upon detecting an excursion, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions).<br><br>For QA/QC purposes the owner or operator shall check the operation of the flame failure systems and the systems that indicate and/or record vents of TRS gases to the atmosphere on a monthly basis. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | | Condition |
|---|---|---|
| | | routine repairs of the monitoring equipment.<br><br>A semiannual report for monitoring shall include, at a minimum, the information required under § 70.6(a)(3)(iii) and the following information as applicable:<br><br>• Summary information of the number, duration, source, and cause (including unknown cause, if applicable) of excursions, as applicable, and the corrective actions taken; excess emissions for *NSPS BB* will also be reported.<br>• Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero span or other daily calibration checks, if applicable);<br>• If applicable, a description of the actions taken to implement a Quality Improvement Plan (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions occurring.<br><br>The owner or operator shall maintain records of monitoring data, monitor performance data, excursions, corrective actions, and quality improvement plans. In addition, records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment. |
| ~~C-72~~ | | ~~**Emission Unit ID:** 10~~<br><br>~~**Equipment/Control Device ID:** M10-223~~<br><br>~~The affected source is subject to all applicable limits and requirements of the following regulation (reg.):~~<br>~~• *SC Reg.61-62.5, Standard No. 4 (Emissions From Process Industries) (SC Std. 4)*~~<br><br>~~(S.C. Regulation 61-62.5, Standard No. 4, Section IX) Where construction or modification began after December 31, 1985, emissions from this source (including fugitive emissions) shall not exhibit an opacity greater than 20%.~~ |
| ~~C-73~~ | | ~~**Emission Unit ID:** 10~~<br><br>~~**Equipment/Control Device ID:** M10-223~~<br><br>~~The affected source is subject to all applicable limits and requirements of the following regulations (reg.):~~<br>~~• *NSPS 40 CFR 60, Subparts A (General Provisions); Kb (Standards Of Performance For Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) For Which Construction, Reconstruction, Or Modification Commenced After July 23, 1984); and SC Reg. 61-62.60, Subparts A and Kb (NSPS Kb)*~~<br><br>~~**40 CFR §60.116b Monitoring Of Operations.**~~<br>~~(a) The owner or operator shall keep copies of all records required by this section, except for the record required by paragraph (b) of this section, for at least 2 years. The record required by paragraph (b) of this section will be kept for the life of the source.~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ~~(b) The owner or operator of each storage vessel as specified in §60.110b(a) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel.~~<br><br>~~(c) Except as provided in paragraphs (f) and (g) of this section, the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 $m^3$ storing a liquid with a maximum true vapor pressure greater than or equal to 3.5 kPa or with a design capacity greater than or equal to 75 $m^3$ but less than 151 $m^3$ storing a liquid with a maximum true vapor pressure greater than or equal to 15.0 kPa shall maintain a record of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period.~~<br><br>~~(d) Except as provided in paragraph (g) of this section, the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 $m^3$ storing a liquid with a maximum true vapor pressure that is normally less than 5.2 kPa or with a design capacity greater than or equal to 75 $m^3$ but less than 151 $m^3$ storing a liquid with a maximum true vapor pressure that is normally less than 27.6 kPa shall notify the Administrator within 30 days when the maximum true vapor pressure of the liquid exceeds the respective maximum true vapor pressure values for each volume range.~~ |
| C.74 | **Emission Unit ID:** 11<br><br>**Equipment/Control Device ID:** 2900, 1100-Roads<br><br>The affected sources are subject to all applicable limits and requirements of the following regulations (reg.):<br>• *SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)*<br>• *SC Reg. 61-62.6 {Control of Fugitive Particulate Matter} (SC Std. 62.6)*<br><br>(S.C. Regulation 61-62.5, Standard No. 4, Section X) All non-enclosed operations shall be conducted in such a manner that a minimum of particulate matter (PM) becomes airborne. In no case shall established air quality standards be exceeded at or beyond the property line. The owner or operator of such operations shall maintain dust control on the premises and any roadway owned or controlled by the owner/operator by paving or other suitable measures. Oil treatment is prohibited.<br><br>(S.C. Regulation 61-62.6) Fugitive particulate matter (PM) emissions from material handling, process equipment, or storage piles will be controlled by proper housekeeping and/or wet suppression or other suitable measures.<br><br>The owner/operator shall perform a visual inspection on a semiannual basis during source operation. Logs shall be kept to record all visual inspections, noting color, duration, density (heavy or light), cause, and corrective action taken for any abnormal emissions. If a source did not operate during the required visual inspection time frame, the log shall indicate such. The owner/operator shall submit semiannual reports. The report shall include records of abnormal emissions, if any, and corrective actions taken. If the unit did not operate during the semiannual period, the report shall state so. |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | Visual inspection means a qualitative observation of opacity during daylight hours. The observer does not need to be certified to conduct valid visual inspections. However, at a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, and observer position relative to lighting, wind, and the presence of uncombined water. |
| C.75 | **Emission Unit ID:** 12<br><br>**Equipment/Control Device ID:** 1299 – HD Pulp Storage Tanks<br><br>The affected sources are subject to all applicable limits and requirements of the following regulation (reg.):<br>●*SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)*<br><br>(S.C. Regulation 61-62.5, Standard No. 4, Section IX) Where construction or modification began after December 31, 1985; emissions from these sources (including fugitive emissions) shall not exhibit an opacity greater than 20%, each.<br><br>The owner/operator shall perform a visual inspection on a semiannual basis during source operation. Logs shall be kept to record all visual inspections, noting color, duration, density (heavy or light), cause, and corrective action taken for any abnormal emissions. If a source did not operate during the required visual inspection time frame, the log shall indicate such. The owner/operator shall submit semiannual reports. The report shall include records of abnormal emissions, if any, and corrective actions taken. If the unit did not operate during the semiannual period, the report shall state so.<br><br>Visual inspection means a qualitative observation of opacity during daylight hours. The observer does not need to be certified to conduct valid visual inspections. However, at a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, and observer position relative to lighting, wind, and the presence of uncombined water. |
| ~~C.76~~ | ~~**Emission Unit ID:** 02, 08~~<br><br>~~**Equipment/Control Device ID:** 5210, 5240, 2400, 5100, 2605, 3705, 5260, 5260C~~<br><br>~~The affected sources are subject to all applicable limits and requirements of the following regulations (reg.):~~<br>~~●*SC Reg. 61-62.5 Standard No 7(r) (Prevention of Significant Deterioration) (SC Std. 7)*~~<br><br>~~The PSD project permitted under construction permit DC is based on improving the efficiency of the conversion of wood chips into unbleached pulp by shifting a portion of the primary purpose of Kraft chemical pulping, removal of lignin from the wood matrix to allow separation of the usable wood fibers, from the pulp digester to the downstream oxygen delignification and bleaching steps. This downstream process can remove the lignin more selectively thereby preserving the cellulose and hemicelluloses that make up the usable fiber. By preserving more of the cellulose and hemicelluloses, the overall yield of pulp fiber from a given amount of wood chips can be incrementally increased without putting additional requirements on the woodyard, chemical preparation and chemical recovery processes. The amount of residual lignin remaining in at the end of the Kraft~~ |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | ~~pulping process is typically measured by a parameter (pulp test for residual lignin) referred to as a Kappa number or k number. An increase in the Kappa number is a direct indication of the success of the goal to increase the overall efficiency of the conversion wood chips to pulp.~~<br><br>~~Past actual to future actual emissions calculations with adjustments the future actual emissions based on emissions that could have been accommodated that are not related to the project were used in the prevention of significant deterioration review for construction permit 2440-0005-DC. The use of these calculations requires record keeping as specified in SC Regulation 61-62.5, Standard 7(r). In addition to the information specifically required by SC Std. 7, the facility will keep records of the kappa number as specified below. The owner or operator shall maintain the following information and make the records and supporting data and information available to the Department on request:~~<br><br>~~•A description of the project~~<br><br>~~•Identification of the emissions unit(s) whose emissions of a regulated NSR pollutant could be affected by the project; and a description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded under SC Regulation 6162.5, Standard 7(b)(41)(ii)(c) and an explanation for why such amount was excluded, and any netting calculations, if applicable.~~<br><br>~~•The owner or operator shall monitor the emissions of any regulated NSR pollutant that could increase as a result of the project [nitrogen oxides ($NO_x$ and volatile organic compounds (VOC)]and that is emitted by any emissions unit identified in paragraph SC Regulation 61-62.5, Standard 7(r)(6)(ii)(b); and calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity of or potential to emit that regulated NSR pollutant at such emissions unit.~~<br><br>~~•The owner or operator shall keep records of the average kappa number for the baseline for the project as well as keep records of the actual monthly average of the actual kappa number and a 12-month rolling average of the actual kappa number for a period of 10 years following resumption of regular operations after the change.~~ |
| C.77 | **Emission Unit ID:** Facility Wide<br><br>New-Indy Catawba LLC is located in York County, South Carolina. This area was part of the Charlotte/Gastonia/Rock Hill, North Carolina-South Carolina area which was designated under 40 CFR 81.341 on June 8, 2007 as a moderate non-attainment area for the 1997 8-hour Ozone NAAQS. Volatile organic compounds (VOC) and $NO_x$ are surrogates for evaluating emission increases related to non-attainment new source review for Ozone. A construction permit (issued March 16, 2006) for a project to increase pulp production (2440-0005-DA) triggered non-attainment NSR Review for the No. 3 Recovery Boiler. In addition to the requirement to install lowest available emission reduction (LAER) for $NO_x$ emissions from this emission unit, the facility was required to provide $NO_x$ emission offsets at a ratio of 1.15 to 1 as specified in South Carolina Regulation 61-62.5, Standard No. 7.1 (d)(1)(C)(vii)(b). The increase in $NO_x$ for this project required the facility to |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | obtain and maintain creditable and Federally enforceable offsets of 101.4 tons of $NO_X$ prior to operation of the process modifications. New-Indy Catawba LLC was issued a Certificate of Emission Reduction Credits (ERCs) from the North Carolina Division of Air Quality (Certificate No. 003336328ERC01) on June 1, 2006.<br><br>[Note: Any use or transfer of banked ERCs shall be in accordance with North Carolina Regulation 15A NCAC 02D .2300 - Banking Emission Reduction Credits. The Director of the North Carolina DAQ may revoke or change the banked ERCs pursuant to North Carolina Regulation 15A NCAC 02D .2310 - Revocation and Changes of Emission Reduction Credits.] |
| ~~C.78~~ | ~~**Emission Unit ID:** 08~~<br><br>~~**Equipment ID:** 2550~~<br><br>~~This facility is subject to S.C. Regulation 61-62.96 Nitrogen Oxides ($NO_x$) and Sulfur Dioxide ($SO_2$) Budget Trading Program and the federal rule entitled 40 CFR 96 $NO_x$ Budget Trading Program and CAIR $NO_x$ and $SO_2$ Trading Programs For State Implementation Plans and shall comply with all applicable requirements. The CAIR permit is in ATTACHMENT F of this permit. Existing affected units shall comply with the applicable provisions by the compliance dates specified in each Subpart.~~ |
| C.79 | **Emission Unit ID:** Exempt List<br><br>**Equipment ID:** 2906<br><br>This source is subject to New Source Performance Standards (NSPS), 40 CFR 60 Subpart A, General Provisions and Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines, and S.C. Regulation 61-62.60 Subparts A and JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines, as applicable. This source shall comply with all applicable requirements of Subparts A and JJJJ. |
| C.80 | **Emission Unit ID:** Exempt List<br><br>**Equipment ID:** 2906<br><br>40 CFR §60.4230 Am I Subject To This Subpart?<br><br>(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (6) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.<br><br>(a)(4) Owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:<br><br>(a)(4)(iv) On or after January 1, 2009, for emergency engines with a maximum engine power greater than 19 KW |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | (25 HP). |
| C.81 | **Emission Unit ID:** Exempt List<br><br>**Equipment ID:** 2906<br><br>40 CFR §60.4233 What Emission Standards Must I Meet If I Am An Owner Or Operator Of A Stationary SI Internal Combustion Engine?<br><br>(d) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards for field testing in 40 CFR 1048.101(c) for their non-emergency stationary SI ICE and with the emission standards in Table 1 to this subpart for their emergency stationary SI ICE. |
| C.82 | **Emission Unit ID:** Exempt List<br><br>**Equipment ID:** 2906<br><br>40 CFR §60.4234 How Long Must I Meet The Emission Standards If I Am An Owner Or Operator Of A Stationary SI Internal Combustion Engine?<br><br>Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 over the entire life of the engine. |
| C.83 | **Emission Unit ID:** Exempt List<br><br>**Equipment ID:** 2906<br><br>40 CFR §60.4237 What Are The Monitoring Requirements If I Am An Owner Or Operator Of An Emergency Stationary SI Internal Combustion Engine?<br><br>(c) If you are an owner or operator of an emergency stationary SI internal combustion engine that is less than 130 HP, was built on or after July 1, 2008, and does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter upon startup of your emergency engine. |
| C.84 | **Emission Unit ID:** Exempt List<br><br>**Equipment ID:** 2906<br><br>40 CFR §60.4243 What Are My Compliance Requirements If I Am An Owner Or Operator Of A Stationary SI Internal Combustion Engine?<br><br>(b) If you are an owner or operator of a stationary SI internal combustion engine and must comply with the emission standards specified in §60.4233(d) or (e), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) and (2) of this section. |

**C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS**
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | (b)(1) Purchasing an engine certified according to procedures specified in this subpart, for the same model year and demonstrating compliance according to one of the methods specified in paragraph (a) of this section.<br><br>(d) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (d)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (d)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (d)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.<br><br>(d)(1) There is no time limit on the use of emergency stationary ICE in emergency situations.<br><br>(d)(2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (d)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (d)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (d)(2).<br><br>(d)(2)(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.<br><br>(d)(2)(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.<br><br>(d)(2)(iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.<br><br>(d)(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (d)(2) of this section. Except as provided in paragraph (d)(3)(i) of this section, the 50 hours per year for nonemergency |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | situations cannot be used for peak shaving or nonemergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.<br><br>(d)(3)(i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:<br><br>(d)(3)(i)(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;<br><br>(d)(3)(i)(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.<br><br>(d)(3)(i)(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.<br><br>(d)(3)(i)(D) The power is provided only to the facility itself or to support the local transmission and distribution system.<br><br>(d)(3)(i)(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator. |
| C.85 | **Emission Unit ID:** Exempt List<br><br>**Equipment ID:** 2906<br><br>40 CFR §60.4245 What Are My Notification, Reporting, And Recordkeeping Requirements If I Am An Owner Or Operator Of A Stationary SI Internal Combustion Engine?<br><br>Owners or operators of stationary SI ICE must meet the following notification, reporting and recordkeeping requirements.<br><br>(a) Owners and operators of all stationary SI ICE must keep records of the information in paragraphs (a)(1) through (4) of this section.<br><br>(a)(1) All notifications submitted to comply with this subpart and all documentation supporting any notification.<br><br>(a)(2) Maintenance conducted on the engine.<br><br>(a)(3) If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer |

## C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

| Condition Number | Condition |
|---|---|
| | that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90, 1048, 1054, and 1060, as applicable.<br><br>(a)(4) If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to §60.4243(a)(2), documentation that the engine meets the emission standards.<br><br>(b) For all stationary SI emergency ICE greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. |

## D. NESHAP PERIODIC REPORTING SCHEDULE SUMMARY

| NESHAP Part | NESHAP Subpart | Compliance Monitoring Report Submittal Frequency | Reporting Period | Report Due Date |
|---|---|---|---|---|
| 63 | S | Semiannual | January 1 – June 30<br>July 1 – December 31 | July 30<br>January 30 |
| 63 | MM | Semiannual | January 1 – June 30<br>July 1 – December 31 | July 30<br>January 30 |
| ~~63~~ | ~~JJJ~~ | ~~Semiannual~~ | ~~January 1 through June 30~~<br>~~July 1 through December 31~~ | ~~January 31st~~<br>~~July 31st~~ |
| 63 | ZZZZ (Emergency Engines see note 3 and 4) | N/A | N/A | N/A |
| 63 | DDDDD (5D)<br><br>(see note 5) | Semiannual | January 1 through June 30<br>July 1 through December 31 | Postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period |
| 63 | DDDDD (5D)<br><br>(see note 6) | Five Year | Five Years | Postmarked no later than January 31 following the end of the reporting period |
| 63 | DDDDD (5D) | Biennial | Biennially | Postmarked no later than January 31 following the end |

## D. NESHAP PERIODIC REPORTING SCHEDULE SUMMARY

| NESHAP Part | NESHAP Subpart | Compliance Monitoring Report Submittal Frequency | Reporting Period | Report Due Date |
|---|---|---|---|---|
| | (see note 7) | | | of the reporting period |

1. This table summarizes only the periodic compliance reporting schedule. Additional reports may be required. See specific NESHAP Subpart for additional reporting requirements and associated schedule.
2. This reporting schedule does not supersede any other reporting requirements including but not limited to 40 CFR Part 60, 40 CFR Part 61, 40 CFR Part 63, and/or Title V. The MACT reporting schedule may be adjusted to coincide with the Title V reporting schedule with prior approval from the Department in accordance with 40 CFR Part 63.10.a.5. This request may be made 1 year after the compliance date for the associated MACT standard.
3. Facilities with emergency engines are not required to submit reports. Only facilities with non-emergency engines are required to submit semiannual reports.
4. Facilities with emergency engines shall comply with the operations limits specified in 40 CFR 63.6640(f).
5. This reporting schedule applies to the two Combination Boilers, TV Emission Unit 08, Equipment IDs 2605 and 3705.
6. This reporting schedule applies to the Power Boiler, TV Emission Unit 08, Equipment ID 2550.
7. This reporting schedule applies to the Hot Oil Heater, TV Emission Unit 06, Equipment ID 4130.

## E. NESHAP - CONDITIONS

| Condition Number | Condition |
|---|---|
| E.1 | All NESHAP notifications and reports shall be sent to the Manager of the Air Toxics Section, South Carolina Department of Health and Environmental Control - Bureau of Air Quality. |
| E.2 | All NESHAP notifications and the cover letter to periodic reports shall be sent to the United States Environmental Protection Agency (US EPA) at the following address or electronically as required by the specific subpart:<br>**US EPA, Region 4**<br>**Air, Pesticides and Toxics Management Division**<br>**61 Forsyth Street SW**<br>**Atlanta, GA 30303** |
| **S.C. Regulation 61-62.63 and 40 CFR 63, Subpart S** | |
| E.3 | This facility has processes subject to the provisions of S.C. Regulation 61-62.63 and 40 CFR 63, National Emission Standards for Hazardous Air Pollutants, Subparts A and S – National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry. Existing affected sources shall be in compliance with the requirements of these Subparts on the compliance date, unless otherwise noted. Any new affected sources shall comply with the requirements of these Subparts upon initial startup unless otherwise noted. See ATTACHMENT - S.C. Regulation 61-62.63 and 40 CFR 63, Subpart S – National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry.<br><br>The following are affected sources for Subpart S:<br>• Continuous Digester System (TV ID 02, Equipment ID 5210)<br>• Turpentine Recovery System (TV ID 02, Equipment ID 5220) |

## E. NESHAP - CONDITIONS

| Condition Number | Condition |
|---|---|
| | • Pulp Washing System (TV ID 02, Equipment ID 5230)<br>• ~~Oxygen Delignification System (TV ID 02, Equipment ID 5240)~~<br>• ~~Knotting and Screening System (TV ID 02, Equipment ID 5250)~~<br>• Pulp Refining and Washing System (TV ID 02, Equioment ID 5255)<br>• ~~Four Stage Bleaching System (TV ID 03, Equipment ID 5300)~~<br>• No. 1 Multi-Effect Evaporator Set (TV ID 07, Equipment ID 2400)<br>• No. 2 Multi-Effect Evaporator Set (TV ID 07, Equipment ID 2500)<br>• No. 3 Multi-Effect Evaporator Set (TV ID 07, Equipment ID 5100)<br>• No. 1 Combination Boiler (TV ID 08, Equipment ID 2605)<br>• No. 2 Combination Boiler (TV ID 08, Equipment ID 3705)<br>• LVHC Collection System (TV ID 08, Equipment ID 5260)<br>• HVLC Collection System (TV ID 08, Equipment ID 5270)<br>• Flame Arrestors, Mist Eliminators, Condensate Collection Tanks (TV ID 08, Equipment IDs 5261, 6271)<br>• 180,000-gallon Condensate Collection Tank (TV ID 09, Equipment ID 9800)<br>• Hard Pipe (TV ID 09, Equipment ID 9802)<br>• ~~800-gallon/minute Condensate Steam Stripper (TV ID 09, Equipment ID 9801)~~<br>• ~~Stripper Off Gasses (SOG) Collection System (TV ID 09, Equipment ID 9820)~~<br>• ~~Bleach System Scrubber (TV ID 03, Equipment ID 5300C)~~ |
| ~~E.4~~ | ~~This condition applies to the Bleach System Scrubber (TV ID 03, Equipment ID 5300C):~~<br><br>~~**Approved alternative monitoring to 40 CFR §63.453 Monitoring Requirements.**~~<br><br>~~Under the authority of *§63.453(m) and §63.8(f)*, the owner or operator has been granted approval for the use of fan operational status (on/off) as alternative monitoring to 40 CFR *§63.453(c)(2)* the gas scrubber vent gas inlet flow rate for *40 CFR 63, Subpart S.*~~ |
| E.5 | This condition applies to the closed vent systems under 40 CFR 63, Subpart S:<br><br>**Approved alternative monitoring to 40 CFR §63.453 Monitoring Requirements.**<br><br>The owner or operator has been granted approval for alternative monitoring frequency for *40 CFR 63, Subpart S,* specifically inspections in 40 CFR 63.453(k) and (l). According to Applicability Determination Control #M120029, the inspections required by 40 CFR 63.453(k) and (l) and previously approved for to be performed "every calendar month" shall be conducted with at least 21 days between monitoring events. (ADI #M120029, EPA letter dated August 25, 2010), (SC DHEC letter dated August 30, 2013)<br><br>The owner or operator has elected to collect condensate in accordance with 63.446(c)(3) and treat the condensate in accordance with 63.446 (d) and (e)(5). To demonstrate compliance with these requirements the owner or operator shall calculate and record: 1) the daily mass of HAP collected using the daily average condensate feed rate, the daily average pulp production, and the average HAP mass content of the condensate; 2) the daily mass of HAP removed using the daily average mass of HAP collected, the daily average pulp production, and the daily average effective steam ratio to determine HAP removal. The daily average effective steam ratio shall be determined by calculating the daily average effective steam; (total stripping column steam – |

## E. NESHAP - CONDITIONS

| Condition Number | Condition |
|---|---|
| | steam to preheat condensate)/condensate feed rate. The daily effective steam ratio will be applied to the effective steam efficiency curve established or reestablished using characterization studies and performance testing conducted in accordance with §63.453(n). These values shall be established or reestablished during the most recent fifteen (15) day performance test conducted in accordance with §63.453(n). A fifteen (15) day rolling average of the daily HAP mass collected shall be calculated and recorded to determine compliance with the collection requirement of 11.1 lb HAP/ODP. A fifteen (15) day rolling average of the daily HAP mass removed shall be calculated and recorded to determine compliance with the collection requirement of 10.2 lb HAP/ODP.<br><br>Excess emissions are defined as:<br>1. Each day during the semiannual reporting period when the fifteen (15) day rolling average of the mass of HAP collected is less than 11.1 lb HAP/ODP;<br>2. Each day during the semiannual reporting period when the fifteen (15) day rolling average of the mass of HAP removed is less than 10.2 lb HAP/ODP |
| **S.C. Regulation 61-62.63 and 40 CFR 63, Subpart MM** | |
| E.6 | This facility has processes subject to the provisions of S.C. Regulation 61-62.63 and 40 CFR 63, National Emission Standards for Hazardous Air Pollutants, Subparts A and MM – National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite and Stand-alone Semichemical Pulp Mills. Existing affected sources shall be in compliance with the requirements of these Subparts on the compliance date, unless otherwise noted. The owner or operator of an existing source or process unit must comply with the revised requirements published on October 11, 2017 no later than October 11, 2019, with the exception of the following: (1) The first of the 5-year periodic performance tests must be conducted by October 13, 2020, and thereafter within 5 years following the previous performance test; and (2) The date to submit performance test data through the CEDRI is within 60 days after the date of completing each performance test. Any new affected sources shall comply with the requirements of these Subparts upon initial startup unless otherwise noted. See ATTACHMENT - S.C. Regulation 61-62.63 and 40 CFR 63, Subpart and MM – National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite and Stand-alone Semichemical Pulp Mills.<br><br>The following are affected sources for Subpart MM:<br>• No. 2 Recovery Furnace (TV ID 07, Equipment ID 2505), No. 2 Recovery Furnace ESP (TV ID 07, Equipment ID 2505C)<br>• No. 3 Recovery Furnace (TV ID 07, Equipment ID 5105), No. 3 Recovery Furnace ESP (TV ID 07, Equipment ID 5105C)<br>• No. 2 Lime Kiln (TV ID 07, Equipment ID 2723), No. 2 Lime Kiln ESP (TV ID 07, Equipment ID 2723C)<br>• No. 2 Smelt Dissolving Tank (TV ID 07, Equipment ID 2510), No. 3 Smelt Dissolving Tank (TV ID 07, Equipment ID 5110), Smelt Tanks Venturi Caustic Scrubber (weak wash and caustic) (TV ID 07, Equipment ID 5211C) |
| ~~**S.C. Regulation 61-62.63 and 40 CFR 63, Subpart JJJJ**~~ | |
| ~~E.7~~ | ~~This facility has processes subject to the provisions of S.C. Regulation 61-62.63 and 40 CFR 63, National Emission Standards for Hazardous Air Pollutants, Subparts A and JJJJ – National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating. Existing affected sources shall be in compliance with the~~ |

## E. NESHAP - CONDITIONS

| Condition Number | Condition |
|---|---|
| | ~~requirements of these Subparts on the compliance date, unless otherwise noted. Any new affected sources shall comply with the requirements of these Subparts upon initial startup unless otherwise noted. See ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart JJJJ – National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating.~~<br><br>~~The following are affected sources for Subpart JJJJ:~~<br>~~• No. 1 Paper Machine Coater Dryer (TV ID 06, Equipment ID 2010)~~<br>~~• No. 2 Paper Machine Coater/Dryer (TV ID 06, Equipment ID 4610)~~ |
| **S.C. Regulation 61-62.63 and 40 CFR 63, Subpart ZZZZ** | |
| E.8 | Emergency engines less than or equal to 150 kilowatt (kW) rated capacity, emergency engines greater than 150 kW rated capacity designated for emergency use only and operated a total of 500 hours per year or less for testing and maintenance and have a method to record the actual hours of use, such as an hour meter, and diesel engine driven emergency fire pumps that are operated a total of 500 hours per year or less for testing and maintenance and have a method to record the actual hours of use, such as an hour meter, have been determined to be exempt from construction permitting requirements in accordance with South Carolina Regulation 61-62.1.<br><br>If present, these sources shall still comply with the requirements of all applicable regulations, including but not limited to the following:<br><br>New Source Performance Standards (NSPS) 40 CFR 60 Subpart A (General Provisions);<br>NSPS 40 CFR 60 Subpart IIII (Stationary Compression Ignition Internal Combustion Engines);<br>NSPS 40 CFR 60 Subpart JJJJ (Stationary Spark Ignition Internal Combustion Engines);<br>National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 63 Subpart A (General Provisions); and<br>NESHAP 40 CFR 63 Subpart ZZZZ (Stationary Reciprocating Internal Combustion Engines).<br><br>The following are affected sources for 40 CFR 63, Subpart ZZZZ:<br>• 40 kW Emergency Generator, propane fired, installed in 2018 (Exempt List, Equipment ID 2906)<br>• Emergency Diesel Fire Pump #2, 175 hp, installed prior to 1995 (Exempt List, Equipment ID 2907)<br>• Emergency No. 2 Lime Kiln Auxiliary Drive, 101 hp diesel fuel, installed in 1995 (Exempt List, Equipment ID 2908) |
| E.9 | Affected sources: All Stationary IC Engines: This facility is subject to the provisions of 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants, Subparts A and NESHAP for Stationary Reciprocating Internal Combustion Engines. Existing affected sources shall comply with the applicable provisions by the compliance date specified in Subpart ZZZZ. Any new affected sources shall comply with the requirements of this Subpart upon initial start-up unless otherwise noted. |
| **S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD** | |
| E.10 | This facility has processes subject to the provisions of S.C. Regulation 61-62.63 and 40 CFR 63, National Emission Standards for Hazardous Air Pollutants, Subparts A and DDDDD – National Emission Standards for Hazardous Air Pollutants For Major Sources: Industrial, Commercial, And Institutional Boilers and Process Heaters. Existing |

## E. NESHAP - CONDITIONS

| Condition Number | Condition |
|---|---|
| | affected sources shall be in compliance with the requirements of these Subparts by the compliance date, unless otherwise noted. Any new affected sources shall comply with the requirements of these Subparts upon initial start-up unless otherwise noted. See ATTACHMENT - S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants For Major Sources: Industrial, Commercial, And Institutional Boilers and Process Heaters.<br><br>The following are affected sources for Subpart DDDDD:<br>• Power Boiler (TV ID 08, Equipment ID 2550), classified as a limited use boiler for this regulation<br>• No. 1 Combination Boiler (TV ID 08, Equipment ID 2605)<br>• No. 2 Combination Boiler (TV ID 08, Equipment ID 3705)<br>• Hot Oil Heating System (TV ID 06, Equipment ID 4130), 9.1 million Btu/hr heat input |
| E.11 | This condition applies to the Power Boiler (TV ID 08, Equipment ID 2550):<br><br>The facility has requested a federally enforceable limit to be classified as a "Limited-Use Boiler" as defined in Subpart 5D, Section 63.7575. Upon the compliance date of this regulation, per Section 63.7555(d)(3) of the Subpart, the facility must limit the average annual capacity factor, of the Power Boiler (Equipment ID 2550), to less than or equal to 10 percent and keep records of fpul use for the days the boiler is in operation.<br><br>(S.C. Regulation 61-62.70.6.a.3) Monitoring And Related Recordkeeping and Reporting Requirements. The annual capacity factor shall be defined as the ratio between the actual heat input to a boiler or process heater during a period of 12 consecutive calendar months and the potential heat input to the boiler or process heater had it been operated for 8,760 hours during that 12-month period at the maximum design heat input capacity. The annual capacity factor shall be determined at the end of each calendar month. The average annual capacity factor shall be defined as the 12-month rolling average of the annual capacity factors and shall be determined at the end of each calendar month. Records of fuel usage, the monthly calculated annual capacity factor, along with the average annual capacity factor shall be kept on-site. |

## F. COMPLIANCE SCHEDULE

| Condition Number | Conditions |
|---|---|
| F.1 | None |

## G. PERMIT SHIELD

| Condition Number | Condition |
|---|---|
| G.1 | (S.C. Regulation 61-62.70.6.f) A copy of the "applicability determination" submitted with the Part 70 permit application is included as Attachment – Applicable and Non-Applicable Federal and State Regulations. With |

## G. PERMIT SHIELD

| Condition Number | Condition |
|---|---|
| | the exception of those listed below, compliance with the terms and conditions of this permit shall be deemed compliance with the applicable requirements specified in Attachment – Applicable and Non-Applicable Federal and State Regulations as of the date of permit issuance provided that such applicable requirements are included and are specifically identified in the permit. Exceptions to this are stated below in the *Permit Shield Exceptions* Table. The owner or operator shall also be shielded from the non-applicable requirements specified in Attachment – Applicable and Non-Applicable Federal and State Regulations. Exceptions to this are stated below in the *Permit Shield Exceptions* Table.<br><br>**Permit Shield Exceptions**<br>SC Regulation 61-62.1, Definitions and General Requirements (Section II)<br>SC Regulation 61-62.3, Air Pollution Episodes<br>SC Regulation 61-62.5, Standard No. 7, Prevention of Significant Deterioration<br>SC Regulation 61-62.5, Standard No. 7.1, Nonattainment New Source Review<br>40 CFR 61 Subpart M, National Emission Standard for Asbestos<br>40 CFR 50–59, 62, 65-67, 69-71, 73, 74, 76-95, 97, 98<br><br>Nothing in the permit shield or in any Part 70 permit shall alter or affect the provisions of Section 303 of the Act, Emergency Orders, of the Clean Air Act; the liability of the owner or operator for any violation of applicable requirements prior to or at the time of permit issuance; the applicable requirements of the Acid Rain Program, consistent with Section 408.a of the Clean Air Act; or the ability of US EPA to obtain information from a source pursuant to Section 114 of the Clean Air Act. In addition, the permit shield shall not apply to emission units in noncompliance at the time of permit issuance, minor permit modifications (S.C. Regulation 61-62.70.7.e.2), group processing of minor permit modifications (S.C. Regulation 61-62.70.7.e.3), or operational flexibility (S.C. Regulation 61-62.70.7.e.5.i), except as specified in S.C. Regulation 61-62.70.7.e.5.iii. |

## H. PERMIT FLEXIBILITY

| Condition Number | Conditions |
|---|---|
| H.1 | The facility may install, remove, and modify insignificant activities as defined in S.C. Regulation 61-62.70.5.c and exempt sources as listed in S.C. Regulation 61-62.1, Section II.B, without revising or reopening the Title V Operating Permit. A list of insignificant activities/exempt sources must be maintained on site, along with any necessary documentation to support the determination that the activity is insignificant and/or exempt, and shall be made available to a Department representative upon request. The list shall be submitted with the next renewal application. |

## I. AMBIENT AIR STANDARDS REQUIREMENTS

| Condition Number | Condition |
|---|---|
| I.1 | Air dispersion modeling (or other method) has demonstrated that this facility's operation will not interfere with the attainment and maintenance of any state or federal ambient air standard. Any changes in the parameters used in this demonstration may require a review by the facility to determine continuing compliance with these standards. These potential changes include any decrease in stack height, decrease in stack velocity, increase in stack diameter, decrease in stack exit temperature, increase in building height or building additions, increase in emission rates, decrease in distance between stack and property line, changes in vertical stack orientation, and installation of a rain cap that impedes vertical flow. Parameters that are not required in the determination will not invalidate the demonstration if they are modified. The emission rates used in the determination are listed in Attachment - Emission Rates for Ambient Air Standards of this permit. Higher emission rates may be administratively incorporated into Attachment - Emission Rates for Ambient Air Standards of this permit provided a demonstration using these higher emission rates shows the attainment and maintenance of any state or federal ambient air quality standard or with any other applicable requirement. Variations from the input parameters in the demonstration shall not constitute a violation unless the maximum allowable ambient concentrations identified in the standard are exceeded.<br><br>The owner/operator shall maintain this facility at or below the emission rates as listed in Attachment - Emission Rates for Ambient Air Standards, not to exceed the pollutant limitations of this permit. Should the facility wish to increase the emission rates listed in Attachment - Emission Rates for Ambient Air Standards, not to exceed the pollutant limitations in the body of this permit, it may do so by the administrative process specified above. This is a State Only enforceable requirement. |

## J. TITLE V PERIODIC REPORTING SCHEDULE

| Compliance Monitoring Report Submittal Frequency | Reporting Period (Begins on the effective date of the permit) | Report Due Date |
|---|---|---|
| Quarterly | January-March<br>April-June<br>July-September<br>October-December | April 30th<br>July 30th<br>October 30th<br>January 30th |
| Semiannual | January-June<br>April-September<br>July-December<br>October-March | July 30th<br>October 30th<br>January 30th<br>April 30th |
| Note: This reporting schedule does not supersede any Federal reporting requirements including but not limited to 40 CFR Part 60, 40 CFR Part 61, and 40 CFR Part 63. All Federal reports must meet the reporting time frames specified in the Federal standard unless the Department or EPA approves a change. | | |

## K. TITLE V COMPLIANCE CERTIFICATION REPORTING SCHEDULE

| Title V Compliance Certification Submittal Frequency | Reporting Period (Begins on the effective date of the permit) | Report Due Date |
|---|---|---|
| Annual | January-December<br>April-March<br>July-June<br>October-September | February 14th<br>May 15th<br>August 14th<br>November 14th |

## L. TITLE V RECORD KEEPING AND REPORTING REQUIREMENTS

| Condition Number | Condition |
|---|---|
| L.1 | Reporting required in this permit, shall be submitted in a timely manner as directed in the Title V Periodic Reporting Schedule and the Title V Compliance Certification Reporting Schedule of this permit. All required reports must be certified by a responsible official consistent with S.C. Regulation 61-62.70.5.d. |
| L.2 | All reports and notifications required under this permit shall be submitted to the person indicated in the specific condition at the following address:<br>**2600 Bull Street**<br>**Columbia, SC 29201**<br>The contact information for the local Environmental Affairs Regional office can be found at:<br>**http://www.scdhec.gov** |
| L.3 | Unless elsewhere specified within this permit, all reports required under this permit shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality. |
| L.4 | All Title V Annual Compliance Certifications shall be sent to the US EPA, Region 4, Air Enforcement Branch and to the Manager of the Technical Management Section, Bureau of Air Quality.<br>**US EPA, Region 4**<br>**Air Enforcement Branch**<br>**61 Forsyth Street SW**<br>**Atlanta, GA 30303** |
| L.5 | (S.C. Regulation 61-62.70.6.a.3.ii) The owner or operator shall comply, where applicable, with the following monitoring/support information collection and retention record keeping requirements:<br>1. Records of required monitoring information shall include the following:<br>a. The date, place as defined in the permit, and time of sampling or measurements;<br>b. The date(s) analyses were performed;<br>c. The company or entity that performed the analyses;<br>d. The analytical techniques or methods used;<br>e. The results of such analyses; and<br>f. The operating conditions as existing at the time of sampling or measurement;<br>2. Records of all required monitoring data and support information shall be retained for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. |

## L. TITLE V RECORD KEEPING AND REPORTING REQUIREMENTS

| Condition Number | Condition |
|---|---|
| L.6 | In accordance with S.C. Regulation 61-62.1, Section II.J, for sources not required to have continuous emissions monitors, any malfunction of air pollution control equipment or system, process upset or other equipment failure which results in discharges of air contaminants lasting for one hour or more and which are greater than those discharges described for normal operation in the permit application shall be reported to the Department's local Environmental Affairs Regional office within twenty-four (24) hours after the beginning of the occurrence.<br><br>The owner or operator shall also submit a written report within thirty (30) days of the occurrence. This report shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality (BAQ) and shall include, at a minimum, the following:<br>1. The identity of the stack and/or emission point where the excess emissions occurred;<br>2. The magnitude of excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the excess emissions;<br>3. The time and duration of excess emissions;<br>4. The identity of the equipment causing the excess emissions;<br>5. The nature and cause of such excess emissions;<br>6. The steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunction;<br>7. The steps taken to limit the excess emissions; and,<br>8. Documentation that the air pollution control equipment, process equipment, or processes were at all times maintained and operated, to the maximum extent practicable, in a manner consistent with good practice for minimizing emissions. |
| L.7 | (S.C. Regulation 61-62.70.6.c.5.iii) The responsible official shall certify, annually, compliance with the conditions of this permit as required under S.C. Regulation 61-62.70.6.c. The compliance certification shall include the following:<br>1. The identification of each term or condition of the permit that is the basis of the certification.<br>2. The identification of the method(s) or means used by the owner or operator for determining the compliance status with each term and condition of the permit during the certification period.<br>3. The status of compliance with the terms and conditions of the permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent. The certification shall be based on the method or means designated in S.C. Regulation 61-62.70.6.c.5.iii.B. The certification shall identify each deviation and take it into account in the compliance certification.<br>4. Such other facts as the Department may require to determine the compliance status of the source. |
| L.8 | (S.C. Regulation 61-62.1, Section II.M) Within 30 days of the transfer of ownership/operation of a facility, the current permit holder and prospective new owner or operator shall submit to the Director of Air Permitting a written request for transfer of the source operating or construction permits. The written request for transfer of the source operating or construction permit shall include any changes pertaining to the facility name and mailing address; the name, mailing address, and telephone number of the owner or operator for the facility; and any proposed changes to the permitted activities of the source. Transfer of the operating or construction permits will be effective upon written approval by the Department. |

## M. GENERAL FACILITY WIDE

| Condition Number | Condition |
|---|---|
| M.1 | The owner or operator shall comply with S.C. Regulation 61-62.2 "Prohibition of Open Burning." |
| M.2 | The owner or operator shall comply with S.C. Regulation 61-62.3 "Air Pollution Episodes." |
| M.3 | The owner or operator shall comply with S.C. Regulation 61-62.4 "Hazardous Air Pollution Conditions." |
| M.4 | The owner or operator shall comply with S.C. Regulation 61-62.6 "Control of Fugitive Particulate Matter", Section III "Control of Fugitive Particulate Matter Statewide." |
| M.5 | The owner or operator shall comply with the standards of performance for asbestos abatement operations pursuant to 40 CFR Part 61.145, including, but not limited to, requirements governing training, licensing, notification, work practice, cleanup, and disposal. |
| M.6 | The owner or operator shall comply with the standards of performance for asbestos abatement operations pursuant to S.C. Regulation 61-86.1, including, but not limited to, requirements governing training, licensing, notification, work practice, cleanup, and disposal. |
| M.7 | The owner or operator shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, Protection of Stratospheric Ozone, Recycling and Emissions Reduction, except as provided for motor vehicle air conditioners (MVACs) in Subpart B. If the owner or operator performs a service on motor (fleet) vehicles that involves ozone-depleting substance refrigerant in MVACs, the owner or operator is subject to all applicable requirements of 40 CFR Part 82, Subpart B, Servicing of MVACs. |
| M.8 | (S.C. Regulation 61-62.70.6.a.5) The provisions of this permit are severable, and if any provision of this permit, or application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby. |
| M.9 | (S.C. Regulation 61-62.70.6.a.6.i) The owner or operator must comply with all of the conditions of this permit. Any permit noncompliance constitutes a violation of the S.C. Pollution Control Act and/or the Federal Clean Air Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of permit renewal application. |
| M.10 | (S.C. Regulation 61-62.70.6.a.6.ii) It shall not be a defense for an owner or operator in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. |
| M.11 | (S.C. Regulation 61-62.70.6.a.6.iii) The permit may be modified, revoked, reopened and reissued, or terminated for cause by the Department. The filing of a request by the owner or operator for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. |
| M.12 | (S.C. Regulation 61-62.70.6.a.6.iv) The permit does not convey any property rights of any sort, or any exclusive privilege. |
| M.13 | (S.C. Regulation 61-62.70.6.a.6.v) The owner or operator shall furnish to the Department, within a reasonable time, any information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the owner or operator shall also furnish to the Department copies of records required to be kept by the permit or, for information claimed to be confidential, the owner or operator may furnish such records directly to the Administrator along with a claim of confidentiality. The Department may also request that the owner or operator furnish such records directly to the Administrator along with a claim of confidentiality. |
| M.14 | (S.C. Regulation 61-62.70.6.a.8) No permit revision shall be required, under any approved economic incentives, |

## M. GENERAL FACILITY WIDE

| Condition Number | Condition |
|---|---|
| | marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit. |
| M.15 | (S.C. Regulation 61-62.70.6.c.2) Upon presentation of credentials and other documents as may be required by law, the owner or operator shall allow the Department or an authorized representative to perform the following:<br>1. Enter upon the owner or operator's premises where a Part 70 source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit.<br>2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit.<br>3. Inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.<br>4. As authorized by the Act and/or the S.C. Pollution Control Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements. |
| M.16 | (S.C. Regulation 61-62.70.6.g) In the case of an emergency, as defined in S.C. Regulation 61-62.70.6.g.1, the owner or operator shall demonstrate an affirmative defense of emergency through properly signed, contemporaneous operating logs, or other relevant evidence that:<br>1. An emergency occurred and that the owner or operator can identify the cause(s) of the emergency;<br>2. The permitted facility was at the time being properly operated; and<br>3. During the period of the emergency the owner or operator took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and<br>4. The owner or operator shall submit verbal notification of the emergency to the Department within twenty-four (24) hours of the time when emission limitations were exceeded, followed by written notifications within thirty (30) days. This notice fulfills the requirement of S.C. Regulation 61-62.70.6.a.3.iii.B. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.<br>This provision is in addition to any emergency or upset provision contained in any applicable requirement. In any enforcement proceeding, the owner or operator seeking to establish the occurrence of an emergency has the burden of proof. |
| M.17 | (S.C. Regulation 61-62.70.6.a.1.ii) Where an applicable requirement of the Act is more stringent than an applicable requirement of regulations promulgated under Title IV of the Act, both provisions shall be incorporated into the permit and shall be enforceable by the Administrator. |
| M.18 | (S.C. Regulation 61-62.70.6.a.4) According to S.C. Regulation 61-62.70.6.a.4, the owner or operator is prohibited from emissions exceeding any allowances that the source lawfully holds under Title IV of the Act or the regulations promulgated thereunder. No permit revision shall be required for increases in emissions that are authorized by allowances acquired pursuant to the acid rain program, provided that such increases do not require a permit revision under any other applicable requirement. No limit shall be placed on the number of allowances held by a source. The source may not, however, use allowances as a defense to noncompliance with any other applicable requirement. Any such allowances shall be accounted for according to the procedures established in regulations promulgated under Title IV of the Act. |
| M.19 | (S.C. Regulation 61-62.70.7.c.1.ii) Permit expiration terminates the source's right to operate unless a timely and |

## M. GENERAL FACILITY WIDE

| Condition Number | Condition |
|---|---|
| | complete renewal application has been submitted consistent with S.C. Regulation 61-62.70.5.a.1.iii, 62.70.5.a.2.iv, and 62.70.7.b. In this case, the permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the permit including any permit shield that may be granted pursuant to S.C. Regulation 61-62.70.6.f shall remain in effect until the renewal permit has been issued or denied. |
| M.20 | Requests for permit modification and amendments shall be submitted on the appropriate Department approved Title V Modification Form(s). |
| M.21 | (S.C. Regulation 61-62.70.6.a.7) The owners or operators of Part 70 sources shall pay fees to the Department consistent with the fee schedule approved pursuant to S.C. Regulation 61-62.70.9. Failure to pay applicable fee can be considered grounds for permit revocation. |
| M.22 | (S.C. Regulation 61-62.1, Section III) The owners or operators of Part 70 sources shall complete and submit a new updated emissions inventory consistent with the schedule approved pursuant to S.C. Regulation 61-62.1, Section III. These Emissions Inventory Reports shall be submitted to the Manager of the Emissions Inventory Section, Bureau of Air Quality.<br><br>This requirement notwithstanding, an emissions inventory may be required at any time in order to determine the compliance status of any facility. |
| M.23 | This permit expressly incorporates insignificant activities. Emissions from these activities shall be included in the emissions inventory submittals as required by S.C. Regulation 61-62.1, Section III.B.2.g. |

# ATTACHMENT - Emission Rates for Ambient Air Standards

## New-Indy Catawba LLC
## TV-2440-0005
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The emission rates listed herein are not considered federally enforceable limitations but are used to evaluate ambient air quality impact. Until the Department makes a determination that a facility is causing or contributing to an exceedance of a state or federal ambient air quality standard, increases to these emission rates are not in themselves considered violations of these ambient air quality standards (see Ambient Air Standards Requirements).

| AMBIENT AIR QUALITY STANDARDS - STANDARD NO. 2 | | | | | | |
|---|---|---|---|---|---|---|
| Emission Point ID | Emission Rates (lbs/hr) | | | | | |
| | $PM_{10}$ | $PM_{2.5}$ | $SO_2$ | $NO_x$ | CO | Lead |
| CAUST / 2700 | 1.889 | -- | -- | -- | -- | -- |
| FUTAMU / 9900 | 0.962 | -- | 0.076 | 19.33 | 10.62 | -- |
| FUTBP / 5200 | -- | -- | -- | -- | 60.32 | -- |
| FUTCB1 / 2610S1 | 234.93 | -- | 865.09 | 123.02 | 234.93 | 1.16E-01 |
| FUTCB2 / 2610S2 | 298.42 | -- | 1539.71 | 219.1 | 298.42 | 1.16E-01 |
| FUTLK2 / 2723 | 20.40 | -- | 39.37 | 86.51 | 24.29 | 1.6E-02 |
| FUTNCG1 / 2610S1 | -- | -- | 641.28 | 71.03 | 10.32 | -- |
| FUTPB1 / 2550 | 68.81 | -- | 752.39 | 104.76 | 31.51 | 9.8E-03 |
| FUTPM1 / 2000 | 0.710 | -- | 2.763 | 10.08 | 4.01 | -- |
| FUTPM2 / 4600 | 0.949 | -- | 3.716 | 13.43 | 5.188 | -- |
| FUTPM3 / 4100 | 0.710 | -- | 2.763 | 9.97 | 4.01 | -- |
| FUTRF2 / 2505 | 74.53 | -- | 792.08 | 112.70 | 56.92 | 9.8E-03 |
| FUTRF3 / 5105 | 78.10 | -- | 792.08 | 146.03 | 330.96 | 2.03E-02 |
| FUTST2 / 2510 | 26.99 | -- | 0.240 | 0.937 | -- | 5.0E-04 |
| FUTST3 / 5110 | 16.98 | -- | 0.430 | 1.70 | -- | 7.0E-04 |
| Railcar Dumper and Receiving Hopper | 0.6 | -- | -- | -- | -- | -- |
| Pulp Dryer / 2100 | 0.39 | 0.39 | -- | -- | -- | -- |

# Attachment - Applicable and Non-Applicable Federal and State Regulations

**New-Indy Catawba LLC**
**TV-2440-0005**


The following contains the Federal and South Carolina air pollution regulations and their applicability, as specified in the Part 70 permit application.

| APPLICABILITY DETERMINATION | | |
|---|---|---|
| **Citation** | **Regulation** | **Applicable (Yes / No)** |
| SC Reg. 61-62.1 | Definitions | Y |
| SC Reg. 61-62.2 | Prohibition of Open Burning | Y |
| SC Reg. 61-62.3 | Air Pollution Episodes | N |
| SC Reg. 61-62.4 | Hazardous Air Pollution Conditions | Y |
| SC Reg. 61-62.5, Std. 1 | Emissions from Fuel Burning Operations | Y |
| SC Reg. 61-62.5, Std. 2 | Ambient Air Quality Standards | Y |
| SC Reg. 61-62.5, Std. 3 | Waste Combustion and Reduction | Y |
| SC Reg. 61-62.5, Std. 3.1 | Hospital, Medical, Infectious Waste Incinerators (HMIWI) | N |
| SC Reg. 61-62.5, Std. 4 | Emissions from Process Industries | Y |
| SC Reg. 61-62.5, Std. 5 | Volatile Organic Compounds | Y |
| SC Reg. 61-62.5, Std. 5.1 | Lowest achievable emission rate (LAER) applicable to VOC | N |
| SC Reg. 61-62.5, Std. 5.2 | Control of Oxides of Nitrogen (NOx) | Y |
| SC Reg. 61-62.5, Std. 6 | Alternative emission limitation options | N |
| SC Reg. 61-62.5, Std. 7 | Prevention of significant deterioration (PSD) | Y |
| SC Reg. 61-62.5, Std. 7.1 | Non-attainment New Source Review | Y |
| SC Reg. 61-62.5, Std. 8 | Toxic air pollutants | Y |
| SC Reg. 61-62.6 | Control of Fugitive Particulate Matter | Y |
| SC Reg. 61-62.7 | Good Engineering Practice (GEP) Stack Height | Y |
| SC Reg. 61-62.60, Subpart A | SC Designated Facility Plan and New Source Performance Standards – General Provisions | Y |
| SC Reg. 61-62.60, Subparts Cb-Ka; L-AAa; BBa-IIII, KKKK-TTTT | SC Designated Facility Plan and New Source Performance Standards | N |
| SC Reg. 61-62.60, Subpart BB | SC Designated Facility Plan and New Source Performance Standards – Standards of Performance for Kraft Pulp Mills | Y |
| SC Reg. 61-62.60, Subpart Kb | SC Designated Facility Plan and New Source Performance Standards – Standards of Performance For Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984 | Y |
| SC Reg. 61-62.60, Subpart JJJJ | SC Designated Facility Plan and New Source Performance Standards – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines | Y |
| SC Reg. 61-62.61 | National Emission Standards for Hazardous Air Pollutants (NESHAP) | N |
| SC Reg. 61-62.63, Subpart A | National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories – General Provisions | Y |
| SC Reg. 61-62.63, Subparts B, | National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source | N |

## Attachment - Applicable and Non-Applicable Federal and State Regulations

**New-Indy Catawba LLC**
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| APPLICABILITY DETERMINATION | | |
|---|---|---|
| **Citation** | **Regulation** | **Applicable (Yes / No)** |
| D-R; T-LL; NN-IIII; KKKK- YYYY; AAAAA-CCCCC; EEEEE - HHHHHHH | Categories | |
| SC Reg 61-62.63, Subpart C | National Emission Standards for Hazardous Air Pollutatns (NESHAP) for Source Categories – List of Hazardous Air Pollutatnts, Petition Process, Lesser Quantity Designations, Source Category List | Y |
| SC Reg. 61-62.63, Subpart S | National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories – National Emission Standards for Hazardous Air Pollutants From the Pulp and Paper Industry | Y |
| SC Reg. 61-62.63, Subpart MM | National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories – National Emission Standards For Hazardous Air Pollutants For chemical Recovery Combustion Sources At Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills | Y |
| SC Reg. 61-62.63, Subpart JJJJ | National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories – National Emission Standards For Hazardous Air Pollutants: Paper and Other Web Coating | Y |
| SC Reg. 61-62.63, Subpart ZZZZ | National Emission Standards for Hazardous Air Pollutatns (NESHAP) for Source Categories – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines | Y |
| SC Reg. 61-62.63, Subpart DDDDD | National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories – National Emission Standards For Hazardous Air Pollutants for Industrial, Commercial, and Industrial Boilers and Process Heaters | Y |
| SC Reg. 61-62.68 | Chemical Accident Prevention Program | Y |
| SC Reg. 61-62.70 | Title V Operating Permit Program | Y |
| SC Reg. 61-62.72 | Acid Rain | N |
| SC Reg. 61-62.96 | Nitrogen Oxides (NOx) Budget Trading Program | Y |
| SC Reg. 61-62.99 | NOx Trading Program Requirement for Stationary Sources No in the Trading Program | N |
| 40 CFR 50 | National Primary and Secondary Ambient Air Quality Standards | Y |
| 40 CFR 51 | Requirements for Preparation, Adoption, and Submittal of Implementation Plans | Y |
| 40 CFR 52 | Approval and Promulgation of Implementation Plans | Y |
| 40 CFR 53 | Ambient Air Monitoring Reference and Equivalent Methods | N |
| 40 CFR 54 | Prior Notice of Citizen Suits | N |
| 40 CFR 55 | Outer Continental Shelf Air Regulations | N |
| 40 CFR 56 | Regional Consistency | N |
| 40 CFR 57 | Primary Nonferrous Smelter Orders | N |
| 40 CFR 58 | Ambient Air Quality Surveillance | N |
| 40 CFR 59 | National Volatile Organic Compound Emission Standard for Consumer and | N |

## Attachment - Applicable and Non-Applicable Federal and State Regulations

**New-Indy Catawba LLC**
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| APPLICABILITY DETERMINATION | | |
|---|---|---|
| **Citation** | **Regulation** | **Applicable (Yes / No)** |
| | Commercial Products | |
| 40 CFR 60 subpart A | General Provisions | Y |
| 40 CFR 60 subpart B | Adoption and Submittal of State Plans for Designated Facilities | N |
| 40 CFR 60 subpart C | Emission Guidelines and Compliance Times | N |
| 40 CFR 60 subpart Cb | Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors that are Constructed on or Before September 20, 1994 | N |
| 40 CFR 60 subpart Cc | Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills | N |
| 40 CFR 60 subpart Cd | Emissions Guidelines and Compliance Times for Sulfuric Acid Production Units | N |
| 40 CFR 60 subpart Ce | Emission Guidelines and Compliance Times for Hospital/Medical/Infectious Waste Incinerators | N |
| 40 CFR 60 subpart D | Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971 | N |
| 40 CFR 60, Subpart Da | Electric Utility Steam Generated Units | N |
| 40 CFR 60, Subpart Db | Institutional Steam Generating Units | Y |
| 40 CFR 60, Subpart Dc | Small Industrial Commercial Institutional Steam Generating Units | N |
| 40 CFR 60, Subpart E | Incinerators | N |
| 40 CFR 60, Subpart Ea | Municipal Waste Combustors | N |
| 40 CFR 60, Subpart Eb | Large Municipal Waste Combustors | N |
| 40 CFR 60, Subpart Ec | Hospital/Medical/Infectious Waste Incinerators | N |
| 40 CFR 60, Subpart F | Portland Cement Plants | N |
| 40 CFR 60, Subpart G | Nitric Acid Plants | N |
| 40 CFR 60, Subpart Ga | Nitric Acid Plants For Which Construction, Reconstruction, Or Modification Commenced After October 14, 2011 | N |
| 40 CFR 60, Subpart H | Sulfuric Acid Plants | N |
| 40 CFR 60, Subpart J | Petroleum Refineries | N |
| 40 CFR 60, Subpart K | Storage Vessels for Petroleum Liquids | N |
| 40 CFR 60, Subpart Ka | Storage Vessels for Petroleum Liquids | N |
| 40 CFR 60, Subpart Kb | Volatile Organic Liquid Storage Vessels | Y |
| 40 CFR 60, Subpart L | Secondary Lead Smelters | N |
| 40 CFR 60, Subpart M | Secondary Brass and Bronze Production Plants | N |
| 40 CFR 60, Subpart N | Primary Emissions from Basic Oxygen Furnaces | N |
| 40 CFR 60, Subpart Na | Iron and Steel Plants | N |
| 40 CFR 60, Subpart O | Sewage Treatment Plants | N |
| 40 CFR 60, Subpart P | Primary Copper Smelters | N |
| 40 CFR 60, Subpart Q | Primary Zink Smelters | N |
| 40 CFR 60, Subpart R | Primary Lead Smelters | N |
| 40 CFR 60, Subpart S | Primary Aluminum Reduction Plants | N |
| 40 CFR 60, Subpart T | Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants | N |
| 40 CFR 60, Subpart U | Phosphate Fertilizer Industry: Superphosphoric Acid Plants | N |

## Attachment - Applicable and Non-Applicable Federal and State Regulations

**New-Indy Catawba LLC**
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| APPLICABILITY DETERMINATION | | |
|---|---|---|
| **Citation** | **Regulation** | **Applicable (Yes / No)** |
| 40 CFR 60, Subpart V | Phosphate Fertilizer Industry: Diammonium Phosphate Plants | N |
| 40 CFR 60, Subpart W | Phosphate Fertilizer Industry: Triple Superphosphate Plants | N |
| 40 CFR 60, Subpart X | Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities | N |
| 40 CFR 60, Subpart Y | Coal Preparation Plants | N |
| 40 CFR 60, Subpart Z | Ferroalloy Production Facilities | N |
| 40 CFR 60, Subpart AA | Steel Plants: Electric Arc Furnaces | N |
| 40 CFR 60, Subpart AAa | Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels | N |
| 40 CFR 60, Subpart BB | Standards Of Performance For Kraft Pulp Mills | Y |
| 40 CFR 60, Subpart BBa | Standards Of Performance For Kraft Pulp Mills | Y |
| 40 CFR 60, Subpart CC | Glass Manufacturing Plants | N |
| 40 CFR 60, Subpart DD | Grain Elevators | N |
| 40 CFR 60, Subpart EE | Surface Coating of Metal Furniture | N |
| 40 CFR 60, Subpart FF | Reserved | N |
| 40 CFR 60, Subpart GG | Stationary Gas Turbines | N |
| 40 CFR 60, Subpart HH | Lime Manufacturing Plants | N |
| 40 CFR 60, Subpart KK | Lead Acid Battery Manufacturing Plants | N |
| 40 CFR 60, Subpart LL | Metallic Mineral Processing Plants | N |
| 40 CFR 60, Subpart MM | Automobile and Light Duty Truck Surface Coating Operations | N |
| 40 CFR 60, Subpart NN | Phosphate Rock Plants | N |
| 40 CFR 60, Subpart PP | Aluminum Sulfate Manufacturing Plants | N |
| 40 CFR 60, Subpart QQ | Graphics Arts Industry: Publication Rotogravure Printing | N |
| 40 CFR 60, Subpart RR | Pressure Sensitive Tape and Label Surface Coating Operations | N |
| 40 CFR 60, Subpart SS | Industrial Surface Coating: Large Appliances | N |
| 40 CFR 60, Subpart TT | Metal Coil Surface Coating | N |
| 40 CFR 60, Subpart UU | Asphalt Processing and Asphalt Roofing Manufacturing | N |
| 40 CFR 60, Subpart VV | Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry | N |
| 40 CFR 60, Subpart WW | Beverage Can Surface Coating Industry | N |
| 40 CFR 60, Subpart XX | Bulk Gasoline Terminals | N |
| 40 CFR 60, Subpart AAA | New Residential Wood Heaters | N |
| 40 CFR 60, Subpart BBB | Rubber Tire Manufacturing Industry | N |
| 40 CFR 60, Subpart CCC | Reserved | N |
| 40 CFR 60, Subpart DDD | Polymer Manufacturing Facility | N |
| 40 CFR 60, Subpart EEE | Reserved | N |
| 40 CFR 60, Subpart FFF | Flexible Vinyl and Urethane Coating and Printing | N |
| 40 CFR 60, Subpart GGG | Equipment Leaks of VOC in Petroleum Refineries | N |
| 40 CFR 60, Subpart HHH | Synthetic Fiber Production Facilities | N |
| 40 CFR 60, Subpart III | VOC Emissions from Synthetic Organic Chemical Manufacturing Industry Air Oxidation Unit Process | N |

## Attachment - Applicable and Non-Applicable Federal and State Regulations

**New-Indy Catawba LLC**
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| APPLICABILITY DETERMINATION | | |
|---|---|---|
| **Citation** | **Regulation** | **Applicable (Yes / No)** |
| 40 CFR 60, Subpart JJJ | Petroleum Dry Cleaners | N |
| 40 CFR 60, Subpart KKK | Onshore Natural Gas Processing Plants | N |
| 40 CFR 60, Subpart LLL | On-shore Natural Gas Processing $SO_2$ Emissions | N |
| 40 CFR 60, Subpart MMM | Reserved | N |
| 40 CFR 60, Subpart NNN | Synthetic Organic Chemical Manufacturing Industry Distillation Operations | N |
| 40 CFR 60, Subpart OOO | Nonmetallic Mineral Process Plants | N |
| 40 CFR 60, Subpart PPP | Wool Fiberglass Insulation Manufacturing Plants | N |
| 40 CFR 60, Subpart QQQ | Petroleum Refinery Wastewater VOC Emissions | N |
| 40 CFR 60, Subpart RRR | Synthetic Organic Chemical Manufacturing Industrial Reactor Processes | N |
| 40 CFR 60, Subpart SSS | Magnetic Tape Coating Facilities | N |
| 40 CFR 60, Subpart TTT | Industrial Surface Coating: Plastic Parts for Business Machines | N |
| 40 CFR 60, Subpart UUU | Calciners and Dryers in Minerals Industries | N |
| 40 CFR 60, Subpart VVV | Polymeric Coating of Supporting Substrates Facilities | N |
| 40 CFR 60, Subpart WWW | Municipal Solid Waste Landfills | N |
| 40 CFR 60 Subpart XXX | Municipal Solid Waste Landfills that Commenced Construction, Reconstruction, or Modification after July 17, 2014 | N |
| 40 CFR 60 Subpart YYY | NSPS: Reserved | N |
| 40 CFR 60 Subpart ZZZ | NSPS: Reserved | N |
| 40 CFR 60 Subpart AAAA | NSPS: Small Municipal Waste Combustion Units Constructed after August 30, 1999 or Reconstructed or Modified after June 6, 2001 | N |
| 40 CFR 60 Subpart BBBB | NSPS: Small Municipal Waste Combustion Units Constructed before August 30, 1999 | N |
| 40 CFR 60 Subpart CCCC | NSPS: Commercial and Industrial Solid Waste Incineration Units Constructed after November 30, 1999 or Reconstructed or Modified after June 1, 2001 | N |

## Attachment - Applicable and Non-Applicable Federal and State Regulations

**New-Indy Catawba LLC**
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| APPLICABILITY DETERMINATION | | |
|---|---|---|
| **Citation** | **Regulation** | **Applicable (Yes / No)** |
| 40 CFR 60 Subpart DDDD | NSPS: Commercial and Industrial Solid Waste Incineration Units Constructed before November 30, 1999 | N |
| 40 CFR 60 Subpart EEEE | NSPS: Other Solid Waste Incineration Units Constructed after December 9, 2004 or Reconstructed or Modified after June 16, 2006 | N |
| 40 CFR 60 Subpart FFFF | NSPS: Other Solid Waste Incineration Units Constructed before December 9, 2004 | N |
| 40 CFR 60 Subpart GGGG | NSPS: Reserved | N |
| 40 CFR 60 Subpart HHHH | NSPS: Reserved | N |
| 40 CFR 60 Subpart IIII | NSPS: Stationary Compression Ignition Internal Combustion Engines Constructed, Reconstructed, or Modified after July 11, 2005 | N |
| 40 CFR 60 Subpart JJJJ | NSPS: Stationary Spark Ignition Internal Combustion Engines Constructed, Reconstructed, or Modified after June 12, 2006 | Y |
| 40 CFR 60 Subpart KKKK | NSPS: Stationary Combustion Turbines | N |
| 40 CFR 60 Subpart LLLL | NSPS: New Sewage Sludge Incineration Units | N |
| 40 CFR 60 Subpart MMMM | NSPS: Existing Sewage Sludge Incineration Units | N |
| 40 CFR 60 Subpart NNNN | NSPS: Reserved | N |
| 40 CFR 60 Subpart OOOO | NSPS: Natural Gas Production, Transmission, and Distribution | N |
| 40 CFR 61, Subpart A | General Provisions | N |
| 40 CFR 61, Subpart B | Radon Emissions from Underground Uranium Mines | N |
| 40 CFR 61, Subpart C | Beryllium | N |
| 40 CFR 61, Subpart D | Beryllium Rocket Motor Firing | N |
| 40 CFR 61, Subpart E | Mercury | N |
| 40 CFR 61, Subpart F | Vinyl Chloride | N |
| 40 CFR 61, Subpart G | Reserved | N |
| 40 CFR 61, Subpart H | Emissions of Radionuclides Other than Radon from Department of Energy (DOE) Facilities | N |
| 40 CFR 61, Subpart I | Radionuclide Emissions from Facilities Licensed by the Nuclear Regulatory Commission (NRC) and Federal Facilities not Covered by Subpart H | N |
| 40 CFR 61, Subpart J | Equipment Leaks (Fugitive Emission Sources) of Benzene | N |
| 40 CFR 61, Subpart K | Radionuclide Emissions from Elemental Phosphorous Plants | N |
| 40 CFR 61, Subpart L | Benzene Emissions from Coke By Product Recovery Plants | N |
| 40 CFR 61, Subpart M | Asbestos | N |
| 40 CFR 61, Subpart N | Inorganic Arsenic Emissions from Glass Manufacturing | N |
| 40 CFR 61, Subpart O | Inorganic Arsenic Emissions from Primary Copper Smelters | N |
| 40 CFR 61, Subpart P | Inorganic Arsenic Emissions from Arsenic Trioxide and Metallic Arsenic Production Facilities | N |
| 40 CFR 61, Subpart Q | Radon Emissions from Department of Energy (DOE) Facilities | N |
| 40 CFR 61, Subpart R | Radon Emissions from Phosphogypsum Stacks | N |
| 40 CFR 61, Subpart S | Reserved | N |

## Attachment - Applicable and Non-Applicable Federal and State Regulations

**New-Indy Catawba LLC**
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| APPLICABILITY DETERMINATION | | |
|---|---|---|
| **Citation** | **Regulation** | **Applicable (Yes / No)** |
| 40 CFR 61, Subpart T | Radon Emissions from the Disposal of Uranium Mill Tailings | N |
| 40 CFR 61, Subpart U | Reserved | N |
| 40 CFR 61, Subpart V | Equipment Leaks (Fugitive Emission Sources) | N |
| 40 CFR 61, Subpart W | Radon Emissions from Operating Mill Tailings | N |
| 40 CFR 61, Subpart X | Reserved | N |
| 40 CFR 61, Subpart Y | Benzene Emissions from Benzene Storage Vessels | N |
| 40 CFR 61, Subpart Z | Reserved | N |
| 40 CFR 61, Subpart AA | Reserved | N |
| 40 CFR 61, Subpart BB | Benzene Emissions from Benzene Transfer Operations | N |
| 40 CFR 61, Subpart CC | Reserved | N |
| 40 CFR 61, Subpart DD | Reserved | N |
| 40 CFR 61, Subpart EE | Reserved | N |
| 40 CFR 61, Subpart FF | Benzene Waste Operations | N |
| 40 CFR 62 | Approval and Promulgation of State Plans for Designated Facilities and Pollutants | N |
| 40 CFR 63, Subpart A | General Provisions | Y |
| 40 CFR 63, Subpart B | Requirements For Control Technology Determinations For Major Sources In Accordance With Clean Air Act Sections, Sections 112(g) And 112(j) | N |
| 40 CFR 63, Subpart C | List of Hazardous Air Pollutants, Petition Process, Lesser Quantity Designations, Source Category List | Y |
| 40 CFR 63, Subpart D | Compliance Extensions for Early Reductions of HAPs | N |
| 40 CFR 63, Subpart E | Approval for State Programs and Delegation of Federal Authorities | N |
| 40 CFR 63, Subpart F | Organic Hazardous Air Pollution for the Synthetic Organic Chemical Manufacturing Industry (SOCMI) | N |
| 40 CFR 63, Subpart G | Organic Hazardous Air Pollutants form SOCMI for Process Vents, Storage Vessels, Transfer Operations, and Wastewater | N |
| 40 CFR 63, Subpart H | Hazardous Organic Standards for Equipment Leaks | N |
| 40 CFR 63, Subpart I | Processes Subject to Negotiated Regulation for Equipment Leaks | N |
| 40 CFR 63, Subpart J | Polyvinyl Chloride and Copolymers Production | N |
| 40 CFR 63, Subpart K | Reserved | N |
| 40 CFR 63, Subpart L | Coke Oven Batteries | N |
| 40 CFR 63, Subpart M | Perchloroethylene Air Standard for Dry Cleaning | N |
| 40 CFR 63, Subpart N | Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks | N |
| 40 CFR 63, Subpart O | Ethylene Oxide Emissions for Sterilization Facilities | N |
| 40 CFR 63, Subpart P | Reserved | N |
| 40 CFR 63, Subpart Q | Industrial Process Cooling Towers | N |
| 40 CFR 63, Subpart R | Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations | N |

## Attachment - Applicable and Non-Applicable Federal and State Regulations

**New-Indy Catawba LLC**
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| APPLICABILITY DETERMINATION | | |
|---|---|---|
| **Citation** | **Regulation** | **Applicable (Yes / No)** |
| 40 CFR 63, Subpart S | National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry | Y |
| 40 CFR 63, Subpart T | Halogenated Solvent Cleaning | N |
| 40 CFR 63, Subpart U | Group I Polymers and Resins | N |
| 40 CFR 63, Subpart V | Reserved | N |
| 40 CFR 63, Subpart W | Epoxy Resins and Non-Nylon Polyamides Production | N |
| 40 CFR 63, Subpart X | Secondary Lead Smelting | N |
| 40 CFR 63, Subpart Y | Marine Tank Vessel Loading Operations | N |
| 40 CFR 63, Subpart Z | Reserved | N |
| 40 CFR 63, Subpart AA | Phosphoric Acid Manufacturing Plants | N |
| 40 CFR 63, Subpart BB | Phosphate Fertilizers Production Plants | N |
| 40 CFR 63, Subpart CC | Petroleum Refineries | N |
| 40 CFR 63, Subpart DD | Off-Site Waste and Recovery Operations | N |
| 40 CFR 63, Subpart EE | Magnetic Tape Manufacturing Operations | N |
| 40 CFR 63, Subpart FF | Reserved | N |
| 40 CFR 63, Subpart GG | Aerospace Manufacturing and Re-Work Facilities | N |
| 40 CFR 63, Subpart HH | Oil and Natural Gas Production Facilities | N |
| 40 CFR 63, Subpart II | Shipbuilding and Ship Repair (Surface Coating) | N |
| 40 CFR 63, Subpart JJ | Wood Furniture Manufacturing | N |
| 40 CFR 63, Subpart KK | Printing and Publishing Industry | N |
| 40 CFR 63, Subpart LL | Primary Aluminum Reduction Plants | N |
| 40 CFR 63, Subpart MM | National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources At Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills | Y |
| 40 CFR 63, Subpart NN | Reserved | N |
| 40 CFR 63, Subpart OO | Tanks-Level I | N |
| 40 CFR 63, Subpart PP | Containers | N |
| 40 CFR 63, Subpart QQ | Surface Impoundments | N |
| 40 CFR 63, Subpart RR | Individual Drains | N |
| 40 CFR 63, Subpart SS | Closed Vent Systems, Control Devices, Recovery Devices, and Routing to Fuel Gas System or a Process | N |
| 40 CFR 63, Subpart TT | Equipment Leaks-Control Level 1 Standards | N |
| 40 CFR 63, Subpart UU | Equipment Leaks-Control Level 2 Standards | N |
| 40 CFR 63, Subpart VV | Oil-Water Separators and Organic-Waste Separators | N |
| 40 CFR 63, Subpart WW | Storage Vessels (Tanks)-Control Level 2 | N |
| 40 CFR 63, Subpart XX | Ethylene Manufacturing Process Units-Heat Exchange Systems and Waste | N |
| 40 CFR 63, Subpart YY | Generic Maximum Achievable Control Technology Standards | N |
| 40 CFR 63, Subpart ZZ | Reserved | N |
| 40 CFR 63, Subpart AAA | Reserved | N |

## Attachment - Applicable and Non-Applicable Federal and State Regulations

**New-Indy Catawba LLC**
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| APPLICABILITY DETERMINATION | | |
|---|---|---|
| **Citation** | **Regulation** | **Applicable (Yes / No)** |
| 40 CFR 63, Subpart BBB | Reserved | N |
| 40 CFR 63, Subpart CCC | Steel Pickling-HCl Process Facilities and Hydrochloric Acid Regeneration Plants | N |
| 40 CFR 63, Subpart DDD | Mineral Wool Products | N |
| 40 CFR 63, Subpart EEE | Hazardous Waste Combustors | N |
| 40 CFR 63, Subpart FFF | Reserved | N |
| 40 CFR 63, Subpart GGG | Pharmaceuticals Production | N |
| 40 CFR 63, Subpart HHH | Natural Gas Transmission and Storage Facilities | N |
| 40 CFR 63, Subpart III | Flexible Polyurethane Foam Production | N |
| 40 CFR 63, Subpart JJJ | Group IV Polymers and Resins | N |
| 40 CFR 63, Subpart KKK | Reserved | N |
| 40 CFR 63, Subpart LLL | Portland Cement Manufacturing Industry | N |
| 40 CFR 63, Subpart MMM | Pesticide Active Ingredient Production | N |
| 40 CFR 63, Subpart NNN | Wood Fiberglass Manufacturing | N |
| 40 CFR 63, Subpart OOO | Amino/Phenolic Resins Manufacturing | N |
| 40 CFR 63, Subpart PPP | Polyester Polyols Production | N |
| 40 CFR 63, Subpart QQQ | Primary Copper Smelters | N |
| 40 CFR 63, Subpart RRR | Secondary Aluminum Production | N |
| 40 CFR 63, Subpart SSS | Reserved | N |
| 40 CFR 63, Subpart TTT | Primary Lead Smelting | N |
| 40 CFR 63, Subpart UUU | Petroleum Refineries-Catalytic Cracking (Fluid and Other) Units, Catalytic Reforming Units, and Sulfur Plants | N |
| 40 CFR 63, Subpart VVV | Publicly Owned Treatment Works | N |
| 40 CFR 63, Subpart WWW | Reserved | N |
| 40 CFR 63, Subpart XXX | Ferroalloys Production-Ferromanganese and Silicomanganese | N |
| 40 CFR 63, Subpart YYY | Reserved | N |
| 40 CFR 63, Subpart ZZZ | Reserved | N |
| 40 CFR 63, Subpart AAAA | Municipal Solid Waste Landfills | N |
| 40 CFR 63, Subpart BBBB | Reserved | N |
| 40 CFR 63, Subpart CCCC | Nutritional Yeast Manufacturing | N |
| 40 CFR 63, Subpart DDDD | Plywood and Composite Wood Products | N |
| 40 CFR 63, Subpart EEEE | Organic Liquid Distribution (non-gasoline) | N |
| 40 CFR 63, Subpart FFFF | Miscellaneous Organic Chemical Manufacturing NESHAP | N |
| 40 CFR 63, Subpart GGGG | Solvent Extraction for Vegetable Oil Production | N |
| 40 CFR 63, Subpart HHHH | Wet-Formed Fiberglass Mat Production | N |
| 40 CFR 63, Subpart IIII | Automobile/Light-Duty Truck (Surface Coating) | N |
| 40 CFR 63, Subpart JJJJ | National Emission Standards For Hazardous Air Pollutants: Paper And Other Web Coating | ~~Y~~N |
| 40 CFR 63, Subpart KKKK | Metal Can (Surface Coating) | N |
| 40 CFR 63, Subpart LLLL | Reserved | N |

## Attachment - Applicable and Non-Applicable Federal and State Regulations

**New-Indy Catawba LLC**
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| APPLICABILITY DETERMINATION | | |
|---|---|---|
| **Citation** | **Regulation** | **Applicable (Yes / No)** |
| 40 CFR 63, Subpart MMMM | Miscellaneous Metal Parts (Surface Coating) | N |
| 40 CFR 63, Subpart NNNN | Surface Coating of Large Appliances | N |
| 40 CFR 63, Subpart OOOO | Printing, Coating and Drying of Fabrics | N |
| 40 CFR 63, Subpart PPPP | Plastic Parts and Products | N |
| 40 CFR 63, Subpart QQQQ | Wood Building Products | N |
| 40 CFR 63, Subpart RRRR | Metal Furniture (Surface Coating) | N |
| 40 CFR 63, Subpart SSSS | Metal Coil Coating | N |
| 40 CFR 63, Subpart TTTT | Leather Finishing Operations | N |
| 40 CFR 63, Subpart UUUU | Cellulose Product Manufacturing | N |
| 40 CFR 63, Subpart VVVV | Boat Manufacturing | N |
| 40 CFR 63, Subpart WWWW | Reinforced Plastic Composites Production | N |
| 40 CFR 63, Subpart XXXX | Rubber Tire Manufacturing | N |
| 40 CFR 63, Subpart YYYY | Combustion Turbines | N |
| 40 CFR 63, Subpart ZZZZ | Reciprocating Internal Combustion Engines | Y |
| 40 CFR 63, Subpart AAAAA | Lime Manufacturing | N |
| 40 CFR 63, Subpart BBBBB | Semiconductor Manufacturing | N |
| 40 CFR 63, Subpart CCCCC | Coke Ovens-Pushing, Quenching and Battery Stacks | N |
| 40 CFR 63, Subpart DDDDD | Industrial/Commercial/Institutional Boilers and Process Heaters | Y |
| 40 CFR 63, Subpart EEEEE | Iron Foundries | N |
| 40 CFR 63, Subpart FFFFF | Integrated Iron and Steel Manufacturing | N |
| 40 CFR 63, Subpart GGGGG | Site Remediation | N |
| 40 CFR 63, Subpart HHHHH | Miscellaneous Coating Manufacturing NESHAP | N |
| 40 CFR 63, Subpart JJJJJ | Brick and Structural Clay Products | N |
| 40 CFR 63, Subpart KKKKK | Clay Ceramics Manufacturing | N |
| 40 CFR 63, Subpart LLLLL | Asphalt Roofing and Processing | N |
| 40 CFR 63, Subpart MMMMM | Flexible Polyurethane Foam Fabrication Operation | N |
| 40 CFR 63, Subpart NNNNN | Hydrochloric Acid Production | N |
| 40 CFR 63, Subpart PPPPP | Engine Test Cells/Stands | N |
| 40 CFR 63, Subpart RRRRR | Taconite Iron Ore Processing | N |
| 40 CFR 63, Subpart SSSSS | Refractories Manufacturing | N |
| 40 CFR 63, Subpart TTTTT | National Emission Standards for Hazardous Air Pollutants for Primary Magnesium Refining | N |
| 40 CFR 63, Subpart UUUUU | Reserved | N |
| 40 CFR 63, Subpart VVVVV | Reserved | N |
| 40 CFR 63, Subpart WWWWW | National Emission Standards For Hospital Ethylene Oxide Sterilizers | N |
| 40 CFR 63, Subpart XXXXX | Reserved | N |
| 40 CFR 63, Subpart YYYYY | National Emission Standards for Hazardous Air Pollutants for Area Sources: Electric Arc Furnace Steelmaking Facilities | N |
| 40 CFR 63, Subpart ZZZZZ | National Emission Standards for Hazardous Air Pollutants for Iron And Steel | N |

## Attachment - Applicable and Non-Applicable Federal and State Regulations

**New-Indy Catawba LLC**
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| APPLICABILITY DETERMINATION | | |
|---|---|---|
| **Citation** | **Regulation** | **Applicable (Yes / No)** |
| | Foundries Area Sources | |
| 40 CFR 63, Subpart AAAAAA | Reserved | N |
| 40 CFR 63, Subpart BBBBBB | National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities | N |
| 40 CFR 63, Subpart CCCCCC | National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities | N |
| 40 CFR 63, Subpart DDDDDD | National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production Area Sources | N |
| 40 CFR 63, Subpart EEEEEE | National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting Area Sources | N |
| 40 CFR 63, Subpart FFFFFF | National Emission Standards for Hazardous Air Pollutants for Secondary Copper Smelting Area Sources | N |
| 40 CFR 63, Subpart GGGGGG | National Emission Standards for Hazardous Air Pollutants for Primary Nonferrous Metals Area Sources-Zinc, Cadmium, and Beryllium | N |
| 40 CFR 63, Subpart HHHHHH | National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources | N |
| 40 CFR 63, Subpart IIIIII | Reserved | N |
| 40 CFR 63, Subpart JJJJJJ | National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources | N |
| 40 CFR 63, Subpart KKKKKK | Reserved | N |
| 40 CFR 63, Subpart LLLLLL | National Emission Standards for Hazardous Air Pollutants for Acrylic and Modacrylic Fibers Production Area Sources | N |
| 40 CFR 63, Subpart MMMMMM | National Emission Standards for Hazardous Air Pollutants for Carbon Black Production Area Sources | N |
| 40 CFR 63, Subpart NNNNNN | National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources: Chromium Compounds | N |
| 40 CFR 63, Subpart OOOOOO | National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production and Fabrication Area Sources | N |
| 40 CFR 63, Subpart PPPPPP | National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources | N |
| 40 CFR 63, Subpart QQQQQQ | National Emission Standards for Hazardous Air Pollutants for Wood Preserving Area Sources | N |
| 40 CFR 63, Subpart RRRRRR | National Emission Standards for Hazardous Air Pollutants for Clay Ceramics Manufacturing Area Sources | N |
| 40 CFR 63, Subpart SSSSSS | National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources | N |
| 40 CFR 63, Subpart TTTTTT | National Emission Standards for Hazardous Air Pollutants for Secondary Nonferrous Metals Processing Area Sources | N |
| 40 CFR 63, Subpart UUUUUU | Reserved | N |

## Attachment - Applicable and Non-Applicable Federal and State Regulations

**New-Indy Catawba LLC**
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| APPLICABILITY DETERMINATION | | |
|---|---|---|
| **Citation** | **Regulation** | **Applicable (Yes / No)** |
| 40 CFR 63, Subpart VVVVVV | National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources | N |
| 40 CFR 63, Subpart WWWWWW | National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations | N |
| 40 CFR 63, Subpart XXXXXX | National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories | N |
| 40 CFR 63, Subpart YYYYYY | National Emission Standards for Hazardous Air Pollutants for Area Sources: Ferroalloys Production Facilities | N |
| 40 CFR 63, Subpart ZZZZZZ | National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries | N |
| 40 CFR 63, Subpart AAAAAAA | National Emission Standards for Hazardous Air Pollutants for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing | N |
| 40 CFR 63, Subpart BBBBBBB | National Emission Standards for Hazardous Air Pollutants for Area Sources: Chemical Preparations Industry | N |
| 40 CFR 63, Subpart CCCCCCC | National Emission Standards for Hazardous Air Pollutants for Area Sources: Paints and Allied Products Manufacturing | N |
| 40 CFR 63, Subpart DDDDDDD | National Emission Standards for Hazardous Air Pollutants for Area Sources: Prepared Feeds Manufacturing | N |
| 40 CFR 63, Subpart EEEEEEE | National Emission Standards for Hazardous Air Pollutants for Area Sources: Gold Mine Ore Processing and Production | N |
| 40 CFR 63 Subpart FFFFFF | NESHAP: Reserved | N |
| 40 CFR 63 Subpart GGGGGGG | NESHAP: Reserved | N |
| 40 CFR 63 Subpart HHHHHHH | NESHAP: Polyvinyl Chloride and Copolymers Production | N |
| 40 CFR 64 | Compliance Assurance Monitoring (CAM) | Y |
| 40 CFR 65 | Consolidated Federal Air Rule | N |
| 40 CFR 66 | Assessment and Collection of Noncompliance Penalties by EPA | Y |
| 40 CFR 67 | EPA Approval of State Noncompliance Penalty Program | N |
| 40 CFR 68 | Chemical Accident Prevention Provisions | Y |
| 40 CFR 69 | Special Exemptions From Requirements Of The Clean Air Act | N |
| 40 CFR 70 | Operating Permit State Programs | Y |
| 40 CFR 71 | Federal Operating Permit Programs | N |
| 40 CFR 72 | Permits Regulation | N |
| 40 CFR 73 | Allowance System | N |
| 40 CFR 74 | Sulfur Dioxide Opt-Ins | N |
| 40 CFR 75 | Continuous Emissions Monitoring | Y |
| 40 CFR 76 | Acid Rain Nitrogen Oxides Emission Reduction Program | N |
| 40 CFR 77 | Excess Emissions | N |
| 40 CFR 78 | Appeal Procedures | N |
| 40 CFR 79 | Registration Of Fuels And Fuel Additives | N |

## Attachment - Applicable and Non-Applicable Federal and State Regulations

**New-Indy Catawba LLC**
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| APPLICABILITY DETERMINATION | | |
|---|---|---|
| **Citation** | **Regulation** | **Applicable (Yes / No)** |
| 40 CFR 80 | Regulation Of Fuels And Fuel Additives | N |
| 40 CFR 81 | Designation Of Areas For Air Quality Planning Purposes | Y |
| 40 CFR 82A-G; H | Protection Of Stratospheric Ozone | N |
| 40 CFR 82 F | Protection of Stratospheric Ozone: Recycling and Emission Reduction | Y |
| 40 CFR 83 | Reserved | N |
| 40 CFR 84 | Reserved | N |
| 40 CFR 85 | Control Of Air Pollution From Mobile Sources | N |
| 40 CFR 86 | Control Of Emissions From New And In-Use Highway Vehicles And Engines | N |
| 40 CFR 87 | Control Of Air Pollution From Aircraft And Aircraft Engines | N |
| 40 CFR 88 | Clean-Fuel Vehicles | N |
| 40 CFR 89 | Control Of Emissions From New And In-Use Nonroad Compression-Ignition Engines | N |
| 40 CFR 90 | Control Of Emissions From Nonroad Spark-Ignition Engines At Or Below 19 Kilowatts | N |
| 40 CFR 91 | Control Of Emissions From Marine Spark-Ignition Engines | N |
| 40 CFR 92 | Control Of Air Pollution From Locomotives And Locomotive Engines | N |
| 40 CFR 93 | Determining Conformity Of Federal Actions To State Or Federal Implementation Plans | N |
| 40 CFR 94 | Control Of Emissions From Marine Compression-Ignition Engines | N |
| 40 CFR 95 | Mandatory Patent Licenses | N |
| 40 CFR 96 | $NO_X$ Budget Trading Program And CAIR $NO_X$ And $SO_2$ Trading Programs For State Implementation Plans | N |
| 40 CFR 97 | Federal $NO_X$ Budget Trading Program And CAIR $NO_X$ And $SO_2$ Trading Programs | N |
| 40 CFR 98 | Mandatory Reporting of Greenhouse Gases | Y |

# ATTACHMENT - TRS and HAP Sources Routed to Combination Boilers for Incineration

**New-Indy Catawba LLC**
**TV-2440-0005**


| Table E-1 Total Reduced Sulfur Gas Collection and Treatment | | |
|---|---|---|
| **Specific TRS Sources Collected and Routed to No. 1 and /or No. 2 Combination Boiler for TRS Reduction for Compliance with South Carolina and NSPS 40 CFR Subpart BB/BBa** | **Regulation** | **Comments** |
| Digester Condenser | 40 CFR 60 Subpart BBa | Chip bin gases - Not routed through LVHC System Caustic Scrubber (ID 5260C) prior to incineration |
| Gas Cooler: blow tank, brown stock liquor surge tank, ~~secondary knotter, screen room washer,~~ brown stock liquor surge tank, ~~screen room dilution tank, screen room filtrate tank, shieve thickener)~~ | 40 CFR 60 Subpart BBa | Gases not routed through LVHC System Caustic Scrubber (ID 5260C) prior to incineration |
| No. 1 Multi-Effect Evaporator Set | 40 CFR 60 Subpart BBa | Gases collected from evaporator bodies and ejector system - gases scrubbed in LVHC System Caustic Scrubber 5260C prior to boilers |
| No. 2 Multi-Effect Evaporator Set | SC Standard 4 | Gases collected from evaporator bodies and ejector system - gases scrubbed in LVHC System Caustic Scrubber 5260C prior to boilers |
| No. 3 Multi-Effect Evaporator Set | 40 CFR 60 Subpart BB | Gases collected from evaporator bodies and ejector system - gases scrubbed in LVHC System Caustic Scrubber 5260C prior to boilers |
| Foul Condensate Collection Feed Tank (Stripper Feed Tank) | 40 CFR 60 Subpart BB | Gases collected from evaporator bodies and ejector system - gases scrubbed in LVHC System Caustic Scrubber 5260C prior to boilers |
| ~~Condensate Steam Stripper~~ | ~~40 CFR 60 Subpart BB~~ | ~~Gases from steam stripper column not routed through LVHC System Caustic Scrubber 5260C prior to incineration~~ |

| Table E-2 MACT S Pulping System Gas Collection and Treatment |
|---|
| **Specific HAP Sources Collected and Routed to No. 1 and/or No. 2 Combination Boiler for HAP Reduction for Compliance with NESHAP 40 CFR 63, Subpart S** |
| **Low Volume High Concentration (LVHC) System (Gases scrubbed [Scrubber CD-5260C] prior to boilers)** |
| No. 1 Evaporator Set [Gases collected from evaporator bodies and ejector system] |
| No. 2 Evaporator Set [Gases collected from evaporator bodies and ejector system] |
| No. 3 Evaporator Set [Gases collected from evaporator bodies and ejector system] |
| Turpentine Feed Tank |
| Turpentine Decanter |
| Turpentine Decanter Underflow Standpipe |
| Turpentine Gas Coolers and Condensers |
| Foul Condensate Collection Tank (Stripper Feed Tank) |
| No. 2 Black Liquor Storage Tank |

# ATTACHMENT - TRS and HAP Sources Routed to Combination Boilers for Incineration

**New-Indy Catawba LLC**
**TV-2440-0005**


| **Table E-2 MACT S Pulping System Gas Collection and Treatment** |
|---|
| No. 3 Black Liquor Storage Tank |
| **High Volume Low Concentration (HVLC) System** |
| Digester Condenser (chip bin gases) [Not routed through LVHC System Caustic Scrubber CD-5260C prior to incineration] |
| Gas Cooler (blow tank, brown stock liquor surge tank, ~~No. 1 $O_2$ reactor blow tube, No. 1 $O_2$ reactor gas separator, No. 1 post $O_2$ washer, No. 1 post $O_2$ filtrate tank, No. 1 $O_2$ vacuum pump silencer, No. 2 $O_2$ reactor blow tube, No. 2 $O_2$ reactor gas separator, No. 2 post $O_2$ washer, No. 2 post $O_2$ filtrate tank, No. 2 $O_2$ vacuum pump silencer, HD tank, secondary knotter, screen room washer gases, post $O_2$ liquor surge tank, screen room dilution tank, screen room filtrate tank, shieve thickener~~) |
| ~~Bleach Feed Tank~~ |
| Spill Collection Tank |
| **Stripper Off Gases (SOG) (Condensate System)** |
| Condensate Collection Feed Tank |
| ~~Condensate Steam Stripper [Not routed through LVHC System Caustic Scrubber CD-5260C prior to incineration]~~ |

| **Table E-3 Pulping Condensate Collection and Treatment** |
|---|
| **Specific HAP Pulping System Condensate Sources Collected and Routed to the Condensate Steam Stripper (ID 9801) for HAP Reduction for Compliance with 40 CFR 63, Subpart S** |
| No. 1 Evaporator 4$^{th}$ effect condensate |
| No. 1 Evaporator 5$^{th}$ effect condensate |
| No. 1 Evaporator ejector condenser condensate |
| No. 2 Evaporator 4$^{th}$ effect condensate |
| No. 2 Evaporator 5$^{th}$ effect condensate |
| No. 2 Evaporator ejector condenser condensate |
| No. 3 Evaporator 6$^{th}$ effect condensate |
| No. 3 Evaporator cooling tower ejectors |
| Turpentine Recovery System |
| LVHC low point drains (gases to boilers) |
| HVLC low point drains (gases to boilers) |
| Condensate Collection Tank (gases to boilers) |
| ~~Stripper Off-Gas System low point drains (gases to boilers)~~ |

| ~~**Table E-4 Bleach Plant Collection and Treatment**~~ |
|---|
| ~~**Specific HAP Bleach Plant Sources Collected and Routed to the Bleach Plant Scrubber for HAP Reduction for Compliance With 40 CFR 63, Subpart S**~~ |
| ~~$D_0$ Tower~~ |
| ~~$D_0$ Washer~~ |
| ~~$E_{OP}$ Reactor~~ |
| ~~$E_{OP}$ Washer~~ |

**ATTACHMENT - TRS and HAP Sources Routed to Combination Boilers for Incineration**

**New-Indy Catawba LLC**
**TV-2440-0005**


| ~~Table E-4 Bleach Plant Collection and Treatment~~ |
|---|
| ~~Specific HAP Bleach Plant Sources Collected and Routed to the Bleach Plant Scrubber for HAP Reduction for Compliance With 40 CFR 63, Subpart S~~ |
| ~~$E_{OP}$ Filtrate Tank~~ |
| ~~$D_1$ Tower~~ |
| ~~$D_1$ Washer~~ |
| ~~$D_1$ Filtrate Tank~~ |
| ~~$D_2$ Tower~~ |
| ~~$D_2$ Washer~~ |
| ~~$D_2$ Filtrate Tank~~ |
| ~~Alkaline Sewer~~ |
| ~~Acid Sewer~~ |

# Subpart S—National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry

**Contents**

§63.440 Applicability.
§63.441 Definitions.
§63.442 [Reserved]
§63.443 Standards for the pulping system at kraft, soda, and semi-chemical processes.
§63.444 Standards for the pulping system at sulfite processes.
§63.445 Standards for the bleaching system.
§63.446 Standards for kraft pulping process condensates.
§63.447 Clean condensate alternative.
§§63.448-63.449 [Reserved]
§63.450 Standards for enclosures and closed-vent systems.
§§63.451-63.452 [Reserved]
§63.453 Monitoring requirements.
§63.454 Recordkeeping requirements.
§63.455 Reporting requirements.
§63.456 Affirmative defense for violation of emission standards during malfunction.
§63.457 Test methods and procedures.
§63.458 Implementation and enforcement.
§63.459 Alternative standards.
Table 1 to Subpart S of Part 63—General Provisions Applicability to Subpart S

## §63.440 Applicability.

(a) The provisions of this subpart apply to the owner or operator of processes that produce pulp, paper, or paperboard; that are located at a plant site that is a major source as defined in §63.2 of subpart A of this part; and that use the following processes and materials:

(1) Kraft, soda, sulfite, or semi-chemical pulping processes using wood; or

(2) Mechanical pulping processes using wood; or

(3) Any process using secondary or non-wood fibers.

(b) The affected source to which the existing source provisions of this subpart apply is as follows:

(1) For the processes specified in paragraph (a)(1) of this section, the affected source is the total of all HAP emission points in the pulping and bleaching systems; or

(2) For the processes specified in paragraphs (a)(2) or (a)(3) of this section, the affected source is the total of all HAP emission points in the bleaching system.

(c) The new source provisions of this subpart apply to the total of all HAP emission points at new or existing sources as follows:

(1) Each affected source defined in paragraph (b)(1) of this section that commences construction or reconstruction after December 17, 1993;

(2) Each pulping system or bleaching system for the processes specified in paragraph (a)(1) of this section that commences construction or reconstruction after December 17, 1993;

(3) Each additional pulping or bleaching line at the processes specified in paragraph (a)(1) of this section, that commences construction after December 17, 1993;

(4) Each affected source defined in paragraph (b)(2) of this section that commences construction or reconstruction after March 8, 1996; or

(5) Each additional bleaching line at the processes specified in paragraphs (a)(2) or (a)(3) of this section, that commences construction after March 8, 1996.

(d) Each existing source shall achieve compliance no later than April 16, 2001, except as provided in paragraphs (d)(1) through (d)(3) of this section.

(1) Each kraft pulping system shall achieve compliance with the pulping system provisions of §63.443 for the equipment listed in §63.443(a)(1)(ii) through (a)(1)(v) as expeditiously as practicable, but in no event later than April 17, 2006 and the owners and operators shall establish dates, update dates, and report the dates for the milestones specified in §63.455(b).

(2) Each dissolving-grade bleaching system at either kraft or sulfite pulping mills shall achieve compliance with the bleach plant provisions of §63.445 of this subpart as expeditiously as practicable, but in no event later than 3 years after the promulgation of the revised effluent limitation guidelines and standards under 40 CFR 430.14 through 430.17 and 40 CFR 430.44 through 430.47.

(3) Each bleaching system complying with the Voluntary Advanced Technology Incentives Program for Effluent Limitation Guidelines in 40 CFR 430.24, shall comply with the requirements specified in either paragraph (d)(3)(i) or (d)(3)(ii) of this section for the effluent limitation guidelines and standards in 40 CFR 430.24.

(i) Comply with the bleach plant provisions of §63.445 of this subpart as expeditiously as practicable, but in no event later than April 16, 2001.

(ii) Comply with paragraphs (d)(3)(ii)(A), (d)(3)(ii)(B), and (d)(3)(ii)(C) of this section.

(A) The owner or operator of a bleaching system shall comply with the bleach plant provisions of §63.445 of this subpart as expeditiously as practicable, but in no event later than April 15, 2004.

(B) The owner or operator of a bleaching system shall comply with the requirements specified in either paragraph (d)(3)(ii)(B)(*1*) or (d)(3)(ii)(B)(*2*) of this section.

(*1*) Not increase the application rate of chlorine or hypochlorite in kilograms (kg) of bleaching agent per megagram of ODP, in the bleaching system above the average daily rates used over the three months prior to June 15, 1998 until the requirements of paragraph (d)(3)(ii)(A) of this section are met and record application rates as specified in §63.454(c).

(*2*) Comply with enforceable effluent limitations guidelines for 2,3,7,8-tetrachloro-dibenzo-p-dioxin and adsorbable organic halides at least as stringent as the baseline BAT levels set out in 40 CFR 430.24(a)(1) as expeditiously as possible, but in no event later than April 16, 2001.

(C) Owners and operators shall establish dates, update dates, and report the dates for the milestones specified in §63.455(b).

(e) Each new source, specified as the total of all HAP emission points for the sources specified in paragraph (c) of this section, shall achieve compliance upon start-up or June 15, 1998, whichever is later, as provided in §63.6(b) of subpart A of this part.

(f) Each owner or operator of an affected source with affected process equipment shared by more than one type of pulping process, shall comply with the applicable requirement in this subpart that achieves the maximum degree of reduction in HAP emissions.

(g) Each owner or operator of an affected source specified in paragraphs (a) through (c) of this section must comply with the requirements of subpart A—General Provisions of this part, as indicated in table 1 to this subpart.

**§63.441 Definitions.**

All terms used in this subpart shall have the meaning given them in the CAA, in subpart A of this part, and in this section as follows:

*Acid condensate storage tank* means any storage tank containing cooking acid following the sulfur dioxide gas fortification process.

*Affirmative defense* means, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.

*Black liquor* means spent cooking liquor that has been separated from the pulp produced by the kraft, soda, or semi-chemical pulping process.

*Bleaching* means brightening of pulp by the addition of oxidizing chemicals or reducing chemicals.

*Bleaching line* means a group of bleaching stages arranged in series such that bleaching of the pulp progresses as the pulp moves from one stage to the next.

*Bleaching stage* means all process equipment associated with a discrete step of chemical application and removal in the bleaching process including chemical and steam mixers, bleaching towers, washers, seal (filtrate) tanks, vacuum pumps, and any other equipment serving the same function as those previously listed.

*Bleaching system* means all process equipment after high-density pulp storage prior to the first application of oxidizing chemicals or reducing chemicals following the pulping system, up to and including the final bleaching stage.

*Boiler* means any enclosed combustion device that extracts useful energy in the form of steam. A boiler is not considered a thermal oxidizer.

*Chip steamer* means a vessel used for the purpose of preheating or pretreating wood chips prior to the digester, using flash steam from the digester or live steam.

*Closed-vent system* means a system that is not open to the atmosphere and is composed of piping, ductwork, connections, and, if necessary, flow-inducing devices that transport gas or vapor from an emission point to a control device.

*Combustion device* means an individual unit of equipment, including but not limited to, a thermal oxidizer, lime kiln, recovery furnace, process heater, or boiler, used for the thermal oxidation of organic hazardous air pollutant vapors.

*Decker system* means all equipment used to thicken the pulp slurry or reduce its liquid content after the pulp washing system and prior to high-density pulp storage. The decker system includes decker vents, filtrate tanks, associated vacuum pumps, and any other equipment serving the same function as those previously listed.

*Digester system* means each continuous digester or each batch digester used for the chemical treatment of wood or non-wood fibers. The digester system equipment includes associated flash tank(s), blow tank(s), chip steamer(s) not using fresh steam, blow heat recovery accumulator(s), relief gas condenser(s), prehydrolysis unit(s) preceding the pulp washing system, and any other equipment serving the same function as those previously listed. The digester system includes any of the liquid streams or condensates associated with batch or continuous digester relief, blow, or flash steam processes.

*Emission point* means any part of a stationary source that emits hazardous air pollutants regulated under this subpart, including emissions from individual process vents, stacks, open pieces of process equipment, equipment leaks, wastewater and condensate collection and treatment system units, and those emissions that could reasonably be conveyed through a stack, chimney, or duct where such emissions first reach the environment.

*Evaporator system* means all equipment associated with increasing the solids content and/or concentrating spent cooking liquor from the pulp washing system including pre-evaporators, multi-effect evaporators, concentrators, and vacuum systems, as well as associated condensers, hotwells, and condensate streams, and any other equipment serving the same function as those previously listed.

*Flow indicator* means any device that indicates gas or liquid flow in an enclosed system.

*HAP* means a hazardous air pollutant as defined in §63.2 of subpart A of this part.

*High volume, low concentration or HVLC collection system* means the gas collection and transport system used to convey gases from the HVLC system to a control device.

*High volume, low concentration or HVLC system* means the collection of equipment including the pulp washing, knotter, screen, decker, and oxygen delignification systems, weak liquor storage tanks, and any other equipment serving the same function as those previously listed.

*Knotter system* means equipment where knots, oversized material, or pieces of uncooked wood are removed from the pulp slurry after the digester system and prior to the pulp washing system. The knotter system equipment includes the knotter, knot drainer tanks, ancillary tanks, and any other equipment serving the same function as those previously listed.

*Kraft pulping* means a chemical pulping process that uses a mixture of sodium hydroxide and sodium sulfide as the cooking liquor.

*Lime kiln* means an enclosed combustion device used to calcine lime mud, which consists primarily of calcium carbonate, into calcium oxide.

*Low volume, high concentration or LVHC collection system* means the gas collection and transport system used to convey gases from the LVHC system to a control device.

*Low volume, high concentration or LVHC system* means the collection of equipment including the digester, turpentine recovery, evaporator, steam stripper systems, and any other equipment serving the same function as those previously listed.

*Mechanical pulping* means a pulping process that only uses mechanical and thermo-mechanical processes to reduce wood to a fibrous mass. The mechanical pulping processes include, but are not limited to, stone groundwood, pressurized groundwood, refiner mechanical, thermal refiner mechanical, thermo-mechanical, and tandem thermo-mechanical.

*Non-wood pulping* means the production of pulp from fiber sources other than trees. The non-wood fiber sources include, but are not limited to, bagasse, cereal straw, cotton, flax straw, hemp, jute, kenaf, and leaf fibers.

*Oven-dried pulp or ODP* means a pulp sample at zero percent moisture content by weight. Pulp samples for applicability or compliance determinations for both the pulping and bleaching systems shall be unbleached pulp. For purposes of complying with mass emission limits in this subpart, megagram of ODP shall be measured to represent the amount of pulp entering and processed by the equipment system under the specified mass limit. For equipment that does not process pulp, megagram of ODP shall be measured to represent the amount of pulp that was processed to produce the gas and liquid streams.

*Oxygen delignification system* means the equipment that uses oxygen to remove lignin from pulp after high-density stock storage and prior to the bleaching system. The oxygen delignification system equipment includes the blow tank, washers, filtrate tanks, any interstage pulp storage tanks, and any other equipment serving the same function as those previously listed.

*Primary fuel* means the fuel that provides the principal heat input to the combustion device. To be considered primary, the fuel must be able to sustain operation of the combustion device without the addition of other fuels.

*Process wastewater treatment system* means a collection of equipment, a process, or specific technique that removes or destroys the HAPs in a process wastewater stream. Examples include, but are not limited to, a steam stripping unit, wastewater thermal oxidizer, or biological treatment unit.

*Pulp washing system* means all equipment used to wash pulp and separate spent cooking chemicals following the digester system and prior to the bleaching system, oxygen delignification system, or paper machine system (at unbleached mills). The pulp washing system equipment includes vacuum drum washers, diffusion washers, rotary pressure washers, horizontal belt filters, intermediate stock chests, and their associated vacuum pumps, filtrate tanks, foam breakers or tanks, and any other equipment serving the same function as those previously listed. The pulp washing system does not include deckers, screens, knotters, stock chests, or pulp storage tanks following the last stage of pulp washing.

*Pulping line* means a group of equipment arranged in series such that the wood chips are digested and the resulting pulp progresses through a sequence of steps that may include knotting, refining, washing, thickening, blending, storing, oxygen delignification, and any other equipment serving the same function as those previously listed.

*Pulping process condensates* means any HAP-containing liquid that results from contact of water with organic compounds in the pulping process. Examples of process condensates include digester system condensates, turpentine recovery system condensates, evaporator system condensates, LVHC system condensates, HVLC system condensates, and any other condensates from equipment serving the same function as those previously listed. Liquid streams that are intended for byproduct recovery are not considered process condensate streams.

*Pulping system* means all process equipment, beginning with the digester system, and up to and including the last piece of pulp conditioning equipment prior to the bleaching system, including treatment with ozone, oxygen, or peroxide before the first application of a chemical bleaching agent intended to brighten pulp. The pulping system includes pulping process condensates and can include multiple pulping lines.

*Recovery furnace* means an enclosed combustion device where concentrated spent liquor is burned to recover sodium and sulfur, produce steam, and dispose of unwanted dissolved wood components in the liquor.

*Screen system* means equipment in which oversized particles are removed from the pulp slurry prior to the bleaching or papermaking system washed stock storage.

*Secondary fiber pulping* means a pulping process that converts a fibrous material, that has previously undergone a manufacturing process, into pulp stock through the addition of water and mechanical energy. The mill then uses that pulp as the raw material in another manufactured product. These mills may also utilize chemical, heat, and mechanical processes to remove ink particles from the fiber stock.

*Semi-chemical pulping* means a pulping process that combines both chemical and mechanical pulping processes. The semi-chemical pulping process produces intermediate yields ranging from 55 to 90 percent.

*Soda pulping* means a chemical pulping process that uses sodium hydroxide as the active chemical in the cooking liquor.

*Spent liquor* means process liquid generated from the separation of cooking liquor from pulp by the pulp washing system containing dissolved organic wood materials and residual cooking compounds.

*Steam stripper system* means a column (including associated stripper feed tanks, condensers, or heat exchangers) used to remove compounds from wastewater or condensates using steam. The steam stripper system also contains all equipment associated with a methanol rectification process including rectifiers, condensers, decanters, storage tanks, and any other equipment serving the same function as those previously listed.

*Strong liquor storage tanks* means all storage tanks containing liquor that has been concentrated in preparation for combustion or oxidation in the recovery process.

*Sulfite pulping* means a chemical pulping process that uses a mixture of sulfurous acid and bisulfite ion as the cooking liquor.

*Temperature monitoring device* means a piece of equipment used to monitor temperature and having an accuracy of ±1.0 percent of the temperature being monitored expressed in degrees Celsius or ±0.5 degrees Celsius ((°C), whichever is greater.

*Thermal oxidizer* means an enclosed device that destroys organic compounds by thermal oxidation.

*Turpentine recovery system* means all equipment associated with recovering turpentine from digester system gases including condensers, decanters, storage tanks, and any other equipment serving the same function as those previously listed. The turpentine recovery system includes any liquid streams associated with the turpentine recovery process such as turpentine decanter underflow. Liquid streams that are intended for byproduct recovery are not considered turpentine recovery system condensate streams.

*Weak liquor storage tank* means any storage tank except washer filtrate tanks containing spent liquor recovered from the pulping process and prior to the evaporator system.

**§63.442 [Reserved]**

**§63.443 Standards for the pulping system at kraft, soda, and semi-chemical processes.**

(a) The owner or operator of each pulping system using the kraft process subject to the requirements of this subpart shall control the total HAP emissions from the following equipment systems, as specified in paragraphs (c) and (d) of this section.

(1) At existing affected sources, the total HAP emissions from the following equipment systems shall be controlled:

(i) Each LVHC system;

(ii) Each knotter or screen system with total HAP mass emission rates greater than or equal to the rates specified in paragraphs (a)(1)(ii)(A) or (a)(1)(ii)(B) of this section or the combined rate specified in paragraph (a)(1)(ii)(C) of this section.

(A) Each knotter system with emissions of 0.05 kilograms or more of total HAP per megagram of ODP (0.1 pounds per ton).

(B) Each screen system with emissions of 0.10 kilograms or more of total HAP per megagram of ODP (0.2 pounds per ton).

(C) Each knotter and screen system with emissions of 0.15 kilograms or more of total HAP per megagram of ODP (0.3 pounds per ton).

(iii) Each pulp washing system;

(iv) Each decker system that:

(A) Uses any process water other than fresh water or paper machine white water; or

(B) Uses any process water with a total HAP concentration greater than 400 parts per million by weight; and

(v) Each oxygen delignification system.

(2) At new affected sources, the total HAP emissions from the equipment systems listed in paragraphs (a)(1)(i), (a)(1)(iii), and (a)(1)(v) of this section and the following equipment systems shall be controlled:

(i) Each knotter system;

(ii) Each screen system;

(iii) Each decker system; and

(iv) Each weak liquor storage tank.

(b) The owner or operator of each pulping system using a semi-chemical or soda process subject to the requirements of this subpart shall control the total HAP emissions from the following equipment systems as specified in paragraphs (c) and (d) of this section.

(1) At each existing affected source, the total HAP emissions from each LVHC system shall be controlled.

(2) At each new affected source, the total HAP emissions from each LVHC system and each pulp washing system shall be controlled.

(c) Equipment systems listed in paragraphs (a) and (b) of this section shall be enclosed and vented into a closed-vent system and routed to a control device that meets the requirements specified in paragraph (d) of this section. The enclosures and closed-vent system shall meet the requirements specified in §63.450.

(d) The control device used to reduce total HAP emissions from each equipment system listed in paragraphs (a) and (b) of this section shall:

(1) Reduce total HAP emissions by 98 percent or more by weight; or

(2) Reduce the total HAP concentration at the outlet of the thermal oxidizer to 20 parts per million or less by volume, corrected to 10 percent oxygen on a dry basis; or

(3) Reduce total HAP emissions using a thermal oxidizer designed and operated at a minimum temperature of 871 °C (1600 °F) and a minimum residence time of 0.75 seconds; or

(4) Reduce total HAP emissions using one of the following:

(i) A boiler, lime kiln, or recovery furnace by introducing the HAP emission stream with the primary fuel or into the flame zone; or

(ii) A boiler or recovery furnace with a heat input capacity greater than or equal to 44 megawatts (150 million British thermal units per hour) by introducing the HAP emission stream with the combustion air.

(e) Periods of excess emissions reported under §63.455 shall not be a violation of §63.443(c) and (d) provided that the time of excess emissions divided by the total process operating time in a semi-annual reporting period does not exceed the following levels:

(1) One percent for control devices used to reduce the total HAP emissions from the LVHC system; and

(2) Four percent for control devices used to reduce the total HAP emissions from the HVLC system; and

(3) Four percent for control devices used to reduce the total HAP emissions from both the LVHC and HVLC systems.

**§63.444 Standards for the pulping system at sulfite processes.**

(a) The owner or operator of each sulfite process subject to the requirements of this subpart shall control the total HAP emissions from the following equipment systems as specified in paragraphs (b) and (c) of this section.

(1) At existing sulfite affected sources, the total HAP emissions from the following equipment systems shall be controlled:

(i) Each digester system vent;

(ii) Each evaporator system vent; and

(iii) Each pulp washing system.

(2) At new affected sources, the total HAP emissions from the equipment systems listed in paragraph (a)(1) of this section and the following equipment shall be controlled:

(i) Each weak liquor storage tank;

(ii) Each strong liquor storage tank; and

(iii) Each acid condensate storage tank.

(b) Equipment listed in paragraph (a) of this section shall be enclosed and vented into a closed-vent system and routed to a control device that meets the requirements specified in paragraph (c) of this section. The enclosures and closed-vent system shall meet the requirements specified in §63.450. Emissions from equipment listed in paragraph (a) of this section that is not necessary to be reduced to meet paragraph (c) of this section is not required to be routed to a control device.

(c) The total HAP emissions from both the equipment systems listed in paragraph (a) of this section and the vents, wastewater, and condensate streams from the control device used to reduce HAP emissions, shall be controlled as follows.

(1) Each calcium-based or sodium-based sulfite pulping process shall:

(i) Emit no more than 0.44 kilograms of total HAP or methanol per megagram (0.89 pounds per ton) of ODP; or

(ii) Remove 92 percent or more by weight of the total HAP or methanol.

(2) Each magnesium-based or ammonium-based sulfite pulping process shall:

(i) Emit no more than 1.1 kilograms of total HAP or methanol per megagram (2.2 pounds per ton) of ODP; or

(ii) Remove 87 percent or more by weight of the total HAP or methanol.

**§63.445 Standards for the bleaching system.**

(a) Each bleaching system that does not use any chlorine or chlorinated compounds for bleaching is exempt from the requirements of this section. Owners or operators of the following bleaching systems shall meet all the provisions of this section:

(1) Bleaching systems that use chlorine;

(2) Bleaching systems bleaching pulp from kraft, sulfite, or soda pulping processes that use any chlorinated compounds; or

(3) Bleaching systems bleaching pulp from mechanical pulping processes using wood or from any process using secondary or non-wood fibers, that use chlorine dioxide.

(b) The equipment at each bleaching stage, of the bleaching systems listed in paragraph (a) of this section, where chlorinated compounds are introduced shall be enclosed and vented into a closed-vent system and routed to a control device that meets the requirements specified in paragraph (c) of this section. The enclosures and closed-vent system shall meet the requirements specified in §63.450. If process modifications are used to achieve compliance with the emission limits specified in paragraphs (c)(2) or (c)(3), enclosures and closed-vent systems are not required, unless appropriate.

(c) The control device used to reduce chlorinated HAP emissions (not including chloroform) from the equipment specified in paragraph (b) of this section shall:

(1) Reduce the total chlorinated HAP mass in the vent stream entering the control device by 99 percent or more by weight;

(2) Achieve a treatment device outlet concentration of 10 parts per million or less by volume of total chlorinated HAP; or

(3) Achieve a treatment device outlet mass emission rate of 0.001 kg of total chlorinated HAP mass per megagram (0.002 pounds per ton) of ODP.

(d) The owner or operator of each bleaching system subject to paragraph (a)(2) of this section shall comply with paragraph (d)(1) or (d)(2) of this section to reduce chloroform air emissions to the atmosphere, except the owner or operator of each bleaching system complying with extended compliance under §63.440(d)(3)(ii) shall comply with paragraph (d)(1) of this section.

(1) Comply with the following applicable effluent limitation guidelines and standards specified in 40 CFR part 430:

(i) Dissolving-grade kraft bleaching systems and lines, 40 CFR 430.14 through 430.17;

(ii) Paper-grade kraft and soda bleaching systems and lines, 40 CFR 430.24(a)(1) and (e), and 40 CFR 430.26 (a) and (c);

(iii) Dissolving-grade sulfite bleaching systems and lines, 40 CFR 430.44 through 430.47; or

(iv) Paper-grade sulfite bleaching systems and lines, 40 CFR 430.54(a) and (c), and 430.56(a) and (c).

(2) Use no hypochlorite or chlorine for bleaching in the bleaching system or line.

**§63.446 Standards for kraft pulping process condensates.**

(a) The requirements of this section apply to owners or operators of kraft processes subject to the requirements of this subpart.

(b) The pulping process condensates from the following equipment systems shall be treated to meet the requirements specified in paragraphs (c), (d), and (e) of this section:

(1) Each digester system;

(2) Each turpentine recovery system;

(3) Each evaporator system condensate from:

(i) The vapors from each stage where weak liquor is introduced (feed stages); and

(ii) Each evaporator vacuum system for each stage where weak liquor is introduced (feed stages).

(4) Each HVLC collection system; and

(5) Each LVHC collection system.

(c) One of the following combinations of HAP-containing pulping process condensates generated, produced, or associated with the equipment systems listed in paragraph (b) of this section shall be subject to the requirements of paragraphs (d) and (e) of this section:

(1) All pulping process condensates from the equipment systems specified in paragraphs (b)(1) through (b)(5) of this section.

(2) The combined pulping process condensates from the equipment systems specified in paragraphs (b)(4) and (b)(5) of this section, plus pulping process condensate stream(s) that in total contain at least 65 percent of the total HAP mass from the pulping process condensates from equipment systems listed in paragraphs (b)(1) through (b)(3) of this section.

(3) The pulping process condensates from equipment systems listed in paragraphs (b)(1) through (b)(5) of this section that in total contain a total HAP mass of 3.6 kilograms or more of total HAP per megagram (7.2 pounds per ton) of ODP for mills that do not perform bleaching or 5.5 kilograms or more of total HAP per megagram (11.1 pounds per ton) of ODP for mills that perform bleaching.

(d) The pulping process condensates from the equipment systems listed in paragraph (b) of this section shall be conveyed in a closed collection system that is designed and operated to meet the requirements specified in paragraphs (d)(1) and (d)(2) of this section.

(1) Each closed collection system shall meet the individual drain system requirements specified in §§63.960, 63.961, and 63.962 of subpart RR of this part, except for closed vent systems and control devices shall be designed and operated in accordance with §§63.443(d) and 63.450, instead of in accordance with §63.693 as specified in §63.962 (a)(3)(ii), (b)(3)(ii)(A), and (b)(5)(iii); and

(2) If a condensate tank is used in the closed collection system, the tank shall meet the following requirements:

(i) The fixed roof and all openings (e.g., access hatches, sampling ports, gauge wells) shall be designed and operated with no detectable leaks as indicated by an instrument reading of less than 500 parts per million above background, and vented into a closed-vent system that meets the requirements in §63.450 and routed to a control device that meets the requirements in §63.443(d); and

(ii) Each opening shall be maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) at all times that the tank contains pulping process condensates or any HAP removed from a pulping process condensate stream except when it is necessary to use the opening for sampling, removal, or for equipment inspection, maintenance, or repair.

(e) Each pulping process condensate from the equipment systems listed in paragraph (b) of this section shall be treated according to one of the following options:

(1) Recycle the pulping process condensate to an equipment system specified in §63.443(a) meeting the requirements specified in §63.443(c) and (d); or

(2) Discharge the pulping process condensate below the liquid surface of a biological treatment system and treat the pulping process condensates to meet the requirements specified in paragraph (e)(3), (4), or (5) of this section, and total HAP shall be measured as specified in §63.457(g); or

(3) Treat the pulping process condensates to reduce or destroy the total HAPs by at least 92 percent or more by weight; or

(4) At mills that do not perform bleaching, treat the pulping process condensates to remove 3.3 kilograms or more of total HAP per megagram (6.6 pounds per ton) of ODP, or achieve a total HAP concentration of 210 parts per million or less by weight at the outlet of the control device; or

(5) At mills that perform bleaching, treat the pulping process condensates to remove 5.1 kilograms or more of total HAP per megagram (10.2 pounds per ton) of ODP, or achieve a total HAP concentration of 330 parts per million or less by weight at the outlet of the control device.

(f) Each HAP removed from a pulping process condensate stream during treatment and handling under paragraphs (d) or (e) of this section, except for those treated according to paragraph (e)(2) of this section, shall be controlled as specified in §63.443(c) and (d).

(g) For each control device (e.g., steam stripper system or other equipment serving the same function) used to treat pulping process condensates to comply with the requirements specified in paragraphs (e)(3) through (5) of this section, periods of excess emissions reported under §63.455 shall not be a violation of paragraphs (d), (e)(3) through (5), and (f) of this section provided that the time of excess emissions divided by the total process operating time in a semi-annual reporting period does not exceed 10 percent. The 10 percent excess emissions allowance does not apply to treatment of pulping process condensates according to paragraph (e)(2) of this section (e.g., the biological wastewater treatment system used to treat multiple (primarily non-condensate) wastewater streams to comply with the Clean Water Act).

(h) Each owner or operator of a new or existing affected source subject to the requirements of this section shall evaluate all new or modified pulping process condensates or changes in the annual bleached or non-bleached ODP used to comply with paragraph (i) of this section, to determine if they meet the applicable requirements of this section.

(i) For the purposes of meeting the requirements in paragraph (c)(2) or (3) or paragraph (e)(4) or (5) of this section at mills producing both bleached and unbleached pulp products, owners and operators may meet a prorated mass standard that is calculated by prorating the applicable mass standards (kilograms of total HAP per megagram of ODP) for bleached and unbleached mills specified in paragraph (c)(2) or (3) or paragraph (e)(4) or (5) of this section by the ratio of annual megagrams of bleached and unbleached ODP.

**§63.447 Clean condensate alternative.**

As an alternative to the requirements specified in §63.443(a)(1)(ii) through (a)(1)(v) for the control of HAP emissions from pulping systems using the kraft process, an owner or operator must demonstrate to the satisfaction of the Administrator, by meeting all the requirements below, that the total HAP emissions reductions achieved by this clean condensate alternative technology are equal to or greater than the total HAP emission reductions that would have been achieved by compliance with §63.443(a)(1)(ii) through (a)(1)(v).

(a) For the purposes of this section only the following additional definitions apply.

(1) *Clean condensate alternative affected source* means the total of all HAP emission points in the pulping, bleaching, causticizing, and papermaking systems (exclusive of HAP emissions attributable to additives to paper machines and HAP emission points in the LVHC system).

(2) *Causticizing system* means all equipment associated with converting sodium carbonate into active sodium hydroxide. The equipment includes smelt dissolving tanks, lime mud washers and storage tanks, white and mud liquor clarifiers and storage tanks, slakers, slaker grit washers, lime kilns, green liquor clarifiers and storage tanks, and dreg washers ending with the white liquor storage tanks prior to the digester system, and any other equipment serving the same function as those previously listed.

(3) *Papermaking system* means all equipment used to convert pulp into paper, paperboard, or market pulp, including the stock storage and preparation systems, the paper or paperboard machines, and the paper machine white water system, broke recovery systems, and the systems involved in calendering, drying, on-machine coating, slitting, winding, and cutting.

(b) Each owner or operator shall install and operate a clean condensate alternative technology with a continuous monitoring system to reduce total HAP emissions by treating and reducing HAP concentrations in the pulping process water used within the clean condensate alternative affected source.

(c) Each owner or operator shall calculate HAP emissions on a kilogram per megagram of ODP basis and measure HAP emissions according to the appropriate procedures contained in §63.457.

(d) Each owner or operator shall determine the baseline HAP emissions for each equipment system and the total of all equipment systems in the clean condensate alternative affected source based on the following:

(1) Process and air pollution control equipment installed and operating on December 17, 1993, and

(2) Compliance with the following requirements that affect the level of HAP emissions from the clean condensate alternative affected source:

(i) The pulping process condensates requirements in §63.446;

(ii) The applicable effluent limitation guidelines and standards in 40 CFR part 430, subparts A, B, D, and E; and

(iii) All other applicable requirements of local, State, or Federal agencies or statutes.

(e) Each owner or operator shall determine the following HAP emission reductions from the baseline HAP emissions determined in paragraph (d) of this section for each equipment system and the total of all equipment systems in the clean condensate alternative affected source:

(1) The HAP emission reduction occurring by complying with the requirements of §63.443(a)(1)(ii) through (a)(1)(v); and

(2) The HAP emissions reduction occurring by complying with the clean condensate alternative technology.

(f) For the purposes of all requirements in this section, each owner or operator may use as an alternative, individual equipment systems (instead of total of all equipment systems) within the clean condensate alternative affected source to determine emissions and reductions to demonstrate equal or greater than the reductions that would have been achieved by compliance with §63.443(a)(1)(ii) through (a)(1)(v).

(g) The initial and updates to the control strategy report specified in §63.455(b) shall include to the extent possible the following information:

(1) A detailed description of:

(i) The equipment systems and emission points that comprise the clean condensate alternative affected source;

(ii) The air pollution control technologies that would be used to meet the requirements of §63.443(a)(1)(ii) through (a)(1)(v); and

(iii) The clean condensate alternative technology to be used.

(2) Estimates and basis for the estimates of total HAP emissions and emission reductions to fulfill the requirements of paragraphs (d), (e), and (f) of this section.

(h) Each owner or operator shall report to the Administrator by the applicable compliance date specified in §63.440(d) or (e) the rationale, calculations, test procedures, and data documentation used to demonstrate compliance with all the requirements of this section.

**§§63.448-63.449 [Reserved]**

**§63.450 Standards for enclosures and closed-vent systems.**

(a) Each enclosure and closed-vent system specified in §§63.443(c), 63.444(b), and 63.445(b) for capturing and transporting vent streams that contain HAP shall meet the requirements specified in paragraphs (b) through (d) of this section.

(b) Each enclosure shall maintain negative pressure at each enclosure or hood opening as demonstrated by the procedures specified in §63.457(e). Each enclosure or hood opening closed during the initial performance test specified in §63.457(a) shall be maintained in the same closed and sealed position as during the performance test at all times except when necessary to use the opening for sampling, inspection, maintenance, or repairs.

(c) Each component of the closed-vent system used to comply with §§63.443(c), 63.444(b), and 63.445(b) that is operated at positive pressure and located prior to a control device shall be designed for and operated with no detectable leaks as indicated by an instrument reading of less than 500 parts per million by volume above background, as measured by the procedures specified in §63.457(d).

(d) Each bypass line in the closed-vent system that could divert vent streams containing HAP to the atmosphere without meeting the emission limitations in §§63.443, 63.444, or 63.445 shall comply with either of the following requirements:

(1) On each bypass line, the owner or operator shall install, calibrate, maintain, and operate according to the manufacturer's specifications a flow indicator that is capable of taking periodic readings as frequently as specified in §63.454(e). The flow indicator shall be installed in the bypass line in such a way as to indicate flow in the bypass line; or

(2) For bypass line valves that are not computer controlled, the owner or operator shall maintain the bypass line valve in the closed position with a car seal or a seal placed on the valve or closure mechanism in such a way that valve or closure mechanism cannot be opened without breaking the seal.

**§§63.451-63.452 [Reserved]**

**§63.453 Monitoring requirements.**

(a) Each owner or operator subject to the standards specified in §§63.443(c) and (d), 63.444(b) and (c), 63.445(b) and (c), 63.446(c), (d), and (e), 63.447(b) or §63.450(d), shall install, calibrate, certify, operate, and maintain according to the manufacturer's specifications, a continuous monitoring system (CMS, as defined in §63.2 of this part) as specified in paragraphs (b) through (m) of this section, except as allowed in paragraph (m) of this section. The CMS shall include a continuous recorder.

(b) A CMS shall be operated to measure the temperature in the firebox or in the ductwork immediately downstream of the firebox and before any substantial heat exchange occurs for each thermal oxidizer used to comply with the requirements of §63.443(d)(1) through (d)(3). Owners and operators complying with the HAP concentration requirements in §63.443(d)(2) may install a CMS to monitor the thermal oxidizer outlet total HAP or methanol concentration, as an alternative to monitoring thermal oxidizer operating temperature.

(c) A CMS shall be operated to measure the following parameters for each gas scrubber used to comply with the bleaching system requirements of §63.445(c) or the sulfite pulping system requirements of §63.444(c).

(1) The pH or the oxidation/reduction potential of the gas scrubber effluent;

(2) The gas scrubber vent gas inlet flow rate; and

(3) The gas scrubber liquid influent flow rate.

(d) As an option to the requirements specified in paragraph (c) of this section, a CMS shall be operated to measure the chlorine outlet concentration of each gas scrubber used to comply with the bleaching system outlet concentration requirement specified in §63.445(c)(2).

(e) The owner or operator of a bleaching system complying with 40 CFR 430.24, shall monitor the chlorine and hypochlorite application rates, in kg of bleaching agent per megagram of ODP, of the bleaching system during the extended compliance period specified in §63.440(d)(3).

(f) A CMS shall be operated to measure the gas scrubber parameters specified in paragraphs (c)(1) through (c)(3) of this section or those site specific parameters determined according to the procedures specified in paragraph (n) of this section to comply with the sulfite pulping system requirements specified in §63.444(c).

(g) A CMS shall be operated to measure the following parameters for each steam stripper used to comply with the treatment requirements in §63.446(e) (3), (4), or (5):

(1) The process wastewater feed rate;

(2) The steam feed rate; and

(3) The process wastewater column feed temperature.

(h) As an option to the requirements specified in paragraph (g) of this section, a CMS shall be operated to measure the methanol outlet concentration to comply with the steam stripper outlet concentration requirement specified in §63.446 (e)(4) or (e)(5).

(i) A CMS shall be operated to measure the appropriate parameters determined according to the procedures specified in paragraph (n) of this section to comply with the condensate applicability requirements specified in §63.446(c).

(j) Each owner or operator using an open biological treatment system to comply with §63.446(e)(2) shall perform the daily monitoring procedures specified in either paragraph (j)(1) or (2) of this section and shall conduct a performance test each quarter using the procedures specified in paragraph (j)(3) of this section.

(1) Comply with the monitoring and sampling requirements specified in paragraphs (j)(1)(i) and (ii) of this section.

(i) On a daily basis, monitor the following parameters for each open biological treatment unit:

(A) Composite daily sample of outlet soluble $BOD_5$ concentration to monitor for maximum daily and maximum monthly average;

(B) Mixed liquor volatile suspended solids;

(C) Horsepower of aerator unit(s);

(D) Inlet liquid flow; and

(E) Liquid temperature.

(ii) If the Inlet and Outlet Concentration Measurement Procedure (Procedure 3) in appendix C of this part is used to determine the fraction of HAP compounds degraded in the biological treatment system as specified in §63.457(l), conduct the sampling and archival requirements specified in paragraphs (j)(1)(ii)(A) and (B) of this section.

(A) Obtain daily inlet and outlet liquid grab samples from each biological treatment unit to have HAP data available to perform quarterly performance tests specified in paragraph (j)(3) of this section and the compliance tests specified in paragraph (p) of this section.

(B) Store the samples as specified in §63.457(n) until after the results of the soluble $BOD_5$ test required in paragraph (j)(1)(i)(A) of this section are obtained. The storage requirement is needed since the soluble $BOD_5$ test

requires 5 days or more to obtain results. If the results of the soluble $BOD_5$ test are outside of the range established during the initial performance test, then the archive sample shall be used to perform the mass removal or percent reduction determinations.

(2) As an alternative to the monitoring requirements of paragraph (j)(1) of this section, conduct daily monitoring of the site-specific parameters established according to the procedures specified in paragraph (n) of this section.

(3) Conduct a performance test as specified in §63.457(l) within 45 days after the beginning of each quarter and meet the applicable emission limit in §63.446(e)(2).

(i) The performance test conducted in the first quarter (annually) shall be performed for total HAP as specified in §63.457(g) and meet the percent reduction or mass removal emission limit specified in §63.446(e)(2).

(ii) The remaining quarterly performance tests shall be performed as specified in paragraph (j)(3)(i) of this section except owners or operators may use the applicable methanol procedure in §63.457(l)(1) or (2) and the value of r determined during the first quarter test instead of measuring the additional HAP to determine a new value of r.

(k) Each enclosure and closed-vent system used to comply with §63.450(a) shall comply with the requirements specified in paragraphs (k)(1) through (k)(6) of this section.

(1) For each enclosure opening, a visual inspection of the closure mechanism specified in §63.450(b) shall be performed at least once every 30 days to ensure the opening is maintained in the closed position and sealed.

(2) Each closed-vent system required by §63.450(a) shall be visually inspected every 30 days and at other times as requested by the Administrator. The visual inspection shall include inspection of ductwork, piping, enclosures, and connections to covers for visible evidence of defects.

(3) For positive pressure closed-vent systems or portions of closed-vent systems, demonstrate no detectable leaks as specified in §63.450(c) measured initially and annually by the procedures in §63.457(d).

(4) Demonstrate initially and annually that each enclosure opening is maintained at negative pressure as specified in §63.457(e).

(5) The valve or closure mechanism specified in §63.450(d)(2) shall be inspected at least once every 30 days to ensure that the valve is maintained in the closed position and the emission point gas stream is not diverted through the bypass line.

(6) If an inspection required by paragraphs (k)(1) through (k)(5) of this section identifies visible defects in ductwork, piping, enclosures or connections to covers required by §63.450, or if an instrument reading of 500 parts per million by volume or greater above background is measured, or if enclosure openings are not maintained at negative pressure, then the following corrective actions shall be taken as soon as practicable.

(i) A first effort to repair or correct the closed-vent system shall be made as soon as practicable but no later than 5 calendar days after the problem is identified.

(ii) The repair or corrective action shall be completed no later than 15 calendar days after the problem is identified. Delay of repair or corrective action is allowed if the repair or corrective action is technically infeasible without a process unit shutdown or if the owner or operator determines that the emissions resulting from immediate repair would be greater than the emissions likely to result from delay of repair. Repair of such equipment shall be completed by the end of the next process unit shutdown.

(l) Each pulping process condensate closed collection system used to comply with §63.446(d) shall comply with the requirements specified in paragraphs (l)(1) through (l)(3) of this section.

(1) Each pulping process condensate closed collection system shall be visually inspected every 30 days and shall comply with the inspection and monitoring requirements specified in §63.964 of subpart RR of this part, except:

(i) Owners or operators shall comply with the recordkeeping requirements of §63.454 instead of the requirements specified in §63.964(a)(1)(vi) and (b)(3) of subpart RR of this part.

(ii) Owners or operators shall comply with the inspection and monitoring requirements for closed-vent systems and control devices specified in paragraphs (a) and (k) of this section instead of the requirements specified in §63.964(a)(2) of subpart RR of this part.

(2) Each condensate tank used in the closed collection system shall be operated with no detectable leaks as specified in §63.446(d)(2)(i) measured initially and annually by the procedures specified in §63.457(d).

(3) If an inspection required by this section identifies visible defects in the closed collection system, or if an instrument reading of 500 parts per million or greater above background is measured, then corrective actions specified in §63.964(b) of subpart RR of this part shall be taken.

(m) Each owner or operator using a control device, technique or an alternative parameter other than those specified in paragraphs (b) through (l) of this section shall install a CMS and establish appropriate operating parameters to be monitored that demonstrate, to the Administrator's satisfaction, continuous compliance with the applicable control requirements.

(n) To establish or reestablish the value for each operating parameter required to be monitored under paragraphs (b) through (j), (l), and (m) of this section or to establish appropriate parameters for paragraphs (f), (i), (j)(2), and (m) of this section, each owner or operator shall use the following procedures:

(1) During the initial performance test required in §63.457(a) or any subsequent performance test, continuously record the operating parameter;

(2) Determinations shall be based on the control performance and parameter data monitored during the performance test, supplemented if necessary by engineering assessments and the manufacturer's recommendations;

(3) The owner or operator shall provide for the Administrator's approval the rationale for selecting the monitoring parameters necessary to comply with paragraphs (f), (i), and (m) of this section; and

(4) Provide for the Administrator's approval the rationale for the selected operating parameter value, and monitoring frequency, and averaging time. Include all data and calculations used to develop the value and a description of why the value, monitoring frequency, and averaging time demonstrate continuous compliance with the applicable emission standard.

(o) Each owner or operator of a control device subject to the monitoring provisions of this section shall operate the control device in a manner consistent with the minimum or maximum (as appropriate) operating parameter value or procedure required to be monitored under paragraphs (a) through (n) of this section and established under this subpart. Except as provided in paragraph (p) of this section, §63.443(e), or §63.446(g), operation of the control device below minimum operating parameter values or above maximum operating parameter values established under this subpart or failure to perform procedures required by this subpart shall constitute a violation of the applicable emission standard of this subpart and be reported as a period of excess emissions.

(p) The procedures of this paragraph apply to each owner or operator of an open biological treatment system complying with paragraph (j) of this section whenever a monitoring parameter excursion occurs, and the owner or operator chooses to conduct a performance test to demonstrate compliance with the applicable emission limit. A monitoring parameter excursion occurs whenever the monitoring parameters specified in paragraphs (j)(1)(i)(A) through (C) of this section or any of the monitoring parameters specified in paragraph (j)(2) of this section are below minimum operating parameter values or above maximum operating parameter values established in paragraph (n) of this section.

(1) As soon as practical after the beginning of the monitoring parameter excursion, the following requirements shall be met:

(i) Before the steps in paragraph (p)(1)(ii) or (iii) of this section are performed, all sampling and measurements necessary to meet the requirements in paragraph (p)(2) of this section shall be conducted.

(ii) Steps shall be taken to repair or adjust the operation of the process to end the parameter excursion period.

(iii) Steps shall be taken to minimize total HAP emissions to the atmosphere during the parameter excursion period.

(2) A parameter excursion is not a violation of the applicable emission standard if the results of the performance test conducted using the procedures in this paragraph demonstrate compliance with the applicable emission limit in §63.446(e)(2).

(i) Conduct a performance test as specified in §63.457 using the monitoring data specified in paragraph (j)(1) or (2) of this section that coincides with the time of the parameter excursion. No maintenance or changes shall be made to the open biological treatment system after the beginning of a parameter excursion that would influence the results of the performance test.

(ii) If the results of the performance test specified in paragraph (p)(2)(i) of this section demonstrate compliance with the applicable emission limit in §63.446(e)(2), then the parameter excursion is not a violation of the applicable emission limit.

(iii) If the results of the performance test specified in paragraph (p)(2)(i) of this section do not demonstrate compliance with the applicable emission limit in §63.446(e)(2) because the total HAP mass entering the open biological treatment system is below the level needed to demonstrate compliance with the applicable emission limit in §63.446(e)(2), then the owner or operator shall perform the following comparisons:

(A) If the value of $f_{bio}$ (MeOH) determined during the performance test specified in paragraph (p)(2)(i) of this section is within the range of values established during the initial and subsequent performance tests approved by the Administrator, then the parameter excursion is not a violation of the applicable standard.

(B) If the value of $f_{bio}$ (MeOH) determined during the performance test specified in paragraph (p)(2)(i) of this section is not within the range of values established during the initial and subsequent performance tests approved by the Administrator, then the parameter excursion is a violation of the applicable standard.

(iv) The results of the performance test specified in paragraph (p)(2)(i) of this section shall be recorded as specified in §63.454(f).

(3) If an owner or operator determines that performing the required procedures under paragraph (p)(2) of this section for a nonthoroughly mixed open biological system would expose a worker to dangerous, hazardous, or otherwise unsafe conditions, all of the following procedures shall be performed:

(i) Calculate the mass removal or percent reduction value using the procedures specified in §63.457(l) except the value for $f_{bio}$ (MeOH) shall be determined using the procedures in appendix E to this part.

(ii) Repeat the procedures in paragraph (p)(3)(i) of this section for every day until the unsafe conditions have passed.

(iii) A parameter excursion is a violation of the standard if the percent reduction or mass removal determined in paragraph (p)(3)(i) of this section is less than the percent reduction or mass removal standards specified in §63.446(e)(2), as appropriate, unless the value of $f_{bio}$ (MeOH) determined using the procedures in appendix E of this section, as specified in paragraph (p)(3)(i), is within the range of $f_{bio}$ (MeOH) values established during the initial and subsequent performance tests previously approved by the Administrator.

(iv) The determination that there is a condition that exposes a worker to dangerous, hazardous, or otherwise unsafe conditions shall be documented according to requirements in §63.454(e) and reporting in §63.455(f).

(v) The requirements of paragraphs (p)(1) and (2) of this section shall be performed and met as soon as practical but no later than 24 hours after the conditions have passed that exposed a worker to dangerous, hazardous, or otherwise unsafe conditions.

(q) At all times, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

**§63.454 Recordkeeping requirements.**

(a) The owner or operator of each affected source subject to the requirements of this subpart shall comply with the recordkeeping requirements of §63.10, as shown in Table 1 of this subpart, and the requirements specified in paragraphs (b) through (g) of this section for the monitoring parameters specified in §63.453.

(b) For each applicable enclosure opening, closed-vent system, and closed collection system, the owner or operator shall prepare and maintain a site-specific inspection plan including a drawing or schematic of the components of applicable affected equipment and shall record the following information for each inspection:

(1) Date of inspection;

(2) The equipment type and identification;

(3) Results of negative pressure tests for enclosures;

(4) Results of leak detection tests;

(5) The nature of the defect or leak and the method of detection (i.e., visual inspection or instrument detection);

(6) The date the defect or leak was detected and the date of each attempt to repair the defect or leak;

(7) Repair methods applied in each attempt to repair the defect or leak;

(8) The reason for the delay if the defect or leak is not repaired within 15 days after discovery;

(9) The expected date of successful repair of the defect or leak if the repair is not completed within 15 days;

(10) The date of successful repair of the defect or leak;

(11) The position and duration of opening of bypass line valves and the condition of any valve seals; and

(12) The duration of the use of bypass valves on computer controlled valves.

(c) The owner or operator of a bleaching system complying with §63.440(d)(3)(ii)(B) shall record the daily average chlorine and hypochlorite application rates, in kg of bleaching agent per megagram of ODP, of the bleaching system until the requirements specified in §63.440(d)(3)(ii)(A) are met.

(d) The owner or operator shall record the CMS parameters specified in §63.453 and meet the requirements specified in paragraph (a) of this section for any new affected process equipment or pulping process condensate stream that becomes subject to the standards in this subpart due to a process change or modification.

(e) The owner or operator shall set the flow indicator on each bypass line specified in §63.450(d)(1) to provide a record of the presence of gas stream flow in the bypass line at least once every 15 minutes.

(f) The owner or operator of an open biological treatment system complying with §63.453(p) shall prepare a written record specifying the results of the performance test specified in §63.453(p)(2).

(g) *Recordkeeping of malfunctions.* The owner or operator must maintain the following records of malfunctions:

(1) Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment.

(2) Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.453(q), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

**§63.455 Reporting requirements.**

(a) Each owner or operator of a source subject to this subpart shall comply with the reporting requirements of subpart A of this part as specified in table 1 and all the following requirements in this section. The initial notification report specified under §63.9(b)(2) of subpart A of this part shall be submitted by April 15, 1999.

(b) Each owner or operator of a kraft pulping system specified in §63.440(d)(1) or a bleaching system specified in §63.440(d)(3)(ii) shall submit, with the initial notification report specified under §63.9(b)(2) of subpart A of this part and paragraph (a) of this section and update every two years thereafter, a non-binding control strategy report containing, at a minimum, the information specified in paragraphs (b)(1) through (b)(3) of this section in addition to the information required in §63.9(b)(2) of subpart A of this part.

(1) A description of the emission controls or process modifications selected for compliance with the control requirements in this standard.

(2) A compliance schedule, including the dates by which each step toward compliance will be reached for each emission point or sets of emission points. At a minimum, the list of dates shall include:

(i) The date by which the major study(s) for determining the compliance strategy will be completed;

(ii) The date by which contracts for emission controls or process modifications will be awarded, or the date by which orders will be issued for the purchase of major components to accomplish emission controls or process changes;

(iii) The date by which on-site construction, installation of emission control equipment, or a process change is to be initiated;

(iv) The date by which on-site construction, installation of emissions control equipment, or a process change is to be completed;

(v) The date by which final compliance is to be achieved;

(vi) For compliance with paragraph §63.440(d)(3)(ii), the tentative dates by which compliance with effluent limitation guidelines and standards intermediate pollutant load effluent reductions and as available, all the dates for the best available technology's milestones reported in the National Pollutant Discharge Elimination System authorized under section 402 of the Clean Water Act and for the best professional milestones in the Voluntary Advanced Technology Incentives Program under 40 CFR 430.24 (b)(2); and

(vii) The date by which the final compliance tests will be performed.

(3) Until compliance is achieved, revisions or updates shall be made to the control strategy report required by paragraph (b) of this section indicating the progress made towards completing the installation of the emission controls or process modifications during the 2-year period.

(c) The owner or operator of each bleaching system complying with §63.440(d)(3)(ii)(B) shall certify in the report specified under §63.10(e)(3) of subpart A of this part that the daily application rates of chlorine and hypochlorite for that bleaching system have not increased as specified in §63.440(d)(3)(ii)(B) until the requirements of §63.440(d)(3)(ii)(A) are met.

(d) The owner or operator shall meet the requirements specified in paragraph (a) of this section upon startup of any new affected process equipment or pulping process condensate stream that becomes subject to the standards of this subpart due to a process change or modification.

(e) If the owner or operator uses the results of the performance test required in §63.453(p)(2) to revise the approved values or ranges of the monitoring parameters specified in §63.453(j)(1) or (2), the owner or operator shall submit an initial notification of the subsequent performance test to the Administrator as soon as practicable, but no later than 15 days, before the performance test required in §63.453(p)(2) is scheduled to be conducted. The owner or operator shall notify the Administrator as soon as practicable, but no later than 24 hours, before the performance test is scheduled to be conducted to confirm the exact date and time of the performance test.

(f) To comply with the open biological treatment system monitoring provisions of §63.453(p)(3), the owner or operator shall notify the Administrator as soon as practicable of the onset of the dangerous, hazardous, or otherwise unsafe conditions that did not allow a compliance determination to be conducted using the sampling and test procedures in §63.457(l). The notification shall occur no later than 24 hours after the onset of the dangerous, hazardous, or otherwise unsafe conditions and shall include the specific reason(s) that the sampling and test procedures in §63.457(l) could not be performed.

(g) *Malfunction reporting requirements.* If a malfunction occurred during the reporting period, the report must include the number, duration and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §63.453(q), including actions taken to correct a malfunction.

(h) The owner or operator must submit performance test reports as specified in paragraphs (h)(1) through (4) of this section.

(1) The owner or operator of an affected source shall report the results of the performance test before the close of business on the 60th day following the completion of the performance test, unless approved otherwise in writing by the Administrator. A performance test is "completed" when field sample collection is terminated. Unless otherwise approved by the Administrator in writing, results of a performance test shall include the analysis of samples, determination of emissions and raw data. A complete test report must include the purpose of the test; a brief process description; a complete unit description, including a description of feed streams and

control devices; sampling site description; pollutants measured; description of sampling and analysis procedures and any modifications to standard procedures; quality assurance procedures; record of operating conditions, including operating parameters for which limits are being set, during the test; record of preparation of standards; record of calibrations; raw data sheets for field sampling; raw data sheets for field and laboratory analyses; chain-of-custody documentation; explanation of laboratory data qualifiers; example calculations of all applicable stack gas parameters, emission rates, percent reduction rates, and analytical results, as applicable; and any other information required by the test method and the Administrator.

(2) Within 60 days after the date of completing each performance test (defined in §63.2) as required by this subpart, the owner or operator must submit the results of the performance tests, including any associated fuel analyses, required by this subpart to the EPA's WebFIRE database by using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through the EPA's Central Data Exchange (CDX) (*http://www.epa.gov/cdx*). Performance test data must be submitted in the file format generated through use of the EPA's Electronic Reporting Tool (ERT) (see *http://www.epa.gov/ttn/chief/ert/index.html*). Only data collected using test methods on the ERT Web site are subject to this requirement for submitting reports electronically to WebFIRE. Owners or operators who claim that some of the information being submitted for performance tests is confidential business information (CBI) must submit a complete ERT file including information claimed to be CBI on a compact disk, flash drive or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT file with the CBI omitted must be submitted to the EPA via CDX as described earlier in this paragraph. At the discretion of the delegated authority, the owner or operator must also submit these reports, including the CBI, to the delegated authority in the format specified by the delegated authority. For any performance test conducted using test methods that are not listed on the ERT Web site, the owner or operator must submit the results of the performance test to the Administrator at the appropriate address listed in §63.13.

(3) Within 60 days after the date of completing each CEMS performance evaluation test as defined in §63.2, the owner or operator must submit relative accuracy test audit (RATA) data to the EPA's CDX by using CEDRI in accordance with paragraph (2) of this section. Only RATA pollutants that can be documented with the ERT (as listed on the ERT Web site) are subject to this requirement. For any performance evaluations with no corresponding RATA pollutants listed on the ERT Web site, the owner or operator must submit the results of the performance evaluation to the Administrator at the appropriate address listed in §63.13.

(4) All reports required by this subpart not subject to the requirements in paragraphs (h)(2) and (3) of this section must be sent to the Administrator at the appropriate address listed in §63.13. The Administrator or the delegated authority may request a report in any form suitable for the specific case (e.g., by commonly used electronic media such as Excel spreadsheet, on CD or hard copy). The Administrator retains the right to require submittal of reports subject to paragraphs (h)(2) and (3) of this section in paper format

**§63.456 Affirmative defense for violation of emission standards during malfunction.**

In response to an action to enforce the standards set forth in §§63.443(c) and (d), 63.444(b) and (c), 63.445(b) and (c), 63.446(c), (d), and (e), 63.447(b) or §63.450(d), the owner or operator may assert an affirmative defense to a claim for civil penalties for violations of such standards that are caused by malfunction, as defined at 40 CFR 63.2. Appropriate penalties may be assessed, however, if the owner or operator fails to meet the

burden of proving all of the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(a) To establish the affirmative defense in any action to enforce such a standard, the owner or operator must timely meet the reporting requirements in paragraph (b) of this section, and must prove by a preponderance of evidence that:

(1) The violation:

(i) Was caused by a sudden, infrequent, and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner, and

(ii) Could not have been prevented through careful planning, proper design or better operation and maintenance practices; and

(iii) Did not stem from any activity or event that could have been foreseen and avoided, or planned for; and

(iv) Was not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(2) Repairs were made as expeditiously as possible when a violation occurred. Off-shift and overtime labor were used, to the extent practicable to make these repairs; and

(3) The frequency, amount and duration of the violation (including any bypass) were minimized to the maximum extent practicable; and

(4) If the violation resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

(5) All possible steps were taken to minimize the impact of the violation on ambient air quality, the environment and human health; and

(6) All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices; and

(7) All of the actions in response to the violation were documented by properly signed, contemporaneous operating logs; and

(8) At all times, the affected source was operated in a manner consistent with good practices for minimizing emissions; and

(9) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the violation resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of any emissions that were the result of the malfunction.

(b) *Report*. The owner or operator seeking to assert an affirmative defense shall submit a written report to the Administrator with all necessary supporting documentation, that it has met the requirements set forth in paragraph (a) of this section. This affirmative defense report shall be included in the first periodic compliance,

deviation report or excess emission report otherwise required after the initial occurrence of the violation of the relevant standard (which may be the end of any applicable averaging period). If such compliance, deviation report or excess emission report is due less than 45 days after the initial occurrence of the violation, the affirmative defense report may be included in the second compliance, deviation report or excess emission report due after the initial occurrence of the violation of the relevant standard.

**§63.457 Test methods and procedures.**

(a) *Performance tests.* Initial and repeat performance tests are required for the emissions sources specified in paragraphs (a)(1) and (2) of this section, except for emission sources controlled by a combustion device that is designed and operated as specified in §63.443(d)(3) or (4).

(1) Conduct an initial performance test for all emission sources subject to the limitations in §§63.443, 63.444, 63.445, 63.446, and 63.447.

(2) Conduct repeat performance tests at five-year intervals for all emission sources subject to the limitations in §§63.443, 63.444, and 63.445. The first of the 5-year repeat tests must be conducted by September 7, 2015, and thereafter within 60 months from the date of the previous performance test. Five-year repeat testing is not required for the following:

(i) Knotter or screen systems with HAP emission rates below the criteria specified in §63.443(a)(1)(ii).

(ii) Decker systems using fresh water or paper machine white water, or decker systems using process water with a total HAP concentration less than 400 parts per million by weight as specified in §63.443(a)(1)(iv).

(b) *Vent sampling port locations and gas stream properties.* For purposes of selecting vent sampling port locations and determining vent gas stream properties, required in §§63.443, 63.444, 63.445, and 63.447, each owner or operator shall comply with the applicable procedures in paragraphs (b)(1) through (b)(6) of this section.

(1) Method 1 or 1A of part 60, appendix A-1, as appropriate, shall be used for selection of the sampling site as follows:

(i) To sample for vent gas concentrations and volumetric flow rates, the sampling site shall be located prior to dilution of the vent gas stream and prior to release to the atmosphere;

(ii) For determining compliance with percent reduction requirements, sampling sites shall be located prior to the inlet of the control device and at the outlet of the control device; measurements shall be performed simultaneously at the two sampling sites; and

(iii) For determining compliance with concentration limits or mass emission rate limits, the sampling site shall be located at the outlet of the control device.

(2) No traverse site selection method is needed for vents smaller than 0.10 meter (4.0 inches) in diameter.

(3) The vent gas volumetric flow rate shall be determined using Method 2, 2A, 2C, or 2D of part 60, appendix A-1, as appropriate.

(4) The moisture content of the vent gas shall be measured using Method 4 of part 60, appendix A-3.

(5) To determine vent gas concentrations, the owner or operator shall conduct a minimum of three test runs that are representative of normal conditions and average the resulting pollutant concentrations using the following procedures.

(i) Method 308 in Appendix A of this part; Method 320 in Appendix A of this part; Method 18 in appendix A-6 of part 60; ASTM D6420-99 (Reapproved 2004) (incorporated by reference in §63.14(b)(28) of subpart A of this part); or ASTM D6348-03 (incorporated by reference in §63.14(b)(54) of subpart A of this part) shall be used to determine the methanol concentration. If ASTM D6348-03 is used, the conditions specified in paragraphs (b)(5)(i)(A) though (b)(5)(i)(B) must be met.

(A) The test plan preparation and implementation in the Annexes to ASTM D6348-03, sections A1 through A8 are required.

(B) In ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent (%) R must be determined for each target analyte (Equation A5.5 of ASTM D6348-03). In order for the test data to be acceptable for a compound, %R must be between 70 and 130 percent. If the %R value does not meet this criterion for a target compound, the test data is not acceptable for that compound and the test must be repeated for that analyte following adjustment of the sampling or analytical procedure before the retest. The %R value for each compound must be reported in the test report, and all field measurements must be corrected with the calculated %R value for that compound using the following equation: Reported Result = Measured Concentration in the Stack × 100)/%R.

(ii) Except for the modifications specified in paragraphs (b)(5)(ii)(A) through (b)(5)(ii)(K) of this section, Method 26A of part 60, appendix A-8 shall be used to determine chlorine concentration in the vent stream.

(A) *Probe/sampling line*. A separate probe is not required. The sampling line shall be an appropriate length of 0.64 cm (0.25 in) OD Teflon® tubing. The sample inlet end of the sampling line shall be inserted into the stack in such a way as to not entrain liquid condensation from the vent gases. The other end shall be connected to the impingers. The length of the tubing may vary from one sampling site to another, but shall be as short as possible in each situation. If sampling is conducted in sunlight, opaque tubing shall be used. Alternatively, if transparent tubing is used, it shall be covered with opaque tape.

(B) *Impinger train*. Three 30 milliliter (ml) capacity midget impingers shall be connected in series to the sampling line. The impingers shall have regular tapered stems. Silica gel shall be placed in the third impinger as a desiccant. All impinger train connectors shall be glass and/or Teflon®.

(C) *Critical orifice*. The critical orifice shall have a flow rate of 200 to 250 ml/min and shall be followed by a vacuum pump capable of providing a vacuum of 640 millimeters of mercury (mm Hg). A 45 millimeter diameter in-line Teflon 0.8 micrometer filter shall follow the impingers to protect the critical orifice and vacuum pump.

(D) The following are necessary for the analysis apparatus:

(*1*) Wash bottle filled with deionized water;

(*2*) 25 or 50 ml graduated burette and stand;

(*3*) Magnetic stirring apparatus and stir bar;

(*4*) Calibrated pH Meter;

(*5*) 150-250 ml beaker or flask; and

(*6*) A 5 ml pipette.

(E) The procedures listed in paragraphs (b)(5)(ii)(E)(*1*) through (b)(5)(ii)(E)(*7*) of this section shall be used to prepare the reagents.

(*1*) To prepare the 1 molarity (M) potassium dihydrogen phosphate solution, dissolve 13.61 grams (g) of potassium dihydrogen phosphate in water and dilute to 100 ml.

(*2*) To prepare the 1 M sodium hydroxide solution (NaOH), dissolve 4.0 g of sodium hydroxide in water and dilute to 100 ml.

(*3*) To prepare the buffered 2 percent potassium iodide solution, dissolve 20 g of potassium iodide in 900 ml water. Add 50 ml of the 1 M potassium dihydrogen phosphate solution and 30 ml of the 1 M sodium hydroxide solution. While stirring solution, measure the pH of solution electrometrically and add the 1 M sodium hydroxide solution to bring pH to between 6.95 and 7.05.

(*4*) To prepare the 0.1 normality (N) sodium thiosulfate solution, dissolve 25 g of sodium thiosulfate, pentahydrate, in 800 ml of freshly boiled and cooled distilled water in a 1-liter volumetric flask. Dilute to volume. To prepare the 0.01 N sodium thiosulfate solution, add 10.0 ml standardized 0.1 N sodium thiosulfate solution to a 100 ml volumetric flask, and dilute to volume with water.

(*5*) To standardize the 0.1 N sodium thiosulfate solution, dissolve 3.249 g of anhydrous potassium bi-iodate, primary standard quality, or 3.567 g potassium iodate dried at 103 =/−2 degrees Centigrade for 1 hour, in distilled water and dilute to 1000 ml to yield a 0.1000 N solution. Store in a glass-stoppered bottle. To 80 ml distilled water, add, with constant stirring, 1 ml concentrated sulfuric acid, 10.00 ml 0.1000 N anhydrous potassium bi-iodate, and 1 g potassium iodide. Titrate immediately with 0.1 n sodium thiosulfate titrant until the yellow color of the liberated iodine is almost discharged. Add 1 ml starch indicator solution and continue titrating until the blue color disappears. The normality of the sodium thiosulfate solution is inversely proportional to the ml of sodium thiosulfate solution consumed:

$$\text{Normality of } \textit{Sodium Thiosulfate} = \frac{1}{\text{ml Sodium Thiosulfate Consumed}}$$

(*6*) To prepare the starch indicator solution, add a small amount of cold water to 5 g starch and grind in a mortar to obtain a thin paste. Pour paste into 1 L of boiling distilled water, stir, and let settle overnight. Use clear supernate for starch indicator solution.

(*7*) To prepare the 10 percent sulfuric acid solution, add 10 ml of concentrated sulfuric acid to 80 ml water in a 100 ml volumetric flask. Dilute to volume.

(F) The procedures specified in paragraphs (b)(5)(ii)(F)(*1*) through (b)(5)(ii)(F)(*5*) of this section shall be used to perform the sampling.

(*1*) *Preparation of collection train.* Measure 20 ml buffered potassium iodide solution into each of the first two impingers and connect probe, impingers, filter, critical orifice, and pump. The sampling line and the impingers shall be shielded from sunlight.

(*2*) *Leak and flow check procedure.* Plug sampling line inlet tip and turn on pump. If a flow of bubbles is visible in either of the liquid impingers, tighten fittings and adjust connections and impingers. A leakage rate not in excess of 2 percent of the sampling rate is acceptable. Carefully remove the plug from the end of the probe. Check the flow rate at the probe inlet with a bubble tube flow meter. The flow should be comparable or slightly less than the flow rate of the critical orifice with the impingers off-line. Record the flow and turn off the pump.

(*3*) *Sample collection.* Insert the sampling line into the stack and secure it with the tip slightly lower than the port height. Start the pump, recording the time. End the sampling after 60 minutes, or after yellow color is observed in the second in-line impinger. Record time and remove the tubing from the vent. Recheck flow rate at sampling line inlet and turn off pump. If the flow rate has changed significantly, redo sampling with fresh capture solution. A slight variation (less than 5 percent) in flow may be averaged. With the inlet end of the line elevated above the impingers, add about 5 ml water into the inlet tip to rinse the line into the first impinger.

(*4*) *Sample analysis.* Fill the burette with 0.01 N sodium thiosulfate solution to the zero mark. Combine the contents of the impingers in the beaker or flask. Stir the solution and titrate with thiosulfate until the solution is colorless. Record the volume of the first endpoint (TN, ml). Add 5 ml of the 10 percent sulfuric acid solution, and continue the titration until the contents of the flask are again colorless. Record the total volume of titrant required to go through the first and to the second endpoint (TA, ml). If the volume of neutral titer is less than 0.5 ml, repeat the testing for a longer period of time. It is important that sufficient lighting be present to clearly see the endpoints, which are determined when the solution turns from pale yellow to colorless. A lighted stirring plate and a white background are useful for this purpose.

(*5*) *Interferences.* Known interfering agents of this method are sulfur dioxide and hydrogen peroxide. Sulfur dioxide, which is used to reduce oxidant residuals in some bleaching systems, reduces formed iodine to iodide in the capture solution. It is therefore a negative interference for chlorine, and in some cases could result in erroneous negative chlorine concentrations. Any agent capable of reducing iodine to iodide could interfere in this manner. A chromium trioxide impregnated filter will capture sulfur dioxide and pass chlorine and chlorine dioxide. Hydrogen peroxide, which is commonly used as a bleaching agent in modern bleaching systems, reacts with iodide to form iodine and thus can cause a positive interference in the chlorine measurement. Due to the chemistry involved, the precision of the chlorine analysis will decrease as the ratio of chlorine dioxide to chlorine increases. Slightly negative calculated concentrations of chlorine may occur when sampling a vent gas with high concentrations of chlorine dioxide and very low concentrations of chlorine.

(G) The following calculation shall be performed to determine the corrected sampling flow rate:

$$S_C = S_U \left( \frac{BP - PW}{760} \right) \left( \frac{293}{273 + t} \right)$$

Where:

$S_c$ = Corrected (dry standard) sampling flow rate, liters per minute;

$S_U$ = Uncorrected sampling flow rate, L/min;

BP = Barometric pressure at time of sampling;

PW = Saturated partial pressure of water vapor, mm Hg at temperature; and

t = Ambient temperature, °C.

(H) The following calculation shall be performed to determine the moles of chlorine in the sample:

$$Cl_2 Moles = 1/8000\left(5\,T_N - T_A\right) \times N_{Thio}$$

Where:

$T_N$ = Volume neutral titer, ml;

$T_A$ = Volume acid titer (total), ml; and

$N_{Thio}$ = Normality of sodium thiosulfate titrant.

(I) The following calculation shall be performed to determine the concentration of chlorine in the sample:

$$Cl_2 ppmv = \frac{3005\left(5\,T_N - T_A\right) \times N_{Thio}}{S_C \times t_S}$$

Where:

$S_C$ = Corrected (dry standard) sampling flow rate, liters per minute;

$t_S$ = Time sampled, minutes;

$T_N$ = Volume neutral titer, ml;

$T_A$ = Volume acid titer (total), ml; and

$N_{Thio}$ = Normality of sodium thiosulfate titrant.

(J) The following calculation shall be performed to determine the moles of chlorine dioxide in the sample:

$$ClO_2 Moles = 1/4000\left(T_A - T_N\right) \times N_{Thio}$$

Where:

$T_A$ = Volume acid titer (total), ml;

$T_N$ = Volume neutral titer, ml; and

$N_{Thio}$ = Normality of sodium thiosulfate titrant.

(K) The following calculation shall be performed to determine the concentration of chlorine dioxide in the sample:

$$ClO_2\ ppmv = \frac{6010(T_A - T_N) \times N_{Thio}}{S_C \times t_S}$$

Where:

$S_c$ = Corrected (dry standard) sampling flow rate, liters per minute;

$t_s$ = Time sampled, minutes;

$T_A$ = Volume acid titer (total), ml;

$T_N$ = Volume neutral titer, ml; and

$N_{Thio}$ = Normality of sodium thiosulfate titrant.

(iii) Any other method that measures the total HAP or methanol concentration that has been demonstrated to the Administrator's satisfaction.

(6) The minimum sampling time for each of the three test runs shall be 1 hour in which either an integrated sample or four grab samples shall be taken. If grab sampling is used, then the samples shall be taken at approximately equal intervals in time, such as 15 minute intervals during the test run.

(c) *Liquid sampling locations and properties.* For purposes of selecting liquid sampling locations and for determining properties of liquid streams such as wastewaters, process waters, and condensates required in §§63.444, 63.446, and 63.447, the owner or operator shall comply with the following procedures:

(1) Samples shall be collected using the sampling procedures of the test method listed in paragraph (c)(3) of this section selected to determine liquid stream HAP concentrations;

(i) Where feasible, samples shall be taken from an enclosed pipe prior to the liquid stream being exposed to the atmosphere; and

(ii) When sampling from an enclosed pipe is not feasible, samples shall be collected in a manner to minimize exposure of the sample to the atmosphere and loss of HAP compounds prior to sampling.

(2) The volumetric flow rate of the entering and exiting liquid streams shall be determined using the inlet and outlet flow meters or other methods demonstrated to the Administrator's satisfaction. The volumetric flow rate measurements to determine actual mass removal shall be taken at the same time as the concentration measurements.

(3) The owner or operator shall conduct a minimum of three test runs that are representative of normal conditions and average the resulting pollutant concentrations. The minimum sampling time for each test run shall be 1 hour and the grab or composite samples shall be taken at approximately equally spaced intervals over

the 1-hour test run period. The owner or operator shall use one of the following procedures to determine total HAP or methanol concentration:

(i) Method 305 in Appendix A of this part, adjusted using the following equation:

$$\overline{C} = \sum_{i=1}^{n} C_i / fm_i$$

Where:

$\overline{C}$ = Pollutant concentration for the liquid stream, parts per million by weight.

$C_i$ = Measured concentration of pollutant i in the liquid stream sample determined using Method 305, parts per million by weight.

$fm_i$ = Pollutant-specific constant that adjusts concentration measured by Method 305 to actual liquid concentration; the fm for methanol is 0.85. Additional pollutant fm values can be found in table 34, subpart G of this part.

n = Number of individual pollutants, i, summed to calculate total HAP.

(ii) For determining methanol concentrations, NCASI Method DI/MEOH-94.03. This test method is incorporated by reference in §63.14(f)(1) of subpart A of this part.

(iii) Any other method that measures total HAP concentration that has been demonstrated to the Administrator's satisfaction.

(4) To determine soluble $BOD_5$ in the effluent stream from an open biological treatment unit used to comply with §§63.446(e)(2) and 63.453(j), the owner or operator shall use Method 405.1 of part 136 of this chapter with the following modifications:

(i) Filter the sample through the filter paper, into an Erlenmeyer flask by applying a vacuum to the flask sidearm. Minimize the time for which vacuum is applied to prevent stripping of volatile organics from the sample. Replace filter paper as often as needed in order to maintain filter times of less than approximately 30 seconds per filter paper. No rinsing of sample container or filter bowl into the Erlenmeyer flask is allowed.

(ii) Perform Method 405.1 on the filtrate obtained in paragraph (c)(4) of this section. Dilution water shall be seeded with 1 milliliter of final effluent per liter of dilution water. Dilution ratios may require adjustment to reflect the lower oxygen demand of the filtered sample in comparison to the total $BOD_5$. Three BOD bottles and different dilutions shall be used for each sample.

(5) If the test method used to determine HAP concentration indicates that a specific HAP is not detectable, the value determined as the minimum measurement level (MML) of the selected test method for the specific HAP shall be used in the compliance demonstration calculations. To determine the MML for a specific HAP using one of the test methods specified in paragraph (c)(3) of this section, one of the procedures specified in paragraphs (c)(5)(i) and (ii) of this section shall be performed. The MML for a particular HAP must be determined only if the HAP is not detected in the normal working range of the method.

(i) To determine the MML for a specific HAP, the following procedures shall be performed each time the method is set up. Set up is defined as the first time the analytical apparatus is placed in operation, after any shut down of 6 months or more, or any time a major component of the analytical apparatus is replaced.

(A) Select a concentration value for the specific HAP in question to represent the MML. The value of the MML selected shall not be below the calibration standard of the selected test method.

(B) Measure the concentration of the specific HAP in a minimum of three replicate samples using the selected test method. All replicate samples shall be run through the entire analytical procedure. The samples must contain the specific HAP at the selected MML concentration and should be representative of the liquid streams to be analyzed in the compliance demonstration. Spiking of the liquid samples with a known concentration of the target HAP may be necessary to ensure that the HAP concentration in the three replicate samples is at the selected MML. The concentration of the HAP in the spiked sample must be within 50 percent of the proposed MML for the demonstration to be valid. As an alternative to spiking, a field sample above the MML may be diluted to produce a HAP concentration at the MML. To be a valid demonstration, the diluted sample must have a HAP concentration within 20 percent of the proposed MML, and the field sample must not be diluted by more than a factor of five.

(C) Calculate the relative standard deviation (RSD) and the upper confidence limit at the 95 percent confidence level using the measured HAP concentrations determined in paragraph (c)(5)(i)(B) of this section. If the upper confidence limit of the RSD is less than 30 percent, then the selected MML is acceptable. If the upper confidence limit of the RSD is greater than or equal to 30 percent, then the selected MML is too low, and the procedures specified in paragraphs (c)(5)(i)(A) through (C) of this section must be repeated.

(ii) Provide for the Administrator's approval the selected value of the MML for a specific HAP and the rationale for selecting the MML including all data and calculations used to determine the MML. The approved MML must be used in all applicable compliance demonstration calculations.

(6) When using the MML determined using the procedures in paragraph (c)(5)(ii) of this section or when using the MML determined using the procedures in paragraph (c)(5)(i), except during set up, the analytical laboratory conducting the analysis must perform and meet the following quality assurance procedures each time a set of samples is analyzed to determine compliance.

(i) Using the selected test method, analyze in triplicate the concentration of the specific HAP in a representative sample. The sample must contain the specific HAP at a concentration that is within a factor of two of the MML. If there are no samples in the set being analyzed that contain the specific HAP at an appropriate concentration, then a sample below the MML may be spiked to produce the appropriate concentration, or a sample at a higher level may be diluted. After spiking, the sample must contain the specific HAP within 50 percent of the MML. If dilution is used instead, the diluted sample must contain the specific HAP within 20 percent of the MML and must not be diluted by more than a factor of five.

(ii) Calculate the RSD using the measured HAP concentrations determined in paragraph (c)(6)(i) of this section. If the RSD is less than 20 percent, then the laboratory is performing acceptably.

(d) *Detectable leak procedures.* To measure detectable leaks for closed-vent systems as specified in §63.450 or for pulping process wastewater collection systems as specified in §63.446(d)(2)(i), the owner or operator shall comply with the following:

(1) Method 21, of part 60, appendix A-7; and

(2) The instrument specified in Method 21 shall be calibrated before use according to the procedures specified in Method 21 on each day that leak checks are performed. The following calibration gases shall be used:

(i) Zero air (less than 10 parts per million by volume of hydrocarbon in air); and

(ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 parts per million by volume methane or n-hexane.

(e) *Negative pressure procedures.* To demonstrate negative pressure at process equipment enclosure openings as specified in §63.450(b), the owner or operator shall use one of the following procedures:

(1) An anemometer to demonstrate flow into the enclosure opening;

(2) Measure the static pressure across the opening;

(3) Smoke tubes to demonstrate flow into the enclosure opening; or

(4) Any other industrial ventilation test method demonstrated to the Administrator's satisfaction.

(f) *HAP concentration measurements.* For purposes of complying with the requirements in §§63.443, 63.444, and 63.447, the owner or operator shall measure the total HAP concentration as one of the following:

(1) As the sum of all individual HAPs; or

(2) As methanol.

(g) *Condensate HAP concentration measurement.* For purposes of complying with the kraft pulping condensate requirements in §63.446, the owner or operator shall measure the total HAP concentration as methanol. For biological treatment systems complying with §63.446(e)(2), the owner or operator shall measure total HAP as acetaldehyde, methanol, methyl ethyl ketone, and propionaldehyde and follow the procedures in §63.457(l)(1) or (2).

(h) *Bleaching HAP concentration measurement.* For purposes of complying with the bleaching system requirements in §63.445, the owner or operator shall measure the total HAP concentration as the sum of all individual chlorinated HAPs or as chlorine.

(i) *Vent gas stream calculations.* To demonstrate compliance with the mass emission rate, mass emission rate per megagram of ODP, and percent reduction requirements for vent gas streams specified in §§63.443, 63.444, 63.445, and 63.447, the owner or operator shall use the following:

(1) The total HAP mass emission rate shall be calculated using the following equation:

$$E = K_2 \left[ \sum_{j=1}^{n} C_j M_j \right] Q_s$$

Where:

E = Mass emission rate of total HAP from the sampled vent, kilograms per hour.

$K_2$ = Constant, $2.494 \times 10^{-6}$ (parts per million by volume)$^{-1}$ (gram-mole per standard cubic meter) (kilogram/gram) (minutes/hour), where standard temperature for (gram-mole per standard cubic meter) is 20 °C.

$C_j$ = Concentration on a dry basis of pollutant j in parts per million by volume as measured by the test methods specified in paragraph (b) of this section.

$M_j$ = Molecular weight of pollutant j, gram/gram-mole.

$Q_s$ = Vent gas stream flow rate (dry standard cubic meter per minute) at a temperature of 20 °C as indicated in paragraph (b) of this section.

n = Number of individual pollutants, i, summed to calculate total HAP.

(2) The total HAP mass emission rate per megagram of ODP shall be calculated using the following equation:

$$F = \frac{E}{P}$$

Where:

F = Mass emission rate of total HAP from the sampled vent, in kilograms per megagram of ODP.

E = Mass emission rate of total HAP from the sampled vent, in kilograms per hour determined as specified in paragraph (i)(1) of this section.

P = The production rate of pulp during the sampling period, in megagrams of ODP per hour.

(3) The total HAP percent reduction shall be calculated using the following equation:

$$R = \frac{E_i - E_o}{E_i} (100)$$

Where:

R = Efficiency of control device, percent.

Ei = Inlet mass emission rate of total HAP from the sampled vent, in kilograms of pollutant per hour, determined as specified in paragraph (i)(1) of this section.

$E_o$ = Outlet mass emission rate of total HAP from the sampled vent, in kilograms of pollutant per hour, determined as specified in paragraph (i)(1) of this section.

(j) *Liquid stream calculations.* To demonstrate compliance with the mass flow rate, mass per megagram of ODP, and percent reduction requirements for liquid streams specified in §63.446, the owner or operator shall use the following:

(1) The mass flow rates of total HAP or methanol entering and exiting the treatment process shall be calculated using the following equations:

$$E_b = \frac{K}{n \times 10^6}\left(\sum_{i=1}^{n} V_{bi} C_{bi}\right)$$

$$E_a = \frac{K}{n \times 10^6}\left(\sum_{i=1}^{n} V_{ai} C_{ai}\right)$$

Where:

$E_b$ = Mass flow rate of total HAP or methanol in the liquid stream entering the treatment process, kilograms per hour.

$E_a$ = Mass flow rate of total HAP or methanol in the liquid exiting the treatment process, kilograms per hour.

K = Density of the liquid stream, kilograms per cubic meter.

$V_{bi}$ = Volumetric flow rate of liquid stream entering the treatment process during each run i, cubic meters per hour, determined as specified in paragraph (c) of this section.

$V_{ai}$ = Volumetric flow rate of liquid stream exiting the treatment process during each run i, cubic meters per hour, determined as specified in paragraph (c) of this section.

$C_{bi}$ = Concentration of total HAP or methanol in the stream entering the treatment process during each run i, parts per million by weight, determined as specified in paragraph (c) of this section.

$C_{ai}$ = Concentration of total HAP or methanol in the stream exiting the treatment process during each run i, parts per million by weight, determined as specified in paragraph (c) of this section.

n = Number of runs.

(2) The mass of total HAP or methanol per megagram ODP shall be calculated using the following equation:

$$F = \frac{E_a}{P}$$

Where:

F = Mass loading of total HAP or methanol in the sample, in kilograms per megagram of ODP.

$E_a$ = Mass flow rate of total HAP or methanol in the wastewater stream in kilograms per hour as determined using the procedures in paragraph (j)(1) of this section.

P = The production rate of pulp during the sampling period in megagrams of ODP per hour.

(3) The percent reduction of total HAP across the applicable treatment process shall be calculated using the following equation:

$$R = \frac{E_b - E_a}{E_b} \times 100$$

Where:

R = Control efficiency of the treatment process, percent.

$E_b$ = Mass flow rate of total HAP in the stream entering the treatment process, kilograms per hour, as determined in paragraph (j)(1) of this section.

$E_a$ = Mass flow rate of total HAP in the stream exiting the treatment process, kilograms per hour, as determined in paragraph (j)(1) of this section.

(4) Compounds that meet the requirements specified in paragraphs (j)(4)(i) or (4)(ii) of this section are not required to be included in the mass flow rate, mass per megagram of ODP, or the mass percent reduction determinations.

(i) Compounds with concentrations at the point of determination that are below 1 part per million by weight; or

(ii) Compounds with concentrations at the point of determination that are below the lower detection limit where the lower detection limit is greater than 1 part per million by weight.

(k) *Oxygen concentration correction procedures.* To demonstrate compliance with the total HAP concentration limit of 20 ppmv in §63.443(d)(2), the concentration measured using the methods specified in paragraph (b)(5) of this section shall be corrected to 10 percent oxygen using the following procedures:

(1) The emission rate correction factor and excess air integrated sampling and analysis procedures of Methods 3A or 3B of part 60, appendix A-2 shall be used to determine the oxygen concentration. The samples shall be taken at the same time that the HAP samples are taken. As an alternative to Method 3B, ASME PTC 19.10-1981 [Part 10] may be used (incorporated by reference, see §63.14(i)(1)).

(2) The concentration corrected to 10 percent oxygen shall be computed using the following equation:

$$C_c = C_m \left( \frac{10.9}{20.9 - \%O_{2d}} \right)$$

Where:

$C_c$ = Concentration of total HAP corrected to 10 percent oxygen, dry basis, parts per million by volume.

$C_m$ = Concentration of total HAP dry basis, parts per million by volume, as specified in paragraph (b) of this section.

$\%0_{2d}$ = Concentration of oxygen, dry basis, percent by volume.

(l) *Biological treatment system percent reduction and mass removal calculations.* To demonstrate compliance with the condensate treatment standards specified in §63.446(e)(2) and the monitoring requirements specified in §63.453(j)(3) using a biological treatment system, the owner or operator shall use one of the procedures specified in paragraphs (1)(1) and (2) of this section. Owners or operators using a nonthoroughly mixed open biological treatment system shall also comply with paragraph (1)(3) of this section.

(1) *Percent reduction methanol procedure.* For the purposes of complying with the condensate treatment requirements specified in §63.446(e)(2) and (3), the methanol percent reduction shall be calculated using the following equations:

$$R = \frac{f_{bio}(MeOH)}{(1+1.087(r))} * 100$$

$$r = \frac{F_{(nonmethanol)}}{F_{(methanol)}}$$

Where:

R = Percent destruction.

$f_{bio}$(MeOH) = The fraction of methanol removed in the biological treatment system. The site-specific biorate constants shall be determined using the appropriate procedures specified in appendix C of this part.

r = Ratio of the sum of acetaldehyde, methyl ethyl ketone, and propionaldehyde mass to methanol mass.

$F_{(nonmethanol)}$ = The sum of acetaldehyde, methyl ethyl ketone, and propionaldehyde mass flow rates (kg/Mg ODP) entering the biological treatment system determined using the procedures in paragraph (j)(2) of this section.

$F_{(methanol)}$ = The mass flow rate (kg/Mg ODP) of methanol entering the system determined using the procedures in paragraph (j)(2) of this section.

(2) *Mass removal methanol procedure.* For the purposes of complying with the condensate treatment requirements specified in §63.446(e)(2) and (4), or §63.446(e)(2) and (5), the methanol mass removal shall be calculated using the following equation:

$$F = F_b * \left(f_{bio}(MeOH) / (1+1.087(r))\right)$$

Where:

F = Methanol mass removal (kg/Mg ODP).

$F_b$ = Inlet mass flow rate of methanol (kg/Mg ODP) determined using the procedures in paragraph (j)(2) of this section.

$f_{bio}$(MeOH) = The fraction of methanol removed in the biological treatment system. The site-specific biorate constants shall be determined using the appropriate procedures specified in appendix C of this part.

r = Ratio of the sum of acetaldehyde, methyl ethyl ketone, and propionaldehyde mass to methanol mass determined using the procedures in paragraph (1) of this section.

(3) The owner or operator of a nonthoroughly mixed open biological treatment system using the monitoring requirements specified in §63.453(p)(3) shall follow the procedures specified in section III.B.1 of appendix E of this part to determine the borate constant, Ks, and characterize the open biological treatment system during the initial and any subsequent performance tests.

(m) *Condensate segregation procedures*. The following procedures shall be used to demonstrate compliance with the condensate segregation requirements specified in §63.446(c).

(1) To demonstrate compliance with the percent mass requirements specified in §63.446(c)(2), the procedures specified in paragraphs (m)(1)(i) through (iii) of this section shall be performed.

(i) Determine the total HAP mass of all condensates from each equipment system listed in §63.446 (b)(1) through (b)(3) using the procedures specified in paragraphs (c) and (j) of this section.

(ii) Multiply the total HAP mass determined in paragraph (m)(1)(i) of this section by 0.65 to determine the target HAP mass for the high-HAP fraction condensate stream or streams.

(iii) Compliance with the segregation requirements specified in §63.446(c)(2) is demonstrated if the condensate stream or streams from each equipment system listed in §63.446(b)(1) through (3) being treated as specified in §63.446(e) contain at least as much total HAP mass as the target total HAP mass determined in paragraph (m)(1)(ii) of this section.

(2) To demonstrate compliance with the percent mass requirements specified in §63.446(c)(3), the procedures specified in paragraphs (m)(2)(i) through (ii) of this section shall be performed.

(i) Determine the total HAP mass contained in the high-HAP fraction condensates from each equipment system listed in §63.446(b)(1) through (b)(3) and the total condensates streams from the equipment systems listed in §63.446(b)(4) and (b)(5), using the procedures specified in paragraphs (c) and (j) of this section.

(ii) Compliance with the segregation requirements specified in §63.446(c)(3) is demonstrated if the total HAP mass determined in paragraph (m)(2)(i) of this section is equal to or greater than the appropriate mass requirements specified in §63.446(c)(3).

(n) *Open biological treatment system monitoring sampling storage*. The inlet and outlet grab samples required to be collected in §63.453(j)(1)(ii) shall be stored at 4 °C (40 °F) to minimize the biodegradation of the organic compounds in the samples.

(o) Performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Upon

request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

**§63.458 Implementation and enforcement.**

(a) This subpart can be implemented and enforced by the U.S. EPA, or a delegated authority such as the applicable State, local, or Tribal agency. If the U.S. EPA Administrator has delegated authority to a State, local, or Tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. Contact the applicable U.S. EPA Regional Office to find out if this subpart is delegated to a State, local, or Tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or Tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and cannot be transferred to the State, local, or Tribal agency.

(c) The authorities that cannot be delegated to State, local, or Tribal agencies are as specified in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the requirements in §§63.440, 63.443 through 63.447 and 63.450. Where these standards reference another subpart, the cited provisions will be delegated according to the delegation provisions of the referenced subpart.

(2) Approval of alternatives to using §§63.457(b)(5)(iii), 63.457(c)(3)(ii) through (iii), and 63.257(c)(5)(ii), and any major alternatives to test methods under §63.7(e)(2)(ii) and (f), as defined in §63.90, and as required in this subpart.

(3) Approval of alternatives using §64.453(m) and any major alternatives to monitoring under §63.8(f), as defined in §63.90, and as required in this subpart.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f), as defined in §63.90, and as required in this subpart.

| **Table 1 to Subpart S of Part 63—General Provisions Applicability to Subpart S[a]** | | |
|---|---|---|
| **Reference** | **Applies to subpart S** | **Comment** |
| 63.1(a)(1)-(3) | Yes | |
| 63.1(a)(4) | Yes | Subpart S (this table) specifies applicability of each paragraph in subpart A to subpart S. |
| 63.1(a)(5) | No | Section reserved. |
| 63.1(a)(6) | Yes | |

| Table 1 to Subpart S of Part 63—General Provisions Applicability to Subpart S[a] | | |
|---|---|---|
| **Reference** | **Applies to subpart S** | **Comment** |
| 63.1(a)(7)-(9) | No | Sections reserved. |
| 63.1(a)(10) | No | Subpart S and other cross-referenced subparts specify calendar or operating day. |
| 63.1(a)(11)-(12) | Yes | |
| 63.1(b)(1) | No | Subpart S specifies its own applicability. |
| 63.1(b)(2) | No | Section reserved. |
| 63.1(b)(3) | Yes | |
| 63.1(c)(1)-(2) | Yes | |
| 63.1(c)(3)-(4) | No | Sections reserved. |
| 63.1(c)(5) | Yes | |
| 63.1(d) | No | Section reserved. |
| 63.1(e) | Yes | |
| 63.2 | Yes | |
| 63.3 | Yes | |
| 63.4(a)(1)-(2) | Yes | |
| 63.4(a)(3)-(5) | No | Sections reserved. |
| 63.4(b) | Yes | |
| 63.4(c) | Yes | |
| 63.5(a) | Yes | |
| 63.5(b)(1) | Yes | |
| 63.5(b)(2) | No | Section reserved. |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart S, National Emission Standards For Hazardous Air Pollutants From The Pulp and Paper Industry**



| Table 1 to Subpart S of Part 63—General Provisions Applicability to Subpart S[a] | | |
|---|---|---|
| **Reference** | **Applies to subpart S** | **Comment** |
| 63.5(b)(3)-(4) | Yes | |
| 63.5(b)(5) | No | Section reserved. |
| 63.5(b)(6) | Yes | |
| 63.5(c) | No | Section reserved. |
| 63.5(d) | Yes | |
| 63.5(e) | Yes | |
| 63.5(f) | Yes | |
| 63.6(a) | Yes | |
| 63.6(b)(1)-(5) | No | Subpart S specifies compliance dates for sources subject to subpart S. |
| 63.6(b)(6) | No | Section reserved. |
| 63.6(b)(7) | No | Subpart S specifies compliance dates for sources subject to subpart S. |
| 63.6(c)(1)-(2) | No | Subpart S specifies compliance dates for sources subject to subpart S. |
| 63.6(c)(3)-(4) | No | Sections reserved. |
| 63.6(c)(5) | No | Subpart S specifies compliance dates for sources subject to subpart S. |
| 63.6(d) | No | Section reserved. |
| 63.6(e)(1)(i) | No | See §63.453(q) for general duty requirement. |
| 63.6(e)(1)(ii) | No | |
| 63.6(e)(1)(iii) | Yes | |

| Table 1 to Subpart S of Part 63—General Provisions Applicability to Subpart S[a] | | |
|---|---|---|
| **Reference** | **Applies to subpart S** | **Comment** |
| 63.6(e)(2) | No | Section reserved. |
| 63.6(e)(3) | No | |
| 63.6(f)(1) | No | |
| 63.6(f)(2)-(3) | Yes | |
| 63.6(g) | Yes | |
| 63.6(h)(1)-(2) | No | Pertains to continuous opacity monitors that are not part of this standard. |
| 63.6(h)(3) | No | Section reserved. |
| 63.6(h)(4)-(9) | No | Pertains to continuous opacity monitors that are not part of this standard. |
| 63.6(i)(1)-(14) | Yes | |
| 63.6(i)(15) | No | Section reserved. |
| 63.6(i)(16) | Yes | |
| 63.6(j) | Yes | |
| 63.7(a) | Yes | |
| 63.7(b) | Yes | |
| 63.7(c) | Yes | |
| 63.7(d) | Yes | |
| 63.7(e)(1) | No | Replaced with §63.457(o), which specifies performance testing conditions under subpart S. |
| 63.7(e)(2)-(4) | Yes | |
| 63.7(f) | Yes | |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart S, National Emission Standards For Hazardous Air Pollutants From The Pulp and Paper Industry**



| Table 1 to Subpart S of Part 63—General Provisions Applicability to Subpart S[a] | | |
|---|---|---|
| **Reference** | **Applies to subpart S** | **Comment** |
| 63.7(g)(1) | Yes | |
| 63.7(g)(2) | No | Section reserved. |
| 63.7(g)(3) | Yes | |
| 63.7(h) | Yes | |
| 63.8(a)(1)-(2) | Yes | |
| 63.8(a)(3) | No | Section reserved. |
| 63.8(a)(4) | Yes | |
| 63.8(b)(1) | Yes | |
| 63.8(b)(2) | No | Subpart S specifies locations to conduct monitoring. |
| 63.8(b)(3) | Yes | |
| 63.8(c)(1)-(c)(1)(i) | No | See §63.453(q) for general duty requirement (which includes monitoring equipment). |
| 63.8(c)(1)(ii) | Yes | |
| 63.8(c)(1)(iii) | No | |
| 63.8(c)(2)-(3) | Yes | |
| 63.8(c)(4) | No | Subpart S allows site specific determination of monitoring frequency in §63.453(n)(4). |
| 63.8(c)(5) | No | Pertains to continuous opacity monitors that are not part of this standard. |
| 63.8(c)(6)-(8) | Yes | |
| 63.8(d)(1)-(2) | Yes | |
| 63.8(d)(3) | Yes, except for last | SSM plans are not required |

| Table 1 to Subpart S of Part 63—General Provisions Applicability to Subpart S[a] | | |
|---|---|---|
| **Reference** | **Applies to subpart S** | **Comment** |
| | sentence, which refers to an SSM plan | |
| 63.8(e) | Yes | |
| 63.8(f)(1)-(5) | Yes | |
| 63.8(f)(6) | No | Subpart S does not specify relative accuracy test for CEMs. |
| 63.8(g) | Yes | |
| 63.9(a) | Yes | |
| 63.9(b)(1)-(2) | Yes | Initial notifications must be submitted within one year after the source becomes subject to the relevant standard. |
| 63.9(b)(3) | No | Section reserved. |
| 63.9(b)(4)-(5) | Yes | |
| 63.9(c) | Yes | |
| 63.9(d) | No | Special compliance requirements are only applicable to kraft mills. |
| 63.9(e) | Yes | |
| 63.9(f) | No | Pertains to continuous opacity monitors that are not part of this standard. |
| 63.9(g)(1) | Yes | |
| 63.9(g)(2) | No | Pertains to continuous opacity monitors that are not part of this standard. |
| 63.9(g)(3) | No | Subpart S does not specify relative accuracy tests, therefore no notification is required for an alternative. |
| 63.9(h)(1)-(3) | Yes | |
| 63.9(h)(4) | No | Section reserved. |

| Table 1 to Subpart S of Part 63—General Provisions Applicability to Subpart S[a] | | |
|---|---|---|
| **Reference** | **Applies to subpart S** | **Comment** |
| 63.9(h)(5)-(6) | Yes | |
| 63.9(i) | Yes | |
| 63.9(j) | Yes | |
| 63.10(a) | Yes | |
| 63.10(b)(1) | Yes | |
| 63.10(b)(2)(i) | No | |
| 63.10(b)(2)(ii) | No | See §63.454(g) for recordkeeping of (1) occurrence and duration and (2) actions taken during malfunction. |
| 63.10(b)(2)(iii) | Yes | |
| 63.10(b)(2)(iv)-(v) | No | |
| 63.10(b)(2)(vi)-(xiv) | Yes | |
| 63.10(b)(3) | Yes | |
| 63.10(c)(1) | Yes | |
| 63.10(c)(2)-(4) | No | Sections reserved. |
| 63.10(c)(5)-(8) | Yes | |
| 63.10(c)(9) | No | Section reserved. |
| 63.10(c)(10)-(11) | No | See §63.454(g) for malfunction recordkeeping requirements. |
| 63.10(c)(12)-(14) | Yes | |
| 63.10(c)(15) | No | |
| 63.10(d)(1)-(2) | Yes | |

| Table 1 to Subpart S of Part 63—General Provisions Applicability to Subpart S[a] | | |
|---|---|---|
| **Reference** | **Applies to subpart S** | **Comment** |
| 63.10(d)(3) | No | Pertains to continuous opacity monitors that are not part of this standard. |
| 63.10(d)(4) | Yes | |
| 63.10(d)(5) | No | See §63.455(g) for malfunction reporting requirements. |
| 63.10(e)(1) | Yes | |
| 63.10(e)(2)(i) | Yes | |
| 63.10(e)(2)(ii) | No | Pertains to continuous opacity monitors that are not part of this standard. |
| 63.10(e)(3) | Yes | |
| 63.10(e)(4) | No | Pertains to continuous opacity monitors that are not part of this standard. |
| 63.10(f) | Yes | |
| 63.11-63.15 | Yes | |

[a]Wherever subpart A specifies "postmark" dates, submittals may be sent by methods other than the U.S. Mail (e.g., by fax or courier). Submittals shall be sent by the specified dates, but a postmark is not required.

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart MM—National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills**



# Subpart MM—National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills

**Contents**

§63.860 Applicability and designation of affected source.
§63.861 Definitions.
§63.862 Standards.
§63.863 Compliance dates.
§63.864 Monitoring requirements.
§63.865 Performance test requirements and test methods.
§63.866 Recordkeeping requirements.
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§63.868 Delegation of authority.
Table 1 to Subpart MM of Part 63—General Provisions Applicability to Subpart MM

### §63.860 Applicability and designation of affected source.

(a) The requirements of this subpart apply to the owner or operator of each kraft, soda, sulfite, or stand-alone semichemical pulp mill that is a major source of hazardous air pollutants (HAP) emissions as defined in §63.2.

(b) *Affected sources.* The requirements of this subpart apply to each new or existing affected source listed in paragraphs (b)(1) through (7) of this section:

(1) Each existing chemical recovery system (as defined in §63.861) located at a kraft or soda pulp mill.

(2) Each new nondirect contact evaporator (NDCE) recovery furnace and associated smelt dissolving tank(s) located at a kraft or soda pulp mill.

(3) Each new direct contact evaporator (DCE) recovery furnace system (as defined in §63.861) and associated smelt dissolving tank(s) located at a kraft or soda pulp mill.

(4) Each new lime kiln located at a kraft or soda pulp mill.

(5) Each new or existing sulfite combustion unit located at a sulfite pulp mill, except such existing units at Cosmo Specialty Fibers' Cosmopolis, Washington facility (Emission Unit no. AP-10).

(6) Each new or existing semichemical combustion unit located at a stand-alone semichemical pulp mill.

(7) The requirements of the alternative standard in §63.862(d) apply to the hog fuel dryer at Cosmo Specialty Fibers' Cosmopolis, Washington facility (Emission Unit no. HD-14).

(c) The requirements of the General Provisions in subpart A of this part that apply to the owner or operator subject to the requirements of this subpart are identified in Table 1 to this subpart.

(d) At all times, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

**§63.861 Definitions.**

All terms used in this subpart are defined in the Clean Air Act, in subpart A of this part, or in this section. For the purposes of this subpart, if the same term is defined in subpart A or any other subpart of this part and in this section, it must have the meaning given in this section.

*Bag leak detection system* means an instrument that is capable of monitoring PM loadings in the exhaust of a fabric filter in order to detect bag failures. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, light scattering, light transmittance, or other principle to monitor relative PM loadings.

*Black liquor* means spent cooking liquor that has been separated from the pulp produced by the kraft, soda, or semichemical pulping process.

*Black liquor oxidation (BLO) system* means the vessels used to oxidize the black liquor, with air or oxygen, and the associated storage tank(s).

*Black liquor solids (BLS)* means the dry weight of the solids in the black liquor that enters the recovery furnace or semichemical combustion unit.

*Black liquor solids firing rate* means the rate at which black liquor solids are fed to the recovery furnace or the semichemical combustion unit.

*Chemical recovery combustion source* means any source in the chemical recovery area of a kraft, soda, sulfite or stand-alone semichemical pulp mill that is an NDCE recovery furnace, a DCE recovery furnace system, a smelt dissolving tank, a lime kiln, a sulfite combustion unit, or a semichemical combustion unit.

*Chemical recovery system* means all existing DCE and NDCE recovery furnaces, smelt dissolving tanks, and lime kilns at a kraft or soda pulp mill. Each existing recovery furnace, smelt dissolving tank, or lime kiln is considered a process unit within a chemical recovery system.

*Direct contact evaporator (DCE) recovery furnace* means a kraft or soda recovery furnace equipped with a direct contact evaporator that concentrates strong black liquor by direct contact between the hot recovery furnace exhaust gases and the strong black liquor.

*Direct contact evaporator (DCE) recovery furnace system* means a direct contact evaporator recovery furnace and any black liquor oxidation system, if present, at the pulp mill.

*Dry electrostatic precipitator (ESP) system* means an electrostatic precipitator with a dry bottom (*i.e.,* no black liquor, water, or other fluid is used in the ESP bottom) and a dry particulate matter return system (*i.e.,* no black liquor, water, or other fluid is used to transport the collected PM to the mix tank).

*Fabric filter* means an air pollution control device used to capture PM by filtering a gas stream through filter media; also known as a baghouse.

*Hazardous air pollutants (HAP) metals* means the sum of all emissions of antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, mercury, nickel, and selenium as measured by EPA Method 29 (40 CFR part 60, appendix A-8).

*Hog fuel dryer* means the equipment that combusts fine particles of wood waste (hog fuel) in a fluidized bed and directs the heated exhaust stream to a rotary dryer containing wet hog fuel to be dried prior to combustion in the hog fuel boiler at Cosmo Specialty Fibers' Cosmopolis, Washington facility. The hog fuel dryer at Cosmo Specialty Fibers' Cosmopolis, Washington facility is Emission Unit no. HD-14.

*Kraft pulp mill* means any stationary source that produces pulp from wood by cooking (digesting) wood chips in a solution of sodium hydroxide and sodium sulfide. The recovery process used to regenerate cooking chemicals is also considered part of the kraft pulp mill.

*Kraft recovery furnace* means a recovery furnace that is used to burn black liquor produced by the kraft pulping process, as well as any recovery furnace that burns black liquor produced from both the kraft and semichemical pulping processes, and includes the direct contact evaporator, if applicable.

*Lime kiln* means the combustion unit (*e.g.,* rotary lime kiln or fluidized-bed calciner) used at a kraft or soda pulp mill to calcine lime mud, which consists primarily of calcium carbonate, into quicklime, which is calcium oxide (CaO).

*Lime production rate* means the rate at which dry lime, measured as CaO, is produced in the lime kiln.

*Method detection limit* means the minimum concentration of an analyte that can be determined with 99 percent confidence that the true value is greater than zero.

*Modification* means, for the purposes of §63.862(a)(1)(ii)(E)(*1*), any physical change (excluding any routine part replacement or maintenance) or operational change that is made to the air pollution control device that could result in an increase in PM emissions.

*Nondetect data* means, for the purposes of this subpart, any value that is below the method detection limit.

*Nondirect contact evaporator (NDCE) recovery furnace* means a kraft or soda recovery furnace that burns black liquor that has been concentrated by indirect contact with steam.

*Particulate matter (PM)* means total filterable particulate matter as measured by EPA Method 5 (40 CFR part 60, appendix A-3), EPA Method 17 (§63.865(b)(1)) (40 CFR part 60, appendix A-6), or EPA Method 29 (40 CFR part 60, appendix A-8).

*Process unit* means an existing DCE or NDCE recovery furnace, smelt dissolving tank, or lime kiln in a chemical recovery system at a kraft or soda mill.

*Recovery furnace* means an enclosed combustion device where concentrated black liquor produced by the kraft or soda pulping process is burned to recover pulping chemicals and produce steam.

*Regenerative thermal oxidizer (RTO)* means a thermal oxidizer that transfers heat from the exhaust gas stream to the inlet gas stream by passing the exhaust stream through a bed of ceramic stoneware or other heat-absorbing medium before releasing it to the atmosphere, then reversing the gas flow so the inlet gas stream passes through the heated bed, raising the temperature of the inlet stream close to or at its ignition temperature.

*Semichemical combustion unit* means any equipment used to combust or pyrolyze black liquor at stand-alone semichemical pulp mills for the purpose of chemical recovery.

*Similar process units* means all existing DCE and NDCE recovery furnaces, smelt dissolving tanks, or lime kilns at a kraft or soda pulp mill.

*Smelt dissolving tank (SDT)* means a vessel used for dissolving the smelt collected from a kraft or soda recovery furnace.

*Soda pulp mill* means any stationary source that produces pulp from wood by cooking (digesting) wood chips in a sodium hydroxide solution. The recovery process used to regenerate cooking chemicals is also considered part of the soda pulp mill.

*Soda recovery furnace* means a recovery furnace used to burn black liquor produced by the soda pulping process and includes the direct contact evaporator, if applicable.

*Stand-alone semichemical pulp mill* means any stationary source that produces pulp from wood by partially digesting wood chips in a chemical solution followed by mechanical defibrating (grinding), and has an onsite chemical recovery process that is not integrated with a kraft pulp mill.

*Sulfite combustion unit* means a combustion device, such as a recovery furnace or fluidized-bed reactor, where spent liquor from the sulfite pulping process (i.e., red liquor) is burned to recover pulping chemicals.

*Sulfite pulp mill* means any stationary source that produces pulp from wood by cooking (digesting) wood chips in a solution of sulfurous acid and bisulfite ions. The recovery process used to regenerate cooking chemicals is also considered part of the sulfite pulp mill.

*Total hydrocarbons (THC)* means the sum of organic compounds measured as carbon using EPA Method 25A (40 CFR part 60, appendix A-7).

# ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart MM—National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills



**§63.862 Standards.**

(a) *Standards for HAP metals: existing sources.* (1) Each owner or operator of an existing kraft or soda pulp mill must comply with the requirements of either paragraph (a)(1)(i) or (ii) of this section.

(i) Each owner or operator of a kraft or soda pulp mill must comply with the PM emissions limits in paragraphs (a)(1)(i)(A) through (C) of this section.

(A) The owner or operator of each existing kraft or soda recovery furnace must ensure that the concentration of PM in the exhaust gases discharged to the atmosphere is less than or equal to 0.10 gram per dry standard cubic meter (g/dscm) (0.044 grain per dry standard cubic foot (gr/dscf)) corrected to 8 percent oxygen.

(B) The owner or operator of each existing kraft or soda smelt dissolving tank must ensure that the concentration of PM in the exhaust gases discharged to the atmosphere is less than or equal to 0.10 kilogram per megagram (kg/Mg) (0.20 pound per ton (lb/ton)) of black liquor solids fired.

(C) The owner or operator of each existing kraft or soda lime kiln must ensure that the concentration of PM in the exhaust gases discharged to the atmosphere is less than or equal to 0.15 g/dscm (0.064 gr/dscf) corrected to 10 percent oxygen.

(ii) As an alternative to meeting the requirements of §63.862(a)(1)(i), each owner or operator of a kraft or soda pulp mill may establish PM emissions limits for each existing kraft or soda recovery furnace, smelt dissolving tank, and lime kiln that operates 6,300 hours per year or more by:

(A) Establishing an overall PM emission limit for each existing process unit in the chemical recovery system at the kraft or soda pulp mill using the methods in §63.865(a)(1) and (2).

(B) The emissions limits for each kraft recovery furnace, smelt dissolving tank, and lime kiln that are used to establish the overall PM limit in paragraph (a)(1)(ii)(A) of this section must not be less stringent than the emissions limitations required by §60.282 of part 60 of this chapter for any kraft recovery furnace, smelt dissolving tank, or lime kiln that is subject to the requirements of §60.282.

(C) Each owner or operator of an existing kraft or soda recovery furnace, smelt dissolving tank, or lime kiln must ensure that the PM emissions discharged to the atmosphere from each of these sources are less than or equal to the applicable PM emissions limits, established using the methods in §63.865(a)(1), that are used to establish the overall PM emissions limits in paragraph (a)(1)(ii)(A) of this section.

(D) Each owner or operator of an existing kraft or soda recovery furnace, smelt dissolving tank, or lime kiln must reestablish the emissions limits determined in paragraph (a)(1)(ii)(A) of this section if either of the actions in paragraphs (a)(1)(ii)(D)(*1*) and (*2*) of this section are taken:

(*1*) The air pollution control system for any existing kraft or soda recovery furnace, smelt dissolving tank, or lime kiln for which an emission limit was established in paragraph (a)(1)(ii)(A) of this section is modified (as defined in §63.861) or replaced; or

(*2*) Any kraft or soda recovery furnace, smelt dissolving tank, or lime kiln for which an emission limit was established in paragraph (a)(1)(ii)(A) of this section is shut down for more than 60 consecutive days.

(iii) Each owner or operator of an existing kraft or soda recovery furnace, smelt dissolving tank, or lime kiln that operates less than 6,300 hours per year must comply with the applicable PM emissions limits for that process unit provided in paragraph (a)(1)(i) of this section.

(2) Except as specified in paragraph (d) of this section, the owner or operator of each existing sulfite combustion unit must ensure that the concentration of PM in the exhaust gases discharged to the atmosphere is less than or equal to 0.092 g/dscm (0.040 gr/dscf) corrected to 8 percent oxygen.

(b) *Standards for HAP metals: new sources.* (1) The owner or operator of any new kraft or soda recovery furnace must ensure that the concentration of PM in the exhaust gases discharged to the atmosphere is less than or equal to 0.034 g/dscm (0.015 gr/dscf) corrected to 8 percent oxygen.

(2) The owner or operator of any new kraft or soda smelt dissolving tank must ensure that the concentration of PM in the exhaust gases discharged to the atmosphere is less than or equal to 0.06 kg/Mg (0.12 lb/ton) of black liquor solids fired.

(3) The owner or operator of any new kraft or soda lime kiln must ensure that the concentration of PM in the exhaust gases discharged to the atmosphere is less than or equal to 0.023 g/dscm (0.010 gr/dscf) corrected to 10 percent oxygen.

(4) The owner or operator of any new sulfite combustion unit must ensure that the concentration of PM in the exhaust gases discharged to the atmosphere is less than or equal to 0.046 g/dscm (O.020 gr/dscf) corrected to 8 percent oxygen.

(c) *Standards for gaseous organic HAP.* (1) The owner or operator of any new recovery furnace at a kraft or soda pulp mill must ensure that the concentration of gaseous organic HAP, as measured by methanol, discharged to the atmosphere is no greater than 0.012 kg/Mg (0.025 lb/ton) of black liquor solids fired.

(2) The owner or operator of each existing or new semichemical combustion unit must ensure that:

(i) The concentration of gaseous organic HAP, as measured by total hydrocarbons reported as carbon, discharged to the atmosphere is less than or equal to 1.49 kg/Mg (2.97 lb/ton) of black liquor solids fired; or

(ii) The gaseous organic HAP emissions, as measured by total hydrocarbons reported as carbon, are reduced by at least 90 percent prior to discharge of the gases to the atmosphere.

(d) *Alternative standard.* As an alternative to meeting the requirements of paragraph (a)(2) of this section, the owner or operator of the existing hog fuel dryer at Cosmo Specialty Fibers' Cosmopolis, Washington facility (Emission Unit no. HD-14) must ensure that the mass of PM in the exhaust gases discharged to the atmosphere from the hog fuel dryer is less than or equal to 4.535 kilograms per hour (kg/hr) (10.0 pounds per hour (lb/hr)).

**§63.863 Compliance dates.**

(a) The owner or operator of an existing affected source or process unit must comply with the requirements in this subpart no later than March 13, 2004, except as noted in paragraph (c) of this section.

(b) The owner or operator of a new affected source that has an initial startup date after March 13, 2001 must comply with the requirements in this subpart immediately upon startup of the affected source, except as specified in §63.6(b).

(c) The owner or operator of an existing source or process unit must comply with the revised requirements published on October 11, 2017 no later than October 11, 2019, with the exception of the following:

(1) The first of the 5-year periodic performance tests must be conducted by October 13, 2020, and thereafter within 5 years following the previous performance test; and

(2) The date to submit performance test data through the CEDRI is within 60 days after the date of completing each performance test.

**§63.864 Monitoring requirements.**

(a)-(c) [Reserved]

(d) *Continuous opacity monitoring system (COMS).* The owner or operator of each affected kraft or soda recovery furnace or lime kiln equipped with an ESP must install, calibrate, maintain, and operate a COMS in accordance with Performance Specification 1 (PS-1) in appendix B to 40 CFR part 60 and the provisions in §§63.6(h) and 63.8 and paragraphs (d)(3) and (4) of this section.

(1)-(2) [Reserved]

(3) As specified in §63.8(c)(4)(i), each COMS must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

(4) As specified in §63.8(g)(2), each 6-minute COMS data average must be calculated as the average of 36 or more data points, equally spaced over each 6-minute period.

(e) *Continuous parameter monitoring system (CPMS).* For each CPMS required in this section, the owner or operator of each affected source or process unit must meet the requirements in paragraphs (e)(1) through (14) of this section.

(1) For any kraft or soda recovery furnace or lime kiln using an ESP emission control device, the owner or operator must maintain proper operation of the ESP's automatic voltage control (AVC).

(2) For any kraft or soda recovery furnace or lime kiln using an ESP followed by a wet scrubber, the owner or operator must follow the parameter monitoring requirements specified in paragraphs (e)(1) and (10) of this section. The opacity monitoring system specified in paragraph (d) of this section is not required for combination ESP/wet scrubber control device systems.

(3)-(9) [Reserved]

(10) The owner or operator of each affected kraft or soda recovery furnace, kraft or soda lime kiln, sulfite combustion unit, or kraft or soda smelt dissolving tank equipped with a wet scrubber must install, calibrate, maintain, and operate a CPMS that can be used to determine and record the pressure drop across the scrubber and the scrubbing liquid flow rate at least once every successive 15-minute period using the procedures in §63.8(c), as well as the procedures in paragraphs (e)(10)(i) and (ii) of this section:

(i) A monitoring device used for the continuous measurement of the pressure drop of the gas stream across the scrubber must be certified by the manufacturer to be accurate to within a gage pressure of ±500 pascals (±2 inches of water gage pressure); and

(ii) A monitoring device used for continuous measurement of the scrubbing liquid flow rate must be certified by the manufacturer to be accurate within ±5 percent of the design scrubbing liquid flow rate.

(iii) As an alternative to pressure drop measurement under paragraph (e)(3)(i) of this section, a monitoring device for measurement of fan amperage may be used for smelt dissolving tank dynamic scrubbers that operate at ambient pressure or for low-energy entrainment scrubbers where the fan speed does not vary.

(11) The owner or operator of each affected semichemical combustion unit equipped with an RTO must install, calibrate, maintain, and operate a CPMS that can be used to determine and record the operating temperature of the RTO at least once every successive 15-minute period using the procedures in §63.8(c). The monitor must compute and record the operating temperature at the point of incineration of effluent gases that are emitted using a temperature monitor accurate to within ±1 percent of the temperature being measured.

(12) The owner or operator of the affected hog fuel dryer at Cosmo Specialty Fibers' Cosmopolis, Washington facility (Emission Unit no. HD-14) must meet the requirements in paragraphs (e)(12)(i) through (xi) of this section for each bag leak detection system.

(i) The owner or operator must install, calibrate, maintain, and operate each triboelectric bag leak detection system according to EPA-454/R-98-015, "Fabric Filter Bag Leak Detection Guidance" (incorporated by reference—see §63.14). The owner or operator must install, calibrate, maintain, and operate other types of bag leak detection systems in a manner consistent with the manufacturer's written specifications and recommendations.

(ii) The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(iii) The bag leak detection system sensor must provide an output of relative PM loadings.

(iv) The bag leak detection system must be equipped with a device to continuously record the output signal from the sensor.

(v) The bag leak detection system must be equipped with an audible alarm system that will sound automatically when an increase in relative PM emissions over a preset level is detected. The alarm must be located where it is easily heard by plant operating personnel.

(vi) For positive pressure fabric filter systems, a bag leak detector must be installed in each baghouse compartment or cell.

(vii) For negative pressure or induced air fabric filters, the bag leak detector must be installed downstream of the fabric filter.

(viii) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(ix) The baseline output must be established by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time according to section 5.0 of the "Fabric Filter Bag Leak Detection Guidance" (incorporated by reference—see §63.14).

(x) Following initial adjustment of the system, the sensitivity or range, averaging period, alarm set points, or alarm delay time may not be adjusted except as detailed in the site-specific monitoring plan. In no case may the sensitivity be increased by more than 100 percent or decreased more than 50 percent over a 365-day period unless such adjustment follows a complete fabric filter inspection which demonstrates that the fabric filter is in good operating condition, as defined in section 5.2 of the "Fabric Filter Bag Leak Detection Guidance," (incorporated by reference—see §63.14). Record each adjustment.

(xi) The owner or operator must record the results of each inspection, calibration, and validation check.

(13) The owner or operator of each affected source or process unit that uses an ESP, wet scrubber, RTO, or fabric filter may monitor alternative control device operating parameters subject to prior written approval by the Administrator. The request for approval must also include the manner in which the parameter operating limit is to be set.

(14) The owner or operator of each affected source or process unit that uses an air pollution control system other than an ESP, wet scrubber, RTO, or fabric filter must provide to the Administrator an alternative monitoring request that includes a description of the control device, test results verifying the performance of the control device, the appropriate operating parameters that will be monitored, how the operating limit is to be set, and the frequency of measuring and recording to establish continuous compliance with the standards. The alternative monitoring request is subject to the Administrator's approval. The owner or operator of the affected source or process unit must install, calibrate, operate, and maintain the monitor(s) in accordance with the alternative monitoring request approved by the Administrator. The owner or operator must include in the information submitted to the Administrator proposed performance specifications and quality assurance procedures for the monitors. The Administrator may request further information and will approve acceptable test methods and procedures. The owner or operator must monitor the parameters as approved by the Administrator using the methods and procedures in the alternative monitoring request.

(f) *Data quality assurance.* The owner or operator shall keep CMS data quality assurance procedures consistent with the requirements in §63.8(d)(1) and (2) on record for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the Administrator. If the performance evaluation plan in §63.8(d)(2) is revised, the owner or operator shall keep previous (*i.e.,* superseded) versions of the performance evaluation plan on record to be made

available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan. The program of corrective action should be included in the plan required under §63.8(d)(2).

(g) *Gaseous organic HAP*. The owner or operator of each affected source or process unit complying with the gaseous organic HAP standard of §63.862(c)(1) through the use of an NDCE recovery furnace equipped with a dry ESP system is not required to conduct any continuous monitoring to demonstrate compliance with the gaseous organic HAP standard.

(h) *Monitoring data*. As specified in §63.8(g)(5), monitoring data recorded during periods of unavoidable CMS breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, and zero (low-level) and high level adjustments must not be included in any data average computed under this subpart.

(i) [Reserved]

(j) *Determination of operating limits*. (1) During the initial or periodic performance test required in §63.865, the owner or operator of any affected source or process unit must establish operating limits for the monitoring parameters in paragraphs (e)(1) and (2) and (e)(10) through (14) of this section, as appropriate; or

(2) The owner or operator may base operating limits on values recorded during previous performance tests or conduct additional performance tests for the specific purpose of establishing operating limits, provided that data used to establish the operating limits are or have been obtained during testing that used the test methods and procedures required in this subpart. The owner or operator of the affected source or process unit must certify that all control techniques and processes have not been modified subsequent to the testing upon which the data used to establish the operating parameter limits were obtained.

(3) The owner or operator of an affected source or process unit may establish expanded or replacement operating limits for the monitoring parameters listed in paragraphs (e)(1) and (2) and (e)(10) through (14) of this section and established in paragraph (j)(1) or (2) of this section during subsequent performance tests using the test methods in §63.865.

(4) The owner or operator of the affected source or process unit must continuously monitor each parameter and determine the arithmetic average value of each parameter during each performance test run. Multiple performance tests may be conducted to establish a range of parameter values. Operating outside a previously established parameter limit during a performance test to expand the operating limit range does not constitute a monitoring exceedance. Operating limits must be confirmed or reestablished during performance tests.

(5) New, expanded, or replacement operating limits for the monitoring parameter values listed in paragraphs (e)(1) and (2) and (e)(10) through (14) of this section should be determined as described in paragraphs (j)(5)(i) and (ii) of this section.

(i) The owner or operator of an affected source or process unit that uses a wet scrubber must set a minimum scrubber pressure drop operating limit as the lowest of the 1-hour average pressure drop values associated with each test run demonstrating compliance with the applicable emission limit in §63.862.

(A) For a smelt dissolving tank dynamic wet scrubber operating at ambient pressure or for low-energy entrainment scrubbers where fan speed does not vary, the minimum fan amperage operating limit must be set as the lowest of the 1-hour average fan amperage values associated with each test run demonstrating compliance with the applicable emission limit in §63.862.

(B) [Reserved]

(ii) The owner operator of an affected source equipped with an RTO must set the minimum operating temperature of the RTO as the lowest of the 1-hour average temperature values associated with each test run demonstrating compliance with the applicable emission limit in §63.862.

(k) *On-going compliance provisions.* (1) Following the compliance date, owners or operators of all affected sources or process units are required to implement corrective action if the monitoring exceedances in paragraphs (k)(1)(i) through (vii) of this section occur during times when spent pulping liquor or lime mud is fed (as applicable). Corrective action can include completion of transient startup and shutdown conditions as expediently as possible.

(i) For a new or existing kraft or soda recovery furnace or lime kiln equipped with an ESP, when the average of ten consecutive 6-minute averages result in a measurement greater than 20 percent opacity;

(ii) For a new or existing kraft or soda recovery furnace, kraft or soda smelt dissolving tank, kraft or soda lime kiln, or sulfite combustion unit equipped with a wet scrubber, when any 3-hour average parameter value is below the minimum operating limit established in paragraph (j) of this section, with the exception of pressure drop during periods of startup and shutdown;

(iii) For a new or existing kraft or soda recovery furnace or lime kiln equipped with an ESP followed by a wet scrubber, when any 3-hour average scrubber parameter value is below the minimum operating limit established in paragraph (j) of this section, with the exception of pressure drop during periods of startup and shutdown;

(iv) For a new or existing semichemical combustion unit equipped with an RTO, when any 1-hour average temperature falls below the minimum temperature operating limit established in paragraph (j) of this section;

(v) For the hog fuel dryer at Cosmo Specialty Fibers' Cosmopolis, Washington facility (Emission Unit no. HD-14), when the bag leak detection system alarm sounds;

(vi) For an affected source or process unit equipped with an ESP, wet scrubber, RTO, or fabric filter and monitoring alternative operating parameters established in paragraph (e)(13) of this section, when any 3-hour average value does not meet the operating limit established in paragraph (j) of this section; and

(vii) For an affected source or process unit equipped with an alternative air pollution control system and monitoring operating parameters approved by the Administrator as established in paragraph (e)(14) of this section, when any 3-hour average value does not meet the operating limit established in paragraph (j) of this section.

(2) Following the compliance date, owners or operators of all affected sources or process units are in violation of the standards of §63.862 if the monitoring exceedances in paragraphs (k)(2)(i) through (ix) of this section occur during times when spent pulping liquor or lime mud is fed (as applicable):

(i) For an existing kraft or soda recovery furnace equipped with an ESP, when opacity is greater than 35 percent for 2 percent or more of the operating time within any semiannual period;

(ii) For a new kraft or soda recovery furnace equipped with an ESP, when opacity is greater than 20 percent for 2 percent or more of the operating time within any semiannual period;

(iii) For a new or existing kraft or soda lime kiln equipped with an ESP, when opacity is greater than 20 percent for 3 percent or more of the operating time within any semiannual period;

(iv) For a new or existing kraft or soda recovery furnace, kraft or soda smelt dissolving tank, kraft or soda lime kiln, or sulfite combustion unit equipped with a wet scrubber, when six or more 3-hour average parameter values within any 6-month reporting period are below the minimum operating limits established in paragraph (j) of this section, with the exception of pressure drop during periods of startup and shutdown;

(v) For a new or existing kraft or soda recovery furnace or lime kiln equipped with an ESP followed by a wet scrubber, when six or more 3-hour average scrubber parameter values within any 6-month reporting period are outside the range of values established in paragraph (j) of this section, with the exception of pressure drop during periods of startup and shutdown;

(vi) For a new or existing semichemical combustion unit equipped with an RTO, when any 3-hour average temperature falls below the temperature established in paragraph (j) of this section;

(vii) For the hog fuel dryer at Cosmo Specialty Fibers' Cosmopolis, Washington facility (Emission Unit no. HD-14), when corrective action is not initiated within 1 hour of a bag leak detection system alarm and the alarm is engaged for more than 5 percent of the total operating time in a 6-month block reporting period. In calculating the operating time fraction, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted; if corrective action is required, each alarm is counted as a minimum of 1 hour; if corrective action is not initiated within 1 hour, the alarm time is counted as the actual amount of time taken to initiate corrective action;

(viii) For an affected source or process unit equipped with an ESP, wet scrubber, RTO, or fabric filter and monitoring alternative operating parameters established in paragraph (e)(13) of this section, when six or more 3-hour average values within any 6-month reporting period do not meet the operating limits established in paragraph (j) of this section; and

(ix) For an affected source or process unit equipped with an alternative air pollution control system and monitoring operating parameters approved by the Administrator as established in paragraph (e)(14) of this section, when six or more 3-hour average values within any 6-month reporting period do not meet the operating limits established in paragraph (j) of this section.

(3) For purposes of determining the number of nonopacity monitoring exceedances, no more than one exceedance will be attributed in any given 24-hour period.

# ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart MM—National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills



**§63.865 Performance test requirements and test methods.**

The owner or operator of each affected source or process unit subject to the requirements of this subpart is required to conduct an initial performance test and periodic performance tests using the test methods and procedures listed in §63.7 and paragraph (b) of this section. The owner or operator must conduct the first of the periodic performance tests within 3 years of the effective date of the revised standards and thereafter within 5 years following the previous performance test. Performance tests shall be conducted based on representative performance (*i.e.,* performance based on normal operating conditions) of the affected source for the period being tested. Representative conditions exclude periods of startup and shutdown. The owner or operator may not conduct performance tests during periods of malfunction. The owner or operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(a) The owner or operator of a process unit seeking to comply with a PM emission limit under §63.862(a)(1)(ii)(A) must use the procedures in paragraphs (a)(1) and (2) of this section:

(1) Determine the overall PM emission limit for the chemical recovery system at the mill using Equation 1 of this section as follows:

$$EL_{PM} = \frac{\left[\left(C_{ref,RF}\right)\left(Q_{RFtot}\right) + \left(C_{ref,LK}\right)\left(Q_{LKtot}\right)\right](F1)}{\left(BLS_{tot}\right)} + ER1_{ref,SDT} \qquad \text{(Eq. 1)}$$

Where:

$EL_{PM}$ = overall PM emission limit for all existing process units in the chemical recovery system at the kraft or soda pulp mill, kg/Mg (lb/ton) of black liquor solids fired.

$C_{ref\ RF}$ = reference concentration of 0.10 g/dscm (0.044 gr/dscf) corrected to 8 percent oxygen for existing kraft or soda recovery furnaces.

$Q_{RFtot}$ = sum of the average volumetric gas flow rates measured during the performance test and corrected to 8 percent oxygen for all existing recovery furnaces in the chemical recovery system at the kraft or soda pulp mill, dry standard cubic meters per minute (dscm/min) (dry standard cubic feet per minute (dscf/min)).

$C_{ref\ LK}$ = reference concentration of 0.15 g/dscm (0.064 gr/dscf) corrected to 10 percent oxygen for existing kraft or soda lime kilns.

$Q_{LKtot}$ = sum of the average volumetric gas flow rates measured during the performance test and corrected to 10 percent oxygen for all existing lime kilns in the chemical recovery system at the kraft or soda pulp mill, dscm/min (dscf/min).

F1 = conversion factor, 1.44 minutes·kilogram/day·gram (min·kg/d·g) (0.206 minutes·pound/day·grain (min·b/d·gr)).

$BLS_{tot}$ = sum of the average black liquor solids firing rates of all existing recovery furnaces in the chemical recovery system at the kraft or soda pulp mill measured during the performance test, megagrams per day (Mg/d) (tons per day (ton/d)) of black liquor solids fired.

$ER1_{ref\ SDT}$ = reference emission rate of 0.10 kg/Mg (0.20 lb/ton) of black liquor solids fired for existing kraft or soda smelt dissolving tanks.

(2) Establish an emission limit for each kraft or soda recovery furnace, smelt dissolving tank, and lime kiln; and, using these emissions limits, determine the overall PM emission rate for the chemical recovery system at the mill using the procedures in paragraphs (a)(2)(i) through (v) of this section, such that the overall PM emission rate calculated in paragraph (a)(2)(v) of this section is less than or equal to the overall PM emission limit determined in paragraph (a)(1) of this section, as appropriate.

(i) The PM emission rate from each affected recovery furnace must be determined using Equation 2 of this section as follows:

$$ER_{RF} = (F1)(C_{EL,RF})(Q_{RF})/(BLS) \qquad (Eq.\ 2)$$

Where:

$ER_{RF}$ = emission rate from each recovery furnace, kg/Mg (lb/ton) of black liquor solids.

F1 = conversion factor, 1.44 min·kg/d·g (0.206 min·/d·gr).

$C_{EL\ RF}$ = PM emission limit proposed by owner or operator for the recovery furnace, g/dscm (gr/dscf) corrected to 8 percent oxygen.

$Q_{RF}$ = average volumetric gas flow rate from the recovery furnace measured during the performance test and corrected to 8 percent oxygen, dscm/min (dscf/min).

BLS = average black liquor solids firing rate of the recovery furnace measured during the performance test, Mg/d (ton/d) of black liquor solids.

(ii) The PM emission rate from each affected smelt dissolving tank must be determined using Equation 3 of this section as follows:

$$ER_{SDT} = (F1)(C_{EL,SDT})(Q_{SDT})/(BLS) \qquad (Eq.\ 3)$$

Where:

$ER_{SDT}$ = emission rate from each SDT, kg/Mg (lb/ton) of black liquor solids fired.

F1 = conversion factor, 1.44 min·kg/d• g (0.206 min·lb/d·gr).

$C_{EL\ SDT}$ = PM emission limit proposed by owner or operator for the smelt dissolving tank, g/dscm (gr/dscf).

$Q_{SDT}$ = average volumetric gas flow rate from the smelt dissolving tank measured during the performance test, dscm/min (dscf/min).

BLS = average black liquor solids firing rate of the associated recovery furnace measured during the performance test, Mg/d (ton/d) of black liquorsolids fired. If more than one SDT is used to dissolve the smelt from a given recovery furnace, then the black liquor solids firing rate of the furnace must be proportioned according to the size of the SDT.

(iii) The PM emission rate from each affected lime kiln must be determined using Equation 4 of this section as follows:

$$ER_{LK} = (F1)(C_{EL,LK})(Q_{LK})(CaO_{tot}/BLS_{tot})/(CaO_{LK}) \qquad (Eq.\ 4)$$

Where:

$ER_{LK}$ = emission rate from each lime kiln, kg/Mg (lb/ton) of black liquor solids.

F1 = conversion factor, 1.44 min·kg/d·g (0.206 min·lb/d·gr).

$C_{EL\,LK}$ = PM emission limit proposed by owner or operator for the lime kiln, g/dscm (gr/dscf) corrected to 10 percent oxygen.

$Q_{LK}$ = average volumetric gas flow rate from the lime kiln measured during the performance test and corrected to 10 percent oxygen, dscm/min (dscf/min).

$CaO_{LK}$ = lime production rate of the lime kiln, measured as CaO during the performance test, Mg/d (ton/d) of CaO.

$CaO_{tot}$ = sum of the average lime production rates for all existing lime kilns in the chemical recovery system at the mill measured as CaO during the performance test, Mg/d (ton/d).

$BLS_{tot}$ = sum of the average black liquor solids firing rates of all recovery furnaces in the chemical recovery system at the mill measured during the performance test, Mg/d (ton/d) of black liquor solids.

(iv) If more than one similar process unit is operated in the chemical recovery system at the kraft or soda pulp mill, Equation 5 of this section must be used to calculate the overall PM emission rate from all similar process units in the chemical recovery system at the mill and must be used in determining the overall PM emission rate for the chemical recovery system at the mill:

$$ER_{PUtot} = ER_{PU1}(PR_{PU1}/PR_{tot}) + \ldots + (ER_{PUi})(PR_{PUi}/PR_{tot}) \qquad (Eq.\ 5)$$

Where:

$ER_{PUtot}$ = overall PM emission rate from all similar process units, kg/Mg (lb/ton) of black liquor solids fired.

$ER_{PU1}$ = PM emission rate from process unit No. 1, kg/Mg (lb/ton) of black liquor solids fired, calculated using Equation 2, 3, or 4 in paragraphs (a)(2)(i) through (iii) of this section.

$PR_{PU1}$ = black liquor solids firing rate in Mg/d (ton/d) for process unit No. 1, if process unit is a recovery furnace or SDT. The CaO production rate in Mg/d (ton/d) for process unit No. 1, if process unit is a lime kiln.

$PR_{tot}$ = total black liquor solids firing rate in Mg/d (ton/d) for all recovery furnaces in the chemical recovery system at the kraft or soda pulp mill if the similar process units are recovery furnaces or SDT, or the total CaO production rate in Mg/d (ton/d) for all lime kilns in the chemical recovery system at the mill if the similar process units are lime kilns.

$ER_{PUi}$ = PM emission rate from process unit No. i, kg/Mg (lb/ton) of black liquor solids fired.

$PR_{PUi}$ = black liquor solids firing rate in Mg/d (ton/d) for process unit No. i, if process unit is a recovery furnace or SDT. The CaO production rate in Mg/d (ton/d) for process unit No. i, if process unit is a lime kiln.

i = number of similar process units located in the chemical recovery system at the kraft or soda pulp mill.

(v) The overall PM emission rate for the chemical recovery system at the mill must be determined using Equation 6 of this section as follows:

$$ER_{tot} = ER_{RFtot} + ER_{SDTtot} + ER_{LKtot} \qquad (Eq.\ 6)$$

Where:

$ER_{tot}$ = overall PM emission rate for the chemical recovery system at the mill, kg/Mg (lb/ton) of black liquor solids fired.

$ER_{RFtot}$ = PM emission rate from all kraft or soda recovery furnaces, calculated using Equation 2 or 5 in paragraphs (a)(2)(i) and (iv) of this section, where applicable, kg/Mg (lb/ton) of black liquor solids fired.

$ER_{SDTtot}$ = PM emission rate from all smelt dissolving tanks, calculated using Equation 3 or 5 in paragraphs (a)(2)(ii) and (iv) of this section, where applicable, kg/Mg (lb/ton) of black liquor solids fired.

$ER_{LKtot}$ = PM emission rate from all lime kilns, calculated using Equation 4 or 5 in paragraphs (a)(2)(iii) and (iv) of this section, where applicable, kg/Mg (lb/ton) of black liquor solids fired.

(vi) After the Administrator has approved the PM emissions limits for each kraft or soda recovery furnace, smelt dissolving tank, and lime kiln, the owner or operator complying with an overall PM emission limit established in §63.862(a)(1)(ii) must demonstrate compliance with the HAP metals standard by demonstrating compliance with the approved PM emissions limits for each affected kraft or soda recovery furnace, smelt dissolving tank, and lime kiln, using the test methods and procedures in paragraph (b) of this section.

(b) The owner or operator seeking to determine compliance with §63.862(a), (b), or (d) must use the procedures in paragraphs (b)(1) through (6) of this section.

(1) For purposes of determining the concentration or mass of PM emitted from each kraft or soda recovery furnace, sulfite combustion unit, smelt dissolving tank, lime kiln, or the hog fuel dryer at Cosmo Specialty Fibers' Cosmopolis, Washington facility (Emission Unit no. HD-14), Method 5 in appendix A-3 of 40 CFR part 60 or

Method 29 in appendix A-8 of 40 CFR part 60 must be used, except that Method 17 in appendix A-6 of 40 CFR part 60 may be used in lieu of Method 5 or Method 29 if a constant value of 0.009 g/dscm (0.004 gr/dscf) is added to the results of Method 17, and the stack temperature is no greater than 205 °C (400 °F). For Methods 5, 29, and 17, the sampling time and sample volume for each run must be at least 60 minutes and 0.90 dscm (31.8 dscf), and water must be used as the cleanup solvent instead of acetone in the sample recovery procedure.

(2) For sources complying with §63.862(a) or (b), the PM concentration must be corrected to the appropriate oxygen concentration using Equation 7 of this section as follows:

$$C_{corr} = C_{meas} \times (20.9-X)/(20.9-Y) \quad \text{(Eq. 7)}$$

Where:

$C_{corr}$ = the measured concentration corrected for oxygen, g/dscm (gr/dscf);

$C_{meas}$ = the measured concentration uncorrected for oxygen, g/dscm (gr/dscf);

X = the corrected volumetric oxygen concentration (8 percent for kraft or soda recovery furnaces and sulfite combustion units and 10 percent for kraft or soda lime kilns); and

Y = the measured average volumetric oxygen concentration.

(3) Method 3A or 3B in appendix A-2 of 40 CFR part 60 must be used to determine the oxygen concentration. The voluntary consensus standard ANSI/ASME PTC 19.10-1981—Part 10 (incorporated by reference—see §63.14) may be used as an alternative to using Method 3B. The gas sample must be taken at the same time and at the same traverse points as the particulate sample.

(4) For purposes of complying with §63.862(a)(1)(ii)(A), the volumetric gas flow rate must be corrected to the appropriate oxygen concentration using Equation 8 of this section as follows:

$$Q_{corr} = Q_{meas} \times (20.9-Y)/(20.9-X) \quad \text{(Eq. 8)}$$

Where:

$Q_{corr}$ = the measured volumetric gas flow rate corrected for oxygen, dscm/min (dscf/min).

$Q_{meas}$ = the measured volumetric gas flow rate uncorrected for oxygen, dscm/min (dscf/min).

Y = the measured average volumetric oxygen concentration.

X = the corrected volumetric oxygen concentration (8 percent for kraft or soda recovery furnaces and 10 percent for kraft or soda lime kilns).

(5)(i) For purposes of selecting sampling port location and number of traverse points, Method 1 or 1A in appendix A-1 of 40 CFR part 60 must be used;

(ii) For purposes of determining stack gas velocity and volumetric flow rate, Method 2, 2A, 2C, 2D, or 2F in appendix A-1 of 40 CFR part 60 or Method 2G in appendix A-2 of 40 CFR part 60 must be used;

(iii) For purposes of conducting gas analysis, Method 3, 3A, or 3B in appendix A-2 of 40 CFR part 60 must be used. The voluntary consensus standard ANSI/ASME PTC 19.10-1981—Part 10 (incorporated by reference—see §63.14) may be used as an alternative to using Method 3B; and

(iv) For purposes of determining moisture content of stack gas, Method 4 in appendix A-3 of 40 CFR part 60 must be used.

(6) Process data measured during the performance test must be used to determine the black liquor solids firing rate on a dry basis and the CaO production rate.

(c) The owner or operator of each affected source or process unit complying with the gaseous organic HAP standard in §63.862(c)(1) must demonstrate compliance according to the provisions in paragraphs (c)(1) and (2) of this section.

(1) The owner or operator complying through the use of an NDCE recovery furnace equipped with a dry ESP system is required to conduct periodic performance testing using Method 308 in appendix A of this part, as well as the methods listed in paragraphs (b)(5)(i) through (iv) of this section to demonstrate compliance with the gaseous organic HAP standard. The requirements and equations in paragraph (c)(2) of this section must be met and utilized, respectively.

(2) The owner or operator complying without using an NDCE recovery furnace equipped with a dry ESP system must use Method 308 in appendix A of this part, as well as the methods listed in paragraphs (b)(5)(i) through (iv) of this section. The sampling time and sample volume for each Method 308 run must be at least 60 minutes and 0.014 dscm (0.50 dscf), respectively.

(i) The emission rate from any new NDCE recovery furnace must be determined using Equation 9 of this section as follows:

$$ER_{NDCE} = \frac{(MR_{meas})}{BLS} \qquad \text{(Eq. 9)}$$

Where:

$ER_{NDCE}$ = Methanol emission rate from the NDCE recovery furnace, kg/Mg (lb/ton) of black liquor solids fired;

$MR_{meas}$ = Measured methanol mass emission rate from the NDCE recovery furnace, kg/hr (lb/hr); and

BLS = Average black liquor solids firing rate of the NDCE recovery furnace, megagrams per hour (Mg/hr) (tons per hour (ton/hr)) determined using process data measured during the performance test.

(ii) The emission rate from any new DCE recovery furnace system must be determined using Equation 10 of this section as follows:

$$ER_{DCE} = \left[\frac{(MR_{meas,RF})}{BLS_{RF}}\right] + \left[\frac{MR_{meas,BLO}}{BLS_{BLO}}\right] \qquad \text{(Eq. 10)}$$

Where:

$ER_{DCE}$ = Methanol emission rate from each DCE recovery furnace system, kg/Mg (lb/ton) of black liquor solids fired;

$MR_{meas\ RF}$ = Average measured methanol mass emission rate from each DCE recovery furnace, kg/hr (lb/hr);

$MR_{meas\ BLO}$ = Average measured methanol mass emission rate from the black liquor oxidation system, kg/hr (lb/hr);

$BLS_{RF}$ = Average black liquor solids firing rate for each DCE recovery furnace, Mg/hr (ton/hr) determined using process data measured during the performance test; and

$BLS_{BLO}$ = The average mass rate of black liquor solids treated in the black liquor oxidation system, Mg/hr (ton/hr) determined using process data measured during the performance test.

(d) The owner or operator seeking to determine compliance with the gaseous organic HAP standards in §63.862(c)(2) for semichemical combustion units must use Method 25A in appendix A-7 of 40 CFR part 60, as well as the methods listed in paragraphs (b)(5)(i) through (iv) of this section. The sampling time for each Method 25A run must be at least 60 minutes. The calibration gas for each Method 25A run must be propane.

(1) The emission rate from any new or existing semichemical combustion unit must be determined using Equation 11 of this section as follows:

$$ER_{SCCU} = \frac{(THC_{meas})}{BLS} \qquad \text{(Eq. 11)}$$

Where:

$ER_{SCCU}$ = THC emission rate reported as carbon from each semichemical combustion unit, kg/Mg (lb/ton) of black liquor solids fired;

$THC_{meas}$ = Measured THC mass emission rate reported as carbon, kg/hr (lb/hr); and

BLS = Average black liquor solids firing rate, Mg/hr (ton/hr); determined using process data measured during the performance test.

(2) If the owner or operator of the semichemical combustion unit has selected the percentage reduction standards for THC, under §63.862(c)(2)(ii), the percentage reduction in THC emissions is computed using Equation 12 of this section as follows, provided that Ei and Eo are measured simultaneously:

$$(\%R_{THC}) = \left(\frac{E_i - E_o}{E_i}\right) \times 100 \qquad (Eq.\ 12)$$

Where:

$\%R_{THC}$ = percentage reduction of total hydrocarbons emissions achieved.

$E_i$ = measured THC mass emission rate at the THC control device inlet, kg/hr (lb/hr).

$E_o$ = measured THC mass emission rate at the THC control device outlet, kg/hr (lb/hr).

**§63.866 Recordkeeping requirements.**

(a) [Reserved]

(b) The owner or operator of an affected source or process unit must maintain records of any occurrence when corrective action is required under §63.864(k)(1), and when a violation is noted under §63.864(k)(2).

(c) In addition to the general records required by §63.10(b)(2)(iii) and (vi) through (xiv), the owner or operator must maintain records of the information in paragraphs (c)(1) through (8) of this section:

(1) Records of black liquor solids firing rates in units of Mg/d or ton/d for all recovery furnaces and semichemical combustion units;

(2) Records of CaO production rates in units of Mg/d or ton/d for all lime kilns;

(3) Records of parameter monitoring data required under §63.864, including any period when the operating parameter levels were inconsistent with the levels established during the performance test, with a brief explanation of the cause of the monitoring exceedance, the time the monitoring exceedance occurred, the time corrective action was initiated and completed, and the corrective action taken;

(4) Records and documentation of supporting calculations for compliance determinations made under §63.865(a) through (d);

(5) Records of parameter operating limits established for each affected source or process unit;

(6) Records certifying that an NDCE recovery furnace equipped with a dry ESP system is used to comply with the gaseous organic HAP standard in §63.862(c)(1);

(7) For the bag leak detection system on the hog fuel dryer fabric filter at Cosmo Specialty Fibers' Cosmopolis, Washington facility (Emission Unit no. HD-14), records of each alarm, the time of the alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken; and

(8) Records demonstrating compliance with the requirement in §63.864(e)(1) to maintain proper operation of an ESP's AVC.

(d)(1) In the event that an affected unit fails to meet an applicable standard, including any emission limit in §63.862 or any opacity or CPMS operating limit in §63.864, record the number of failures. For each failure record the date, start time, and duration of each failure.

(2) For each failure to meet an applicable standard, record and retain a list of the affected sources or equipment, and the following information:

(i) For any failure to meet an emission limit in §63.862, record an estimate of the quantity of each regulated pollutant emitted over the emission limit and a description of the method used to estimate the emissions.

(ii) For each failure to meet an operating limit in §63.864, maintain sufficient information to estimate the quantity of each regulated pollutant emitted over the emission limit. This information must be sufficient to provide a reliable emissions estimate if requested by the Administrator.

(3) Record actions taken to minimize emissions in accordance with §63.860(d) and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

**§63.867 Reporting requirements.**

(a) *Notifications.* (1) The owner or operator of any affected source or process unit must submit the applicable notifications from subpart A of this part, as specified in Table 1 of this subpart.

(2) [Reserved]

(3) In addition to the requirements in subpart A of this part, the owner or operator of the hog fuel dryer at Cosmo Specialty Fibers' Cosmopolis, Washington, facility (Emission Unit no. HD-14) must include analysis and supporting documentation demonstrating conformance with EPA guidance and specifications for bag leak detection systems in §63.864(e)(12) in the Notification of Compliance Status.

(b) *Additional reporting requirements for HAP metals standards.* (1) Any owner or operator of a group of process units in a chemical recovery system at a mill complying with the PM emissions limits in §63.862(a)(1)(ii) must submit the PM emissions limits determined in §63.865(a) for each affected kraft or soda recovery furnace, smelt dissolving tank, and lime kiln to the Administrator for approval. The emissions limits must be submitted as part of the notification of compliance status required under subpart A of this part.

(2) Any owner or operator of a group of process units in a chemical recovery system at a mill complying with the PM emissions limits in §63.862(a)(1)(ii) must submit the calculations and supporting documentation used in §63.865(a)(1) and (2) to the Administrator as part of the notification of compliance status required under subpart A of this part.

(3) After the Administrator has approved the emissions limits for any process unit, the owner or operator of a process unit must notify the Administrator before any of the actions in paragraphs (b)(3)(i) through (iv) of this section are taken:

(i) The air pollution control system for any process unit is modified or replaced;

(ii) Any kraft or soda recovery furnace, smelt dissolving tank, or lime kiln in a chemical recovery system at a kraft or soda pulp mill complying with the PM emissions limits in §63.862(a)(1)(ii) is shut down for more than 60 consecutive days;

(iii) A continuous monitoring parameter or the value or range of values of a continuous monitoring parameter for any process unit is changed; or

(iv) The black liquor solids firing rate for any kraft or soda recovery furnace during any 24-hour averaging period is increased by more than 10 percent above the level measured during the most recent performance test.

(4) An owner or operator of a group of process units in a chemical recovery system at a mill complying with the PM emissions limits in §63.862(a)(1)(ii) and seeking to perform the actions in paragraph (b)(3)(i) or (ii) of this section must recalculate the overall PM emissions limit for the group of process units and resubmit the documentation required in paragraph (b)(2) of this section to the Administrator. All modified PM emissions limits are subject to approval by the Administrator.

(c) *Excess emissions report*. The owner or operator must submit semiannual excess emissions reports containing the information specified in paragraphs (c)(1) through (5) of this section. The owner or operator must submit semiannual excess emission reports and summary reports following the procedure specified in paragraph (d)(2) of this section as specified in §63.10(e)(3)(v).

(1) If the total duration of excess emissions or process control system parameter exceedances for the reporting period is less than 1 percent of the total reporting period operating time, and CMS downtime is less than 5 percent of the total reporting period operating time, only the summary report is required to be submitted. This report will be titled "Summary Report—Gaseous and Opacity Excess Emissions and Continuous Monitoring System Performance" and must contain the information specified in paragraphs (c)(1)(i) through (x) of this section.

(i) The company name and address and name of the affected facility.

(ii) Beginning and ending dates of the reporting period.

(iii) An identification of each process unit with the corresponding air pollution control device, being included in the semiannual report, including the pollutants monitored at each process unit, and the total operating time for each process unit.

(iv) An identification of the applicable emission limits, operating parameter limits, and averaging times.

(v) An identification of the monitoring equipment used for each process unit and the corresponding model number.

(vi) Date of the last CMS certification or audit.

(vii) An emission data summary, including the total duration of excess emissions (recorded in minutes for opacity and hours for gases), the duration of excess emissions expressed as a percent of operating time, the

number of averaging periods recorded as excess emissions, and reason for the excess emissions (*e.g.,* startup/shutdown, control equipment problems, other known reasons, or other unknown reasons).

(viii) A CMS performance summary, including the total duration of CMS downtime during the reporting period (recorded in minutes for opacity and hours for gases), the total duration of CMS downtime expressed as a percent of the total source operating time during that reporting period, and a breakdown of the total CMS downtime during the reporting period (*e.g.,* monitoring equipment malfunction, non-monitoring equipment malfunction, quality assurance, quality control calibrations, other known causes, or other unknown causes).

(ix) A description of changes to CMS, processes, or controls since last reporting period.

(x) A certification by a certifying official of truth, accuracy and completeness. This will state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(2) [Reserved]

(3) If measured parameters meet any of the conditions specified in §63.864(k)(1) or (2), the owner or operator of the affected source must submit a semiannual report describing the excess emissions that occurred. If the total duration of monitoring exceedances for the reporting period is 1 percent or greater of the total reporting period operating time, or the total CMS downtime for the reporting period is 5 percent or greater of the total reporting period operating time, or any violations according to §63.864(k)(2) occurred, information from both the summary report and the excess emissions and continuous monitoring system performance report must be submitted. This report will be titled "Excess Emissions and Continuous Monitoring System Performance Report" and must contain the information specified in paragraphs (c)(1)(i) through (x) of this section, in addition to the information required in §63.10(c)(5) through (14), as specified in paragraphs (c)(3)(i) through (vi) of this section. Reporting monitoring exceedances does not constitute a violation of the applicable standard unless the violation criteria in §63.864(k)(2) and (3) are reached.

(i) An identification of the date and time identifying each period during which the CMS was inoperative except for zero (low-level) and high-level checks.

(ii) An identification of the date and time identifying each period during which the CMS was out of control, as defined in §63.8(c)(7).

(iii) The specific identification of each period of excess emissions and parameter monitoring exceedances as described in paragraphs (c)(3)(iii)(A) through (E) of this section.

(A) For opacity:

(*1*) The total number of 6-minute averages in the reporting period (excluding process unit downtime).

(*2*) [Reserved]

(*3*) The number of 6-minute averages in the reporting period that exceeded the relevant opacity limit.

(*4*) The percent of 6-minute averages in the reporting period that exceed the relevant opacity limit.

(*5*) An identification of each exceedance by start and end time, date, and cause of exceedance (including startup/shutdown, control equipment problems, process problems, other known causes, or other unknown causes).

(B) [Reserved]

(C) For wet scrubber operating parameters:

(*1*) The operating limits established during the performance test for scrubbing liquid flow rate and pressure drop across the scrubber (or fan amperage if used for smelt dissolving tank scrubbers).

(*2*) The number of 3-hour wet scrubber parameter averages below the minimum operating limit established during the performance test, if applicable.

(*3*) An identification of each exceedance by start and end time, date, and cause of exceedance (including startup/shutdown, control equipment problems, process problems, other known causes, or other unknown causes).

(D) For RTO operating temperature:

(*1*) The operating limit established during the performance test.

(*2*) The number of 1-hour and 3-hour temperature averages below the minimum operating limit established during the performance test.

(*3*) An identification of each exceedance by start and end time, date, and cause of exceedance including startup/shutdown, control equipment problems, process problems, other known causes, or other unknown causes).

(E) For alternative parameters established according to §63.864(e)(13) or (14) subject to the requirements of §63.864(k)(1) and (2):

(*1*) The type of operating parameters monitored for compliance.

(*2*) The operating limits established during the performance test.

(*3*) The number of 3-hour parameter averages outside of the operating limits established during the performance test.

(*4*) An identification of each exceedance by start and end time, date, and cause of exceedance including startup/shutdown, control equipment problems, process problems, other known causes, or other unknown causes).

(iv) The nature and cause of the event (if known).

(v) The corrective action taken or preventative measures adopted.

(vi) The nature of repairs and adjustments to the CMS that was inoperative or out of control.

(4) If a source fails to meet an applicable standard, including any emission limit in §63.862 or any opacity or CPMS operating limit in §63.864, report such events in the semiannual excess emissions report. Report the number of failures to meet an applicable standard. For each instance, report the date, time and duration of each failure. For each failure, the report must include a list of the affected sources or equipment, and for any failure to meet an emission limit under §63.862, provide an estimate of the quantity of each regulated pollutant emitted over the emission limit, and a description of the method used to estimate the emissions.

(5) The owner or operator of an affected source or process unit subject to the requirements of this subpart and subpart S of this part may combine excess emissions and/or summary reports for the mill.

(d) *Electronic reporting.* (1) Within 60 days after the date of completing each performance test (as defined in §63.2) required by this subpart, the owner or operator must submit the results of the performance test following the procedure specified in either paragraph (d)(1)(i) or (ii) of this section.

(i) For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (*https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert*) at the time of the test, the owner or operator must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). (CEDRI can be accessed through the EPA's Central Data Exchange (CDX) (*https://cdx.epa.gov/*).) Performance test data must be submitted in a file format generated through the use of the EPA's ERT or an alternate electronic file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site. If the owner or operator claims that some of the performance test information being submitted is confidential business information (CBI), the owner or operator must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph (d)(1)(i).

(ii) For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, the owner or operator must submit the results of the performance test to the Administrator at the appropriate address listed in §63.13 unless the Administrator agrees to or specifies an alternative reporting method.

(2) The owner or operator must submit the notifications required in §63.9(b) and §63.9(h) (including any information specified in §63.867(b)) and semiannual reports to the EPA via the CEDRI. (CEDRI can be accessed through the EPA's CDX (*https://cdx.epa.gov*).) You must upload an electronic copy of each notification in CEDRI beginning with any notification specified in this paragraph that is required after October 11, 2019. The owner or operator must use the appropriate electronic report in CEDRI for this subpart listed on the CEDRI Web site (*https://www.epa.gov/electronic-reporting-air-emissions/compliance-and-emissions-data-reporting-interface-cedri*) for semiannual reports. If the reporting form specific to this subpart is not available in CEDRI at the time

that the report is due, you must submit the report to the Administrator at all the appropriate addresses listed in §63.13. Once the form has been available in CEDRI for 1 year, you must begin submitting all subsequent reports via CEDRI. The reports must be submitted by the deadlines specified in this subpart, regardless of the method in which the reports are submitted.

(3) If you are required to electronically submit a report through CEDRI in the EPA's CDX, and due to a planned or actual outage of either the EPA's CEDRI or CDX systems within the period of time beginning 5 business days prior to the date that the submission is due, you will be or are precluded from accessing CEDRI or CDX and submitting a required report within the time prescribed, you may assert a claim of EPA system outage for failure to timely comply with the reporting requirement. You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or caused a delay in reporting. You must provide to the Administrator a written description identifying the date, time and length of the outage; a rationale for attributing the delay in reporting beyond the regulatory deadline to the EPA system outage; describe the measures taken or to be taken to minimize the delay in reporting; and identify a date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported. In any circumstance, the report must be submitted electronically as soon as possible after the outage is resolved. The decision to accept the claim of EPA system outage and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(4) If you are required to electronically submit a report through CEDRI in the EPA's CDX and a force majeure event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning 5 business days prior to the date the submission is due, the owner or operator may assert a claim of force majeure for failure to timely comply with the reporting requirement. For the purposes of this section, a force majeure event is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (*e.g.,* hurricanes, earthquakes, or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility (*e.g.,* large scale power outage). If you intend to assert a claim of force majeure, you must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or caused a delay in reporting. You must provide to the Administrator a written description of the force majeure event and a rationale for attributing the delay in reporting beyond the regulatory deadline to the force majeure event; describe the measures taken or to be taken to minimize the delay in reporting; and identify a date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported. In any circumstance, the reporting must occur as soon as possible after the force majeure event occurs. The decision to accept the claim of force majeure and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

**§63.868 Delegation of authority.**

(a) In delegating implementation and enforcement authority to a State under section 112(d) of the Clean Air Act, the authorities contained in paragraph (b) of this section must be retained by the Administrator and not transferred to a State.

(b) The authorities which will not be delegated to States are listed in paragraphs (b)(1) through (4) of this section:

(1) Approval of alternatives to standards in §63.862 under §63.6(g).

(2) Approval of a major change to test method under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of a major change to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of a major change to recordkeeping/reporting under §63.10(f) and as defined in §63.90.

**Table 1 to Subpart MM of Part 63—General Provisions Applicability to Subpart MM**

| General provisions reference | Summary of requirements | Applies to subpart MM | Explanation |
|---|---|---|---|
| 63.1(a)(1) | General applicability of the General Provisions | Yes | Additional terms defined in §63.861; when overlap between subparts A and MM of this part, subpart MM takes precedence. |
| 63.1(a)(2)-(14) | General applicability of the General Provisions | Yes | |
| 63.1(b)(1) | Initial applicability determination | No | Subpart MM specifies the applicability in §63.860. |
| 63.1(b)(2) | Title V operating permit—see 40 CFR part 70 | Yes | All major affected sources are required to obtain a title V permit. |
| 63.1(b)(3) | Record of the applicability determination | No | All affected sources are subject to subpart MM according to the applicability definition of subpart MM. |
| 63.1(c)(1) | Applicability of subpart A of this part after a relevant standard has been set | Yes | Subpart MM clarifies the applicability of each paragraph of subpart A of this part to sources subject to subpart MM. |
| 63.1(c)(2) | Title V permit requirement | Yes | All major affected sources are required to obtain a title V permit. There are no area sources in the pulp and paper mill source category. |
| 63.1(c)(3) | [Reserved] | No | |
| 63.1(c)(4) | Requirements for existing source | Yes | |

| Table 1 to Subpart MM of Part 63—General Provisions Applicability to Subpart MM | | | |
|---|---|---|---|
| **General provisions reference** | **Summary of requirements** | **Applies to subpart MM** | **Explanation** |
| | that obtains an extension of compliance | | |
| 63.1(c)(5) | Notification requirements for an area source that increases HAP emissions to major source levels | Yes | |
| 63.1(d) | [Reserved] | No | |
| 63.1(e) | Applicability of permit program before a relevant standard has been set | Yes | |
| 63.2 | Definitions | Yes | Additional terms defined in §63.861; when overlap between subparts A and MM of this part occurs, subpart MM takes precedence. |
| 63.3 | Units and abbreviations | Yes | |
| 63.4 | Prohibited activities and circumvention | Yes | |
| 63.5(a) | Construction and reconstruction—applicability | Yes | |
| 63.5(b)(1) | Upon construction, relevant standards for new sources | Yes | |
| 63.5(b)(2) | [Reserved] | No | |
| 63.5(b)(3) | New construction/reconstruction | Yes | |
| 63.5(b)(4) | Construction/reconstruction notification | Yes | |
| 63.5(b)(5) | Construction/reconstruction compliance | Yes | |
| 63.5(b)(6) | Equipment addition or process change | Yes | |
| 63.5(c) | [Reserved] | No | |
| 63.5(d) | Application for approval of construction/reconstruction | Yes | |
| 63.5(e) | Construction/reconstruction approval | Yes | |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart MM—National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills**



| Table 1 to Subpart MM of Part 63—General Provisions Applicability to Subpart MM | | | |
|---|---|---|---|
| **General provisions reference** | **Summary of requirements** | **Applies to subpart MM** | **Explanation** |
| 63.5(f) | Construction/reconstruction approval based on prior State preconstruction review | Yes | |
| 63.6(a)(1) | Compliance with standards and maintenance requirements—applicability | Yes | |
| 63.6(a)(2) | Requirements for area source that increases emissions to become major | Yes | |
| 63.6(b) | Compliance dates for new and reconstructed sources | Yes | |
| 63.6(c) | Compliance dates for existing sources | Yes, except for sources granted extensions under 63.863(c) | Subpart MM specifically stipulates the compliance schedule for existing sources. |
| 63.6(d) | [Reserved] | No | |
| 63.6(e)(1)(i) | General duty to minimize emissions | No | See §63.860(d) for general duty requirement. |
| 63.6(e)(1)(ii) | Requirement to correct malfunctions ASAP | No | |
| 63.6(e)(1)(iii) | Operation and maintenance requirements enforceable independent of emissions limitations | Yes | |
| 63.6(e)(2) | [Reserved] | No | |
| 63.6(e)(3) | Startup, shutdown, and malfunction plan (SSMP) | No | |
| 63.6(f)(1) | Compliance with nonopacity emissions standards except during SSM | No | |
| 63.6(f)(2)-(3) | Methods for determining compliance with nonopacity emissions standards | Yes | |
| 63.6(g) | Compliance with alternative nonopacity emissions standards | Yes | |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart MM—National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills**



| Table 1 to Subpart MM of Part 63—General Provisions Applicability to Subpart MM | | | |
|---|---|---|---|
| **General provisions reference** | **Summary of requirements** | **Applies to subpart MM** | **Explanation** |
| 63.6(h)(1) | Compliance with opacity and visible emissions (VE) standards except during SSM | No | |
| 63.6(h)(2)-(9) | Compliance with opacity and VE standards | Yes | Subpart MM does not contain any opacity or VE standards; however, §63.864 specifies opacity monitoring requirements. |
| 63.6(i) | Extension of compliance with emissions standards | Yes | |
| 63.6(j) | Exemption from compliance with emissions standards | Yes | |
| 63.7(a)(1) | Performance testing requirements—applicability | Yes | |
| 63.7(a)(2) | Performance test dates | Yes | |
| 63.7(a)(3) | Performance test requests by Administrator under CAA section 114 | Yes | |
| 63.7(a)(4) | Notification of delay in performance testing due to force majeure | Yes | |
| 63.7(b)(1) | Notification of performance test | Yes | |
| 63.7(b)(2) | Notification of delay in conducting a scheduled performance test | Yes | |
| 63.7(c) | Quality assurance program | Yes | |
| 63.7(d) | Performance testing facilities | Yes | |
| 63.7(e)(1) | Conduct of performance tests | No | See §63.865. |
| 63.7(e)(2)-(3) | Conduct of performance tests | Yes | |
| 63.7(e)(4) | Testing under section 114 | Yes | |
| 63.7(f) | Use of an alternative test method | Yes | |
| 63.7(g) | Data analysis, recordkeeping, and reporting | Yes | |
| 63.7(h) | Waiver of performance tests | Yes | §63.865(c)(1) specifies the only exemption from performance testing allowed under subpart MM. |
| 63.8(a)(1) | Monitoring requirements— | Yes | See §63.864. |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart MM—National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills**



| Table 1 to Subpart MM of Part 63—General Provisions Applicability to Subpart MM | | | |
|---|---|---|---|
| **General provisions reference** | **Summary of requirements** | **Applies to subpart MM** | **Explanation** |
| | applicability | | |
| 63.8(a)(2) | Performance Specifications | Yes | |
| 63.8(a)(3) | [Reserved] | No | |
| 63.8(a)(4) | Monitoring with flares | No | The use of flares to meet the standards in subpart MM is not anticipated. |
| 63.8(b)(1) | Conduct of monitoring | Yes | See §63.864. |
| 63.8(b)(2)-(3) | Specific requirements for installing and reporting on monitoring systems | Yes | |
| 63.8(c)(1) | Operation and maintenance of CMS | Yes | See §63.864. |
| 63.8(c)(1)(i) | General duty to minimize emissions and CMS operation | No | |
| 63.8(c)(1)(ii) | Reporting requirements for SSM when action not described in SSMP | Yes | |
| 63.8(c)(1)(iii) | Requirement to develop SSM plan for CMS | No | |
| 63.8(c)(2)-(3) | Monitoring system installation | Yes | |
| 63.8(c)(4) | CMS requirements | Yes | |
| 63.8(c)(5) | Continuous opacity monitoring system (COMS) minimum procedures | Yes | |
| 63.8(c)(6) | Zero and high level calibration check requirements | Yes | |
| 63.8(c)(7)-(8) | Out-of-control periods | Yes | |
| 63.8(d)(1)-(2) | CMS quality control program | Yes | See §63.864. |
| 63.8(d)(3) | Written procedures for CMS | No | See §63.864(f). |
| 63.8(e)(1) | Performance evaluation of CMS | Yes | |
| 63.8(e)(2) | Notification of performance evaluation | Yes | |
| 63.8(e)(3) | Submission of site-specific performance evaluation test plan | Yes | |
| 63.8(e)(4) | Conduct of performance evaluation and performance evaluation dates | Yes | |
| 63.8(e)(5) | Reporting performance evaluation | Yes | |

| Table 1 to Subpart MM of Part 63—General Provisions Applicability to Subpart MM | | | |
|---|---|---|---|
| **General provisions reference** | **Summary of requirements** | **Applies to subpart MM** | **Explanation** |
| | results | | |
| 63.8(f) | Use of an alternative monitoring method | Yes | |
| 63.8(g) | Reduction of monitoring data | Yes | |
| 63.9(a) | Notification requirements—applicability and general information | Yes | |
| 63.9(b) | Initial notifications | Yes | |
| 63.9(c) | Request for extension of compliance | Yes | |
| 63.9(d) | Notification that source subject to special compliance requirements | Yes | |
| 63.9(e) | Notification of performance test | Yes | |
| 63.9(f) | Notification of opacity and VE observations | Yes | Subpart MM does not contain any opacity or VE standards; however, §63.864 specifies opacity monitoring requirements. |
| 63.9(g)(1) | Additional notification requirements for sources with CMS | Yes | |
| 63.9(g)(2) | Notification of compliance with opacity emissions standard | Yes | Subpart MM does not contain any opacity or VE emissions standards; however, §63.864 specifies opacity monitoring requirements. |
| 63.9(g)(3) | Notification that criterion to continue use of alternative to relative accuracy testing has been exceeded | Yes | |
| 63.9(h) | Notification of compliance status | Yes | |
| 63.9(i) | Adjustment to time periods or postmark deadlines for submittal and review of required communications | Yes | |
| 63.9(j) | Change in information already provided | Yes | |
| 63.10(a) | Recordkeeping requirements—applicability and general information | Yes | See §63.866. |
| 63.10(b)(1) | Records retention | Yes | |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart MM—National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills**



| Table 1 to Subpart MM of Part 63—General Provisions Applicability to Subpart MM | | | |
|---|---|---|---|
| **General provisions reference** | **Summary of requirements** | **Applies to subpart MM** | **Explanation** |
| 63.10(b)(2)(i) | Recordkeeping of occurrence and duration of startups and shutdowns | No | |
| 63.10(b)(2)(ii) | Recordkeeping of failures to meet a standard | No | See §63.866(d) for recordkeeping of (1) date, time and duration; (2) listing of affected source or equipment, and an estimate of the quantity of each regulated pollutant emitted over the standard; and (3) actions to minimize emissions and correct the failure. |
| 63.10(b)(2)(iii) | Maintenance records | Yes | |
| 63.10(b)(2)(iv)-(v) | Actions taken to minimize emissions during SSM | No | |
| 63.10(b)(2)(vi) | Recordkeeping for CMS malfunctions | Yes | |
| 63.10(b)(2)(vii)-(xiv) | Other CMS requirements | Yes | |
| 63.10(b)(3) | Records retention for sources not subject to relevant standard | Yes | Applicability requirements are given in §63.860. |
| 63.10(c)(1)-(14) | Additional recordkeeping requirements for sources with CMS | Yes | |
| 63.10(c)(15) | Use of SSM plan | No | |
| 63.10(d)(1) | General reporting requirements | Yes | |
| 63.10(d)(2) | Reporting results of performance tests | Yes | |
| 63.10(d)(3) | Reporting results of opacity or VE observations | Yes | Subpart MM does not include any opacity or VE standards; however, §63.864 specifies opacity monitoring requirements. |
| 63.10(d)(4) | Progress reports | Yes | |
| 63.10(d)(5)(i) | Periodic startup, shutdown, and malfunction reports | No | See §63.867(c)(3) for malfunction reporting requirements. |
| 63.10(d)(5)(ii) | Immediate startup, shutdown, and malfunction reports | No | See §63.867(c)(3) for malfunction reporting requirements. |
| 63.10(e)(1) | Additional reporting requirements for sources with CMS—General | Yes | |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart MM—National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills**



| Table 1 to Subpart MM of Part 63—General Provisions Applicability to Subpart MM | | | |
|---|---|---|---|
| **General provisions reference** | **Summary of requirements** | **Applies to subpart MM** | **Explanation** |
| 63.10(e)(2) | Reporting results of CMS performance evaluations | Yes | |
| 63.10(e)(3)(i)-(iv) | Requirement to submit excess emissions and CMS performance report and/or summary report and frequency of reporting | No | §63.867(c)(1) and (3) require submittal of the excess emissions and CMS performance report and/or summary report on a semiannual basis. |
| 63.10(e)(3)(v) | General content and submittal dates for excess emissions and monitoring system performance reports | Yes | |
| 63.10(e)(3)(vi) | Specific summary report content | No | §63.867(c)(1) specifies the summary report content. |
| 63.10(e)(3)(vii)-(viii) | Conditions for submitting summary report versus detailed excess emission report | No | §63.867(c)(1) and (3) specify the conditions for submitting the summary report or detailed excess emissions and CMS performance report. |
| 63.10(e)(4) | Reporting continuous opacity monitoring system data produced during a performance test | Yes | |
| 63.10(f) | Waiver of recordkeeping and reporting requirements | Yes | |
| 63.11 | Control device requirements for flares | No | The use of flares to meet the standards in subpart MM is not anticipated. |
| 63.12 | State authority and delegations | Yes | |
| 63.13 | Addresses of State air pollution control agencies and EPA Regional Offices | Yes | |
| 63.14 | Incorporations by reference | Yes | |
| 63.15 | Availability of information and confidentiality | Yes | |
| 63.16 | Requirements for Performance Track member facilities | Yes | |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart MM—National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills**

**New-Indy Catawba LLC**
**TV-2440-0005**

# ~~Subpart JJJJ—National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating~~

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## ~~What This Subpart Covers~~

**§63.3280 What is in this subpart?**

This subpart describes the actions you must take to reduce emissions of organic hazardous air pollutants (HAP) from paper and other web coating operations. This subpart establishes emission standards for web coating lines and specifies what you must do to comply if you own or operate a facility with web coating lines that is a major source of HAP. Certain requirements apply to all who are subject to this subpart; others depend on the means you use to comply with an emission standard.

**§63.3290 Does this subpart apply to me?**

The provisions of this subpart apply to each new and existing facility that is a major source of HAP, as defined in §63.2, at which web coating lines are operated.

**§63.3300 Which of my emission sources are affected by this subpart?**

The affected source subject to this subpart is the collection of all web coating lines at your facility. This includes web coating lines engaged in the coating of metal webs that are used in flexible packaging, and web coating lines engaged in the coating of fabric substrates for use in pressure sensitive tape and abrasive materials. Web coating lines specified in paragraphs (a) through (g) of this section are not part of the affected source of this subpart.

(a) Any web coating line that is stand-alone equipment under subpart KK of this part (National Emission Standards for the Printing and Publishing Industry) which the owner or operator includes in the affected source under subpart KK.

(b) Any web coating line that is a product and packaging rotogravure or wide-web flexographic press under subpart KK of this part (national emission standards for the printing and publishing industry) which is included in the affected source under subpart KK.

(c) Web coating in lithography, screenprinting, letterpress, and narrow web flexographic printing processes.

(d) Any web coating line subject to subpart EE of this part (national emission standards for magnetic tape manufacturing operations).

(e) Any web coating line that will be subject to the national emission standards for hazardous air pollutants (NESHAP) for surface coating of metal coil currently under development.

(f) Any web coating line that will be subject to the NESHAP for the printing, coating, and dyeing of fabric and other textiles currently under development. This would include any web coating line that coats both a paper or other web substrate and a fabric or other textile substrate, except for a fabric substrate used for pressure sensitive tape and abrasive materials.

(g) Any web coating line that is defined as research or laboratory equipment in §63.3310.

**§63.3310 What definitions are used in this subpart?**

All terms used in this subpart that are not defined in this section have the meaning given to them in the Clean Air Act (CAA) and in subpart A of this part.

*Always controlled work station* means a work station associated with a dryer from which the exhaust is delivered to a control device with no provision for the dryer exhaust to bypass the control device unless there is an interlock to interrupt and prevent continued coating during a bypass. Sampling lines for analyzers, relief valves needed for safety purposes, and periodic cycling of exhaust dampers to ensure safe operation are not considered bypass lines.

*Applied* means, for the purposes of this subpart, the amount of organic HAP, coating material, or coating solids (as appropriate for the emission standards in §63.3320(b)) used by the affected source during the compliance period.

*As-applied* means the condition of a coating at the time of application to a substrate, including any added solvent.

*As-purchased* means the condition of a coating as delivered to the user.

*Capture efficiency* means the fraction of all organic HAP emissions generated by a process that is delivered to a control device, expressed as a percentage.

*Capture system* means a hood, enclosed room, or other means of collecting organic HAP emissions into a closed vent system that exhausts to a control device.

*Car seal* means a seal that is placed on a device that is used to change the position of a valve or damper (*e.g.*, from open to closed) in such a way that the position of the valve or damper cannot be changed without breaking the seal.

*Coating material(s)* means all inks, varnishes, adhesives, primers, solvents, reducers, and other coating materials applied to a substrate via a web coating line. Materials used to form a substrate are not considered coating materials.

*Control device* means a device such as a solvent recovery device or oxidizer which reduces the organic HAP in an exhaust gas by recovery or by destruction.

*Control device efficiency* means the ratio of organic HAP emissions recovered or destroyed by a control device to the total organic HAP emissions that are introduced into the control device, expressed as a percentage.

*Day* means a 24-consecutive-hour period.

*Deviation* means any instance in which an affected source, subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;

~~(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or~~

~~(3) Fails to meet any emission limitation (including any operating limit) or work practice standard in this subpart during start-up, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.~~

~~*Existing affected source* means any affected source the construction or reconstruction of which is commenced on or before September 13, 2000, and has not undergone reconstruction as defined in §63.2.~~

~~*Fabric* means any woven, knitted, plaited, braided, felted, or non-woven material made of filaments, fibers, or yarns including thread. This term includes material made of fiberglass, natural fibers, synthetic fibers, or composite materials.~~

~~*Facility* means all contiguous or adjoining property that is under common ownership or control, including properties that are separated only by a road or other public right-of-way.~~

~~*Flexible packaging* means any package or part of a package the shape of which can be readily changed. Flexible packaging includes, but is not limited to, bags, pouches, labels, liners and wraps utilizing paper, plastic, film, aluminum foil, metalized or coated paper or film, or any combination of these materials.~~

~~*Formulation data* means data on the organic HAP mass fraction, volatile matter mass fraction, or coating solids mass fraction of a material that is generated by the manufacturer or means other than a test method specified in this subpart or an approved alternative method.~~

~~*HAP* means hazardous air pollutants.~~

~~*HAP applied* means the organic HAP content of all coating materials applied to a substrate by a web coating line at an affected source.~~

~~*Intermittently controlled work station* means a work station associated with a dryer with provisions for the dryer exhaust to be delivered to or diverted from a control device through a bypass line, depending on the position of a valve or damper. Sampling lines for analyzers, relief valves needed for safety purposes, and periodic cycling of exhaust dampers to ensure safe operation are not considered bypass lines.~~

~~*Metal coil* means a continuous metal strip that is at least 0.15 millimeter (0.006 inch) thick which is packaged in a roll or coil prior to coating. After coating, it may or may not be rewound into a roll or coil. Metal coil does not include metal webs that are coated for use in flexible packaging.~~

~~*Month* means a calendar month or a pre-specified period of 28 days to 35 days to allow for flexibility in recordkeeping when data are based on a business accounting period.~~

~~*Never controlled work station* means a work station that is not equipped with provisions by which any emissions, including those in the exhaust from any associated dryer, may be delivered to a control device.~~

~~*New affected source* means any affected source the construction or reconstruction of which is commenced after September 13, 2000.~~

*Overall organic HAP control efficiency* means the total efficiency of a capture and control system.

*Pressure sensitive tape* means a flexible backing material with a pressure-sensitive adhesive coating on one or both sides of the backing. Examples include, but are not limited to, duct/duct insulation tape and medical tape.

*Research or laboratory equipment* means any equipment for which the primary purpose is to conduct research and development into new processes and products where such equipment is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce except in a *de minimis* manner.

*Rewind or cutting station* means a unit from which substrate is collected at the outlet of a web coating line.

*Uncontrolled coating line* means a coating line consisting of only never-controlled work stations.

*Unwind or feed station* means a unit from which substrate is fed to a web coating line.

*Web* means a continuous substrate (*e.g.*, paper, film, foil) which is flexible enough to be wound or unwound as rolls.

*Web coating line* means any number of work stations, of which one or more applies a continuous layer of coating material across the entire width or any portion of the width of a web substrate, and any associated curing/drying equipment between an unwind or feed station and a rewind or cutting station.

*Work station* means a unit on a web coating line where coating material is deposited onto a web substrate.

## EMISSION STANDARDS AND COMPLIANCE DATES

**§63.3320 What emission standards must I meet?**

(a) If you own or operate any affected source that is subject to the requirements of this subpart, you must comply with these requirements on and after the compliance dates as specified in §63.3330.

(b) You must limit organic HAP emissions to the level specified in paragraph (b)(1), (2), (3), or (4) of this section.

(1) No more than 5 percent of the organic HAP applied for each month (95 percent reduction) at existing affected sources, and no more than 2 percent of the organic HAP applied for each month (98 percent reduction) at new affected sources; or

(2) No more than 4 percent of the mass of coating materials applied for each month at existing affected sources, and no more than 1.6 percent of the mass of coating materials applied for each month at new affected sources; or

(3) No more than 20 percent of the mass of coating solids applied for each month at existing affected sources, and no more than 8 percent of the coating solids applied for each month at new affected sources.

~~(4) If you use an oxidizer to control organic HAP emissions, operate the oxidizer such that an outlet organic HAP concentration of no greater than 20 parts per million by volume (ppmv) by compound on a dry basis is achieved and the efficiency of the capture system is 100 percent.~~

~~(c) You must demonstrate compliance with this subpart by following the procedures in §63.3370.~~

**~~§63.3321 What operating limits must I meet?~~**

~~(a) For any web coating line or group of web coating lines for which you use add-on control devices, unless you use a solvent recovery system and conduct a liquid-liquid material balance, you must meet the operating limits specified in Table 1 to this subpart or according to paragraph (b) of this section. These operating limits apply to emission capture systems and control devices, and you must establish the operating limits during the performance test according to the requirements in §63.3360(e)(3). You must meet the operating limits at all times after you establish them.~~

~~(b) If you use an add-on control device other than those listed in Table 1 to this subpart or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of alternative monitoring under §63.8(f).~~

**~~§63.3330 When must I comply?~~**

~~(a) If you own or operate an existing affected source subject to the provisions of this subpart, you must comply by the compliance date. The compliance date for existing affected sources in this subpart is December 5, 2005. You must complete any performance test required in §63.3360 within the time limits specified in §63.7(a)(2).~~

~~(b) If you own or operate a new affected source subject to the provisions of this subpart, your compliance date is immediately upon start-up of the new affected source or by December 4, 2002, whichever is later. You must complete any performance test required in §63.3360 within the time limits specified in §63.7(a)(2).~~

~~(c) If you own or operate a reconstructed affected source subject to the provisions of this subpart, your compliance date is immediately upon startup of the affected source or by December 4, 2002, whichever is later. Existing affected sources which have undergone reconstruction as defined in §63.2 are subject to the requirements for new affected sources. The costs associated with the purchase and installation of air pollution control equipment are not considered in determining whether the existing affected source has been reconstructed. Additionally, the costs of retrofitting and replacing of equipment that is installed specifically to comply with this subpart are not considered reconstruction costs. You must complete any performance test required in §63.3360 within the time limits specified in §63.7(a)(2).~~

## ~~GENERAL REQUIREMENTS FOR COMPLIANCE WITH THE EMISSION STANDARDS AND FOR MONITORING AND PERFORMANCE TESTS~~

**~~§63.3340 What general requirements must I meet to comply with the standards?~~**

Table 2 to this subpart specifies the provisions of subpart A of this part that apply if you are subject to this subpart, such as startup, shutdown, and malfunction plans (SSMP) in §63.6(e)(3) for affected sources using a control device to comply with the emission standards.

**§63.3350 If I use a control device to comply with the emission standards, what monitoring must I do?**

(a) A summary of monitoring you must do follows:

| **If you operate a web coating line, and have the following:** | **Then you must:** |
|---|---|
| (1) Intermittently controlled work stations | Record parameters related to possible exhaust flow bypass of control device and to coating use (§63.3350(c)). |
| (2) Solvent recovery unit | Operate continuous emission monitoring system and perform quarterly audits or determine volatile matter recovered and conduct a liquid-liquid material balance (§63.3350(d)). |
| (3) Control Device | Operate continuous parameter monitoring system (§63.3350(e)). |
| (4) Capture system | Monitor capture system operating parameter (§63.3350(f)). |

(b) Following the date on which the initial performance test of a control device is completed to demonstrate continuing compliance with the standards, you must monitor and inspect each capture system and each control device used to comply with §63.3320. You must install and operate the monitoring equipment as specified in paragraphs (c) and (f) of this section.

(c) *Bypass and coating use monitoring.* If you own or operate web coating lines with intermittently controlled work stations, you must monitor bypasses of the control device and the mass of each coating material applied at the work station during any such bypass. If using a control device for complying with the requirements of this subpart, you must demonstrate that any coating material applied on a never controlled work station or an intermittently controlled work station operated in bypass mode is allowed in your compliance demonstration according to §63.3370(n) and (o). The bypass monitoring must be conducted using at least one of the procedures in paragraphs (c)(1) through (4) of this section for each work station and associated dryer.

(1) *Flow control position indicator.* Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that provides a record indicating whether the exhaust stream from the dryer was directed to the control device or was diverted from the control device. The time and flow control position must be recorded at least once per hour as well as every time the flow direction is changed. A flow control position indicator must be installed at the entrance to any bypass line that could divert the exhaust stream away from the control device to the atmosphere.

(2) *Car-seal or lock-and-key valve closures.* Secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve or damper is maintained in the closed position, and the exhaust stream is not diverted through the bypass line.

(3) *Valve closure continuous monitoring.* Ensure that any bypass line valve or damper is in the closed position through continuous monitoring of valve position when the emission source is in operation and is using

~~a control device for compliance with the requirements of this subpart. The monitoring system must be inspected at least once every month to verify that the monitor will indicate valve position.~~

~~(4) *Automatic shutdown system.* Use an automatic shutdown system in which the web coating line is stopped when flow is diverted away from the control device to any bypass line when the control device is in operation. The automatic system must be inspected at least once every month to verify that it will detect diversions of flow and would shut down operations in the event of such a diversion.~~

~~(d) *Solvent recovery unit.* If you own or operate a solvent recovery unit to comply with §63.3320, you must meet the requirements in either paragraph (d)(1) or (2) of this section depending on how control efficiency is determined.~~

~~(1) *Continuous emission monitoring system (CEMS).* If you are demonstrating compliance with the emission standards in §63.3320 through continuous emission monitoring of a control device, you must install, calibrate, operate, and maintain the CEMS according to paragraphs (d)(1)(i) through (iii) of this section.~~

~~(i) Measure the total organic volatile matter mass flow rate at both the control device inlet and the outlet such that the reduction efficiency can be determined. Each continuous emission monitor must comply with performance specification 6, 8, or 9 of 40 CFR part 60, appendix B, as appropriate.~~

~~(ii) You must follow the quality assurance procedures in procedure 1, appendix F of 40 CFR part 60. In conducting the quarterly audits of the monitors as required by procedure 1, appendix F, you must use compounds representative of the gaseous emission stream being controlled.~~

~~(iii) You must have valid data from at least 90 percent of the hours during which the process is operated.~~

~~(2) *Liquid-liquid material balance.* If you are demonstrating compliance with the emission standards in §63.3320 through liquid-liquid material balance, you must install, calibrate, maintain, and operate according to the manufacturer's specifications a device that indicates the cumulative amount of volatile matter recovered by the solvent recovery device on a monthly basis. The device must be certified by the manufacturer to be accurate to within ±2.0 percent by mass.~~

~~(e) *Continuous parameter monitoring system (CPMS).* If you are using a control device to comply with the emission standards in §63.3320, you must install, operate, and maintain each CPMS specified in paragraphs (e)(9) and (10) and (f) of this section according to the requirements in paragraphs (e)(1) through (8) of this section. You must install, operate, and maintain each CPMS specified in paragraph (c) of this section according to paragraphs (e)(5) through (7) of this section.~~

~~(1) Each CPMS must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four equally spaced successive cycles of CPMS operation to have a valid hour of data.~~

~~(2) You must have valid data from at least 90 percent of the hours during which the process operated.~~

~~(3) You must determine the hourly average of all recorded readings according to paragraphs (e)(3)(i) and (ii) of this section.~~

~~(i) To calculate a valid hourly value, you must have at least three of four equally spaced data values from that hour from a continuous monitoring system (CMS) that is not out-of-control.~~

~~(ii) Provided all of the readings recorded in accordance with paragraph (e)(3) of this section clearly demonstrate continuous compliance with the standard that applies to you, then you are not required to determine the hourly average of all recorded readings.~~

~~(4) You must determine the rolling 3-hour average of all recorded readings for each operating period. To calculate the average for each 3-hour averaging period, you must have at least two of three of the hourly averages for that period using only average values that are based on valid data (*i.e.*, not from out-of-control periods).~~

~~(5) You must record the results of each inspection, calibration, and validation check of the CPMS.~~

~~(6) At all times, you must maintain the monitoring system in proper working order including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.~~

~~(7) Except for monitoring malfunctions, associated repairs, or required quality assurance or control activities (including calibration checks or required zero and span adjustments), you must conduct all monitoring at all times that the unit is operating. Data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities shall not be used for purposes of calculating the emissions concentrations and percent reductions specified in §63.3370. You must use all the valid data collected during all other periods in assessing compliance of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.~~

~~(8) Any averaging period for which you do not have valid monitoring data and such data are required constitutes a deviation, and you must notify the Administrator in accordance with §63.3400(c).~~

~~(9) *Oxidizer.* If you are using an oxidizer to comply with the emission standards, you must comply with paragraphs (e)(9)(i) through (iii) of this section.~~

~~(i) Install, calibrate, maintain, and operate temperature monitoring equipment according to the manufacturer's specifications. The calibration of the chart recorder, data logger, or temperature indicator must be verified every 3 months or the chart recorder, data logger, or temperature indicator must be replaced. You must replace the equipment whether you choose not to perform the calibration or the equipment cannot be calibrated properly.~~

~~(ii) For an oxidizer other than a catalytic oxidizer, install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder. The device must have an accuracy of ±1 percent of the temperature being monitored in degrees Celsius, or ±1 °Celsius, whichever is greater. The thermocouple or temperature sensor must be installed in the combustion chamber at a location in the combustion zone.~~

~~(iii) For a catalytic oxidizer, install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder. The device must be capable of monitoring temperature with an accuracy of ±1 percent of the temperature being monitored in degrees Celsius or ±1 degree Celsius, whichever is greater.~~

~~The thermocouple or temperature sensor must be installed in the vent stream at the nearest feasible point to the inlet and outlet of the catalyst bed. Calculate the temperature rise across the catalyst.~~

~~(10) *Other types of control devices.* If you use a control device other than an oxidizer or wish to monitor an alternative parameter and comply with a different operating limit, you must apply to the Administrator for approval of an alternative monitoring method under §63.8(f).~~

~~(f) *Capture system monitoring.* If you are complying with the emission standards in §63.3320 through the use of a capture system and control device for one or more web coating lines, you must develop a site-specific monitoring plan containing the information specified in paragraphs (f)(1) and (2) of this section for these capture systems. You must monitor the capture system in accordance with paragraph (f)(3) of this section. You must make the monitoring plan available for inspection by the permitting authority upon request.~~

~~(1) The monitoring plan must:~~

~~(i) Identify the operating parameter to be monitored to ensure that the capture efficiency determined during the initial compliance test is maintained; and~~

~~(ii) Explain why this parameter is appropriate for demonstrating ongoing compliance; and~~

~~(iii) Identify the specific monitoring procedures.~~

~~(2) The monitoring plan must specify the operating parameter value or range of values that demonstrate compliance with the emission standards in §63.3320. The specified operating parameter value or range of values must represent the conditions present when the capture system is being properly operated and maintained.~~

~~(3) You must conduct all capture system monitoring in accordance with the plan.~~

~~(4) Any deviation from the operating parameter value or range of values which are monitored according to the plan will be considered a deviation from the operating limit.~~

~~(5) You must review and update the capture system monitoring plan at least annually.~~

**~~§63.3360 What performance tests must I conduct?~~**

~~(a) The performance test methods you must conduct are as follows:~~

| **~~If you control organic HAP on any individual web coating line or any group of web coating lines by:~~** | **~~You must:~~** |
|---|---|
| ~~(1) Limiting organic HAP or volatile matter content of coatings~~ | ~~Determine the organic HAP or volatile matter and coating solids content of coating materials according to procedures in §63.3360(c) and (d). If applicable, determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere according to §63.3360(g).~~ |
| ~~(2) Using a capture and control system~~ | ~~Conduct a performance test for each capture and control system to determine: the destruction or removal efficiency of each control device other than solvent~~ |

| | |
|---|---|
| | recovery according to §63.3360(e), and the capture efficiency of each capture system according to §63.3360(f). If applicable, determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere according to §63.3360(g). |

(b) If you are using a control device to comply with the emission standards in §63.3320, you are not required to conduct a performance test to demonstrate compliance if one or more of the criteria in paragraphs (b)(1) through (3) of this section are met.

(1) The control device is equipped with continuous emission monitors for determining inlet and outlet total organic volatile matter concentration and capture efficiency has been determined in accordance with the requirements of this subpart such that an overall organic HAP control efficiency can be calculated, and the continuous emission monitors are used to demonstrate continuous compliance in accordance with §63.3350; or

(2) You have met the requirements of §63.7(h) (for waiver of performance testing; or

(3) The control device is a solvent recovery system and you comply by means of a monthly liquid-liquid material balance.

(c) *Organic HAP content.* If you determine compliance with the emission standards in §63.3320 by means other than determining the overall organic HAP control efficiency of a control device, you must determine the organic HAP mass fraction of each coating material "as-purchased" by following one of the procedures in paragraphs (c)(1) through (3) of this section, and determine the organic HAP mass fraction of each coating material "as-applied" by following the procedures in paragraph (c)(4) of this section. If the organic HAP content values are not determined using the procedures in paragraphs (c)(1) through (3) of this section, the owner or operator must submit an alternative test method for determining their values for approval by the Administrator in accordance with §63.7(f). The recovery efficiency of the test method must be determined for all of the target organic HAP and a correction factor, if necessary, must be determined and applied.

(1) *Method 311.* You may test the coating material in accordance with Method 311 of appendix A of this part. The Method 311 determination may be performed by the manufacturer of the coating material and the results provided to the owner or operator. The organic HAP content must be calculated according to the criteria and procedures in paragraphs (c)(1)(i) through (iii) of this section.

(i) Include each organic HAP determined to be present at greater than or equal to 0.1 mass percent for Occupational Safety and Health Administration (OSHA) defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and greater than or equal to 1.0 mass percent for other organic HAP compounds.

(ii) Express the mass fraction of each organic HAP you include according to paragraph (c)(1)(i) of this section as a value truncated to four places after the decimal point (for example, 0.3791).

(iii) Calculate the total mass fraction of organic HAP in the tested material by summing the counted individual organic HAP mass fractions and truncating the result to three places after the decimal point (for example, 0.763).

(2) *Method 24.* For coatings, determine the volatile organic content as mass fraction of nonaqueous volatile matter and use it as a substitute for organic HAP using Method 24 of 40 CFR part 60, appendix A. The Method 24 determination may be performed by the manufacturer of the coating and the results provided to you.

(3) *Formulation data.* You may use formulation data to determine the organic HAP mass fraction of a coating material. Formulation data may be provided to the owner or operator by the manufacturer of the material. In the event of an inconsistency between Method 311 (appendix A of 40 CFR part 63) test data and a facility's formulation data, and the Method 311 test value is higher, the Method 311 data will govern. Formulation data may be used provided that the information represents all organic HAP present at a level equal to or greater than 0.1 percent for OSHA-defined carcinogens as specified in 29 CFR 1910.1200(d)(4) and equal to or greater than 1.0 percent for other organic HAP compounds in any raw material used.

(4) *As-applied organic HAP mass fraction.* If the as-purchased coating material is applied to the web without any solvent or other material added, then the as-applied organic HAP mass fraction is equal to the as-purchased organic HAP mass fraction. Otherwise, the as-applied organic HAP mass fraction must be calculated using Equation 1a of §63.3370.

(d) *Volatile organic and coating solids content.* If you determine compliance with the emission standards in §63.3320 by means other than determining the overall organic HAP control efficiency of a control device and you choose to use the volatile organic content as a surrogate for the organic HAP content of coatings, you must determine the as-purchased volatile organic content and coating solids content of each coating material applied by following the procedures in paragraph (d)(1) or (2) of this section, and the as-applied volatile organic content and coating solids content of each coating material by following the procedures in paragraph (d)(3) of this section.

(1) *Method 24.* You may determine the volatile organic and coating solids mass fraction of each coating applied using Method 24 (40 CFR part 60, appendix A.) The Method 24 determination may be performed by the manufacturer of the material and the results provided to you. If these values cannot be determined using Method 24, you must submit an alternative technique for determining their values for approval by the Administrator.

(2) *Formulation data.* You may determine the volatile organic content and coating solids content of a coating material based on formulation data and may rely on volatile organic content data provided by the manufacturer of the material. In the event of any inconsistency between the formulation data and the results of Method 24 of 40 CFR part 60, appendix A, and the Method 24 results are higher, the results of Method 24 will govern.

(3) *As-applied volatile organic content and coating solids content.* If the as-purchased coating material is applied to the web without any solvent or other material added, then the as-applied volatile organic content is equal to the as-purchased volatile content and the as-applied coating solids content is equal to the as-purchased coating solids content. Otherwise, the as-applied volatile organic content must be calculated using Equation 1b of §63.3370 and the as-applied coating solids content must be calculated using Equation 2 of §63.3370.

(e) *Control device efficiency.* If you are using an add-on control device other than solvent recovery, such as an oxidizer, to comply with the emission standards in §63.3320, you must conduct a performance test to

~~establish the destruction or removal efficiency of the control device according to the methods and procedures in paragraphs (e)(1) and (2) of this section. During the performance test, you must establish the operating limits required by §63.3321 according to paragraph (e)(3) of this section.~~

~~(1) An initial performance test to establish the destruction or removal efficiency of the control device must be conducted such that control device inlet and outlet testing is conducted simultaneously, and the data are reduced in accordance with the test methods and procedures in paragraphs (e)(1)(i) through (ix) of this section. You must conduct three test runs as specified in §63.7(e)(3), and each test run must last at least 1 hour.~~

~~(i) Method 1 or 1A of 40 CFR part 60, appendix A, must be used for sample and velocity traverses to determine sampling locations.~~

~~(ii) Method 2, 2A, 2C, 2D, 2F, or 2G of 40 CFR part 60, appendix A, must be used to determine gas volumetric flow rate.~~

~~(iii) Method 3, 3A, or 3B of 40 CFR part 60, appendix A, must be used for gas analysis to determine dry molecular weight. You may also use as an alternative to Method 3B the manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of exhaust gas in ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus]," (incorporated by reference, see §63.14).~~

~~(iv) Method 4 of 40 CFR part 60, appendix A, must be used to determine stack gas moisture.~~

~~(v) The gas volumetric flow rate, dry molecular weight, and stack gas moisture must be determined during each test run specified in paragraph (f)(1)(vii) of this section.~~

~~(vi) Method 25 or 25A of 40 CFR part 60, appendix A, must be used to determine total gaseous non-methane organic matter concentration. Use the same test method for both the inlet and outlet measurements which must be conducted simultaneously. You must submit notice of the intended test method to the Administrator for approval along with notification of the performance test required under §63.7(b). You must use Method 25A if any of the conditions described in paragraphs (e)(1)(vi)(A) through (D) of this section apply to the control device.~~

~~(A) The control device is not an oxidizer.~~

~~(B) The control device is an oxidizer but an exhaust gas volatile organic matter concentration of 50 ppmv or less is required to comply with the emission standards in §63.3320; or~~

~~(C) The control device is an oxidizer but the volatile organic matter concentration at the inlet to the control system and the required level of control are such that they result in exhaust gas volatile organic matter concentrations of 50 ppmv or less; or~~

~~(D) The control device is an oxidizer but because of the high efficiency of the control device the anticipated volatile organic matter concentration at the control device exhaust is 50 ppmv or less, regardless of inlet concentration.~~

~~(vii) Except as provided in §63.7(e)(3), each performance test must consist of three separate runs with each run conducted for at least 1 hour under the conditions that exist when the affected source is operating under~~

normal operating conditions. For the purpose of determining volatile organic compound concentrations and mass flow rates, the average of the results of all the runs will apply.

(viii) Volatile organic matter mass flow rates must be determined for each run specified in paragraph (e)(1)(vii) of this section using Equation 1 of this section:

$$M_f = Q_{sd} C_c [12][0.0416]\left[10^{-6}\right] \quad \text{Eq. 1}$$

Where:

$M_f$ = Total organic volatile matter mass flow rate, kilograms (kg)/hour (h).

$Q_{sd}$ = Volumetric flow rate of gases entering or exiting the control device, as determined according to §63.3360(e)(1)(ii), dry standard cubic meters (dscm)/h.

$C_c$ = Concentration of organic compounds as carbon, ppmv.

12.0 = Molecular weight of carbon.

0.0416 = Conversion factor for molar volume, kg-moles per cubic meter (mol/m³) (@ 293 Kelvin (K) and 760 millimeters of mercury (mmHg)).

(ix) For each run, emission control device destruction or removal efficiency must be determined using Equation 2 of this section:

$$E = \frac{M_{fi} - M_{fo}}{M_{fi}} \times 100 \quad \text{Eq. 2}$$

Where:

E = Organic volatile matter control efficiency of the control device, percent.

$M_{fi}$ = Organic volatile matter mass flow rate at the inlet to the control device, kg/h.

$M_{fo}$ = Organic volatile matter mass flow rate at the outlet of the control device, kg/h.

(x) The control device destruction or removal efficiency is determined as the average of the efficiencies determined in the test runs and calculated in Equation 2 of this section.

(2) You must record such process information as may be necessary to determine the conditions in existence at the time of the performance test. Operations during periods of startup, shutdown, and malfunction will not constitute representative conditions for the purpose of a performance test.

(3) *Operating limits.* If you are using one or more add-on control device other than a solvent recovery system for which you conduct a liquid-liquid material balance to comply with the emission standards in §63.3320, you must establish the applicable operating limits required by §63.3321. These operating limits apply to each add-on emission control device, and you must establish the operating limits during the performance test

~~required by paragraph (e) of this section according to the requirements in paragraphs (e)(3)(i) and (ii) of this section.~~

~~(i) *Thermal oxidizer.* If your add-on control device is a thermal oxidizer, establish the operating limits according to paragraphs (e)(3)(i)(A) and (B) of this section.~~

~~(A) During the performance test, you must monitor and record the combustion temperature at least once every 15 minutes during each of the three test runs. You must monitor the temperature in the firebox of the thermal oxidizer or immediately downstream of the firebox before any substantial heat exchange occurs.~~

~~(B) Use the data collected during the performance test to calculate and record the average combustion temperature maintained during the performance test. This average combustion temperature is the minimum operating limit for your thermal oxidizer.~~

~~(ii) *Catalytic oxidizer.* If your add-on control device is a catalytic oxidizer, establish the operating limits according to paragraphs (e)(3)(ii)(A) and (B) or paragraphs (e)(3)(ii)(C) and (D) of this section.~~

~~(A) During the performance test, you must monitor and record the temperature just before the catalyst bed and the temperature difference across the catalyst bed at least once every 15 minutes during each of the three test runs.~~

~~(B) Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed and the average temperature difference across the catalyst bed maintained during the performance test. These are the minimum operating limits for your catalytic oxidizer.~~

~~(C) As an alternative to monitoring the temperature difference across the catalyst bed, you may monitor the temperature at the inlet to the catalyst bed and implement a site-specific inspection and maintenance plan for your catalytic oxidizer as specified in paragraph (e)(3)(ii)(D) of this section. During the performance test, you must monitor and record the temperature just before the catalyst bed at least once every 15 minutes during each of the three test runs. Use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed during the performance test. This is the minimum operating limit for your catalytic oxidizer.~~

~~(D) You must develop and implement an inspection and maintenance plan for your catalytic oxidizer(s) for which you elect to monitor according to paragraph (e)(3)(ii)(C) of this section. The plan must address, at a minimum, the elements specified in paragraphs (e)(3)(ii)(D)(*1*) through (*3*) of this section.~~

~~(*1*) Annual sampling and analysis of the catalyst activity (*i.e.*, conversion efficiency) following the manufacturer's or catalyst supplier's recommended procedures,~~

~~(*2*) Monthly inspection of the oxidizer system including the burner assembly and fuel supply lines for problems, and~~

~~(*3*) Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found, you must take corrective action consistent with the manufacturer's recommendations and conduct a new performance test to determine destruction efficiency in accordance with this section.~~

(f) *Capture efficiency.* If you demonstrate compliance by meeting the requirements of §63.3370(e), (f), (g), (h), (i)(2), (k), (n)(2) or (3), or (p), you must determine capture efficiency using the procedures in paragraph (f)(1), (2), or (3) of this section, as applicable.

(1) You may assume your capture efficiency equals 100 percent if your capture system is a permanent total enclosure (PTE). You must confirm that your capture system is a PTE by demonstrating that it meets the requirements of section 6 of EPA Method 204 of 40 CFR part 51, appendix M, and that all exhaust gases from the enclosure are delivered to a control device.

(2) You may determine capture efficiency according to the protocols for testing with temporary total enclosures that are specified in Methods 204 and 204A through F of 40 CFR part 51, appendix M. You may exclude never-controlled work stations from such capture efficiency determinations.

(3) You may use any capture efficiency protocol and test methods that satisfy the criteria of either the Data Quality Objective or the Lower Confidence Limit approach as described in appendix A of subpart KK of this part. You may exclude never-controlled work stations from such capture efficiency determinations.

(g) *Volatile matter retained in the coated web or otherwise not emitted to the atmosphere.* You may choose to take into account the mass of volatile matter retained in the coated web after curing or drying or otherwise not emitted to the atmosphere when determining compliance with the emission standards in §63.3320. If you choose this option, you must develop a testing protocol to determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere and submit this protocol to the Administrator for approval. You must submit this protocol with your site-specific test plan under §63.7(f). If you intend to take into account the mass of volatile matter retained in the coated web after curing or drying or otherwise not emitted to the atmosphere and demonstrate compliance according to §63.3370(c)(3), (c)(4), (c)(5), or (d), then the test protocol you submit must determine the mass of organic HAP retained in the coated web or otherwise not emitted to the atmosphere. Otherwise, compliance must be shown using the volatile organic matter content as a surrogate for the HAP content of the coatings.

(h) *Control devices in series.* If you use multiple control devices in series to comply with the emission standards in §63.3320, the performance test must include, at a minimum, the inlet to the first control device in the series, the outlet of the last control device in the series, and all intermediate streams (*e.g.,* gaseous exhaust to the atmosphere or a liquid stream from a recovery device) that are not subsequently treated by any of the control devices in the series.

## REQUIREMENTS FOR SHOWING COMPLIANCE

### §63.3370 How do I demonstrate compliance with the emission standards?

(a) A summary of how you must demonstrate compliance follows:

| If you choose to demonstrate compliance by: | Then you must demonstrate that: | To accomplish this: |
|---|---|---|

| If you choose to demonstrate compliance by: | Then you must demonstrate that: | To accomplish this: |
|---|---|---|
| (1) Use of "as purchased" compliant coating materials | (i) Each coating material used at an existing affected source does not exceed 0.04 kg organic HAP per kg coating material, and each coating material used at a new affected source does not exceed 0.016 kg organic HAP per kg coating material as purchased; or | Follow the procedures set out in §63.3370(b). |
| — | (ii) Each coating material used at an existing affected source does not exceed 0.2 kg organic HAP per kg coating solids, and each coating material used at a new affected source does not exceed 0.08 kg organic HAP per kg coating solids as purchased | Follow the procedures set out in §63.3370(b). |
| (2) Use of "as applied" compliant coating materials | (i) Each coating material used at an existing affected source does not exceed 0.04 kg organic HAP per kg coating material, and each coating material used at a new affected source does not exceed 0.016 kg organic HAP per kg coating material as applied; or | Follow the procedures set out in §63.3370(c)(1). Use either Equation 1a or b of §63.3370 to determine compliance with §63.3320(b)(2) in accordance with §63.3370(c)(5)(i). |
| — | (ii) Each coating material used at an existing affected source does not exceed 0.2 kg organic HAP per kg coating solids, and each coating material used at a new affected source does not exceed 0.08 kg organic HAP per kg coating solids as applied; or | Follow the procedures set out in §63.3370(c)(2). Use Equations 2 and 3 of §63.3370 to determine compliance with §63.3320(b)(3) in accordance with §63.3370(c)(5)(i). |
| — | (iii) Monthly average of all coating materials used at an existing affected source does not exceed 0.04 kg organic HAP per kg coating material, and monthly average of all coating materials used at a new affected source does not exceed 0.016 kg organic HAP per kg coating material as applied on a monthly average basis; or | Follow the procedures set out in §63.3370(c)(3). Use Equation 4 of §63.3370 to determine compliance with §63.3320(b)(2) in accordance with §63.3370(c)(5)(ii). |
| — | (iv) Monthly average of all coating materials used at an existing affected source does not exceed 0.2 kg organic HAP per kg coating solids, and monthly average of all coating materials used at a new affected source does not exceed 0.08 kg organic HAP per kg | Follow the procedures set out in §63.3370(c)(4). Use Equation 5 of §63.3370 to determine compliance with §63.3320(b)(3) in accordance with §63.3370(c)(5)(ii). |

| ~~If you choose to demonstrate compliance by:~~ | ~~Then you must demonstrate that:~~ | ~~To accomplish this:~~ |
|---|---|---|
| | ~~coating solids as applied on a monthly average basis~~ | |
| ~~(3) Tracking total monthly organic HAP applied~~ | ~~Total monthly organic HAP applied does not exceed the calculated limit based on emission limitations~~ | ~~Follow the procedures set out in §63.3370(d). Show that total monthly HAP applied (Equation 6 of §63.3370) is less than the calculated equivalent allowable organic HAP (Equation 13a or b of §63.3370).~~ |
| ~~(4) Use of a capture system and control device~~ | ~~(i) Overall organic HAP control efficiency is equal to 95 percent at an existing affected source and 98 percent at a new affected source on a monthly basis; or oxidizer outlet organic HAP concentration is no greater than 20 ppmv by compound and capture efficiency is 100 percent; or operating parameters are continuously monitored; or~~ | ~~Follow the procedures set out in §63.3370(e) to determine compliance with §63.3320(b)(1) according to §63.3370(i) if using a solvent recovery device, or §63.3370(j) if using a control device and CPMS, or §63.3370(k) if using an oxidizer.~~ |
| ~~—~~ | ~~(ii) Overall organic HAP emission rate does not exceed 0.2 kg organic HAP per kg coating solids for an existing affected source or 0.08 kg organic HAP per kg coating solids for a new affected source on a monthly average as-applied basis;~~ | ~~Follow the procedures set out in §63.3370(f) to determine compliance with §63.3320(b)(3) according to §63.3370(i) if using a solvent recovery device, or §63.3370(k) if using an oxidizer.~~ |
| ~~—~~ | ~~(iii) Overall organic HAP emission rate does not exceed 0.04 kg organic HAP per kg coating material for an existing affected source or 0.016 kg organic HAP per kg coating material for a new affected source on a monthly average as-applied basis; or~~ | ~~Follow the procedures set out in §63.3370(g) to determine compliance with §63.3320(b)(2) according to §63.3370(i) if using a solvent recovery device, or §63.3370(k) if using an oxidizer.~~ |
| ~~—~~ | ~~(iv) Overall organic HAP emission rate does not exceed the calculated limit based on emission limitations~~ | ~~Follow the procedures set out in §63.3370(h). Show that the monthly organic HAP emission rate is less than the calculated equivalent allowable organic HAP emission rate (Equation 13a or b of §63.3370). Calculate the monthly organic HAP emission rate according to §63.3370(i) if using a solvent recovery device, or §63.3370(k) if using an oxidizer.~~ |
| ~~(5) Use of multiple capture and/or control devices~~ | ~~(i) Overall organic HAP control efficiency is equal to 95 percent at an existing affected source and 98 percent at a new affected source on a monthly basis; or~~ | ~~Follow the procedures set out in §63.3370(e) to determine compliance with §63.3320(b)(1) according to §63.3370(e)(1) or (2).~~ |

| If you choose to demonstrate compliance by: | Then you must demonstrate that: | To accomplish this: |
|---|---|---|
| — | (ii) Average equivalent organic HAP emission rate does not exceed 0.2 kg organic HAP per kg coating solids for an existing affected source or 0.08 kg organic HAP per kg coating solids for a new affected source on a monthly average as applied basis; or | Follow the procedures set out in §63.3370(f) to determine compliance with §63.3320(b)(3) according to §63.3370(n). |
| — | (iii) Average equivalent organic HAP emission rate does not exceed 0.04 kg organic HAP per kg coating material for an existing affected source or 0.016 kg organic HAP per kg coating material for a new affected source on a monthly average as applied basis; or | Follow the procedures set out in §63.3370(g) to determine compliance with §63.3320(b)(2) according to §63.3370(n). |
| — | (iv) Average equivalent organic HAP emission rate does not exceed the calculated limit based on emission limitations | Follow the procedures set out in §63.3370(h). Show that the monthly organic HAP emission rate is less than the calculated equivalent allowable organic HAP emission rate (Equation 13a or b of §63.3370) according to §63.3370(n). |
| (6) Use of a combination of compliant coatings and control devices | (i) Average equivalent organic HAP emission rate does not exceed 0.2 kg organic HAP per kg coating solids for an existing affected source or 0.08 kg organic HAP per kg coating solids for a new affected source on a monthly average as applied basis; or | Follow the procedures set out in §63.3370(f) to determine compliance with §63.3320(b)(3) according to §63.3370(n). |
| — | (ii) Average equivalent organic HAP emission rate does not exceed 0.04 kg organic HAP per kg coating material for an existing affected source or 0.016 kg organic HAP per kg coating material for a new affected source on a monthly average as applied basis; or | Follow the procedures set out in §63.3370(g) to determine compliance with §63.3320(b)(2) according to §63.3370(n). |
| — | (iii) Average equivalent organic HAP emission rate does not exceed the calculated limit based on emission limitations | Follow the procedures set out in §63.3370(h). Show that the monthly organic HAP emission rate is less than the calculated equivalent allowable organic HAP emission rate (Equation 13a or b of §63.3370) according to §63.3370(n). |

(b) *As purchased "compliant" coating materials.* (1) If you comply by using coating materials that individually meet the emission standards in §63.3320(b)(2) or (3), you must demonstrate that each coating

material applied during the month at an existing affected source contains no more than 0.04 mass fraction organic HAP or 0.2 kg organic HAP per kg coating solids, and that each coating material applied during the month at a new affected source contains no more than 0.016 mass fraction organic HAP or 0.08 kg organic HAP per kg coating solids on an as-purchased basis as determined in accordance with §63.3360(c).

(2) You are in compliance with emission standards in §63.3320(b)(2) and (3) if each coating material applied at an existing affected source is applied as-purchased and contains no more than 0.04 kg organic HAP per kg coating material or 0.2 kg organic HAP per kg coating solids, and each coating material applied at a new affected source is applied as-purchased and contains no more than 0.016 kg organic HAP per kg coating material or 0.08 kg organic HAP per kg coating solids.

(c) *As-applied "compliant" coating materials.* If you comply by using coating materials that meet the emission standards in §63.3320(b)(2) or (3) as-applied, you must demonstrate compliance by following one of the procedures in paragraphs (c)(1) through (4) of this section. Compliance is determined in accordance with paragraph (c)(5) of this section.

(1) *Each coating material as-applied meets the mass fraction of coating material standard (§63.3320(b)(2)).* You must demonstrate that each coating material applied at an existing affected source during the month contains no more than 0.04 kg organic HAP per kg coating material applied, and each coating material applied at a new affected source contains no more than 0.016 kg organic HAP per kg coating material applied as determined in accordance with paragraphs (c)(1)(i) and (ii) of this section. You must calculate the as-applied organic HAP content of as-purchased coating materials which are reduced, thinned, or diluted prior to application.

(i) Determine the organic HAP content or volatile organic content of each coating material applied on an as-purchased basis in accordance with §63.3360(c).

(ii) Calculate the as-applied organic HAP content of each coating material using Equation 1a of this section:

$$C_{ahi} = \frac{\left(C_{hi}M_i + \sum_{j=1}^{q} C_{hij}M_{ij}\right)}{M_i + \sum_{j=1}^{q} M_{ij}} \quad \text{Eq. 1a}$$

Where:

$C_{ahi}$ = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

$C_{hi}$ = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

$M_i$ = Mass of as-purchased coating material, i, applied in a month, kg.

q = number of different materials added to the coating material.

~~$C_{ij}$ = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.~~

~~$M_{ij}$ = Mass of material, j, added to as-purchased coating material, i, in a month, kg.~~

~~$M_i$ = Mass of as-purchased coating material, i, applied in a month, kg.~~

~~or calculate the as-applied volatile organic content of each coating material using Equation 1b of this section:~~

$$C_{avi} = \frac{\left(C_{vi}M_i + \sum_{j=1}^{q} C_{vij}M_{ij}\right)}{M_i + \sum_{j=1}^{q} M_{ij}} \quad \text{Eq. 1b}$$

~~Where:~~

~~$C_{avi}$ = Monthly average, as-applied, volatile organic content of coating material, i, expressed as a mass fraction, kg/kg.~~

~~$C_{vi}$ = Volatile organic content of coating material, i, expressed as a mass fraction, kg/kg.~~

~~$M_i$ = Mass of as-purchased coating material, i, applied in a month, kg.~~

~~q = Number of different materials added to the coating material.~~

~~$C_{vij}$ = Volatile organic content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.~~

~~$M_{ij}$ = Mass of material, j, added to as-purchased coating material, i, in a month, kg.~~

~~(2) *Each coating material as-applied meets the mass fraction of coating solids standard (§63.3320(b)(3)).* You must demonstrate that each coating material applied at an existing affected source contains no more than 0.20 kg of organic HAP per kg of coating solids applied and each coating material applied at a new affected source contains no more than 0.08 kg of organic HAP per kg of coating solids applied. You must demonstrate compliance in accordance with paragraphs (c)(2)(i) and (ii) of this section.~~

~~(i) Determine the as-applied coating solids content of each coating material following the procedure in §63.3360(d). You must calculate the as-applied coating solids content of coating materials which are reduced, thinned, or diluted prior to application, using Equation 2 of this section:~~

$$C_{asi} = \frac{\left(C_{si}M_i + \sum_{j=1}^{q} C_{sij}M_{ij}\right)}{M_i + \sum_{j=1}^{q} M_{ij}} \quad \text{Eq. 2}$$

Where:

$C_{ai}$ = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

$M_i$ = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

$C_{oj}$ = Coating solids content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

$M_j$ = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(ii) Calculate the as-applied organic HAP-to-coating solids ratio using Equation 3 of this section:

$$H_{si} = \frac{C_{ahi}}{C_{asi}} \quad \text{Eq. 3}$$

Where:

$H_{si}$ = As-applied, organic HAP-to-coating solids ratio of coating material, i.

$C_{ahi}$ = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

$C_{asi}$ = Monthly average, as-applied, coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

(3) *Monthly average organic HAP content of all coating materials as-applied is less than the mass percent limit (§63.3320(b)(2)).* Demonstrate that the monthly average as-applied organic HAP content of all coating materials applied at an existing affected source is less than 0.04 kg organic HAP per kg of coating material applied, and all coating materials applied at a new affected source are less than 0.016 kg organic HAP per kg of coating material applied, as determined by Equation 4 of this section:

$$H_L = \frac{\sum_{i=1}^{p} C_{hi} M_i + \sum_{j=1}^{q} C_{hij} M_{ij} - M_{vret}}{\sum_{i=1}^{p} M_i + \sum_{j=1}^{q} M_{ij}} \quad \text{Eq. 4}$$

Where:

$H_L$ = Monthly average, as-applied, organic HAP content of all coating materials applied, expressed as kg organic HAP per kg of coating material applied, kg/kg.

p = Number of different coating materials applied in a month.

$C_{hi}$ = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

$M_i$ = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

$C_{ij}$ = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

$M_{ij}$ = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

$M_{vret}$ = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in §63.3370.

*(4) Monthly average organic HAP content of all coating materials as-applied is less than the mass fraction of coating solids limit (§63.3320(b)(3)).* Demonstrate that the monthly average as-applied organic HAP content on the basis of coating solids applied of all coating materials applied at an existing affected source is less than 0.20 kg organic HAP per kg coating solids applied, and all coating materials applied at a new affected source are less than 0.08 kg organic HAP per kg coating solids applied, as determined by Equation 5 of this section:

$$H_S = \frac{\sum_{i=1}^{p} C_{hi} M_i + \sum_{j=1}^{q} C_{hij} M_{ij} - M_{vret}}{\sum_{i=1}^{p} C_{Si} M_i + \sum_{j=1}^{q} C_{Sij} M_{ij}} \quad \text{Eq. 5}$$

Where:

$H_s$ = Monthly average, as-applied, organic HAP to coating solids ratio, kg organic HAP/kg coating solids applied.

p = Number of different coating materials applied in a month.

$C_{hi}$ = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

$M_i$ = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

$C_{ij}$ = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

$M_{ij}$ = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

$M_{vret}$ = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into

account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in §63.3370.

$C_{ki}$ = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

$C_{kij}$ = Coating solids content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

(5) The affected source is in compliance with emission standards in §63.3320(b)(2) or (3) if:

(i) The organic HAP content of each coating material as-applied at an existing affected source is no more than 0.04 kg organic HAP per kg coating material or 0.2 kg organic HAP per kg coating solids, and the organic HAP content of each coating material as-applied at a new affected source contains no more than 0.016 kg organic HAP per kg coating material or 0.08 kg organic HAP per kg coating solids; or

(ii) The monthly average organic HAP content of all as-applied coating materials at an existing affected source are no more than 0.04 kg organic HAP per kg coating material or 0.2 kg organic HAP per kg coating solids, and the monthly average organic HAP content of all as-applied coating materials at a new affected source is no more than 0.016 kg organic HAP per kg coating material or 0.08 kg organic HAP per kg coating solids.

(d) *Monthly allowable organic HAP applied.* Demonstrate that the total monthly organic HAP applied as determined by Equation 6 of this section is less than the calculated equivalent allowable organic HAP as determined by Equation 13a or b in paragraph (l) of this section:

$$H_m = \sum_{i=1}^{p} C_{ki} M_i + \sum_{j=1}^{q} C_{kij} M_{ij} - M_{wret} \qquad \text{Eq. 6}$$

Where:

$H_m$ = Total monthly organic HAP applied, kg.

p = Number of different coating materials applied in a month.

$C_{ki}$ = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

$M_i$ = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

$C_{kij}$ = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

$M_{ij}$ = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

$M_{wret}$ = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into

~~account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in §63.3370.~~

~~(e) *Capture and control to reduce emissions to no more than allowable limit (§63.3320(b)(1)).* Operate a capture system and control device and demonstrate an overall organic HAP control efficiency of at least 95 percent at an existing affected source and at least 98 percent at a new affected source for each month, or operate a capture system and oxidizer so that an outlet organic HAP concentration of no greater than 20 ppmv by compound on a dry basis is achieved as long as the capture efficiency is 100 percent as detailed in §63.3320(b)(4). Unless one of the cases described in paragraph (e)(1), (2), or (3) of this section applies to the affected source, you must either demonstrate compliance in accordance with the procedure in paragraph (i) of this section when emissions from the affected source are controlled by a solvent recovery device, or the procedure in paragraph (k) of this section when emissions are controlled by an oxidizer or demonstrate compliance for a web coating line by operating each capture system and each control device and continuous parameter monitoring according to the procedures in paragraph (j) of this section.~~

~~(1) If the affected source has only always controlled work stations and operates more than one capture system or more than one control device, you must demonstrate compliance in accordance with the provisions of either paragraph (n) or (p) of this section.~~

~~(2) If the affected source operates one or more never controlled work stations or one or more intermittently controlled work stations, you must demonstrate compliance in accordance with the provisions of paragraph (n) of this section.~~

~~(3) An alternative method of demonstrating compliance with §63.3320(b)(1) is the installation of a PTE around the web coating line that achieves 100 percent capture efficiency and ventilation of all organic HAP emissions from the total enclosure to an oxidizer with an outlet organic HAP concentration of no greater than 20 ppmv by compound on a dry basis. If this method is selected, you must demonstrate compliance by following the procedures in paragraphs (e)(3)(i) and (ii) of this section. Compliance is determined according to paragraph (e)(3)(iii) of this section.~~

~~(i) Demonstrate that a total enclosure is installed. An enclosure that meets the requirements in §63.3360(f)(1) will be considered a total enclosure.~~

~~(ii) Determine the organic HAP concentration at the outlet of your total enclosure using the procedures in paragraph (e)(3)(ii)(A) or (B) of this section.~~

~~(A) Determine the control device efficiency using Equation 2 of §63.3360 and the applicable test methods and procedures specified in §63.3360(e).~~

~~(B) Use a CEMS to determine the organic HAP emission rate according to paragraphs (i)(2)(i) through (x) of this section.~~

~~(iii) You are in compliance if the installation of a total enclosure is demonstrated and the organic HAP concentration at the outlet of the incinerator is demonstrated to be no greater than 20 ppmv by compound on a dry basis.~~

(f) *Capture and control to achieve mass fraction of coating solids applied limit (§63.3320(b)(3)).* Operate a capture system and control device and limit the organic HAP emission rate from an existing affected source to no more than 0.20 kg organic HAP emitted per kg coating solids applied, and from a new affected source to no more than 0.08 kg organic HAP emitted per kg coating solids applied as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controlled work stations, then you must demonstrate compliance in accordance with the provisions of paragraph (n) of this section. Otherwise, you must demonstrate compliance following the procedure in paragraph (i) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (k) of this section when emissions are controlled by an oxidizer.

(g) *Capture and control to achieve mass fraction limit (§63.3320(b)(2)).* Operate a capture system and control device and limit the organic HAP emission rate to no more than 0.04 kg organic HAP emitted per kg coating material applied at an existing affected source, and no more than 0.016 kg organic HAP emitted per kg coating material applied at a new affected source as determined on a monthly average as-applied basis. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controlled work stations, then you must demonstrate compliance in accordance with the provisions of paragraph (n) of this section. Otherwise, you must demonstrate compliance following the procedure in paragraph (i) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (k) of this section when emissions are controlled by an oxidizer.

(h) *Capture and control to achieve allowable emission rate.* Operate a capture system and control device and limit the monthly organic HAP emissions to less than the allowable emissions as calculated in accordance with paragraph (l) of this section. If the affected source operates more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controlled work stations, then you must demonstrate compliance in accordance with the provisions of paragraph (n) of this section. Otherwise, the owner or operator must demonstrate compliance following the procedure in paragraph (i) of this section when emissions from the affected source are controlled by a solvent recovery device or the procedure in paragraph (k) of this section when emissions are controlled by an oxidizer.

(i) *Solvent recovery device compliance demonstration.* If you use a solvent recovery device to control emissions, you must show compliance by following the procedures in either paragraph (i)(1) or (2) of this section:

(1) *Liquid-liquid material balance.* Perform a monthly liquid-liquid material balance as specified in paragraphs (i)(1)(i) through (v) of this section and use the applicable equations in paragraphs (i)(1)(vi) through (ix) of this section to convert the data to units of the selected compliance option in paragraphs (e) through (h) of this section. Compliance is determined in accordance with paragraph (i)(1)(x) of this section.

(i) Determine the mass of each coating material applied on the web coating line or group of web coating lines controlled by a common solvent recovery device during the month.

(ii) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating material applied, or emission of less than the calculated allowable

organic HAP, determine the organic HAP content of each coating material as applied during the month following the procedure in §63.3360(c).

(iii) Determine the volatile organic content of each coating material as applied during the month following the procedure in §63.3360(d).

(iv) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, determine the coating solids content of each coating material applied during the month following the procedure in §63.3360(d).

(v) Determine and monitor the amount of volatile organic matter recovered for the month according to the procedures in §63.3350(d).

(vi) *Recovery efficiency.* Calculate the volatile organic matter collection and recovery efficiency using Equation 7 of this section:

$$R_v = \frac{M_{vr} + M_{vret}}{\sum_{i=1}^{p} C_{vi} M_i + \sum_{i=1}^{q} C_{vij} M_{ij}} \times 100 \quad \text{Eq. 7}$$

Where:

$R_v$ = Organic volatile matter collection and recovery efficiency, percent.

$M_{vr}$ = Mass of volatile matter recovered in a month, kg.

$M_{vret}$ = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in §63.3370.

p = Number of different coating materials applied in a month.

$C_{vi}$ = Volatile organic content of coating material, i, expressed as a mass fraction, kg/kg.

$M_i$ = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

$C_{vij}$ = Volatile organic content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

$M_{ij}$ = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(vii) *Organic HAP emitted.* Calculate the organic HAP emitted during the month using Equation 8 of this section:

$$H_e = \left[1 - \frac{R_v}{100}\right]\left[\sum_{i=1}^{p} C_{hi} M_i + \sum_{j=1}^{q} C_{hij} M_{ij} - M_{wret}\right] \quad \text{Eq. 8}$$

Where:

$H_e$ = Total monthly organic HAP emitted, kg.

$R_v$ = Organic volatile matter collection and recovery efficiency, percent.

p = Number of different coating materials applied in a month.

$C_{hi}$ = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

$M_i$ = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

$C_{hij}$ = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

$M_{ij}$ = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

$M_{wret}$ = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in §63.3370.

(viii) *Organic HAP emission rate based on coating solids applied.* Calculate the organic HAP emission rate based on coating solids applied using Equation 9 of this section:

$$L = \frac{H_e}{\sum_{i=1}^{p} C_{si} M_i + \sum_{j=1}^{q} C_{sij} M_{ij}} \quad \text{Eq. 9}$$

Where:

L = Mass organic HAP emitted per mass of coating solids applied, kg/kg.

$H_e$ = Total monthly organic HAP emitted, kg.

p = Number of different coating materials applied in a month.

$C_{si}$ = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

$M_i$ = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

$C_{ij}$ = Coating solids content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

$M_{ij}$ = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(ix) *Organic HAP emission rate based on coating materials applied.* Calculate the organic HAP emission rate based on coating material applied using Equation 10 of this section:

$$S = \frac{H_e}{\sum_{i=1}^{p} M_i + \sum_{j=1}^{q} M_{ij}} \qquad \text{Eq. 10}$$

Where:

S = Mass organic HAP emitted per mass of material applied, kg/kg.

$H_e$ = Total monthly organic HAP emitted, kg.

p = Number of different coating materials applied in a month.

$M_i$ = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

$M_{ij}$ = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

(x) You are in compliance with the emission standards in §63.3320(b) if:

(A) The volatile organic matter collection and recovery efficiency is 95 percent or greater at an existing affected source and 98 percent or greater at a new affected source; or

(B) The organic HAP emission rate based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(C) The organic HAP emission rate based on coating material applied is no more than 0.04 kg organic HAP per kg coating material applied at an existing affected source and no more than 0.016 kg organic HAP per kg coating material applied at a new affected source; or

(D) The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section.

(2) *Continuous emission monitoring of capture system and control device performance.* Demonstrate initial compliance through a performance test on capture efficiency and continuing compliance through continuous emission monitors and continuous monitoring of capture system operating parameters following the procedures in paragraphs (i)(2)(i) through (vii) of this section. Use the applicable equations specified in paragraphs (i)(2)(viii) through (x) of this section to convert the monitoring and other data into units of the selected compliance option in paragraphs (e) through (h) of this section. Compliance is determined in accordance with paragraph (i)(2)(xi) of this section.

(i) *Control device efficiency.* Continuously monitor the gas stream entering and exiting the control device to determine the total organic volatile matter mass flow rate (*e.g.*, by determining the concentration of the vent gas in grams per cubic meter and the volumetric flow rate in cubic meters per second such that the total organic volatile matter mass flow rate in grams per second can be calculated) such that the control device efficiency of the control device can be calculated for each month using Equation 2 of §63.3360.

(ii) *Capture efficiency monitoring.* Whenever a web coating line is operated, continuously monitor the operating parameters established in accordance with §63.3350(f) to ensure capture efficiency.

(iii) Determine the percent capture efficiency in accordance with §63.3360(f).

(iv) *Control efficiency.* Calculate the overall organic HAP control efficiency achieved for each month using Equation 11 of this section:

$$R = \frac{(E)(CE)}{100} \quad \text{Eq. 11}$$

Where:

R = Overall organic HAP control efficiency, percent.

E = Organic volatile matter control efficiency of the control device, percent.

CE = Organic volatile matter capture efficiency of the capture system, percent.

(v) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating materials applied, or emission of less than the calculated allowable organic HAP, determine the mass of each coating material applied on the web coating line or group of web coating lines controlled by a common control device during the month.

(vi) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating material applied, or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each coating material as applied during the month following the procedure in §63.3360(c).

(vii) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, determine the coating solids content of each coating material as applied during the month following the procedure in §63.3360(d).

(viii) *Organic HAP emitted.* Calculate the organic HAP emitted during the month for each month using Equation 12 of this section:

$$H_e = (1 - R)\left(\sum_{i=1}^{p} C_{ahi} M_i\right) - M_{wret} \quad \text{Eq. 12}$$

Where:

$H_e$ = Total monthly organic HAP emitted, kg.

R = Overall organic HAP control efficiency, percent.

p = Number of different coating materials applied in a month.

$C_{ahi}$ = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

$M_i$ = Mass of as-purchased coating material, i, applied in a month, kg.

$M_{wret}$ = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

(ix) *Organic HAP emission rate based on coating solids applied.* Calculate the organic HAP emission rate based on coating solids applied using Equation 9 of this section.

(x) *Organic HAP emission rate based on coating materials applied.* Calculate the organic HAP emission rate based on coating material applied using Equation 10 of this section.

(xi) *Compare actual performance to the performance required by compliance option.* The affected source is in compliance with the emission standards in §63.3320(b) for each month if the capture system is operated such that the average capture system operating parameter is greater than or less than (as appropriate) the operating parameter value established in accordance with §63.3350(f); and

(A) The organic volatile matter collection and recovery efficiency is 95 percent or greater at an existing affected source and 98 percent or greater at a new affected source; or

(B) The organic HAP emission rate based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(C) The organic HAP emission rate based on coating material applied is no more than 0.04 kg organic HAP per kg coating material applied at an existing affected source and no more than 0.016 kg organic HAP per kg coating material applied at a new affected source; or

(D) The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section.

(j) *Capture and control system compliance demonstration procedures using a CPMS.* If you use an add-on control device, you must demonstrate initial compliance for each capture system and each control device through performance tests and demonstrate continuing compliance through continuous monitoring of capture system and control device operating parameters as specified in paragraphs (j)(1) through (3) of this section. Compliance is determined in accordance with paragraph (j)(4) of this section.

(1) Determine the control device destruction or removal efficiency using the applicable test methods and procedures in §63.3360(e).

(2) Determine the emission capture efficiency in accordance with §63.3360(f).

(3) Whenever a web coating line is operated, continuously monitor the operating parameters established according to §63.3350(e) and (f).

(4) You are in compliance with the emission standards in §63.3320(b) if the control device is operated such that the average operating parameter value is greater than or less than (as appropriate) the operating parameter value established in accordance with §63.3360(e) for each 3-hour period, and the capture system operating parameter is operated at an average value greater than or less than (as appropriate) the operating parameter value established in accordance with §63.3350(f); and

(i) The overall organic HAP control efficiency is 95 percent or greater at an existing affected source and 98 percent or greater at a new affected source; or

(ii) The organic HAP emission rate based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(iii) The organic HAP emission rate based on coating material applied is no more than 0.04 kg organic HAP per kg coating material applied at an existing affected source and no more than 0.016 kg organic HAP per kg coating material applied at a new affected source; or

(iv) The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section.

(k) *Oxidizer compliance demonstration procedures.* If you use an oxidizer to control emissions, you must show compliance by following the procedures in paragraph (k)(1) of this section. Use the applicable equations specified in paragraph (k)(2) of this section to convert the monitoring and other data into units of the selected compliance option in paragraph (e) through (h) of this section. Compliance is determined in accordance with paragraph (k)(3) of this section.

(1) Demonstrate initial compliance through performance tests of capture efficiency and control device efficiency and continuing compliance through continuous monitoring of capture system and control device operating parameters as specified in paragraphs (k)(1)(i) through (vi) of this section:

(i) Determine the oxidizer destruction efficiency using the procedure in §63.3360(e).

(ii) Determine the capture system capture efficiency in accordance with §63.3360(f).

(iii) *Capture and control efficiency monitoring.* Whenever a web coating line is operated, continuously monitor the operating parameters established in accordance with §63.3350(e) and (f) to ensure capture and control efficiency.

(iv) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating materials applied, or emission of less than the calculated allowable organic HAP, determine the mass of each coating material applied on the web coating line or group of web coating lines controlled by a common oxidizer during the month.

(v) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied, organic HAP emission rate based on coating material applied, or emission of less than the calculated allowable organic HAP, determine the organic HAP content of each coating material as applied during the month following the procedure in §63.3360(c).

(vi) If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, determine the coating solids content of each coating material applied during the month following the procedure in §63.3360(d).

(2) Convert the information obtained under paragraph (p)(1) of this section into the units of the selected compliance option using the calculation procedures specified in paragraphs (k)(2)(i) through (iv) of this section.

(i) *Control efficiency.* Calculate the overall organic HAP control efficiency achieved using Equation 11 of this section.

(ii) *Organic HAP emitted.* Calculate the organic HAP emitted during the month using Equation 12 of this section.

(iii) *Organic HAP emission rate based on coating solids applied.* Calculate the organic HAP emission rate based on coating solids applied for each month using Equation 9 of this section.

(iv) *Organic HAP based on coating materials applied.* Calculate the organic HAP emission rate based on coating material applied using Equation 10 of this section.

(3) You are in compliance with the emission standards in §63.3320(b) if the oxidizer is operated such that the average operating parameter value is greater than the operating parameter value established in accordance with §63.3360(e) for each 3-hour period, and the capture system operating parameter is operated at an average value greater than or less than (as appropriate) the operating parameter value established in accordance with §63.3350(f); and

(i) The overall organic HAP control efficiency is 95 percent or greater at an existing affected source and 98 percent or greater at a new affected source; or

(ii) The organic HAP emission rate based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or

(iii) The organic HAP emission rate based on coating material applied is no more than 0.04 kg organic HAP per kg coating material applied at an existing affected source and no more than 0.016 kg organic HAP per kg coating material applied at a new affected source; or

(iv) The organic HAP emitted during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section.

(l) *Monthly allowable organic HAP emissions.* This paragraph provides the procedures and calculations for determining monthly allowable organic HAP emissions for use in demonstrating compliance in accordance with paragraph (d), (h), (i)(1)(x)(D), (i)(2)(xi)(D), or (k)(3)(iv) of this section. You will need to determine the amount of coating material applied at greater than or equal to 20 mass percent coating solids and the amount of coating material applied at less than 20 mass percent coating solids. The allowable organic HAP limit is then calculated based on coating material applied at greater than or equal to 20 mass percent coating solids complying with 0.2 kg organic HAP per kg coating solids at an existing affected source or 0.08 kg organic HAP per kg coating solids at a new affected source, and coating material applied at less than 20 mass percent coating solids complying with 4 mass percent organic HAP at an existing affected source and 1.6 mass percent organic HAP at a new affected source as follows:

(1) Determine the as-purchased mass of each coating material applied each month.

(2) Determine the as-purchased coating solids content of each coating material applied each month in accordance with §63.3360(d)(1).

(3) Determine the as-purchased mass fraction of each coating material which was applied at 20 mass percent or greater coating solids content on an as-applied basis.

(4) Determine the total mass of each solvent, diluent, thinner, or reducer added to coating materials which were applied at less than 20 mass percent coating solids content on an as-applied basis each month.

(5) Calculate the monthly allowable organic HAP emissions using Equation 13a of this section for an existing affected source:

$$H_a = 0.20\left[\sum_{i=1}^{p} M_i G_i C_{si}\right] + 0.04\left[\sum_{i=1}^{p} M_i (1 - G_i) + \sum_{j=1}^{q} M_{L_j}\right] \quad \text{Eq. 13a}$$

Where:

$H_a$ = Monthly allowable organic HAP emissions, kg.

p = Number of different coating materials applied in a month.

$M_i$ = mass of as-purchased coating material, i, applied in a month, kg.

$G_i$ = Mass fraction of each coating material, i, which was applied at 20 mass percent or greater coating solids content, on an as-applied basis, kg/kg.

$C_{si}$ = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

q = Number of different materials added to the coating material.

$M_{nj}$ = Mass of non-coating-solids-containing coating material, j, added to coating-solids-containing coating materials which were applied at less than 20 mass percent coating solids content, on an as-applied basis, in a month, kg.

or Equation 13b of this section for a new affected source:

$$H_a = 0.08\left[\sum_{i=1}^{p} M_i G_i C_{si}\right] + 0.016\left[\sum_{i=1}^{p} M_i (1 - G_i) + \sum_{j=1}^{q} M_{L_j}\right] \quad \text{Eq. 13b}$$

Where:

$H_a$ = Monthly allowable organic HAP emissions, kg.

p = Number of different coating materials applied in a month.

$M_i$ = Mass of as-purchased coating material, i, applied in a month, kg.

$G_i$ = Mass fraction of each coating material, i, which was applied at 20 mass percent or greater coating solids content, on an as-applied basis, kg/kg.

$C_{si}$ = Coating solids content of coating material, i, expressed as a mass fraction, kg/kg.

q = Number of different materials added to the coating material.

$M_{nj}$ = Mass of non-coating solids containing coating material, j, added to coating solids containing coating materials which were applied at less than 20 mass percent coating solids content, on an as-applied basis, in a month, kg.

(m) [Reserved]

(n) *Combinations of capture and control.* If you operate more than one capture system, more than one control device, one or more never-controlled work stations, or one or more intermittently-controlled work stations, you must calculate organic HAP emissions according to the procedures in paragraphs (n)(1) through (4) of this section, and use the calculation procedures specified in paragraph (n)(5) of this section to convert the monitoring and other data into units of the selected control option in paragraphs (e) through (h) of this section. Use the procedures specified in paragraph (n)(6) of this section to demonstrate compliance.

(1) *Solvent recovery system using liquid-liquid material balance compliance demonstration.* If you choose to comply by means of a liquid-liquid material balance for each solvent recovery system used to control one or more web coating lines, you must determine the organic HAP emissions for those web coating lines controlled by that solvent recovery system either:

~~(i) In accordance with paragraphs (i)(1)(i) through (iii) and (v) through (vii) of this section, if the web coating lines controlled by that solvent recovery system have only always-controlled work stations; or~~

~~(ii) In accordance with paragraphs (i)(1)(ii), (iii), (v), and (vi) and (o) of this section, if the web coating lines controlled by that solvent recovery system have one or more never-controlled or intermittently-controlled work stations.~~

~~(2) *Solvent recovery system using performance test compliance demonstration and CEMS.* To demonstrate compliance through an initial test of capture efficiency, continuous monitoring of a capture system operating parameter, and a CEMS on each solvent recovery system used to control one or more web coating lines, you must:~~

~~(i) For each capture system delivering emissions to that solvent recovery system, monitor the operating parameter established in accordance with §63.3350(f) to ensure capture system efficiency; and~~

~~(ii) Determine the organic HAP emissions for those web coating lines served by each capture system delivering emissions to that solvent recovery system either:~~

~~(A) In accordance with paragraphs (i)(2)(i) through (iii), (v), (vi), and (viii) of this section, if the web coating lines served by that capture and control system have only always-controlled work stations; or~~

~~(B) In accordance with paragraphs (i)(2)(i) through (iii), (vi), and (o) of this section, if the web coating lines served by that capture and control system have one or more never-controlled or intermittently-controlled work stations.~~

~~(3) *Oxidizer.* To demonstrate compliance through performance tests of capture efficiency and control device efficiency, continuous monitoring of capture system, and CPMS for control device operating parameters for each oxidizer used to control emissions from one or more web coating lines, you must:~~

~~(i) Monitor the operating parameter in accordance with §63.3350(e) to ensure control device efficiency; and~~

~~(ii) For each capture system delivering emissions to that oxidizer, monitor the operating parameter established in accordance with §63.3350(f) to ensure capture efficiency; and~~

~~(iii) Determine the organic HAP emissions for those web coating lines served by each capture system delivering emissions to that oxidizer either:~~

~~(A) In accordance with paragraphs (k)(1)(i) through (vi) of this section, if the web coating lines served by that capture and control system have only always-controlled work stations; or~~

~~(B) In accordance with paragraphs (k)(1)(i) through (iii), (v), and (o) of this section, if the web coating lines served by that capture and control system have one or more never-controlled or intermittently-controlled work stations.~~

~~(4) *Uncontrolled coating lines.* If you own or operate one or more uncontrolled web coating lines, you must determine the organic HAP applied on those web coating lines using Equation 6 of this section. The organic HAP emitted from an uncontrolled web coating line is equal to the organic HAP applied on that web coating line.~~

~~(5) Convert the information obtained under paragraphs (n)(1) through (4) of this section into the units of the selected compliance option using the calculation procedures specified in paragraphs (n)(5)(i) through (iv) of this section.~~

~~(i) *Organic HAP emitted.* Calculate the organic HAP emissions for the affected source for the month by summing all organic HAP emissions calculated according to paragraphs (n)(1), (2)(ii), (3)(iii), and (4) of this section.~~

~~(ii) *Coating solids applied.* If demonstrating compliance on the basis of organic HAP emission rate based on coating solids applied or emission of less than the calculated allowable organic HAP, the owner or operator must determine the coating solids content of each coating material applied during the month following the procedure in §63.3360(d).~~

~~(iii) *Organic HAP emission rate based on coating solids applied.* Calculate the organic HAP emission rate based on coating solids applied for each month using Equation 9 of this section.~~

~~(iv) *Organic HAP based on materials applied.* Calculate the organic HAP emission rate based on material applied using Equation 10 of this section.~~

~~(6) *Compliance.* The affected source is in compliance with the emission standards in §63.3320(b) for the month if all operating parameters required to be monitored under paragraphs (n)(1) through (3) of this section were maintained at the values established under §§63.3350 and 63.3360; and~~

~~(i) The total mass of organic HAP emitted by the affected source based on coating solids applied is no more than 0.20 kg organic HAP per kg coating solids applied at an existing affected source and no more than 0.08 kg organic HAP per kg coating solids applied at a new affected source; or~~

~~(ii) The total mass of organic HAP emitted by the affected source based on material applied is no more than 0.04 kg organic HAP per kg material applied at an existing affected source and no more than 0.016 kg organic HAP per kg material applied at a new affected source; or~~

~~(iii) The total mass of organic HAP emitted by the affected source during the month is less than the calculated allowable organic HAP as determined using paragraph (l) of this section; or~~

~~(iv) The total mass of organic HAP emitted by the affected source was not more than 5 percent of the total mass of organic HAP applied for the month at an existing affected source and no more than 2 percent of the total mass of organic HAP applied for the month at a new affected source. The total mass of organic HAP applied by the affected source in the month must be determined using Equation 6 of this section.~~

~~(o) *Intermittently controlled and never controlled work stations.* If you have been expressly referenced to this paragraph by paragraphs (n)(1)(ii), (n)(2)(ii)(B), or (n)(3)(iii)(B) of this section for calculation procedures to determine organic HAP emissions for your intermittently controlled and never controlled work stations, you must:~~

~~(1) Determine the sum of the mass of all coating materials as applied on intermittently controlled work stations operating in bypass mode and the mass of all coating materials as applied on never controlled work stations during the month.~~

(2) Determine the sum of the mass of all coating materials as-applied on intermittently-controlled work stations operating in a controlled mode and the mass of all coating materials applied on always-controlled work stations during the month.

(3) *Liquid-liquid material balance compliance demonstration.* For each web coating line or group of web coating lines for which you use the provisions of paragraph (n)(1)(ii) of this section, you must calculate the organic HAP emitted during the month using Equation 14 of this section:

$$H_e = \left[\sum_{i=1}^{p} M_{Ci} C_{ahi}\right]\left[1 - \frac{R_v}{100}\right] + \left[\sum_{i=1}^{p} M_{Bi} C_{ahi}\right] - M_{vret} \quad \text{Eq. 14}$$

Where:

$H_e$ = Total monthly organic HAP emitted, kg.

p = Number of different coating materials applied in a month.

$M_{ci}$ = Sum of the mass of coating material, i, as-applied on intermittently-controlled work stations operating in controlled mode and the mass of coating material, i, as-applied on always-controlled work stations, in a month, kg.

$C_{ahi}$ = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

$R_v$ = Organic volatile matter collection and recovery efficiency, percent.

$M_{Bi}$ = Sum of the mass of coating material, i, as-applied on intermittently-controlled work stations operating in bypass mode and the mass of coating material, i, as-applied on never-controlled work stations, in a month, kg.

$C_{ahi}$ = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

$M_{vret}$ = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

(4) *Performance test to determine capture efficiency and control device efficiency.* For each web coating line or group of web coating lines for which you use the provisions of paragraph (n)(2)(ii)(B) or (n)(3)(iii)(B) of this section, you must calculate the organic HAP emitted during the month using Equation 15 of this section:

$$H_e = \left[\sum_{i=1}^{p} M_{Ci} C_{ahi}\right]\left[1 - \frac{R}{100}\right] + \left[\sum_{i=1}^{p} M_{Bi} C_{ahi}\right] - M_{vret} \quad \text{Eq. 15}$$

Where:

$H_e$ = Total monthly organic HAP emitted, kg.

p = Number of different coating materials applied in a month.

$M_{ai}$ = Sum of the mass of coating material, i, as applied on intermittently controlled work stations operating in controlled mode and the mass of coating material, i, as applied on always controlled work stations, in a month, kg.

$C_{ai}$ = Monthly average, as applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

R = Overall organic HAP control efficiency, percent.

$M_{bi}$ = Sum of the mass of coating material, i, as applied on intermittently controlled work stations operating in bypass mode and the mass of coating material, i, as applied on never controlled work stations, in a month, kg.

$C_{bi}$ = Monthly average, as applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

$M_{ret}$ = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where you choose to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in this section.

(p) *Always controlled work stations with more than one capture and control system.* If you operate more than one capture system or more than one control device and only have always controlled work stations, then you are in compliance with the emission standards in §63.3320(b)(1) for the month if for each web coating line or group of web coating lines controlled by a common control device:

(1) The volatile matter collection and recovery efficiency as determined by paragraphs (i)(1)(i), (iii), (v), and (vi) of this section is at least 95 percent at an existing affected source and at least 98 percent at a new affected source; or

(2) The overall organic HAP control efficiency as determined by paragraphs (i)(2)(i) through (iv) of this section for each web coating line or group of web coating lines served by that control device and a common capture system is at least 95 percent at an existing affected source and at least 98 percent at a new affected source; or

(3) The overall organic HAP control efficiency as determined by paragraphs (k)(1)(i) through (iii) and (k)(2)(i) of this section for each web coating line or group of web coating lines served by that control device and a common capture system is at least 95 percent at an existing affected source and at least 98 percent at a new affected source.

## NOTIFICATIONS, REPORTS, AND RECORDS

### §63.3400 What notifications and reports must I submit?

(a) Each owner or operator of an affected source subject to this subpart must submit the reports specified in paragraphs (b) through (g) of this section to the Administrator:

~~(b) You must submit an initial notification as required by §63.9(b).~~

~~(1) Initial notification for existing affected sources must be submitted no later than 1 year before the compliance date specified in §63.3330(a).~~

~~(2) Initial notification for new and reconstructed affected sources must be submitted as required by §63.9(b).~~

~~(3) For the purpose of this subpart, a title V or part 70 permit application may be used in lieu of the initial notification required under §63.9(b), provided the same information is contained in the permit application as required by §63.9(b) and the State to which the permit application has been submitted has an approved operating permit program under part 70 of this chapter and has received delegation of authority from the EPA to implement and enforce this subpart.~~

~~(4) If you are using a permit application in lieu of an initial notification in accordance with paragraph (b)(3) of this section, the permit application must be submitted by the same due date specified for the initial notification.~~

~~(c) You must submit a semiannual compliance report according to paragraphs (c)(1) and (2) of this section.~~

~~(1) Compliance report dates.~~

~~(i) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.3330 and ending on June 30 or December 31, whichever date is the first date following the end of the calendar half immediately following the compliance date that is specified for your affected source in §63.3330.~~

~~(ii) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the calendar half immediately following the compliance date that is specified for your affected source in §63.3330.~~

~~(iii) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.~~

~~(iv) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.~~

~~(v) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and the permitting authority has established dates for submitting semiannual reports pursuant to §70.6(a)(3)(iii)(A) or §71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (c)(1)(i) through (iv) of this section.~~

~~(2) The compliance report must contain the information in paragraphs (c)(2)(i) through (vi) of this section:~~

~~(i) Company name and address.~~

~~(ii) Statement by a responsible official with that official's name, title, and signature certifying the accuracy of the content of the report.~~

~~(iii) Date of report and beginning and ending dates of the reporting period.~~

~~(iv) If there are no deviations from any emission limitations (emission limit or operating limit) that apply to you, a statement that there were no deviations from the emission limitations during the reporting period, and that no CMS was inoperative, inactive, malfunctioning, out-of-control, repaired, or adjusted.~~

~~(v) For each deviation from an emission limitation (emission limit or operating limit) that applies to you and that occurs at an affected source where you are not using a CEMS to comply with the emission limitations in this subpart, the compliance report must contain the information in paragraphs (c)(2)(i) through (iii) of this section, and:~~

~~(A) The total operating time of each affected source during the reporting period.~~

~~(B) Information on the number, duration, and cause of deviations (including unknown cause), if applicable, and the corrective action taken.~~

~~(C) Information on the number, duration, and cause for CPMS downtime incidents, if applicable, other than downtime associated with zero and span and other calibration checks.~~

~~(vi) For each deviation from an emission limit occurring at an affected source where you are using a CEMS to comply with the emission limit in this subpart, you must include the information in paragraphs (c)(2)(i) through (iii) and (vi)(A) through (J) of this section.~~

~~(A) The date and time that each malfunction started and stopped.~~

~~(B) The date and time that each CEMS and CPMS, if applicable, was inoperative except for zero (low-level) and high-level checks.~~

~~(C) The date and time that each CEMS and CPMS, if applicable, was out-of-control, including the information in §63.8(c)(8).~~

~~(D) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.~~

~~(E) A summary of the total duration (in hours) of each deviation during the reporting period and the total duration of each deviation as a percent of the total source operating time during that reporting period.~~

~~(F) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.~~

~~(G) A summary of the total duration (in hours) of CEMS and CPMS downtime during the reporting period and the total duration of CEMS and CPMS downtime as a percent of the total source operating time during that reporting period.~~

~~(H) A breakdown of the total duration of CEMS and CPMS downtime during the reporting period into periods that are due to monitoring equipment malfunctions, nonmonitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and other unknown causes.~~

~~(I) The date of the latest CEMS and CPMS certification or audit.~~

~~(J) A description of any changes in CEMS, CPMS, or controls since the last reporting period.~~

~~(d) You must submit a Notification of Performance Tests as specified in §§63.7 and 63.9(e) if you are complying with the emission standard using a control device and you are required to conduct a performance test of the control device. This notification and the site-specific test plan required under §63.7(c)(2) must identify the operating parameters to be monitored to ensure that the capture efficiency of the capture system and the control efficiency of the control device determined during the performance test are maintained. Unless EPA objects to the parameter or requests changes, you may consider the parameter approved.~~

~~(e) You must submit a Notification of Compliance Status as specified in §63.9(h).~~

~~(f) You must submit performance test reports as specified in §63.10(d)(2) if you are using a control device to comply with the emission standard and you have not obtained a waiver from the performance test requirement or you are not exempted from this requirement by §63.3360(b). The performance test reports must be submitted as part of the notification of compliance status required in §63.3400(e).~~

~~(g) You must submit startup, shutdown, and malfunction reports as specified in §63.10(d)(5), except that the provisions in subpart A of this part pertaining to startups, shutdowns, and malfunctions do not apply unless a control device is used to comply with this subpart.~~

~~(1) If actions taken by an owner or operator during a startup, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are not consistent with the procedures specified in the affected source's SSMP required by §63.6(e)(3), the owner or operator must state such information in the report. The startup, shutdown, or malfunction report must consist of a letter containing the name, title, and signature of the responsible official who is certifying its accuracy and must be submitted to the Administrator.~~

~~(2) Separate startup, shutdown, and malfunction reports are not required if the information is included in the report specified in paragraph (c)(2)(vi) of this section.~~

**~~§63.3410 What records must I keep?~~**

~~(a) Each owner or operator of an affected source subject to this subpart must maintain the records specified in paragraphs (a)(1) and (2) of this section on a monthly basis in accordance with the requirements of §63.10(b)(1):~~

~~(1) Records specified in §63.10(b)(2) of all measurements needed to demonstrate compliance with this standard, including:~~

~~(i) Continuous emission monitor data in accordance with the requirements of §63.3350(d);~~

(ii) Control device and capture system operating parameter data in accordance with the requirements of §63.3350(c), (e), and (f);

(iii) Organic HAP content data for the purpose of demonstrating compliance in accordance with the requirements of §63.3360(c);

(iv) Volatile matter and coating solids content data for the purpose of demonstrating compliance in accordance with the requirements of §63.3360(d);

(v) Overall control efficiency determination using capture efficiency and control device destruction or removal efficiency test results in accordance with the requirements of §63.3360(e) and (f); and

(vi) Material usage, organic HAP usage, volatile matter usage, and coating solids usage and compliance demonstrations using these data in accordance with the requirements of §63.3370(b), (c), and (d).

(2) Records specified in §63.10(c) for each CMS operated by the owner or operator in accordance with the requirements of §63.3350(b).

(b) Each owner or operator of an affected source subject to this subpart must maintain records of all liquid-liquid material balances performed in accordance with the requirements of §63.3370. The records must be maintained in accordance with the requirements of §63.10(b).

## DELEGATION OF AUTHORITY

### §63.3420 What authorities may be delegated to the States?

(a) In delegating implementation and enforcement authority to a State under 40 CFR part 63, subpart E, the authorities contained in paragraph (b) of this section must be retained by the Administrator and not transferred to a State.

(b) Authority which will not be delegated to States: §63.3360(c), approval of alternate test method for organic HAP content determination; §63.3360(d), approval of alternate test method for volatile matter determination.

### Table 1 to Subpart JJJJ of Part 63 Operating Limits if Using Add-On Control Devices and Capture System

If you are required to comply with operating limits by §63.3321, you must comply with the applicable operating limits in the following table:

| For the following device: | You must meet the following operating limit: | And you must demonstrate continuous compliance with operating limits by: |
|---|---|---|
| 1. Thermal oxidizer | a. The average combustion temperature in any 3-hour period must not fall below the combustion temperature limit established according to §63.3360(e)(3)(i) | i. Collecting the combustion temperature data according to §63.3350(e)(9);<br>ii. Reducing the data to 3-hour block |

| For the following device: | You must meet the following operating limit: | And you must demonstrate continuous compliance with operating limits by: |
|---|---|---|
| | | averages; and<br>iii. Maintain the 3 hour average combustion temperature at or above the temperature limit. |
| 2. Catalytic oxidizer | a. The average temperature at the inlet to the catalyst bed in any 3 hour period must not fall below the combustion temperature limit established according to §63.3360(e)(3)(ii) | i. Collecting the catalyst bed inlet temperature data according to §63.3350(e)(9);<br>ii. Reducing the data to 3 hour block averages; and<br>iii. Maintain the 3 hour average catalyst bed inlet temperature at or above the temperature limit. |
| — | b. The temperature rise across the catalyst bed must not fall below the limit established according to §63.3360(e)(3)(ii) | i. Collecting the catalyst bed inlet and outlet temperature data according to §63.3350(e)(9);<br>ii. Reducing the data to 3 hour block averages; and<br>iii. Maintain the 3 hour average temperature rise across the catalyst bed at or above the limit. |
| 3. Emission capture system | Submit monitoring plan to the Administrator that identifies operating parameters to be monitored according to §63.3350(f) | Conduct monitoring according to the plan (§63.3350(f)(3)). |

**Table 2 to Subpart JJJJ of Part 63—Applicability of 40 CFR Part 63 General Provisions to Subpart JJJJ**

You must comply with the applicable General Provisions requirements according to the following table:

| General provisions reference | Applicable to subpart JJJJ | Explanation |
|---|---|---|
| §63.1(a)(1)–(4) | Yes. | |
| §63.1(a)(5) | No | Reserved. |
| §63.1(a)(6)–(8) | Yes. | |
| §63.1(a)(9) | No | Reserved. |
| §63.1(a)(10)–(14) | Yes. | |
| §63.1(b)(1) | No | Subpart JJJJ specifies applicability. |
| §63.1(b)(2)–(3) | Yes. | |
| §63.1(c)(1) | Yes. | |
| §63.1(c)(2) | No | Area sources are not subject to emission standards of subpart JJJJ. |
| §63.1(c)(3) | No | Reserved. |

| General provisions reference | Applicable to subpart JJJJ | Explanation |
|---|---|---|
| §63.1(c)(4) | Yes. | |
| §63.1(c)(5) | Yes. | |
| §63.1(d) | No | Reserved. |
| §63.1(e) | Yes. | |
| §63.1(e)(4) | No. | |
| §63.2 | Yes | Additional definitions in subpart JJJJ. |
| §63.3(a)–(c) | Yes. | |
| §63.4(a)(1)–(3) | Yes. | |
| §63.4(a)(4) | No | Reserved. |
| §63.4(a)(5) | Yes. | |
| §63.4(b)–(c) | Yes. | |
| §63.5(a)(1)–(2) | Yes. | |
| §63.5(b)(1) | Yes. | |
| §63.5(b)(2) | No | Reserved. |
| §63.5(b)(3)–(6) | Yes. | |
| §63.5(c) | No | Reserved. |
| §63.5(d) | Yes. | |
| §63.5(e) | Yes. | |
| §63.5(f) | Yes. | |
| §63.6(a) | Yes | Applies only when capture and control system is used to comply with the standard. |
| §63.6(b)(1)–(5) | No | |
| §63.6(b)(6) | No | Reserved. |
| §63.6(b)(7) | Yes. | |
| §63.6(c)(1)–(2) | Yes. | |
| §63.6(c)(3)–(4) | No | Reserved. |
| §63.6(c)(5) | Yes. | |
| §63.6(d) | No | Reserved. |
| §63.6(e) | Yes | Provisions pertaining to SSMP, and CMS do not apply unless an add-on control system is used to comply with the emission limitations. |
| §63.6(f) | Yes. | |
| §63.6(g) | Yes. | |
| §63.6(h) | No | Subpart JJJJ does not require continuous opacity monitoring systems (COMS). |
| §63.6(i)(1)–(14) | Yes. | |

| General provisions reference | Applicable to subpart JJJJ | Explanation |
|---|---|---|
| §63.6(i)(15) | No | Reserved. |
| §63.6(i)(16) | Yes. | |
| §63.6(j) | Yes. | |
| §63.7 | Yes. | |
| §63.8(a)(1)–(2) | Yes. | |
| §63.8(a)(3) | No | Reserved. |
| §63.8(a)(4) | No. | |
| §63.8(b) | Yes. | |
| §63.8(c)(1)–(3) | Yes | §63.8(c)(1)(i) & (ii) only apply if you use capture and control systems and are required to have a start–up, shutdown, and malfunction plan. |
| §63.8(c)(4) | Yes. | |
| §63.8(c)(5) | No | Subpart JJJJ does not require COMS. |
| §63.8(c)(6)–(c)(8) | Yes | Provisions for COMS are not applicable. |
| §63.8(d)–(f) | Yes | §63.8(f)(6) only applies if you use CEMS. |
| §63.8(g) | Yes | Only applies if you use CEMS. |
| §63.9(a) | Yes. | |
| §63.9(b)(1) | Yes. | |
| §63.9(b)(2) | Yes | Except §63.3400(b)(1) requires submittal of initial notification for existing affected sources no later than 1 year before compliance date. |
| §63.9(b)(3)–(5) | Yes. | |
| §63.9(c)–(e) | Yes. | |
| §63.9(f) | No | Subpart JJJJ does not require opacity and visible emissions observations. |
| §63.9(g) | Yes | Provisions for COMS are not applicable. |
| §63.9(h)(1)–(3) | Yes. | |
| §63.9(h)(4) | No | Reserved. |
| §63.9(h)(5)–(6) | Yes. | |
| §63.9(i) | Yes. | |
| §63.9(j) | Yes. | |
| §63.10(a) | Yes. | |
| §63.10(b)(1)–(3) | Yes | §63.10(b)(2)(i) through (v) only apply if you use a capture and control system. |
| §63.10(c)(1) | Yes. | |
| §63.10(c)(2)–(4) | No | Reserved. |
| §63.10(c)(5)–(8) | Yes. | |

| ~~General provisions reference~~ | ~~Applicable to subpart JJJJ~~ | ~~Explanation~~ |
|---|---|---|
| ~~§63.10(c)(9)~~ | ~~No~~ | ~~Reserved.~~ |
| ~~§63.10(c)(10)–(15)~~ | ~~Yes.~~ | |
| ~~§63.10(d)(1)–(2)~~ | ~~Yes.~~ | |
| ~~§63.10(d)(3)~~ | ~~No~~ | ~~Subpart JJJJ does not require opacity and visible emissions observations.~~ |
| ~~§63.10(d)(4)–(5)~~ | ~~Yes.~~ | |
| ~~§63.10(e)(1)–(2)~~ | ~~Yes~~ | ~~Provisions for COMS are not applicable.~~ |
| ~~§63.10(e)(3)–(4)~~ | ~~No.~~ | |
| ~~§63.10(f)~~ | ~~Yes.~~ | |
| ~~§63.11~~ | ~~No.~~ | |
| ~~§63.12~~ | ~~Yes.~~ | |
| ~~§63.13~~ | ~~Yes.~~ | |
| ~~§63.14~~ | ~~Yes~~ | ~~Subpart JJJJ includes provisions for alternative ASME test methods that are incorporated by reference.~~ |
| ~~§63.15~~ | ~~Yes.~~ | |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters**



# Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

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# ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

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## WHAT THIS SUBPART COVERS

### §63.7480 What is the purpose of this subpart?

This subpart establishes national emission limitations and work practice standards for hazardous air pollutants (HAP) emitted from industrial, commercial, and institutional boilers and process heaters located at major sources of HAP. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and work practice standards.

# ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD— National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters



**§63.7485 Am I subject to this subpart?**

You are subject to this subpart if you own or operate an industrial, commercial, or institutional boiler or process heater as defined in §63.7575 that is located at, or is part of, a major source of HAP, except as specified in §63.7491. For purposes of this subpart, a major source of HAP is as defined in §63.2, except that for oil and natural gas production facilities, a major source of HAP is as defined in §63.7575.

**§63.7490 What is the affected source of this subpart?**

(a) This subpart applies to new, reconstructed, and existing affected sources as described in paragraphs (a)(1) and (2) of this section.

(1) The affected source of this subpart is the collection at a major source of all existing industrial, commercial, and institutional boilers and process heaters within a subcategory as defined in §63.7575.

(2) The affected source of this subpart is each new or reconstructed industrial, commercial, or institutional boiler or process heater, as defined in §63.7575, located at a major source.

(b) A boiler or process heater is new if you commence construction of the boiler or process heater after June 4, 2010, and you meet the applicability criteria at the time you commence construction.

(c) A boiler or process heater is reconstructed if you meet the reconstruction criteria as defined in §63.2, you commence reconstruction after June 4, 2010, and you meet the applicability criteria at the time you commence reconstruction.

(d) A boiler or process heater is existing if it is not new or reconstructed.

(e) An existing electric utility steam generating unit (EGU) that meets the applicability requirements of this subpart after the effective date of this final rule due to a change (e.g., fuel switch) is considered to be an existing source under this subpart.

**§63.7491 Are any boilers or process heaters not subject to this subpart?**

The types of boilers and process heaters listed in paragraphs (a) through (n) of this section are not subject to this subpart.

(a) An electric utility steam generating unit (EGU) covered by subpart UUUUU of this part or a natural gas-fired EGU as defined in subpart UUUUU of this part firing at least 85 percent natural gas on an annual heat input basis.

(b) A recovery boiler or furnace covered by subpart MM of this part.

(c) A boiler or process heater that is used specifically for research and development, including test steam boilers used to provide steam for testing the propulsion systems on military vessels. This does not include units that provide heat or steam to a process at a research and development facility.

(d) A hot water heater as defined in this subpart.

(e) A refining kettle covered by subpart X of this part.

(f) An ethylene cracking furnace covered by subpart YY of this part.

(g) Blast furnace stoves as described in EPA-453/R-01-005 (incorporated by reference, see §63.14).

(h) Any boiler or process heater that is part of the affected source subject to another subpart of this part, such as boilers and process heaters used as control devices to comply with subparts JJJ, OOO, PPP, and U of this part.

(i) Any boiler or process heater that is used as a control device to comply with another subpart of this part, or part 60, part 61, or part 65 of this chapter provided that at least 50 percent of the average annual heat input during any 3 consecutive calendar years to the boiler or process heater is provided by regulated gas streams that are subject to another standard.

(j) Temporary boilers and process heaters as defined in this subpart.

(k) Blast furnace gas fuel-fired boilers and process heaters as defined in this subpart.

(l) Any boiler or process heater specifically listed as an affected source in any standard(s) established under section 129 of the Clean Air Act.

(m) A unit that burns hazardous waste covered by Subpart EEE of this part. A unit that is exempt from Subpart EEE as specified in §63.1200(b) is not covered by Subpart EEE.

(n) Residential boilers as defined in this subpart.

**§63.7495 When do I have to comply with this subpart?**

(a) If you have a new or reconstructed boiler or process heater, you must comply with this subpart by April 1, 2013, or upon startup of your boiler or process heater, whichever is later.

(b) If you have an existing boiler or process heater, you must comply with this subpart no later than January 31, 2016, except as provided in §63.6(i).

(c) If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, paragraphs (c)(1) and (2) of this section apply to you.

(1) Any new or reconstructed boiler or process heater at the existing source must be in compliance with this subpart upon startup.

(2) Any existing boiler or process heater at the existing source must be in compliance with this subpart within 3 years after the source becomes a major source.

(d) You must meet the notification requirements in §63.7545 according to the schedule in §63.7545 and in subpart A of this part. Some of the notifications must be submitted before you are required to comply with the emission limits and work practice standards in this subpart.

(e) If you own or operate an industrial, commercial, or institutional boiler or process heater and would be subject to this subpart except for the exemption in §63.7491(l) for commercial and industrial solid waste incineration units covered by part 60, subpart CCCC or subpart DDDD, and you cease combusting solid waste, you must be in compliance with this subpart and are no longer subject to part 60, subparts CCCC or DDDD beginning on the effective date of the switch as identified under the provisions of §60.2145(a)(2) and (3) or §60.2710(a)(2) and (3).

(f) If you own or operate an existing EGU that becomes subject to this subpart after January 31, 2016, you must be in compliance with the applicable existing source provisions of this subpart on the effective date such unit becomes subject to this subpart.

(g) If you own or operate an existing industrial, commercial, or institutional boiler or process heater and would be subject to this subpart except for a exemption in §63.7491(i) that becomes subject to this subpart after January 31, 2013, you must be in compliance with the applicable existing source provisions of this subpart within 3 years after such unit becomes subject to this subpart.

(h) If you own or operate an existing industrial, commercial, or institutional boiler or process heater and have switched fuels or made a physical change to the boiler or process heater that resulted in the applicability of a different subcategory after the compliance date of this subpart, you must be in compliance with the applicable existing source provisions of this subpart on the effective date of the fuel switch or physical change.

(i) If you own or operate a new industrial, commercial, or institutional boiler or process heater and have switched fuels or made a physical change to the boiler or process heater that resulted in the applicability of a different subcategory, you must be in compliance with the applicable new source provisions of this subpart on the effective date of the fuel switch or physical change.

## EMISSION LIMITATIONS AND WORK PRACTICE STANDARDS

### §63.7499 What are the subcategories of boilers and process heaters?

The subcategories of boilers and process heaters, as defined in §63.7575 are:

(a) Pulverized coal/solid fossil fuel units.

(b) Stokers designed to burn coal/solid fossil fuel.

(c) Fluidized bed units designed to burn coal/solid fossil fuel.

(d) Stokers/sloped grate/other units designed to burn kiln dried biomass/bio-based solid.

(e) Fluidized bed units designed to burn biomass/bio-based solid.

(f) Suspension burners designed to burn biomass/bio-based solid.

(g) Fuel cells designed to burn biomass/bio-based solid.

(h) Hybrid suspension/grate burners designed to burn wet biomass/bio-based solid.

(i) Stokers/sloped grate/other units designed to burn wet biomass/bio-based solid.

(j) Dutch ovens/pile burners designed to burn biomass/bio-based solid.

(k) Units designed to burn liquid fuel that are non-continental units.

(l) Units designed to burn gas 1 fuels.

(m) Units designed to burn gas 2 (other) gases.

(n) Metal process furnaces.

(o) Limited-use boilers and process heaters.

(p) Units designed to burn solid fuel.

(q) Units designed to burn liquid fuel.

(r) Units designed to burn coal/solid fossil fuel.

(s) Fluidized bed units with an integrated fluidized bed heat exchanger designed to burn coal/solid fossil fuel.

(t) Units designed to burn heavy liquid fuel.

(u) Units designed to burn light liquid fuel.

**§63.7500 What emission limitations, work practice standards, and operating limits must I meet?**

(a) You must meet the requirements in paragraphs (a)(1) through (3) of this section, except as provided in paragraphs (b), through (e) of this section. You must meet these requirements at all times the affected unit is operating, except as provided in paragraph (f) of this section.

(1) You must meet each emission limit and work practice standard in Tables 1 through 3, and 11 through 13 to this subpart that applies to your boiler or process heater, for each boiler or process heater at your source, except as provided under §63.7522. The output-based emission limits, in units of pounds per million Btu of steam output, in Tables 1 or 2 to this subpart are an alternative applicable only to boilers and process heaters that generate either steam, cogenerate steam with electricity, or both. The output-based emission limits, in units of pounds per megawatt-hour, in Tables 1 or 2 to this subpart are an alternative applicable only to boilers that generate only electricity. Boilers that perform multiple functions (cogeneration and electricity generation) or supply steam to common headers would calculate a total steam energy output using equation 21 of §63.7575 to

demonstrate compliance with the output-based emission limits, in units of pounds per million Btu of steam output, in Tables 1 or 2 to this subpart. If you operate a new boiler or process heater, you can choose to comply with alternative limits as discussed in paragraphs (a)(1)(i) through (iii) of this section, but on or after January 31, 2016, you must comply with the emission limits in Table 1 to this subpart.

(i) If your boiler or process heater commenced construction or reconstruction after June 4, 2010 and before May 20, 2011, you may comply with the emission limits in Table 1 or 11 to this subpart until January 31, 2016.

(ii) If your boiler or process heater commenced construction or reconstruction on or after May 20, 2011 and before December 23, 2011, you may comply with the emission limits in Table 1 or 12 to this subpart until January 31, 2016.

(iii) If your boiler or process heater commenced construction or reconstruction on or after December 23, 2011 and before April 1, 2013, you may comply with the emission limits in Table 1 or 13 to this subpart until January 31, 2016.

(2) You must meet each operating limit in Table 4 to this subpart that applies to your boiler or process heater. If you use a control device or combination of control devices not covered in Table 4 to this subpart, or you wish to establish and monitor an alternative operating limit or an alternative monitoring parameter, you must apply to the EPA Administrator for approval of alternative monitoring under §63.8(f).

(3) At all times, you must operate and maintain any affected source (as defined in §63.7490), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

(b) As provided in §63.6(g), EPA may approve use of an alternative to the work practice standards in this section.

(c) Limited-use boilers and process heaters must complete a tune-up every 5 years as specified in §63.7540. They are not subject to the emission limits in Tables 1 and 2 or 11 through 13 to this subpart, the annual tune-up, or the energy assessment requirements in Table 3 to this subpart, or the operating limits in Table 4 to this subpart.

(d) Boilers and process heaters with a heat input capacity of less than or equal to 5 million Btu per hour in the units designed to burn gas 2 (other) fuels subcategory or units designed to burn light liquid fuels subcategory must complete a tune-up every 5 years as specified in §63.7540.

(e) Boilers and process heaters in the units designed to burn gas 1 fuels subcategory with a heat input capacity of less than or equal to 5 million Btu per hour must complete a tune-up every 5 years as specified in §63.7540. Boilers and process heaters in the units designed to burn gas 1 fuels subcategory with a heat input capacity greater than 5 million Btu per hour and less than 10 million Btu per hour must complete a tune-up every 2 years as specified in §63.7540. Boilers and process heaters in the units designed to burn gas 1 fuels

subcategory are not subject to the emission limits in Tables 1 and 2 or 11 through 13 to this subpart, or the operating limits in Table 4 to this subpart.

(f) These standards apply at all times the affected unit is operating, except during periods of startup and shutdown during which time you must comply only with items 5 and 6 of Table 3 to this subpart.

**§63.7501 [Reserved]**

## GENERAL COMPLIANCE REQUIREMENTS

**§63.7505 What are my general requirements for complying with this subpart?**

(a) You must be in compliance with the emission limits, work practice standards, and operating limits in this subpart. These emission and operating limits apply to you at all times the affected unit is operating except for the periods noted in §63.7500(f).

(b) [Reserved]

(c) You must demonstrate compliance with all applicable emission limits using performance stack testing, fuel analysis, or continuous monitoring systems (CMS), including a continuous emission monitoring system (CEMS), or particulate matter continuous parameter monitoring system (PM CPMS), where applicable. You may demonstrate compliance with the applicable emission limit for hydrogen chloride (HCl), mercury, or total selected metals (TSM) using fuel analysis if the emission rate calculated according to §63.7530(c) is less than the applicable emission limit. (For gaseous fuels, you may not use fuel analyses to comply with the TSM alternative standard or the HCl standard.) Otherwise, you must demonstrate compliance for HCl, mercury, or TSM using performance stack testing, if subject to an applicable emission limit listed in Tables 1, 2, or 11 through 13 to this subpart.

(d) If you demonstrate compliance with any applicable emission limit through performance testing and subsequent compliance with operating limits through the use of CPMS, or with a CEMS or COMS, you must develop a site-specific monitoring plan according to the requirements in paragraphs (d)(1) through (4) of this section for the use of any CEMS, COMS, or CPMS. This requirement also applies to you if you petition the EPA Administrator for alternative monitoring parameters under §63.8(f).

(1) For each CMS required in this section (including CEMS, COMS, or CPMS), you must develop, and submit to the Administrator for approval upon request, a site-specific monitoring plan that addresses design, data collection, and the quality assurance and quality control elements outlined in §63.8(d) and the elements described in paragraphs (d)(1)(i) through (iii) of this section. You must submit this site-specific monitoring plan, if requested, at least 60 days before your initial performance evaluation of your CMS. This requirement to develop and submit a site specific monitoring plan does not apply to affected sources with existing CEMS or COMS operated according to the performance specifications under appendix B to part 60 of this chapter and that meet the requirements of §63.7525. Using the process described in §63.8(f)(4), you may request approval of alternative monitoring system quality assurance and quality control procedures in place of those specified in this paragraph and, if approved, include the alternatives in your site-specific monitoring plan.

(i) Installation of the CMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device);

(ii) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction systems; and

(iii) Performance evaluation procedures and acceptance criteria (e.g., calibrations, accuracy audits, analytical drift).

(2) In your site-specific monitoring plan, you must also address paragraphs (d)(2)(i) through (iii) of this section.

(i) Ongoing operation and maintenance procedures in accordance with the general requirements of §63.8(c)(1)(ii), (c)(3), and (c)(4)(ii);

(ii) Ongoing data quality assurance procedures in accordance with the general requirements of §63.8(d); and

(iii) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of §63.10(c) (as applicable in Table 10 to this subpart), (e)(1), and (e)(2)(i).

(3) You must conduct a performance evaluation of each CMS in accordance with your site-specific monitoring plan.

(4) You must operate and maintain the CMS in continuous operation according to the site-specific monitoring plan.

(e) If you have an applicable emission limit, and you choose to comply using definition (2) of "startup" in §63.7575, you must develop and implement a written startup and shutdown plan (SSP) according to the requirements in Table 3 to this subpart. The SSP must be maintained onsite and available upon request for public inspection.

## TESTING, FUEL ANALYSES, AND INITIAL COMPLIANCE REQUIREMENTS

### §63.7510 What are my initial compliance requirements and by what date must I conduct them?

(a) For each boiler or process heater that is required or that you elect to demonstrate compliance with any of the applicable emission limits in Tables 1 or 2 or 11 through 13 of this subpart through performance (stack) testing, your initial compliance requirements include all the following:

(1) Conduct performance tests according to §63.7520 and Table 5 to this subpart.

(2) Conduct a fuel analysis for each type of fuel burned in your boiler or process heater according to §63.7521 and Table 6 to this subpart, except as specified in paragraphs (a)(2)(i) through (iii) of this section.

(i) For each boiler or process heater that burns a single type of fuel, you are not required to conduct a fuel analysis for each type of fuel burned in your boiler or process heater according to §63.7521 and Table 6 to this subpart. For purposes of this subpart, units that use a supplemental fuel only for startup, unit shutdown, and transient flame stability purposes still qualify as units that burn a single type of fuel, and the supplemental fuel is not subject to the fuel analysis requirements under §63.7521 and Table 6 to this subpart.

(ii) When natural gas, refinery gas, or other gas 1 fuels are co-fired with other fuels, you are not required to conduct a fuel analysis of those Gas 1 fuels according to §63.7521 and Table 6 to this subpart. If gaseous fuels other than natural gas, refinery gas, or other gas 1 fuels are co-fired with other fuels and those non-Gas 1 gaseous fuels are subject to another subpart of this part, part 60, part 61, or part 65, you are not required to conduct a fuel analysis of those non-Gas 1 fuels according to §63.7521 and Table 6 to this subpart.

(iii) You are not required to conduct a chlorine fuel analysis for any gaseous fuels. You must conduct a fuel analysis for mercury on gaseous fuels unless the fuel is exempted in paragraphs (a)(2)(i) and (ii) of this section.

(3) Establish operating limits according to §63.7530 and Table 7 to this subpart.

(4) Conduct CMS performance evaluations according to §63.7525.

(b) For each boiler or process heater that you elect to demonstrate compliance with the applicable emission limits in Tables 1 or 2 or 11 through 13 to this subpart for HCl, mercury, or TSM through fuel analysis, your initial compliance requirement is to conduct a fuel analysis for each type of fuel burned in your boiler or process heater according to §63.7521 and Table 6 to this subpart and establish operating limits according to §63.7530 and Table 8 to this subpart. The fuels described in paragraph (a)(2)(i) and (ii) of this section are exempt from these fuel analysis and operating limit requirements. The fuels described in paragraph (a)(2)(ii) of this section are exempt from the chloride fuel analysis and operating limit requirements. Boilers and process heaters that use a CEMS for mercury or HCl are exempt from the performance testing and operating limit requirements specified in paragraph (a) of this section for the HAP for which CEMS are used.

(c) If your boiler or process heater is subject to a carbon monoxide (CO) limit, your initial compliance demonstration for CO is to conduct a performance test for CO according to Table 5 to this subpart or conduct a performance evaluation of your continuous CO monitor, if applicable, according to §63.7525(a). Boilers and process heaters that use a CO CEMS to comply with the applicable alternative CO CEMS emission standard listed in Tables 1, 2, or 11 through 13 to this subpart, as specified in §63.7525(a), are exempt from the initial CO performance testing and oxygen concentration operating limit requirements specified in paragraph (a) of this section.

(d) If your boiler or process heater is subject to a PM limit, your initial compliance demonstration for PM is to conduct a performance test in accordance with §63.7520 and Table 5 to this subpart.

(e) For existing affected sources (as defined in §63.7490), you must complete the initial compliance demonstrations, as specified in paragraphs (a) through (d) of this section, no later than 180 days after the compliance date that is specified for your source in §63.7495 and according to the applicable provisions in §63.7(a)(2) as cited in Table 10 to this subpart, except as specified in paragraph (j) of this section. You must complete an initial tune-up by following the procedures described in §63.7540(a)(10)(i) through (vi) no later than

the compliance date specified in §63.7495, except as specified in paragraph (j) of this section. You must complete the one-time energy assessment specified in Table 3 to this subpart no later than the compliance date specified in §63.7495.

(f) For new or reconstructed affected sources (as defined in §63.7490), you must complete the initial compliance demonstration with the emission limits no later than July 30, 2013 or within 180 days after startup of the source, whichever is later. If you are demonstrating compliance with an emission limit in Tables 11 through 13 to this subpart that is less stringent (that is, higher) than the applicable emission limit in Table 1 to this subpart, you must demonstrate compliance with the applicable emission limit in Table 1 no later than July 29, 2016.

(g) For new or reconstructed affected sources (as defined in §63.7490), you must demonstrate initial compliance with the applicable work practice standards in Table 3 to this subpart within the applicable annual, biennial, or 5-year schedule as specified in §63.7515(d) following the initial compliance date specified in §63.7495(a). Thereafter, you are required to complete the applicable annual, biennial, or 5-year tune-up as specified in §63.7515(d).

(h) For affected sources (as defined in §63.7490) that ceased burning solid waste consistent with §63.7495(e) and for which the initial compliance date has passed, you must demonstrate compliance within 60 days of the effective date of the waste-to-fuel switch. If you have not conducted your compliance demonstration for this subpart within the previous 12 months, you must complete all compliance demonstrations for this subpart before you commence or recommence combustion of solid waste.

(i) For an existing EGU that becomes subject after January 31, 2016, you must demonstrate compliance within 180 days after becoming an affected source.

(j) For existing affected sources (as defined in §63.7490) that have not operated between the effective date of the rule and the compliance date that is specified for your source in §63.7495, you must complete the initial compliance demonstration, if subject to the emission limits in Table 2 to this subpart, as specified in paragraphs (a) through (d) of this section, no later than 180 days after the re-start of the affected source and according to the applicable provisions in §63.7(a)(2) as cited in Table 10 to this subpart. You must complete an initial tune-up by following the procedures described in §63.7540(a)(10)(i) through (vi) no later than 30 days after the re-start of the affected source and, if applicable, complete the one-time energy assessment specified in Table 3 to this subpart, no later than the compliance date specified in §63.7495.

(k) For affected sources, as defined in §63.7490, that switch subcategories consistent with §63.7545(h) after the initial compliance date, you must demonstrate compliance within 60 days of the effective date of the switch, unless you had previously conducted your compliance demonstration for this subcategory within the previous 12 months.

**§63.7515 When must I conduct subsequent performance tests, fuel analyses, or tune-ups?**

(a) You must conduct all applicable performance tests according to §63.7520 on an annual basis, except as specified in paragraphs (b) through (e), (g), and (h) of this section. Annual performance tests must be completed

no more than 13 months after the previous performance test, except as specified in paragraphs (b) through (e), (g), and (h) of this section.

(b) If your performance tests for a given pollutant for at least 2 consecutive years show that your emissions are at or below 75 percent of the emission limit (or, in limited instances as specified in Tables 1 and 2 or 11 through 13 to this subpart, at or below the emission limit) for the pollutant, and if there are no changes in the operation of the individual boiler or process heater or air pollution control equipment that could increase emissions, you may choose to conduct performance tests for the pollutant every third year. Each such performance test must be conducted no more than 37 months after the previous performance test. If you elect to demonstrate compliance using emission averaging under §63.7522, you must continue to conduct performance tests annually. The requirement to test at maximum chloride input level is waived unless the stack test is conducted for HCl. The requirement to test at maximum mercury input level is waived unless the stack test is conducted for mercury. The requirement to test at maximum TSM input level is waived unless the stack test is conducted for TSM.

(c) If a performance test shows emissions exceeded the emission limit or 75 percent of the emission limit (as specified in Tables 1 and 2 or 11 through 13 to this subpart) for a pollutant, you must conduct annual performance tests for that pollutant until all performance tests over a consecutive 2-year period meet the required level (at or below 75 percent of the emission limit, as specified in Tables 1 and 2 or 11 through 13 to this subpart).

(d) If you are required to meet an applicable tune-up work practice standard, you must conduct an annual, biennial, or 5-year performance tune-up according to §63.7540(a)(10), (11), or (12), respectively. Each annual tune-up specified in §63.7540(a)(10) must be no more than 13 months after the previous tune-up. Each biennial tune-up specified in §63.7540(a)(11) must be conducted no more than 25 months after the previous tune-up. Each 5-year tune-up specified in §63.7540(a)(12) must be conducted no more than 61 months after the previous tune-up. For a new or reconstructed affected source (as defined in §63.7490), the first annual, biennial, or 5-year tune-up must be no later than 13 months, 25 months, or 61 months, respectively, after April 1, 2013 or the initial startup of the new or reconstructed affected source, whichever is later.

(e) If you demonstrate compliance with the mercury, HCl, or TSM based on fuel analysis, you must conduct a monthly fuel analysis according to §63.7521 for each type of fuel burned that is subject to an emission limit in Tables 1, 2, or 11 through 13 to this subpart. You may comply with this monthly requirement by completing the fuel analysis any time within the calendar month as long as the analysis is separated from the previous analysis by at least 14 calendar days. If you burn a new type of fuel, you must conduct a fuel analysis before burning the new type of fuel in your boiler or process heater. You must still meet all applicable continuous compliance requirements in §63.7540. If each of 12 consecutive monthly fuel analyses demonstrates 75 percent or less of the compliance level, you may decrease the fuel analysis frequency to quarterly for that fuel. If any quarterly sample exceeds 75 percent of the compliance level or you begin burning a new type of fuel, you must return to monthly monitoring for that fuel, until 12 months of fuel analyses are again less than 75 percent of the compliance level. If sampling is conducted on one day per month, samples should be no less than 14 days apart, but if multiple samples are taken per month, the 14-day restriction does not apply.

(f) You must report the results of performance tests and the associated fuel analyses within 60 days after the completion of the performance tests. This report must also verify that the operating limits for each boiler or process heater have not changed or provide documentation of revised operating limits established according to §63.7530 and Table 7 to this subpart, as applicable. The reports for all subsequent performance tests must include all applicable information required in §63.7550.

(g) For affected sources (as defined in §63.7490) that have not operated since the previous compliance demonstration and more than one year has passed since the previous compliance demonstration, you must complete the subsequent compliance demonstration, if subject to the emission limits in Tables 1, 2, or 11 through 13 to this subpart, no later than 180 days after the re-start of the affected source and according to the applicable provisions in §63.7(a)(2) as cited in Table 10 to this subpart. You must complete a subsequent tune-up by following the procedures described in §63.7540(a)(10)(i) through (vi) and the schedule described in §63.7540(a)(13) for units that are not operating at the time of their scheduled tune-up.

(h) If your affected boiler or process heater is in the unit designed to burn light liquid subcategory and you combust ultra-low sulfur liquid fuel, you do not need to conduct further performance tests (stack tests or fuel analyses) if the pollutants measured during the initial compliance performance tests meet the emission limits in Tables 1 or 2 of this subpart providing you demonstrate ongoing compliance with the emissions limits by monitoring and recording the type of fuel combusted on a monthly basis. If you intend to use a fuel other than ultra-low sulfur liquid fuel, natural gas, refinery gas, or other gas 1 fuel, you must conduct new performance tests within 60 days of burning the new fuel type.

(i) If you operate a CO CEMS that meets the Performance Specifications outlined in §63.7525(a)(3) of this subpart to demonstrate compliance with the applicable alternative CO CEMS emission standard listed in Tables 1, 2, or 11 through 13 to this subpart, you are not required to conduct CO performance tests and are not subject to the oxygen concentration operating limit requirement specified in §63.7510(a).

**§63.7520 What stack tests and procedures must I use?**

(a) You must conduct all performance tests according to §63.7(c), (d), (f), and (h). You must also develop a site-specific stack test plan according to the requirements in §63.7(c). You shall conduct all performance tests under such conditions as the Administrator specifies to you based on the representative performance of each boiler or process heater for the period being tested. Upon request, you shall make available to the Administrator such records as may be necessary to determine the conditions of the performance tests.

(b) You must conduct each performance test according to the requirements in Table 5 to this subpart.

(c) You must conduct each performance test under the specific conditions listed in Tables 5 and 7 to this subpart. You must conduct performance tests at representative operating load conditions while burning the type of fuel or mixture of fuels that has the highest content of chlorine and mercury, and TSM if you are opting to comply with the TSM alternative standard and you must demonstrate initial compliance and establish your operating limits based on these performance tests. These requirements could result in the need to conduct more than one performance test. Following each performance test and until the next performance test, you must comply with the operating limit for operating load conditions specified in Table 4 to this subpart.

(d) You must conduct a minimum of three separate test runs for each performance test required in this section, as specified in §63.7(e)(3). Each test run must comply with the minimum applicable sampling times or volumes specified in Tables 1 and 2 or 11 through 13 to this subpart.

(e) To determine compliance with the emission limits, you must use the F-Factor methodology and equations in sections 12.2 and 12.3 of EPA Method 19 at 40 CFR part 60, appendix A-7 of this chapter to convert the measured particulate matter (PM) concentrations, the measured HCl concentrations, the measured mercury concentrations, and the measured TSM concentrations that result from the performance test to pounds per million Btu heat input emission rates.

(f) Except for a 30-day rolling average based on CEMS (or sorbent trap monitoring system) data, if measurement results for any pollutant are reported as below the method detection level (e.g., laboratory analytical results for one or more sample components are below the method defined analytical detection level), you must use the method detection level as the measured emissions level for that pollutant in calculating compliance. The measured result for a multiple component analysis (e.g., analytical values for multiple Method 29 fractions both for individual HAP metals and for total HAP metals) may include a combination of method detection level data and analytical data reported above the method detection level.

**§63.7521 What fuel analyses, fuel specification, and procedures must I use?**

(a) For solid and liquid fuels, you must conduct fuel analyses for chloride and mercury according to the procedures in paragraphs (b) through (e) of this section and Table 6 to this subpart, as applicable. For solid fuels and liquid fuels, you must also conduct fuel analyses for TSM if you are opting to comply with the TSM alternative standard. For gas 2 (other) fuels, you must conduct fuel analyses for mercury according to the procedures in paragraphs (b) through (e) of this section and Table 6 to this subpart, as applicable. (For gaseous fuels, you may not use fuel analyses to comply with the TSM alternative standard or the HCl standard.) For purposes of complying with this section, a fuel gas system that consists of multiple gaseous fuels collected and mixed with each other is considered a single fuel type and sampling and analysis is only required on the combined fuel gas system that will feed the boiler or process heater. Sampling and analysis of the individual gaseous streams prior to combining is not required. You are not required to conduct fuel analyses for fuels used for only startup, unit shutdown, and transient flame stability purposes. You are required to conduct fuel analyses only for fuels and units that are subject to emission limits for mercury, HCl, or TSM in Tables 1 and 2 or 11 through 13 to this subpart. Gaseous and liquid fuels are exempt from the sampling requirements in paragraphs (c) and (d) of this section.

(b) You must develop a site-specific fuel monitoring plan according to the following procedures and requirements in paragraphs (b)(1) and (2) of this section, if you are required to conduct fuel analyses as specified in §63.7510.

(1) If you intend to use an alternative analytical method other than those required by Table 6 to this subpart, you must submit the fuel analysis plan to the Administrator for review and approval no later than 60 days before the date that you intend to conduct the initial compliance demonstration described in §63.7510.

(2) You must include the information contained in paragraphs (b)(2)(i) through (vi) of this section in your fuel analysis plan.

(i) The identification of all fuel types anticipated to be burned in each boiler or process heater.

(ii) For each anticipated fuel type, the notification of whether you or a fuel supplier will be conducting the fuel analysis.

(iii) For each anticipated fuel type, a detailed description of the sample location and specific procedures to be used for collecting and preparing the composite samples if your procedures are different from paragraph (c) or (d) of this section. Samples should be collected at a location that most accurately represents the fuel type, where possible, at a point prior to mixing with other dissimilar fuel types.

(iv) For each anticipated fuel type, the analytical methods from Table 6, with the expected minimum detection levels, to be used for the measurement of chlorine or mercury.

(v) If you request to use an alternative analytical method other than those required by Table 6 to this subpart, you must also include a detailed description of the methods and procedures that you are proposing to use. Methods in Table 6 shall be used until the requested alternative is approved.

(vi) If you will be using fuel analysis from a fuel supplier in lieu of site-specific sampling and analysis, the fuel supplier must use the analytical methods required by Table 6 to this subpart.

(c) You must obtain composite fuel samples for each fuel type according to the procedures in paragraph (c)(1) or (2) of this section, or the methods listed in Table 6 to this subpart, or use an automated sampling mechanism that provides representative composite fuel samples for each fuel type that includes both coarse and fine material. At a minimum, for demonstrating initial compliance by fuel analysis, you must obtain three composite samples. For monthly fuel analyses, at a minimum, you must obtain a single composite sample. For fuel analyses as part of a performance stack test, as specified in §63.7510(a), you must obtain a composite fuel sample during each performance test run.

(1) If sampling from a belt (or screw) feeder, collect fuel samples according to paragraphs (c)(1)(i) and (ii) of this section.

(i) Stop the belt and withdraw a 6-inch wide sample from the full cross-section of the stopped belt to obtain a minimum two pounds of sample. You must collect all the material (fines and coarse) in the full cross-section. You must transfer the sample to a clean plastic bag.

(ii) Each composite sample will consist of a minimum of three samples collected at approximately equal one-hour intervals during the testing period for sampling during performance stack testing.

(2) If sampling from a fuel pile or truck, you must collect fuel samples according to paragraphs (c)(2)(i) through (iii) of this section.

(i) For each composite sample, you must select a minimum of five sampling locations uniformly spaced over the surface of the pile.

(ii) At each sampling site, you must dig into the pile to a uniform depth of approximately 18 inches. You must insert a clean shovel into the hole and withdraw a sample, making sure that large pieces do not fall off during sampling; use the same shovel to collect all samples.

(iii) You must transfer all samples to a clean plastic bag for further processing.

(d) You must prepare each composite sample according to the procedures in paragraphs (d)(1) through (7) of this section.

(1) You must thoroughly mix and pour the entire composite sample over a clean plastic sheet.

(2) You must break large sample pieces (e.g., larger than 3 inches) into smaller sizes.

(3) You must make a pie shape with the entire composite sample and subdivide it into four equal parts.

(4) You must separate one of the quarter samples as the first subset.

(5) If this subset is too large for grinding, you must repeat the procedure in paragraph (d)(3) of this section with the quarter sample and obtain a one-quarter subset from this sample.

(6) You must grind the sample in a mill.

(7) You must use the procedure in paragraph (d)(3) of this section to obtain a one-quarter subsample for analysis. If the quarter sample is too large, subdivide it further using the same procedure.

(e) You must determine the concentration of pollutants in the fuel (mercury and/or chlorine and/or TSM) in units of pounds per million Btu of each composite sample for each fuel type according to the procedures in Table 6 to this subpart, for use in Equations 7, 8, and 9 of this subpart.

(f) To demonstrate that a gaseous fuel other than natural gas or refinery gas qualifies as an other gas 1 fuel, as defined in §63.7575, you must conduct a fuel specification analyses for mercury according to the procedures in paragraphs (g) through (i) of this section and Table 6 to this subpart, as applicable, except as specified in paragraph (f)(1) through (4) of this section, or as an alternative where fuel specification analysis is not practical, you must measure mercury concentration in the exhaust gas when firing only the gaseous fuel to be demonstrated as an other gas 1 fuel in the boiler or process heater according to the procedures in Table 6 to this subpart.

(1) You are not required to conduct the fuel specification analyses in paragraphs (g) through (i) of this section for natural gas or refinery gas.

(2) You are not required to conduct the fuel specification analyses in paragraphs (g) through (i) of this section for gaseous fuels that are subject to another subpart of this part, part 60, part 61, or part 65.

(3) You are not required to conduct the fuel specification analyses in paragraphs (g) through (i) of this section on gaseous fuels for units that are complying with the limits for units designed to burn gas 2 (other) fuels.

(4) You are not required to conduct the fuel specification analyses in paragraphs (g) through (i) of this section for gas streams directly derived from natural gas at natural gas production sites or natural gas plants.

(g) You must develop a site-specific fuel analysis plan for other gas 1 fuels according to the following procedures and requirements in paragraphs (g)(1) and (2) of this section.

(1) If you intend to use an alternative analytical method other than those required by Table 6 to this subpart, you must submit the fuel analysis plan to the Administrator for review and approval no later than 60 days before the date that you intend to conduct the initial compliance demonstration described in §63.7510.

(2) You must include the information contained in paragraphs (g)(2)(i) through (vi) of this section in your fuel analysis plan.

(i) The identification of all gaseous fuel types other than those exempted from fuel specification analysis under (f)(1) through (3) of this section anticipated to be burned in each boiler or process heater.

(ii) For each anticipated fuel type, the identification of whether you or a fuel supplier will be conducting the fuel specification analysis.

(iii) For each anticipated fuel type, a detailed description of the sample location and specific procedures to be used for collecting and preparing the samples if your procedures are different from the sampling methods contained in Table 6 to this subpart. Samples should be collected at a location that most accurately represents the fuel type, where possible, at a point prior to mixing with other dissimilar fuel types. If multiple boilers or process heaters are fueled by a common fuel stream it is permissible to conduct a single gas specification at the common point of gas distribution.

(iv) For each anticipated fuel type, the analytical methods from Table 6 to this subpart, with the expected minimum detection levels, to be used for the measurement of mercury.

(v) If you request to use an alternative analytical method other than those required by Table 6 to this subpart, you must also include a detailed description of the methods and procedures that you are proposing to use. Methods in Table 6 to this subpart shall be used until the requested alternative is approved.

(vi) If you will be using fuel analysis from a fuel supplier in lieu of site-specific sampling and analysis, the fuel supplier must use the analytical methods required by Table 6 to this subpart. When using a fuel supplier's fuel analysis, the owner or operator is not required to submit the information in §63.7521(g)(2)(iii).

(h) You must obtain a single fuel sample for each fuel type for fuel specification of gaseous fuels.

(i) You must determine the concentration in the fuel of mercury, in units of microgram per cubic meter, dry basis, of each sample for each other gas 1 fuel type according to the procedures in Table 6 to this subpart.

**§63.7522 Can I use emissions averaging to comply with this subpart?**

(a) As an alternative to meeting the requirements of §63.7500 for PM (or TSM), HCl, or mercury on a boiler or process heater-specific basis, if you have more than one existing boiler or process heater in any subcategories

located at your facility, you may demonstrate compliance by emissions averaging, if your averaged emissions are not more than 90 percent of the applicable emission limit, according to the procedures in this section. You may not include new boilers or process heaters in an emissions average.

(b) For a group of two or more existing boilers or process heaters in the same subcategory that each vent to a separate stack, you may average PM (or TSM), HCl, or mercury emissions among existing units to demonstrate compliance with the limits in Table 2 to this subpart as specified in paragraph (b)(1) through (3) of this section, if you satisfy the requirements in paragraphs (c) through (g) of this section.

(1) You may average units using a CEMS or PM CPMS for demonstrating compliance.

(2) For mercury and HCl, averaging is allowed as follows:

(i) You may average among units in any of the solid fuel subcategories.

(ii) You may average among units in any of the liquid fuel subcategories.

(iii) You may average among units in a subcategory of units designed to burn gas 2 (other) fuels.

(iv) You may not average across the units designed to burn liquid, units designed to burn solid fuel, and units designed to burn gas 2 (other) subcategories.

(3) For PM (or TSM), averaging is only allowed between units within each of the following subcategories and you may not average across subcategories:

(i) Units designed to burn coal/solid fossil fuel.

(ii) Stokers/sloped grate/other units designed to burn kiln dried biomass/bio-based solids.

(iii) Stokers/sloped grate/other units designed to burn wet biomass/bio-based solids.

(iv) Fluidized bed units designed to burn biomass/bio-based solid.

(v) Suspension burners designed to burn biomass/bio-based solid.

(vi) Dutch ovens/pile burners designed to burn biomass/bio-based solid.

(vii) Fuel Cells designed to burn biomass/bio-based solid.

(viii) Hybrid suspension/grate burners designed to burn wet biomass/bio-based solid.

(ix) Units designed to burn heavy liquid fuel.

(x) Units designed to burn light liquid fuel.

(xi) Units designed to burn liquid fuel that are non-continental units.

(xii) Units designed to burn gas 2 (other) gases.

(c) For each existing boiler or process heater in the averaging group, the emission rate achieved during the initial compliance test for the HAP being averaged must not exceed the emission level that was being achieved on April 1, 2013 or the control technology employed during the initial compliance test must not be less effective for the HAP being averaged than the control technology employed on April 1, 2013.

(d) The averaged emissions rate from the existing boilers and process heaters participating in the emissions averaging option must not exceed 90 percent of the limits in Table 2 to this subpart at all times the affected units are subject to numeric emission limits following the compliance date specified in §63.7495.

(e) You must demonstrate initial compliance according to paragraph (e)(1) or (2) of this section using the maximum rated heat input capacity or maximum steam generation capacity of each unit and the results of the initial performance tests or fuel analysis.

(1) You must use Equation 1a or 1b or 1c of this section to demonstrate that the PM (or TSM), HCl, or mercury emissions from all existing units participating in the emissions averaging option for that pollutant do not exceed the emission limits in Table 2 to this subpart. Use Equation 1a if you are complying with the emission limits on a heat input basis, use Equation 1b if you are complying with the emission limits on a steam generation (output) basis, and use Equation 1c if you are complying with the emission limits on a electric generation (output) basis.

$$AveWeightedEmissions = 1.1 \times \sum_{i=1}^{n} (Er \times Hm) \div \sum_{i=1}^{n} Hm \qquad \text{(Eq. 1a)}$$

Where:

AveWeightedEmissions = Average weighted emissions for PM (or TSM), HCl, or mercury, in units of pounds per million Btu of heat input.

Er = Emission rate (as determined during the initial compliance demonstration) of PM (or TSM), HCl, or mercury from unit, i, in units of pounds per million Btu of heat input. Determine the emission rate for PM (or TSM), HCl, or mercury by performance testing according to Table 5 to this subpart, or by fuel analysis for HCl or mercury or TSM using the applicable equation in §63.7530(c).

Hm = Maximum rated heat input capacity of unit, i, in units of million Btu per hour.

n = Number of units participating in the emissions averaging option.

1.1 = Required discount factor.

$$AveWeightedEmissions = 1.1 \times \sum_{i=1}^{n} (Er \times So) \div \sum_{i=1}^{n} So \qquad \text{(Eq. 1b)}$$

Where:

AveWeightedEmissions = Average weighted emissions for PM (or TSM), HCl, or mercury, in units of pounds per million Btu of steam output.

Er = Emission rate (as determined during the initial compliance demonstration) of PM (or TSM), HCl, or mercury from unit, i, in units of pounds per million Btu of steam output. Determine the emission rate for PM (or TSM), HCl, or mercury by performance testing according to Table 5 to this subpart, or by fuel analysis for HCl or mercury or TSM using the applicable equation in §63.7530(c). If you are taking credit for energy conservation measures from a unit according to §63.7533, use the adjusted emission level for that unit, Eadj, determined according to §63.7533 for that unit.

So = Maximum steam output capacity of unit, i, in units of million Btu per hour, as defined in §63.7575.

n = Number of units participating in the emissions averaging option.

1.1 = Required discount factor.

$$AveWeighiedEmissions = 1.1 \times \sum_{i=1}^{n} (Er \times Eo) \div \sum_{i=1}^{n} Eo \qquad \text{(Eq. 1c)}$$

Where:

AveWeightedEmissions = Average weighted emissions for PM (or TSM), HCl, or mercury, in units of pounds per megawatt hour.

Er = Emission rate (as determined during the initial compliance demonstration) of PM (or TSM), HCl, or mercury from unit, i, in units of pounds per megawatt hour. Determine the emission rate for PM (or TSM), HCl, or mercury by performance testing according to Table 5 to this subpart, or by fuel analysis for HCl or mercury or TSM using the applicable equation in §63.7530(c). If you are taking credit for energy conservation measures from a unit according to §63.7533, use the adjusted emission level for that unit, Eadj, determined according to §63.7533 for that unit.

Eo = Maximum electric generating output capacity of unit, i, in units of megawatt hour, as defined in §63.7575.

n = Number of units participating in the emissions averaging option.

1.1 = Required discount factor.

(2) If you are not capable of determining the maximum rated heat input capacity of one or more boilers that generate steam, you may use Equation 2 of this section as an alternative to using Equation 1a of this section to demonstrate that the PM (or TSM), HCl, or mercury emissions from all existing units participating in the emissions averaging option do not exceed the emission limits for that pollutant in Table 2 to this subpart that are in pounds per million Btu of heat input.

$$AveWeightedEmissions = 1.1 \times \sum_{i=1}^{n} (Er \times Sm \times Cfi) \div \sum_{i=1}^{n} (Sm \times Cfi) \qquad \text{(Eq. 2)}$$

Where:

AveWeightedEmissions = Average weighted emission level for PM (or TSM), HCl, or mercury, in units of pounds per million Btu of heat input.

Er = Emission rate (as determined during the most recent compliance demonstration) of PM (or TSM), HCl, or mercury from unit, i, in units of pounds per million Btu of heat input. Determine the emission rate for PM (or TSM), HCl, or mercury by performance testing according to Table 5 to this subpart, or by fuel analysis for HCl or mercury or TSM using the applicable equation in §63.7530(c).

Sm = Maximum steam generation capacity by unit, i, in units of pounds per hour.

Cfi = Conversion factor, calculated from the most recent compliance test, in units of million Btu of heat input per pounds of steam generated for unit, i.

1.1 = Required discount factor.

(f) After the initial compliance demonstration described in paragraph (e) of this section, you must demonstrate compliance on a monthly basis determined at the end of every month (12 times per year) according to paragraphs (f)(1) through (3) of this section. The first monthly period begins on the compliance date specified in §63.7495. If the affected source elects to collect monthly data for up the 11 months preceding the first monthly period, these additional data points can be used to compute the 12-month rolling average in paragraph (f)(3) of this section.

(1) For each calendar month, you must use Equation 3a or 3b or 3c of this section to calculate the average weighted emission rate for that month. Use Equation 3a and the actual heat input for the month for each existing unit participating in the emissions averaging option if you are complying with emission limits on a heat input basis. Use Equation 3b and the actual steam generation for the month if you are complying with the emission limits on a steam generation (output) basis. Use Equation 3c and the actual electrical generation for the month if you are complying with the emission limits on an electrical generation (output) basis.

$$AveWeightedEmissions = 1.1 \times \sum_{i=1}^{n} (Er \times Hb) \div \sum_{i=1}^{n} Hb \qquad \text{(Eq. 3a)}$$

Where:

AveWeightedEmissions = Average weighted emission level for PM (or TSM), HCl, or mercury, in units of pounds per million Btu of heat input, for that calendar month.

Er = Emission rate (as determined during the most recent compliance demonstration) of PM (or TSM), HCl, or mercury from unit, i, in units of pounds per million Btu of heat input. Determine the emission rate for PM (or TSM), HCl, or mercury by performance testing according to Table 5 to this subpart, or by fuel analysis for HCl or mercury or TSM according to Table 6 to this subpart.

Hb = The heat input for that calendar month to unit, i, in units of million Btu.

n = Number of units participating in the emissions averaging option.

1.1 = Required discount factor.

$$AveWeightedEmissions = 1.1 \times \sum_{i=1}^{n} (Er \times So) \div \sum_{i=1}^{n} So \quad \text{(Eq. 3b)}$$

Where:

AveWeightedEmissions = Average weighted emission level for PM (or TSM), HCl, or mercury, in units of pounds per million Btu of steam output, for that calendar month.

Er = Emission rate (as determined during the most recent compliance demonstration) of PM (or TSM), HCl, or mercury from unit, i, in units of pounds per million Btu of steam output. Determine the emission rate for PM (or TSM), HCl, or mercury by performance testing according to Table 5 to this subpart, or by fuel analysis for HCl or mercury or TSM according to Table 6 to this subpart. If you are taking credit for energy conservation measures from a unit according to §63.7533, use the adjusted emission level for that unit, $E_{adj}$, determined according to §63.7533 for that unit.

So = The steam output for that calendar month from unit, i, in units of million Btu, as defined in §63.7575.

n = Number of units participating in the emissions averaging option.

1.1 = Required discount factor.

$$AveWeighiedEmissions = 1.1 \times \sum_{i=1}^{n} (Er \times Eo) \div \sum_{i=1}^{n} Eo \quad \text{(Eq. 3c)}$$

Where:

AveWeightedEmissions = Average weighted emission level for PM (or TSM), HCl, or mercury, in units of pounds per megawatt hour, for that calendar month.

Er = Emission rate (as determined during the most recent compliance demonstration) of PM (or TSM), HCl, or mercury from unit, i, in units of pounds per megawatt hour. Determine the emission rate for PM (or TSM), HCl, or mercury by performance testing according to Table 5 to this subpart, or by fuel analysis for HCl or mercury or TSM according to Table 6 to this subpart. If you are taking credit for energy conservation measures from a unit according to §63.7533, use the adjusted emission level for that unit, $E_{adj}$, determined according to §63.7533 for that unit.

Eo = The electric generating output for that calendar month from unit, i, in units of megawatt hour, as defined in §63.7575.

n = Number of units participating in the emissions averaging option.

1.1 = Required discount factor.

(2) If you are not capable of monitoring heat input, you may use Equation 4 of this section as an alternative to using Equation 3a of this section to calculate the average weighted emission rate using the actual steam generation from the boilers participating in the emissions averaging option.

$$AveWeightedEmissions = 1.1 \times \sum_{i=1}^{n} (Er \times Sa \times Cfi) \div \sum_{i=1}^{n} (Sa \times Cfi) \quad \text{(Eq. 4)}$$

Where:

AveWeightedEmissions = average weighted emission level for PM (or TSM), HCl, or mercury, in units of pounds per million Btu of heat input for that calendar month.

Er = Emission rate (as determined during the most recent compliance demonstration of PM (or TSM), HCl, or mercury from unit, i, in units of pounds per million Btu of heat input. Determine the emission rate for PM (or TSM), HCl, or mercury by performance testing according to Table 5 to this subpart, or by fuel analysis for HCl or mercury or TSM according to Table 6 to this subpart.

Sa = Actual steam generation for that calendar month by boiler, i, in units of pounds.

Cfi = Conversion factor, as calculated during the most recent compliance test, in units of million Btu of heat input per pounds of steam generated for boiler, i.

1.1 = Required discount factor.

(3) Until 12 monthly weighted average emission rates have been accumulated, calculate and report only the average weighted emission rate determined under paragraph (f)(1) or (2) of this section for each calendar month. After 12 monthly weighted average emission rates have been accumulated, for each subsequent calendar month, use Equation 5 of this section to calculate the 12-month rolling average of the monthly weighted average emission rates for the current calendar month and the previous 11 calendar months.

$$Eavg = \sum_{i=1}^{n} ERi \div 12 \quad \text{(Eq. 5)}$$

Where:

Eavg = 12-month rolling average emission rate, (pounds per million Btu heat input)

ERi = Monthly weighted average, for calendar month "i" (pounds per million Btu heat input), as calculated by paragraph (f)(1) or (2) of this section.

(g) You must develop, and submit upon request to the applicable Administrator for review and approval, an implementation plan for emission averaging according to the following procedures and requirements in paragraphs (g)(1) through (4) of this section.

(1) If requested, you must submit the implementation plan no later than 180 days before the date that the facility intends to demonstrate compliance using the emission averaging option.

(2) You must include the information contained in paragraphs (g)(2)(i) through (vii) of this section in your implementation plan for all emission sources included in an emissions average:

(i) The identification of all existing boilers and process heaters in the averaging group, including for each either the applicable HAP emission level or the control technology installed as of January 31, 2013 and the date on which you are requesting emission averaging to commence;

(ii) The process parameter (heat input or steam generated) that will be monitored for each averaging group;

(iii) The specific control technology or pollution prevention measure to be used for each emission boiler or process heater in the averaging group and the date of its installation or application. If the pollution prevention measure reduces or eliminates emissions from multiple boilers or process heaters, the owner or operator must identify each boiler or process heater;

(iv) The test plan for the measurement of PM (or TSM), HCl, or mercury emissions in accordance with the requirements in §63.7520;

(v) The operating parameters to be monitored for each control system or device consistent with §63.7500 and Table 4, and a description of how the operating limits will be determined;

(vi) If you request to monitor an alternative operating parameter pursuant to §63.7525, you must also include:

(A) A description of the parameter(s) to be monitored and an explanation of the criteria used to select the parameter(s); and

(B) A description of the methods and procedures that will be used to demonstrate that the parameter indicates proper operation of the control device; the frequency and content of monitoring, reporting, and recordkeeping requirements; and a demonstration, to the satisfaction of the Administrator, that the proposed monitoring frequency is sufficient to represent control device operating conditions; and

(vii) A demonstration that compliance with each of the applicable emission limit(s) will be achieved under representative operating load conditions. Following each compliance demonstration and until the next compliance demonstration, you must comply with the operating limit for operating load conditions specified in Table 4 to this subpart.

(3) If submitted upon request, the Administrator shall review and approve or disapprove the plan according to the following criteria:

(i) Whether the content of the plan includes all of the information specified in paragraph (g)(2) of this section; and

(ii) Whether the plan presents sufficient information to determine that compliance will be achieved and maintained.

(4) The applicable Administrator shall not approve an emission averaging implementation plan containing any of the following provisions:

(i) Any averaging between emissions of differing pollutants or between differing sources; or

(ii) The inclusion of any emission source other than an existing unit in the same subcategories.

(h) For a group of two or more existing affected units, each of which vents through a single common stack, you may average PM (or TSM), HCl, or mercury emissions to demonstrate compliance with the limits for that pollutant in Table 2 to this subpart if you satisfy the requirements in paragraph (i) or (j) of this section.

(i) For a group of two or more existing units in the same subcategory, each of which vents through a common emissions control system to a common stack, that does not receive emissions from units in other subcategories or categories, you may treat such averaging group as a single existing unit for purposes of this subpart and comply with the requirements of this subpart as if the group were a single unit.

(j) For all other groups of units subject to the common stack requirements of paragraph (h) of this section, including situations where the exhaust of affected units are each individually controlled and then sent to a common stack, the owner or operator may elect to:

(1) Conduct performance tests according to procedures specified in §63.7520 in the common stack if affected units from other subcategories vent to the common stack. The emission limits that the group must comply with are determined by the use of Equation 6 of this section.

$$En = \sum_{i=1}^{n} (ELi \times Hi) \div \sum_{i=1}^{n} Hi \qquad \text{(Eq. 6)}$$

Where:

En = HAP emission limit, pounds per million British thermal units (lb/MMBtu) or parts per million (ppm).

Eli = Appropriate emission limit from Table 2 to this subpart for unit i, in units of lb/MMBtu or ppm.

Hi = Heat input from unit i, MMBtu.

(2) Conduct performance tests according to procedures specified in §63.7520 in the common stack. If affected units and non-affected units vent to the common stack, the non-affected units must be shut down or vented to a different stack during the performance test unless the facility determines to demonstrate compliance with the non-affected units venting to the stack; and

(3) Meet the applicable operating limit specified in §63.7540 and Table 8 to this subpart for each emissions control system (except that, if each unit venting to the common stack has an applicable opacity operating limit, then a single continuous opacity monitoring system may be located in the common stack instead of in each duct to the common stack).

(k) The common stack of a group of two or more existing boilers or process heaters in the same subcategories subject to paragraph (h) of this section may be treated as a separate stack for purposes of paragraph (b) of this section and included in an emissions averaging group subject to paragraph (b) of this section.

# ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD— National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters



**§63.7525 What are my monitoring, installation, operation, and maintenance requirements?**

(a) If your boiler or process heater is subject to a CO emission limit in Tables 1, 2, or 11 through 13 to this subpart, you must install, operate, and maintain an oxygen analyzer system, as defined in §63.7575, or install, certify, operate and maintain continuous emission monitoring systems for CO and oxygen (or carbon dioxide ($CO_2$)) according to the procedures in paragraphs (a)(1) through (6) of this section.

(1) Install the CO CEMS and oxygen (or $CO_2$) analyzer by the compliance date specified in §63.7495. The CO and oxygen (or $CO_2$) levels shall be monitored at the same location at the outlet of the boiler or process heater. An owner or operator may request an alternative test method under §63.7 of this chapter, in order that compliance with the CO emissions limit be determined using $CO_2$ as a diluent correction in place of oxygen at 3 percent. EPA Method 19 F-factors and EPA Method 19 equations must be used to generate the appropriate $CO_2$ correction percentage for the fuel type burned in the unit, and must also take into account that the 3 percent oxygen correction is to be done on a dry basis. The alternative test method request must account for any $CO_2$ being added to, or removed from, the emissions gas stream as a result of limestone injection, scrubber media, etc.

(2) To demonstrate compliance with the applicable alternative CO CEMS emission standard listed in Tables 1, 2, or 11 through 13 to this subpart, you must install, certify, operate, and maintain a CO CEMS and an oxygen analyzer according to the applicable procedures under Performance Specification 4, 4A, or 4B at 40 CFR part 60, appendix B; part 75 of this chapter (if an $CO_2$ analyzer is used); the site-specific monitoring plan developed according to §63.7505(d); and the requirements in §63.7540(a)(8) and paragraph (a) of this section. Any boiler or process heater that has a CO CEMS that is compliant with Performance Specification 4, 4A, or 4B at 40 CFR part 60, appendix B, a site-specific monitoring plan developed according to §63.7505(d), and the requirements in §63.7540(a)(8) and paragraph (a) of this section must use the CO CEMS to comply with the applicable alternative CO CEMS emission standard listed in Tables 1, 2, or 11 through 13 to this subpart.

(i) You must conduct a performance evaluation of each CO CEMS according to the requirements in §63.8(e) and according to Performance Specification 4, 4A, or 4B at 40 CFR part 60, appendix B.

(ii) During each relative accuracy test run of the CO CEMS, you must be collect emission data for CO concurrently (or within a 30- to 60-minute period) by both the CO CEMS and by Method 10, 10A, or 10B at 40 CFR part 60, appendix A-4. The relative accuracy testing must be at representative operating conditions.

(iii) You must follow the quality assurance procedures (e.g., quarterly accuracy determinations and daily calibration drift tests) of Procedure 1 of appendix F to part 60. The measurement span value of the CO CEMS must be two times the applicable CO emission limit, expressed as a concentration.

(iv) Any CO CEMS that does not comply with §63.7525(a) cannot be used to meet any requirement in this subpart to demonstrate compliance with a CO emission limit listed in Tables 1, 2, or 11 through 13 to this subpart.

(v) For a new unit, complete the initial performance evaluation no later than July 30, 2013, or 180 days after the date of initial startup, whichever is later. For an existing unit, complete the initial performance evaluation no later than July 29, 2016.

(vi) When $CO_2$ is used to correct CO emissions and $CO_2$ is measured on a wet basis, correct for moisture as follows: Install, operate, maintain, and quality assure a continuous moisture monitoring system for measuring and recording the moisture content of the flue gases, in order to correct the measured hourly volumetric flow rates for moisture when calculating CO concentrations. The following continuous moisture monitoring systems are acceptable: A continuous moisture sensor; an oxygen analyzer (or analyzers) capable of measuring $O_2$ both on a wet basis and on a dry basis; or a stack temperature sensor and a moisture look-up table, *i.e.,* a psychrometric chart (for saturated gas streams following wet scrubbers or other demonstrably saturated gas streams, only). The moisture monitoring system shall include as a component the automated data acquisition and handling system (DAHS) for recording and reporting both the raw data (*e.g.,* hourly average wet-and dry basis $O_2$ values) and the hourly average values of the stack gas moisture content derived from those data. When a moisture look-up table is used, the moisture monitoring system shall be represented as a single component, the certified DAHS, in the monitoring plan for the unit or common stack.

(3) Complete a minimum of one cycle of CO and oxygen (or $CO_2$) CEMS operation (sampling, analyzing, and data recording) for each successive 15-minute period. Collect CO and oxygen (or $CO_2$) data concurrently. Collect at least four CO and oxygen (or $CO_2$) CEMS data values representing the four 15-minute periods in an hour, or at least two 15-minute data values during an hour when CEMS calibration, quality assurance, or maintenance activities are being performed.

(4) Reduce the CO CEMS data as specified in §63.8(g)(2).

(5) Calculate one-hour arithmetic averages, corrected to 3 percent oxygen (or corrected to an $CO_2$ percentage determined to be equivalent to 3 percent oxygen) from each hour of CO CEMS data in parts per million CO concentration. The one-hour arithmetic averages required shall be used to calculate the 30-day or 10-day rolling average emissions. Use Equation 19-19 in section 12.4.1 of Method 19 of 40 CFR part 60, appendix A-7 for calculating the average CO concentration from the hourly values.

(6) For purposes of collecting CO data, operate the CO CEMS as specified in §63.7535(b). You must use all the data collected during all periods in calculating data averages and assessing compliance, except that you must exclude certain data as specified in §63.7535(c). Periods when CO data are unavailable may constitute monitoring deviations as specified in §63.7535(d).

(7) Operate an oxygen trim system with the oxygen level set no lower than the lowest hourly average oxygen concentration measured during the most recent CO performance test as the operating limit for oxygen according to Table 7 to this subpart.

(b) If your boiler or process heater is in the unit designed to burn coal/solid fossil fuel subcategory or the unit designed to burn heavy liquid subcategory and has an average annual heat input rate greater than 250 MMBtu per hour from solid fossil fuel and/or heavy liquid, and you demonstrate compliance with the PM limit instead of the alternative TSM limit, you must install, maintain, and operate a PM CPMS monitoring emissions discharged to the atmosphere and record the output of the system as specified in paragraphs (b)(1) through (4) of this section. As an alternative to use of a PM CPMS to demonstrate compliance with the PM limit, you may choose to use a PM CEMS. If you choose to use a PM CEMS to demonstrate compliance with the PM limit instead of the alternative TSM limit, you must install, certify, maintain, and operate a PM CEMS monitoring emissions discharged to the atmosphere and record the output of the system as specified in paragraph (b)(5)

through (8) of this section. For other boilers or process heaters, you may elect to use a PM CPMS or PM CEMS operated in accordance with this section in lieu of using other CMS for monitoring PM compliance (*e.g.*, bag leak detectors, ESP secondary power, and PM scrubber pressure). Owners of boilers and process heaters who elect to comply with the alternative TSM limit are not required to install a PM CPMS.

(1) Install, operate, and maintain your PM CPMS according to the procedures in your approved site-specific monitoring plan developed in accordance with §63.7505(d), the requirements in §63.7540(a)(9), and paragraphs (b)(1)(i) through (iii) of this section.

(i) The operating principle of the PM CPMS must be based on in-stack or extractive light scatter, light scintillation, beta attenuation, or mass accumulation detection of PM in the exhaust gas or representative exhaust gas sample. The reportable measurement output from the PM CPMS must be expressed as milliamps.

(ii) The PM CPMS must have a cycle time (i.e., period required to complete sampling, measurement, and reporting for each measurement) no longer than 60 minutes.

(iii) The PM CPMS must have a documented detection limit of 0.5 milligram per actual cubic meter, or less.

(2) For a new unit, complete the initial performance evaluation no later than July 30, 2013, or 180 days after the date of initial startup, whichever is later. For an existing unit, complete the initial performance evaluation no later than July 29, 2016.

(3) Collect PM CPMS hourly average output data for all boiler or process heater operating hours except as indicated in §63.7535(a) through (d). Express the PM CPMS output as milliamps.

(4) Calculate the arithmetic 30-day rolling average of all of the hourly average PM CPMS output data collected during all boiler or process heater operating hours (milliamps).

(5) Install, certify, operate, and maintain your PM CEMS according to the procedures in your approved site-specific monitoring plan developed in accordance with §63.7505(d), the requirements in §63.7540(a)(9), and paragraphs (b)(5)(i) through (iv) of this section.

(i) You shall conduct a performance evaluation of the PM CEMS according to the applicable requirements of §60.8(e), and Performance Specification 11 at 40 CFR part 60, appendix B of this chapter.

(ii) During each PM correlation testing run of the CEMS required by Performance Specification 11 at 40 CFR part 60, appendix B of this chapter, you shall collect PM and oxygen (or carbon dioxide) data concurrently (or within a 30-to 60-minute period) by both the CEMS and conducting performance tests using Method 5 at 40 CFR part 60, appendix A-3 or Method 17 at 40 CFR part 60, appendix A-6 of this chapter.

(iii) You shall perform quarterly accuracy determinations and daily calibration drift tests in accordance with Procedure 2 at 40 CFR part 60, appendix F of this chapter. You must perform Relative Response Audits annually and perform Response Correlation Audits every 3 years.

(iv) Within 60 days after the date of completing each CEMS relative accuracy test audit or performance test conducted to demonstrate compliance with this subpart, you must submit the relative accuracy test audit data

and performance test data to the EPA by successfully submitting the data electronically into the EPA's Central Data Exchange by using the Electronic Reporting Tool (see *http://www.epa.gov/ttn/chief/ert/erttool.html/*).

(6) For a new unit, complete the initial performance evaluation no later than July 30, 2013, or 180 days after the date of initial startup, whichever is later. For an existing unit, complete the initial performance evaluation no later than July 29, 2016.

(7) Collect PM CEMS hourly average output data for all boiler or process heater operating hours except as indicated in §63.7535(a) through (d).

(8) Calculate the arithmetic 30-day rolling average of all of the hourly average PM CEMS output data collected during all boiler or process heater operating hours.

(c) If you have an applicable opacity operating limit in this rule, and are not otherwise required or elect to install and operate a PM CPMS, PM CEMS, or a bag leak detection system, you must install, operate, certify and maintain each COMS according to the procedures in paragraphs (c)(1) through (7) of this section by the compliance date specified in §63.7495.

(1) Each COMS must be installed, operated, and maintained according to Performance Specification 1 at appendix B to part 60 of this chapter.

(2) You must conduct a performance evaluation of each COMS according to the requirements in §63.8(e) and according to Performance Specification 1 at appendix B to part 60 of this chapter.

(3) As specified in §63.8(c)(4)(i), each COMS must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

(4) The COMS data must be reduced as specified in §63.8(g)(2).

(5) You must include in your site-specific monitoring plan procedures and acceptance criteria for operating and maintaining each COMS according to the requirements in §63.8(d). At a minimum, the monitoring plan must include a daily calibration drift assessment, a quarterly performance audit, and an annual zero alignment audit of each COMS.

(6) You must operate and maintain each COMS according to the requirements in the monitoring plan and the requirements of §63.8(e). You must identify periods the COMS is out of control including any periods that the COMS fails to pass a daily calibration drift assessment, a quarterly performance audit, or an annual zero alignment audit. Any 6-minute period for which the monitoring system is out of control and data are not available for a required calculation constitutes a deviation from the monitoring requirements.

(7) You must determine and record all the 6-minute averages (and daily block averages as applicable) collected for periods during which the COMS is not out of control.

(d) If you have an operating limit that requires the use of a CMS other than a PM CPMS or COMS, you must install, operate, and maintain each CMS according to the procedures in paragraphs (d)(1) through (5) of this section by the compliance date specified in §63.7495.

(1) The CPMS must complete a minimum of one cycle of operation every 15-minutes. You must have a minimum of four successive cycles of operation, one representing each of the four 15-minute periods in an hour, to have a valid hour of data.

(2) You must operate the monitoring system as specified in §63.7535(b), and comply with the data calculation requirements specified in §63.7535(c).

(3) Any 15-minute period for which the monitoring system is out-of-control and data are not available for a required calculation constitutes a deviation from the monitoring requirements. Other situations that constitute a monitoring deviation are specified in §63.7535(d).

(4) You must determine the 30-day rolling average of all recorded readings, except as provided in §63.7535(c).

(5) You must record the results of each inspection, calibration, and validation check.

(e) If you have an operating limit that requires the use of a flow monitoring system, you must meet the requirements in paragraphs (d) and (e)(1) through (4) of this section.

(1) You must install the flow sensor and other necessary equipment in a position that provides a representative flow.

(2) You must use a flow sensor with a measurement sensitivity of no greater than 2 percent of the design flow rate.

(3) You must minimize, consistent with good engineering practices, the effects of swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(4) You must conduct a flow monitoring system performance evaluation in accordance with your monitoring plan at the time of each performance test but no less frequently than annually.

(f) If you have an operating limit that requires the use of a pressure monitoring system, you must meet the requirements in paragraphs (d) and (f)(1) through (6) of this section.

(1) Install the pressure sensor(s) in a position that provides a representative measurement of the pressure (*e.g.*, PM scrubber pressure drop).

(2) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion consistent with good engineering practices.

(3) Use a pressure sensor with a minimum tolerance of 1.27 centimeters of water or a minimum tolerance of 1 percent of the pressure monitoring system operating range, whichever is less.

(4) Perform checks at least once each process operating day to ensure pressure measurements are not obstructed (*e.g.*, check for pressure tap pluggage daily).

(5) Conduct a performance evaluation of the pressure monitoring system in accordance with your monitoring plan at the time of each performance test but no less frequently than annually.

(6) If at any time the measured pressure exceeds the manufacturer's specified maximum operating pressure range, conduct a performance evaluation of the pressure monitoring system in accordance with your monitoring plan and confirm that the pressure monitoring system continues to meet the performance requirements in you monitoring plan. Alternatively, install and verify the operation of a new pressure sensor.

(g) If you have an operating limit that requires a pH monitoring system, you must meet the requirements in paragraphs (d) and (g)(1) through (4) of this section.

(1) Install the pH sensor in a position that provides a representative measurement of scrubber effluent pH.

(2) Ensure the sample is properly mixed and representative of the fluid to be measured.

(3) Calibrate the pH monitoring system in accordance with your monitoring plan and according to the manufacturer's instructions. Clean the pH probe at least once each process operating day. Maintain on-site documentation that your calibration frequency is sufficient to maintain the specified accuracy of your device.

(4) Conduct a performance evaluation (including a two-point calibration with one of the two buffer solutions having a pH within 1 of the pH of the operating limit) of the pH monitoring system in accordance with your monitoring plan at the time of each performance test but no less frequently than annually.

(h) If you have an operating limit that requires a secondary electric power monitoring system for an electrostatic precipitator (ESP) operated with a wet scrubber, you must meet the requirements in paragraphs (h)(1) and (2) of this section.

(1) Install sensors to measure (secondary) voltage and current to the precipitator collection plates.

(2) Conduct a performance evaluation of the electric power monitoring system in accordance with your monitoring plan at the time of each performance test but no less frequently than annually.

(i) If you have an operating limit that requires the use of a monitoring system to measure sorbent injection rate (e.g., weigh belt, weigh hopper, or hopper flow measurement device), you must meet the requirements in paragraphs (d) and (i)(1) through (2) of this section.

(1) Install the system in a position(s) that provides a representative measurement of the total sorbent injection rate.

(2) Conduct a performance evaluation of the sorbent injection rate monitoring system in accordance with your monitoring plan at the time of each performance test but no less frequently than annually.

(j) If you are not required to use a PM CPMS and elect to use a fabric filter bag leak detection system to comply with the requirements of this subpart, you must install, calibrate, maintain, and continuously operate the bag leak detection system as specified in paragraphs (j)(1) through (6) of this section.

(1) You must install a bag leak detection sensor(s) in a position(s) that will be representative of the relative or absolute PM loadings for each exhaust stack, roof vent, or compartment (e.g., for a positive pressure fabric filter) of the fabric filter.

(2) Conduct a performance evaluation of the bag leak detection system in accordance with your monitoring plan and consistent with the guidance provided in EPA-454/R-98-015 (incorporated by reference, see §63.14).

(3) Use a bag leak detection system certified by the manufacturer to be capable of detecting PM emissions at concentrations of 10 milligrams per actual cubic meter or less.

(4) Use a bag leak detection system equipped with a device to record continuously the output signal from the sensor.

(5) Use a bag leak detection system equipped with a system that will alert plant operating personnel when an increase in relative PM emissions over a preset level is detected. The alert must easily recognizable (e.g., heard or seen) by plant operating personnel.

(6) Where multiple bag leak detectors are required, the system's instrumentation and alert may be shared among detectors.

(k) For each unit that meets the definition of limited-use boiler or process heater, you must keep fuel use records for the days the boiler or process heater was operating.

(l) For each unit for which you decide to demonstrate compliance with the mercury or HCl emissions limits in Tables 1 or 2 or 11 through 13 of this subpart by use of a CEMS for mercury or HCl, you must install, certify, maintain, and operate a CEMS measuring emissions discharged to the atmosphere and record the output of the system as specified in paragraphs (l)(1) through (8) of this section. For HCl, this option for an affected unit takes effect on the date a final performance specification for a HCl CEMS is published in the FEDERAL REGISTER or the date of approval of a site-specific monitoring plan.

(1) Notify the Administrator one month before starting use of the CEMS, and notify the Administrator one month before stopping use of the CEMS.

(2) Each CEMS shall be installed, certified, operated, and maintained according to the requirements in §63.7540(a)(14) for a mercury CEMS and §63.7540(a)(15) for a HCl CEMS.

(3) For a new unit, you must complete the initial performance evaluation of the CEMS by the latest of the dates specified in paragraph (l)(3)(i) through (iii) of this section.

(i) No later than July 30, 2013.

(ii) No later 180 days after the date of initial startup.

(iii) No later 180 days after notifying the Administrator before starting to use the CEMS in place of performance testing or fuel analysis to demonstrate compliance.

(4) For an existing unit, you must complete the initial performance evaluation by the latter of the two dates specified in paragraph (l)(4)(i) and (ii) of this section.

(i) No later than July 29, 2016.

(ii) No later 180 days after notifying the Administrator before starting to use the CEMS in place of performance testing or fuel analysis to demonstrate compliance.

(5) Compliance with the applicable emissions limit shall be determined based on the 30-day rolling average of the hourly arithmetic average emissions rates using the continuous monitoring system outlet data. The 30-day rolling arithmetic average emission rate (lb/MMBtu) shall be calculated using the equations in EPA Reference Method 19 at 40 CFR part 60, appendix A-7, but substituting the mercury or HCl concentration for the pollutant concentrations normally used in Method 19.

(6) Collect CEMS hourly averages for all operating hours on a 30-day rolling average basis. Collect at least four CMS data values representing the four 15-minute periods in an hour, or at least two 15-minute data values during an hour when CMS calibration, quality assurance, or maintenance activities are being performed.

(7) The one-hour arithmetic averages required shall be expressed in lb/MMBtu and shall be used to calculate the boiler 30-day and 10-day rolling average emissions.

(8) You are allowed to substitute the use of the PM, mercury or HCl CEMS for the applicable fuel analysis, annual performance test, and operating limits specified in Table 4 to this subpart to demonstrate compliance with the PM, mercury or HCl emissions limit, and if you are using an acid gas wet scrubber or dry sorbent injection control technology to comply with the HCl emission limit, you are allowed to substitute the use of a sulfur dioxide ($SO_2$) CEMS for the applicable fuel analysis, annual performance test, and operating limits specified in Table 4 to this subpart to demonstrate compliance with HCl emissions limit.

(m) If your unit is subject to a HCl emission limit in Tables 1, 2, or 11 through 13 of this subpart and you have an acid gas wet scrubber or dry sorbent injection control technology and you elect to use an $SO_2$ CEMS to demonstrate continuous compliance with the HCl emission limit, you must install the monitor at the outlet of the boiler or process heater, downstream of all emission control devices, and you must install, certify, operate, and maintain the CEMS according to either part 60 or part 75 of this chapter.

(1) The $SO_2$ CEMS must be installed by the compliance date specified in §63.7495.

(2) For on-going quality assurance (QA), the $SO_2$ CEMS must meet either the applicable daily and quarterly requirements in Procedure 1 of appendix F of part 60 or the applicable daily, quarterly, and semiannual or annual requirements in sections 2.1 through 2.3 of appendix B to part 75 of this chapter, with the following addition: You must perform the linearity checks required in section 2.2 of appendix B to part 75 of this chapter if the $SO_2$ CEMS has a span value of 30 ppm or less.

(3) For a new unit, the initial performance evaluation shall be completed no later than July 30, 2013, or 180 days after the date of initial startup, whichever is later. For an existing unit, the initial performance evaluation shall be completed no later than July 29, 2016.

(4) For purposes of collecting $SO_2$ data, you must operate the $SO_2$ CEMS as specified in §63.7535(b). You must use all the data collected during all periods in calculating data averages and assessing compliance, except that you must exclude certain data as specified in §63.7535(c). Periods when $SO_2$ data are unavailable may constitute monitoring deviations as specified in §63.7535(d).

(5) Collect CEMS hourly averages for all operating hours on a 30-day rolling average basis.

(6) Use only unadjusted, quality-assured $SO_2$ concentration values in the emissions calculations; do not apply bias adjustment factors to the part 75 $SO_2$ data and do not use part 75 substitute data values.

**§63.7530 How do I demonstrate initial compliance with the emission limitations, fuel specifications and work practice standards?**

(a) You must demonstrate initial compliance with each emission limit that applies to you by conducting initial performance tests and fuel analyses and establishing operating limits, as applicable, according to §63.7520, paragraphs (b) and (c) of this section, and Tables 5 and 7 to this subpart. The requirement to conduct a fuel analysis is not applicable for units that burn a single type of fuel, as specified by §63.7510(a)(2). If applicable, you must also install, operate, and maintain all applicable CMS (including CEMS, COMS, and CPMS) according to §63.7525.

(b) If you demonstrate compliance through performance stack testing, you must establish each site-specific operating limit in Table 4 to this subpart that applies to you according to the requirements in §63.7520, Table 7 to this subpart, and paragraph (b)(4) of this section, as applicable. You must also conduct fuel analyses according to §63.7521 and establish maximum fuel pollutant input levels according to paragraphs (b)(1) through (3) of this section, as applicable, and as specified in §63.7510(a)(2). (Note that §63.7510(a)(2) exempts certain fuels from the fuel analysis requirements.) However, if you switch fuel(s) and cannot show that the new fuel(s) does (do) not increase the chlorine, mercury, or TSM input into the unit through the results of fuel analysis, then you must repeat the performance test to demonstrate compliance while burning the new fuel(s).

(1) You must establish the maximum chlorine fuel input (Clinput) during the initial fuel analysis according to the procedures in paragraphs (b)(1)(i) through (iii) of this section.

(i) You must determine the fuel type or fuel mixture that you could burn in your boiler or process heater that has the highest content of chlorine.

(ii) During the fuel analysis for hydrogen chloride, you must determine the fraction of the total heat input for each fuel type burned (Qi) based on the fuel mixture that has the highest content of chlorine, and the average chlorine concentration of each fuel type burned (Ci).

(iii) You must establish a maximum chlorine input level using Equation 7 of this section.

$$Clinput = \sum_{i=1}^{n} (Ci \times Qi) \quad \text{(Eq. 7)}$$

Where:

Clinput = Maximum amount of chlorine entering the boiler or process heater through fuels burned in units of pounds per million Btu.

Ci = Arithmetic average concentration of chlorine in fuel type, i, analyzed according to §63.7521, in units of pounds per million Btu.

Qi = Fraction of total heat input from fuel type, i, based on the fuel mixture that has the highest content of chlorine during the initial compliance test. If you do not burn multiple fuel types during the performance testing, it is not necessary to determine the value of this term. Insert a value of "1" for Qi. For continuous compliance demonstration, the actual fraction of the fuel burned during the month should be used.

n = Number of different fuel types burned in your boiler or process heater for the mixture that has the highest content of chlorine.

(2) You must establish the maximum mercury fuel input level (Mercuryinput) during the initial fuel analysis using the procedures in paragraphs (b)(2)(i) through (iii) of this section.

(i) You must determine the fuel type or fuel mixture that you could burn in your boiler or process heater that has the highest content of mercury.

(ii) During the compliance demonstration for mercury, you must determine the fraction of total heat input for each fuel burned (Qi) based on the fuel mixture that has the highest content of mercury, and the average mercury concentration of each fuel type burned (HGi).

(iii) You must establish a maximum mercury input level using Equation 8 of this section.

$$Mercuryinput = \sum_{i=1}^{n} (HGi \times Qi) \quad \text{(Eq. 8)}$$

Where:

Mercuryinput = Maximum amount of mercury entering the boiler or process heater through fuels burned in units of pounds per million Btu.

HGi = Arithmetic average concentration of mercury in fuel type, i, analyzed according to §63.7521, in units of pounds per million Btu.

Qi = Fraction of total heat input from fuel type, i, based on the fuel mixture that has the highest mercury content during the initial compliance test. If you do not burn multiple fuel types during the performance test, it is not necessary to determine the value of this term. Insert a value of "1" for Qi. For continuous compliance demonstration, the actual fraction of the fuel burned during the month should be used.

n = Number of different fuel types burned in your boiler or process heater for the mixture that has the highest content of mercury.

(3) If you opt to comply with the alternative TSM limit, you must establish the maximum TSM fuel input (TSMinput) for solid or liquid fuels during the initial fuel analysis according to the procedures in paragraphs (b)(3)(i) through (iii) of this section.

(i) You must determine the fuel type or fuel mixture that you could burn in your boiler or process heater that has the highest content of TSM.

(ii) During the fuel analysis for TSM, you must determine the fraction of the total heat input for each fuel type burned (Qi) based on the fuel mixture that has the highest content of TSM, and the average TSM concentration of each fuel type burned (TSMi).

(iii) You must establish a maximum TSM input level using Equation 9 of this section.

$$TSMinput = \sum_{i=1}^{n} (TSMi \times Qi) \quad \text{(Eq. 9)}$$

Where:

TSMinput = Maximum amount of TSM entering the boiler or process heater through fuels burned in units of pounds per million Btu.

TSMi = Arithmetic average concentration of TSM in fuel type, i, analyzed according to §63.7521, in units of pounds per million Btu.

Qi = Fraction of total heat input from fuel type, i, based on the fuel mixture that has the highest content of TSM during the initial compliance test. If you do not burn multiple fuel types during the performance testing, it is not necessary to determine the value of this term. Insert a value of "1" for Qi. For continuous compliance demonstration, the actual fraction of the fuel burned during the month should be used.

n = Number of different fuel types burned in your boiler or process heater for the mixture that has the highest content of TSM.

(4) You must establish parameter operating limits according to paragraphs (b)(4)(i) through (ix) of this section. As indicated in Table 4 to this subpart, you are not required to establish and comply with the operating parameter limits when you are using a CEMS to monitor and demonstrate compliance with the applicable emission limit for that control device parameter.

(i) For a wet acid gas scrubber, you must establish the minimum scrubber effluent pH and liquid flow rate as defined in §63.7575, as your operating limits during the performance test during which you demonstrate compliance with your applicable limit. If you use a wet scrubber and you conduct separate performance tests for HCl and mercury emissions, you must establish one set of minimum scrubber effluent pH, liquid flow rate, and pressure drop operating limits. The minimum scrubber effluent pH operating limit must be established during the HCl performance test. If you conduct multiple performance tests, you must set the minimum liquid flow rate operating limit at the higher of the minimum values established during the performance tests.

(ii) For any particulate control device (e.g., ESP, particulate wet scrubber, fabric filter) for which you use a PM CPMS, you must establish your PM CPMS operating limit and determine compliance with it according to paragraphs (b)(4)(ii)(A) through (F) of this section.

(A) Determine your operating limit as the average PM CPMS output value recorded during the most recent performance test run demonstrating compliance with the filterable PM emission limit or at the PM CPMS output value corresponding to 75 percent of the emission limit if your PM performance test demonstrates compliance below 75 percent of the emission limit. You must verify an existing or establish a new operating limit after each repeated performance test. You must repeat the performance test annually and reassess and adjust the site-specific operating limit in accordance with the results of the performance test.

(*1*) Your PM CPMS must provide a 4-20 milliamp output and the establishment of its relationship to manual reference method measurements must be determined in units of milliamps.

(*2*) Your PM CPMS operating range must be capable of reading PM concentrations from zero to a level equivalent to at least two times your allowable emission limit. If your PM CPMS is an auto-ranging instrument capable of multiple scales, the primary range of the instrument must be capable of reading PM concentration from zero to a level equivalent to two times your allowable emission limit.

(*3*) During the initial performance test or any such subsequent performance test that demonstrates compliance with the PM limit, record and average all milliamp output values from the PM CPMS for the periods corresponding to the compliance test runs (e.g., average all your PM CPMS output values for three corresponding 2-hour Method 5I test runs).

(B) If the average of your three PM performance test runs are below 75 percent of your PM emission limit, you must calculate an operating limit by establishing a relationship of PM CPMS signal to PM concentration using the PM CPMS instrument zero, the average PM CPMS values corresponding to the three compliance test runs, and the average PM concentration from the Method 5 or performance test with the procedures in paragraphs (b)(4)(ii)(B)(*1*) through (*4*) of this section.

(*1*) Determine your instrument zero output with one of the following procedures:

(*i*) Zero point data for *in-situ* instruments should be obtained by removing the instrument from the stack and monitoring ambient air on a test bench.

(*ii*) Zero point data for *extractive* instruments should be obtained by removing the extractive probe from the stack and drawing in clean ambient air.

(*iii*) The zero point may also be established by performing manual reference method measurements when the flue gas is free of PM emissions or contains very low PM concentrations (e.g., when your process is not operating, but the fans are operating or your source is combusting only natural gas) and plotting these with the compliance data to find the zero intercept.

(*iv*) If none of the steps in paragraphs (b)(4)(ii)(B)(*1*)(*i*) through (*iii*) of this section are possible, you must use a zero output value provided by the manufacturer.

(*2*) Determine your PM CPMS instrument average in milliamps, and the average of your corresponding three PM compliance test runs, using equation 10.

$$\bar{X} = \frac{1}{n}\sum_{i=1}^{n} X_i, \bar{Y} = \frac{1}{n}\sum_{i=1}^{n} Y_i \qquad \text{(Eq. 10)}$$

Where:

$X_i$ = the PM CPMS data points for the three runs constituting the performance test,

$Y_i$ = the PM concentration value for the three runs constituting the performance test, and

n = the number of data points.

(*3*) With your instrument zero expressed in milliamps, your three run average PM CPMS milliamp value, and your three run average PM concentration from your three compliance tests, determine a relationship of lb/MMBtu per milliamp with equation 11.

$$R = \frac{Y_i}{(X_i - z)} \qquad \text{(Eq. 11)}$$

Where:

R = the relative lb/MMBtu per milliamp for your PM CPMS,

$Y_i$ = the three run average lb/MMBtu PM concentration,

$X_i$ = the three run average milliamp output from you PM CPMS, and

z = the milliamp equivalent of your instrument zero determined from (B)(i).

(*4*) Determine your source specific 30-day rolling average operating limit using the lb/MMBtu per milliamp value from Equation 11 in equation 12, below. This sets your operating limit at the PM CPMS output value corresponding to 75 percent of your emission limit.

$$O_i = z + \frac{0.75(L)}{R} \qquad \text{(Eq. 12)}$$

Where:

$O_i$ = the operating limit for your PM CPMS on a 30-day rolling average, in milliamps.

L = your source emission limit expressed in lb/MMBtu,

z = your instrument zero in milliamps, determined from (B)(i), and

R = the relative lb/MMBtu per milliamp for your PM CPMS, from Equation 11.

(C) If the average of your three PM compliance test runs is at or above 75 percent of your PM emission limit you must determine your 30-day rolling average operating limit by averaging the PM CPMS milliamp output corresponding to your three PM performance test runs that demonstrate compliance with the emission limit using equation 13 and you must submit all compliance test and PM CPMS data according to the reporting requirements in paragraph (b)(4)(ii)(F) of this section.

$$O_h = \frac{1}{n}\sum_{i=1}^{n} X_i \qquad \text{(Eq. 13)}$$

Where:

$X_i$ = the PM CPMS data points for all runs i,

n = the number of data points, and

$O_h$ = your site specific operating limit, in milliamps.

(D) To determine continuous compliance, you must record the PM CPMS output data for all periods when the process is operating and the PM CPMS is not out-of-control. You must demonstrate continuous compliance by using all quality-assured hourly average data collected by the PM CPMS for all operating hours to calculate the arithmetic average operating parameter in units of the operating limit (milliamps) on a 30-day rolling average basis, updated at the end of each new operating hour. Use Equation 14 to determine the 30-day rolling average.

$$30-\text{day} = \frac{\sum_{i=1}^{n} Hpv}{n} \qquad \text{(Eq. 14)}$$

Where:

30-day = 30-day average.

Hpvi = is the hourly parameter value for hour i

n = is the number of valid hourly parameter values collected over the previous 30 operating days.

(E) Use EPA Method 5 of appendix A to part 60 of this chapter to determine PM emissions. For each performance test, conduct three separate runs under the conditions that exist when the affected source is operating at the highest load or capacity level reasonably expected to occur. Conduct each test run to collect a minimum sample volume specified in Tables 1, 2, or 11 through 13 to this subpart, as applicable, for determining compliance with a new source limit or an existing source limit. Calculate the average of the results from three runs to determine compliance. You need not determine the PM collected in the impingers ("back half") of the Method 5 particulate sampling train to demonstrate compliance with the PM standards of this subpart. This shall not preclude the permitting authority from requiring a determination of the "back half" for other purposes.

(F) For PM performance test reports used to set a PM CPMS operating limit, the electronic submission of the test report must also include the make and model of the PM CPMS instrument, serial number of the instrument, analytical principle of the instrument (*e.g.* beta attenuation), span of the instruments primary analytical range, milliamp value equivalent to the instrument zero output, technique by which this zero value was determined, and the average milliamp signals corresponding to each PM compliance test run.

(iii) For a particulate wet scrubber, you must establish the minimum pressure drop and liquid flow rate as defined in §63.7575, as your operating limits during the three-run performance test during which you demonstrate compliance with your applicable limit. If you use a wet scrubber and you conduct separate performance tests for PM and TSM emissions, you must establish one set of minimum scrubber liquid flow rate and pressure drop operating limits. The minimum scrubber effluent pH operating limit must be established during the HCl performance test. If you conduct multiple performance tests, you must set the minimum liquid flow rate and pressure drop operating limits at the higher of the minimum values established during the performance tests.

(iv) For an electrostatic precipitator (ESP) operated with a wet scrubber, you must establish the minimum total secondary electric power input, as defined in §63.7575, as your operating limit during the three-run performance test during which you demonstrate compliance with your applicable limit. (These operating limits do not apply to ESP that are operated as dry controls without a wet scrubber.)

(v) For a dry scrubber, you must establish the minimum sorbent injection rate for each sorbent, as defined in §63.7575, as your operating limit during the three-run performance test during which you demonstrate compliance with your applicable limit.

(vi) For activated carbon injection, you must establish the minimum activated carbon injection rate, as defined in §63.7575, as your operating limit during the three-run performance test during which you demonstrate compliance with your applicable limit.

(vii) The operating limit for boilers or process heaters with fabric filters that demonstrate continuous compliance through bag leak detection systems is that a bag leak detection system be installed according to the requirements in §63.7525, and that each fabric filter must be operated such that the bag leak detection system alert is not activated more than 5 percent of the operating time during a 6-month period.

(viii) For a minimum oxygen level, if you conduct multiple performance tests, you must set the minimum oxygen level at the lower of the minimum values established during the performance tests.

(ix) The operating limit for boilers or process heaters that demonstrate continuous compliance with the HCl emission limit using a $SO_2$ CEMS is to install and operate the $SO_2$ according to the requirements in §63.7525(m) establish a maximum $SO_2$ emission rate equal to the highest hourly average $SO_2$ measurement during the most recent three-run performance test for HCl.

(c) If you elect to demonstrate compliance with an applicable emission limit through fuel analysis, you must conduct fuel analyses according to §63.7521 and follow the procedures in paragraphs (c)(1) through (5) of this section.

(1) If you burn more than one fuel type, you must determine the fuel mixture you could burn in your boiler or process heater that would result in the maximum emission rates of the pollutants that you elect to demonstrate compliance through fuel analysis.

(2) You must determine the 90th percentile confidence level fuel pollutant concentration of the composite samples analyzed for each fuel type using the one-sided t-statistic test described in Equation 15 of this section.

$$P90 = mean + (SD \times t) \quad \text{(Eq. 15)}$$

Where:

P90 = 90th percentile confidence level pollutant concentration, in pounds per million Btu.

Mean = Arithmetic average of the fuel pollutant concentration in the fuel samples analyzed according to §63.7521, in units of pounds per million Btu.

SD = Standard deviation of the mean of pollutant concentration in the fuel samples analyzed according to §63.7521, in units of pounds per million Btu. SD is calculated as the sample standard deviation divided by the square root of the number of samples.

t = t distribution critical value for 90th percentile ($t_{0.1}$) probability for the appropriate degrees of freedom (number of samples minus one) as obtained from a t-Distribution Critical Value Table.

(3) To demonstrate compliance with the applicable emission limit for HCl, the HCl emission rate that you calculate for your boiler or process heater using Equation 16 of this section must not exceed the applicable emission limit for HCl.

$$HCl = \sum_{i=1}^{n} (Ci90 \times Qi \times 1.028) \quad \text{(Eq. 16)}$$

Where:

HCl = HCl emission rate from the boiler or process heater in units of pounds per million Btu.

Ci90 = 90th percentile confidence level concentration of chlorine in fuel type, i, in units of pounds per million Btu as calculated according to Equation 15 of this section.

Qi = Fraction of total heat input from fuel type, i, based on the fuel mixture that has the highest content of chlorine. If you do not burn multiple fuel types, it is not necessary to determine the value of this term. Insert a value of "1" for Qi. For continuous compliance demonstration, the actual fraction of the fuel burned during the month should be used.

n = Number of different fuel types burned in your boiler or process heater for the mixture that has the highest content of chlorine.

1.028 = Molecular weight ratio of HCl to chlorine.

(4) To demonstrate compliance with the applicable emission limit for mercury, the mercury emission rate that you calculate for your boiler or process heater using Equation 17 of this section must not exceed the applicable emission limit for mercury.

$$Mercury = \sum_{i=1}^{n} (Hgi90 \times Qi) \quad \text{(Eq. 17)}$$

Where:

Mercury = Mercury emission rate from the boiler or process heater in units of pounds per million Btu.

Hgi90 = 90th percentile confidence level concentration of mercury in fuel, i, in units of pounds per million Btu as calculated according to Equation 15 of this section.

Qi = Fraction of total heat input from fuel type, i, based on the fuel mixture that has the highest mercury content. If you do not burn multiple fuel types, it is not necessary to determine the value of this term. Insert a value of "1" for Qi. For continuous compliance demonstration, the actual fraction of the fuel burned during the month should be used.

n = Number of different fuel types burned in your boiler or process heater for the mixture that has the highest mercury content.

(5) To demonstrate compliance with the applicable emission limit for TSM for solid or liquid fuels, the TSM emission rate that you calculate for your boiler or process heater from solid fuels using Equation 18 of this section must not exceed the applicable emission limit for TSM.

$$Metals = \sum_{i=1}^{n} (TSM90i \times Qi) \quad \text{(Eq. 18)}$$

Where:

Metals = TSM emission rate from the boiler or process heater in units of pounds per million Btu.

TSMi90 = 90th percentile confidence level concentration of TSM in fuel, i, in units of pounds per million Btu as calculated according to Equation 15 of this section.

Qi = Fraction of total heat input from fuel type, i, based on the fuel mixture that has the highest TSM content. If you do not burn multiple fuel types, it is not necessary to determine the value of this term. Insert a value of "1" for Qi. For continuous compliance demonstration, the actual fraction of the fuel burned during the month should be used.

n = Number of different fuel types burned in your boiler or process heater for the mixture that has the highest TSM content.

(d)[Reserved]

(e) You must include with the Notification of Compliance Status a signed certification that either the energy assessment was completed according to Table 3 to this subpart, and that the assessment is an accurate depiction of your facility at the time of the assessment, or that the maximum number of on-site technical hours specified in the definition of energy assessment applicable to the facility has been expended.

(f) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.7545(e).

(g) If you elect to demonstrate that a gaseous fuel meets the specifications of another gas 1 fuel as defined in §63.7575, you must conduct an initial fuel specification analyses according to §63.7521(f) through (i) and according to the frequency listed in §63.7540(c) and maintain records of the results of the testing as outlined in §63.7555(g). For samples where the initial mercury specification has not been exceeded, you will include a signed certification with the Notification of Compliance Status that the initial fuel specification test meets the gas specification outlined in the definition of other gas 1 fuels.

(h) If you own or operate a unit subject to emission limits in Tables 1 or 2 or 11 through 13 to this subpart, you must meet the work practice standard according to Table 3 of this subpart. During startup and shutdown, you must only follow the work practice standards according to items 5 and 6 of Table 3 of this subpart.

(i) If you opt to comply with the alternative $SO_2$ CEMS operating limit in Tables 4 and 8 to this subpart, you may do so only if your affected boiler or process heater:

(1) Has a system using wet scrubber or dry sorbent injection and $SO_2$ CEMS installed on the unit; and

(2) At all times, you operate the wet scrubber or dry sorbent injection for acid gas control on the unit consistent with §63.7500(a)(3); and

(3) You establish a unit-specific maximum $SO_2$ operating limit by collecting the maximum hourly $SO_2$ emission rate on the $SO_2$ CEMS during the paired 3-run test for HCl. The maximum $SO_2$ operating limit is equal to the highest hourly average $SO_2$ concentration measured during the HCl performance test.

**§63.7533 Can I use efficiency credits earned from implementation of energy conservation measures to comply with this subpart?**

(a) If you elect to comply with the alternative equivalent output-based emission limits, instead of the heat input-based limits listed in Table 2 to this subpart, and you want to take credit for implementing energy conservation measures identified in an energy assessment, you may demonstrate compliance using efficiency credits according to the procedures in this section. You may use this compliance approach for an existing affected boiler for demonstrating initial compliance according to §63.7522(e) and for demonstrating monthly compliance according to §63.7522(f). Owners or operators using this compliance approach must establish an emissions benchmark, calculate and document the efficiency credits, develop an Implementation Plan, comply with the general reporting requirements, and apply the efficiency credit according to the procedures in paragraphs (b) through (f) of this section. You cannot use this compliance approach for a new or reconstructed

affected boiler. Additional guidance from the Department of Energy on efficiency credits is available at: *http://www.epa.gov/ttn/atw/boiler/boilerpg.html*.

(b) For each existing affected boiler for which you intend to apply emissions credits, establish a benchmark from which emission reduction credits may be generated by determining the actual annual fuel heat input to the affected boiler before initiation of an energy conservation activity to reduce energy demand (*i.e.,* fuel usage) according to paragraphs (b)(1) through (4) of this section. The benchmark shall be expressed in trillion Btu per year heat input.

(1) The benchmark from which efficiency credits may be generated shall be determined by using the most representative, accurate, and reliable process available for the source. The benchmark shall be established for a one-year period before the date that an energy demand reduction occurs, unless it can be demonstrated that a different time period is more representative of historical operations.

(2) Determine the starting point from which to measure progress. Inventory all fuel purchased and generated on-site (off-gases, residues) in physical units (MMBtu, million cubic feet, etc.).

(3) Document all uses of energy from the affected boiler. Use the most recent data available.

(4) Collect non-energy related facility and operational data to normalize, if necessary, the benchmark to current operations, such as building size, operating hours, etc. If possible, use actual data that are current and timely rather than estimated data.

(c) Efficiency credits can be generated if the energy conservation measures were implemented after January 1, 2008 and if sufficient information is available to determine the appropriate value of credits.

(1) The following emission points cannot be used to generate efficiency credits:

(i) Energy conservation measures implemented on or before January 1, 2008, unless the level of energy demand reduction is increased after January 1, 2008, in which case credit will be allowed only for change in demand reduction achieved after January 1, 2008.

(ii) Efficiency credits on shut-down boilers. Boilers that are shut down cannot be used to generate credits unless the facility provides documentation linking the permanent shutdown to energy conservation measures identified in the energy assessment. In this case, the bench established for the affected boiler to which the credits from the shutdown will be applied must be revised to include the benchmark established for the shutdown boiler.

(2) For all points included in calculating emissions credits, the owner or operator shall:

(i) Calculate annual credits for all energy demand points. Use Equation 19 to calculate credits. Energy conservation measures that meet the criteria of paragraph (c)(1) of this section shall not be included, except as specified in paragraph (c)(1)(i) of this section.

(3) Credits are generated by the difference between the benchmark that is established for each affected boiler, and the actual energy demand reductions from energy conservation measures implemented after January 1, 2008. Credits shall be calculated using Equation 19 of this section as follows:

(i) The overall equation for calculating credits is:

$$ECredits = \left( \sum_{i=1}^{n} EIS_{iactual} \right) \div EI_{baseline} \quad \text{(Eq. 19)}$$

Where:

ECredits = Energy Input Savings for all energy conservation measures implemented for an affected boiler, expressed as a decimal fraction of the baseline energy input.

$EIS_{iactual}$ = Energy Input Savings for each energy conservation measure, i, implemented for an affected boiler, million Btu per year.

$EI_{baseline}$ = Energy Input baseline for the affected boiler, million Btu per year.

n = Number of energy conservation measures included in the efficiency credit for the affected boiler.

(ii) [Reserved]

(d) The owner or operator shall develop, and submit for approval upon request by the Administrator, an Implementation Plan containing all of the information required in this paragraph for all boilers to be included in an efficiency credit approach. The Implementation Plan shall identify all existing affected boilers to be included in applying the efficiency credits. The Implementation Plan shall include a description of the energy conservation measures implemented and the energy savings generated from each measure and an explanation of the criteria used for determining that savings. If requested, you must submit the implementation plan for efficiency credits to the Administrator for review and approval no later than 180 days before the date on which the facility intends to demonstrate compliance using the efficiency credit approach.

(e) The emissions rate as calculated using Equation 20 of this section from each existing boiler participating in the efficiency credit option must be in compliance with the limits in Table 2 to this subpart at all times the affected unit is subject to numeric emission limits, following the compliance date specified in §63.7495.

(f) You must use Equation 20 of this section to demonstrate initial compliance by demonstrating that the emissions from the affected boiler participating in the efficiency credit compliance approach do not exceed the emission limits in Table 2 to this subpart.

$$E_{adj} = E_{as} \times (1 - ECredits) \quad \text{(Eq. 20)}$$

Where:

$E_{adj}$ = Emission level adjusted by applying the efficiency credits earned, lb per million Btu steam output (or lb per MWh) for the affected boiler.

$E_m$ = Emissions measured during the performance test, lb per million Btu steam output (or lb per MWh) for the affected boiler.

ECredits = Efficiency credits from Equation 19 for the affected boiler.

(g) As part of each compliance report submitted as required under §63.7550, you must include documentation that the energy conservation measures implemented continue to generate the credit for use in demonstrating compliance with the emission limits.

## CONTINUOUS COMPLIANCE REQUIREMENTS

**§63.7535 Is there a minimum amount of monitoring data I must obtain?**

(a) You must monitor and collect data according to this section and the site-specific monitoring plan required by §63.7505(d).

(b) You must operate the monitoring system and collect data at all required intervals at all times that each boiler or process heater is operating and compliance is required, except for periods of monitoring system malfunctions or out of control periods (see §63.8(c)(7) of this part), and required monitoring system quality assurance or control activities, including, as applicable, calibration checks, required zero and span adjustments, and scheduled CMS maintenance as defined in your site-specific monitoring plan. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. You are required to complete monitoring system repairs in response to monitoring system malfunctions or out-of-control periods and to return the monitoring system to operation as expeditiously as practicable.

(c) You may not use data recorded during periods of startup and shutdown, monitoring system malfunctions or out-of-control periods, repairs associated with monitoring system malfunctions or out-of-control periods, or required monitoring system quality assurance or control activities in data averages and calculations used to report emissions or operating levels. You must record and make available upon request results of CMS performance audits and dates and duration of periods when the CMS is out of control to completion of the corrective actions necessary to return the CMS to operation consistent with your site-specific monitoring plan. You must use all the data collected during all other periods in assessing compliance and the operation of the control device and associated control system.

(d) Except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, system accuracy audits, calibration checks, and required zero and span adjustments), failure to collect required data is a deviation of the monitoring requirements. In calculating monitoring results, do not use any data collected during periods of startup and shutdown, when the monitoring system is out of control as specified in your site-specific monitoring plan, while conducting repairs associated with periods when the monitoring system is out of control, or while conducting required monitoring system quality assurance or quality control activities. You must calculate monitoring results using all other monitoring data collected while the

process is operating. You must report all periods when the monitoring system is out of control in your semi-annual report.

**§63.7540 How do I demonstrate continuous compliance with the emission limitations, fuel specifications and work practice standards?**

(a) You must demonstrate continuous compliance with each emission limit in Tables 1 and 2 or 11 through 13 to this subpart, the work practice standards in Table 3 to this subpart, and the operating limits in Table 4 to this subpart that applies to you according to the methods specified in Table 8 to this subpart and paragraphs (a)(1) through (19) of this section.

(1) Following the date on which the initial compliance demonstration is completed or is required to be completed under §§63.7 and 63.7510, whichever date comes first, operation above the established maximum or below the established minimum operating limits shall constitute a deviation of established operating limits listed in Table 4 of this subpart except during performance tests conducted to determine compliance with the emission limits or to establish new operating limits. Operating limits must be confirmed or reestablished during performance tests.

(2) As specified in §63.7555(d), you must keep records of the type and amount of all fuels burned in each boiler or process heater during the reporting period to demonstrate that all fuel types and mixtures of fuels burned would result in either of the following:

(i) Equal to or lower emissions of HCl, mercury, and TSM than the applicable emission limit for each pollutant, if you demonstrate compliance through fuel analysis.

(ii) Equal to or lower fuel input of chlorine, mercury, and TSM than the maximum values calculated during the last performance test, if you demonstrate compliance through performance testing.

(3) If you demonstrate compliance with an applicable HCl emission limit through fuel analysis for a solid or liquid fuel and you plan to burn a new type of solid or liquid fuel, you must recalculate the HCl emission rate using Equation 16 of §63.7530 according to paragraphs (a)(3)(i) through (iii) of this section. You are not required to conduct fuel analyses for the fuels described in §63.7510(a)(2)(i) through (iii). You may exclude the fuels described in §63.7510(a)(2)(i) through (iii) when recalculating the HCl emission rate.

(i) You must determine the chlorine concentration for any new fuel type in units of pounds per million Btu, based on supplier data or your own fuel analysis, according to the provisions in your site-specific fuel analysis plan developed according to §63.7521(b).

(ii) You must determine the new mixture of fuels that will have the highest content of chlorine.

(iii) Recalculate the HCl emission rate from your boiler or process heater under these new conditions using Equation 16 of §63.7530. The recalculated HCl emission rate must be less than the applicable emission limit.

(4) If you demonstrate compliance with an applicable HCl emission limit through performance testing and you plan to burn a new type of fuel or a new mixture of fuels, you must recalculate the maximum chlorine input using Equation 7 of §63.7530. If the results of recalculating the maximum chlorine input using Equation 7 of

§63.7530 are greater than the maximum chlorine input level established during the previous performance test, then you must conduct a new performance test within 60 days of burning the new fuel type or fuel mixture according to the procedures in §63.7520 to demonstrate that the HCl emissions do not exceed the emission limit. You must also establish new operating limits based on this performance test according to the procedures in §63.7530(b). In recalculating the maximum chlorine input and establishing the new operating limits, you are not required to conduct fuel analyses for and include the fuels described in §63.7510(a)(2)(i) through (iii).

(5) If you demonstrate compliance with an applicable mercury emission limit through fuel analysis, and you plan to burn a new type of fuel, you must recalculate the mercury emission rate using Equation 17 of §63.7530 according to the procedures specified in paragraphs (a)(5)(i) through (iii) of this section. You are not required to conduct fuel analyses for the fuels described in §63.7510(a)(2)(i) through (iii). You may exclude the fuels described in §63.7510(a)(2)(i) through (iii) when recalculating the mercury emission rate.

(i) You must determine the mercury concentration for any new fuel type in units of pounds per million Btu, based on supplier data or your own fuel analysis, according to the provisions in your site-specific fuel analysis plan developed according to §63.7521(b).

(ii) You must determine the new mixture of fuels that will have the highest content of mercury.

(iii) Recalculate the mercury emission rate from your boiler or process heater under these new conditions using Equation 17 of §63.7530. The recalculated mercury emission rate must be less than the applicable emission limit.

(6) If you demonstrate compliance with an applicable mercury emission limit through performance testing, and you plan to burn a new type of fuel or a new mixture of fuels, you must recalculate the maximum mercury input using Equation 8 of §63.7530. If the results of recalculating the maximum mercury input using Equation 8 of §63.7530 are higher than the maximum mercury input level established during the previous performance test, then you must conduct a new performance test within 60 days of burning the new fuel type or fuel mixture according to the procedures in §63.7520 to demonstrate that the mercury emissions do not exceed the emission limit. You must also establish new operating limits based on this performance test according to the procedures in §63.7530(b). You are not required to conduct fuel analyses for the fuels described in §63.7510(a)(2)(i) through (iii). You may exclude the fuels described in §63.7510(a)(2)(i) through (iii) when recalculating the mercury emission rate.

(7) If your unit is controlled with a fabric filter, and you demonstrate continuous compliance using a bag leak detection system, you must initiate corrective action within 1 hour of a bag leak detection system alert and complete corrective actions as soon as practical, and operate and maintain the fabric filter system such that the periods which would cause an alert are no more than 5 percent of the operating time during a 6-month period. You must also keep records of the date, time, and duration of each alert, the time corrective action was initiated and completed, and a brief description of the cause of the alert and the corrective action taken. You must also record the percent of the operating time during each 6-month period that the conditions exist for an alert. In calculating this operating time percentage, if inspection of the fabric filter demonstrates that no corrective action is required, no alert time is counted. If corrective action is required, each alert shall be counted as a minimum of 1 hour. If you take longer than 1 hour to initiate corrective action, the alert time shall be counted as the actual amount of time taken to initiate corrective action.

(8) To demonstrate compliance with the applicable alternative CO CEMS emission limit listed in Tables 1, 2, or 11 through 13 to this subpart, you must meet the requirements in paragraphs (a)(8)(i) through (iv) of this section.

(i) Continuously monitor CO according to §§63.7525(a) and 63.7535.

(ii) Maintain a CO emission level below or at your applicable alternative CO CEMS-based standard in Tables 1 or 2 or 11 through 13 to this subpart at all times the affected unit is subject to numeric emission limits.

(iii) Keep records of CO levels according to §63.7555(b).

(iv) You must record and make available upon request results of CO CEMS performance audits, dates and duration of periods when the CO CEMS is out of control to completion of the corrective actions necessary to return the CO CEMS to operation consistent with your site-specific monitoring plan.

(9) The owner or operator of a boiler or process heater using a PM CPMS or a PM CEMS to meet requirements of this subpart shall install, certify, operate, and maintain the PM CPMS or PM CEMS in accordance with your site-specific monitoring plan as required in §63.7505(d).

(10) If your boiler or process heater has a heat input capacity of 10 million Btu per hour or greater, you must conduct an annual tune-up of the boiler or process heater to demonstrate continuous compliance as specified in paragraphs (a)(10)(i) through (vi) of this section. You must conduct the tune-up while burning the type of fuel (or fuels in case of units that routinely burn a mixture) that provided the majority of the heat input to the boiler or process heater over the 12 months prior to the tune-up. This frequency does not apply to limited-use boilers and process heaters, as defined in §63.7575, or units with continuous oxygen trim systems that maintain an optimum air to fuel ratio.

(i) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (you may perform the burner inspection any time prior to the tune-up or delay the burner inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36 months from the previous inspection. At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment;

(ii) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;

(iii) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (you may delay the inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36 months from the previous inspection;

(iv) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any $NO_x$ requirement to which the unit is subject;

(v) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer; and

(vi) Maintain on-site and submit, if requested by the Administrator, a report containing the information in paragraphs (a)(10)(vi)(A) through (C) of this section,

(A) The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater;

(B) A description of any corrective actions taken as a part of the tune-up; and

(C) The type and amount of fuel used over the 12 months prior to the tune-up, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel used by each unit.

(11) If your boiler or process heater has a heat input capacity of less than 10 million Btu per hour (except as specified in paragraph (a)(12) of this section), you must conduct a biennial tune-up of the boiler or process heater as specified in paragraphs (a)(10)(i) through (vi) of this section to demonstrate continuous compliance.

(12) If your boiler or process heater has a continuous oxygen trim system that maintains an optimum air to fuel ratio, or a heat input capacity of less than or equal to 5 million Btu per hour and the unit is in the units designed to burn gas 1; units designed to burn gas 2 (other); or units designed to burn light liquid subcategories, or meets the definition of limited-use boiler or process heater in §63.7575, you must conduct a tune-up of the boiler or process heater every 5 years as specified in paragraphs (a)(10)(i) through (vi) of this section to demonstrate continuous compliance. You may delay the burner inspection specified in paragraph (a)(10)(i) of this section until the next scheduled or unscheduled unit shutdown, but you must inspect each burner at least once every 72 months. If an oxygen trim system is utilized on a unit without emission standards to reduce the tune-up frequency to once every 5 years, set the oxygen level no lower than the oxygen concentration measured during the most recent tune-up.

(13) If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 calendar days of startup.

(14) If you are using a CEMS measuring mercury emissions to meet requirements of this subpart you must install, certify, operate, and maintain the mercury CEMS as specified in paragraphs (a)(14)(i) and (ii) of this section.

(i) Operate the mercury CEMS in accordance with performance specification 12A of 40 CFR part 60, appendix B or operate a sorbent trap based integrated monitor in accordance with performance specification 12B of 40 CFR part 60, appendix B. The duration of the performance test must be 30 operating days if you specified a 30 operating day basis in §63.7545(e)(2)(iii) for mercury CEMS or it must be 720 hours if you specified

a 720 hour basis in §63.7545(e)(2)(iii) for mercury CEMS. For each day in which the unit operates, you must obtain hourly mercury concentration data, and stack gas volumetric flow rate data.

(ii) If you are using a mercury CEMS, you must install, operate, calibrate, and maintain an instrument for continuously measuring and recording the mercury mass emissions rate to the atmosphere according to the requirements of performance specifications 6 and 12A of 40 CFR part 60, appendix B, and quality assurance procedure 6 of 40 CFR part 60, appendix F.

(15) If you are using a CEMS to measure HCl emissions to meet requirements of this subpart, you must install, certify, operate, and maintain the HCl CEMS as specified in paragraphs (a)(15)(i) and (ii) of this section. This option for an affected unit takes effect on the date a final performance specification for an HCl CEMS is published in the FEDERAL REGISTER or the date of approval of a site-specific monitoring plan.

(i) Operate the continuous emissions monitoring system in accordance with the applicable performance specification in 40 CFR part 60, appendix B. The duration of the performance test must be 30 operating days if you specified a 30 operating day basis in §63.7545(e)(2)(iii) for HCl CEMS or it must be 720 hours if you specified a 720 hour basis in §63.7545(e)(2)(iii) for HCl CEMS. For each day in which the unit operates, you must obtain hourly HCl concentration data, and stack gas volumetric flow rate data.

(ii) If you are using a HCl CEMS, you must install, operate, calibrate, and maintain an instrument for continuously measuring and recording the HCl mass emissions rate to the atmosphere according to the requirements of the applicable performance specification of 40 CFR part 60, appendix B, and the quality assurance procedures of 40 CFR part 60, appendix F.

(16) If you demonstrate compliance with an applicable TSM emission limit through performance testing, and you plan to burn a new type of fuel or a new mixture of fuels, you must recalculate the maximum TSM input using Equation 9 of §63.7530. If the results of recalculating the maximum TSM input using Equation 9 of §63.7530 are higher than the maximum total selected input level established during the previous performance test, then you must conduct a new performance test within 60 days of burning the new fuel type or fuel mixture according to the procedures in §63.7520 to demonstrate that the TSM emissions do not exceed the emission limit. You must also establish new operating limits based on this performance test according to the procedures in §63.7530(b). You are not required to conduct fuel analyses for the fuels described in §63.7510(a)(2)(i) through (iii). You may exclude the fuels described in §63.7510(a)(2)(i) through (iii) when recalculating the TSM emission rate.

(17) If you demonstrate compliance with an applicable TSM emission limit through fuel analysis for solid or liquid fuels, and you plan to burn a new type of fuel, you must recalculate the TSM emission rate using Equation 18 of §63.7530 according to the procedures specified in paragraphs (a)(5)(i) through (iii) of this section. You are not required to conduct fuel analyses for the fuels described in §63.7510(a)(2)(i) through (iii). You may exclude the fuels described in §63.7510(a)(2)(i) through (iii) when recalculating the TSM emission rate.

(i) You must determine the TSM concentration for any new fuel type in units of pounds per million Btu, based on supplier data or your own fuel analysis, according to the provisions in your site-specific fuel analysis plan developed according to §63.7521(b).

(ii) You must determine the new mixture of fuels that will have the highest content of TSM.

(iii) Recalculate the TSM emission rate from your boiler or process heater under these new conditions using Equation 18 of §63.7530. The recalculated TSM emission rate must be less than the applicable emission limit.

(18) If you demonstrate continuous PM emissions compliance with a PM CPMS you will use a PM CPMS to establish a site-specific operating limit corresponding to the results of the performance test demonstrating compliance with the PM limit. You will conduct your performance test using the test method criteria in Table 5 of this subpart. You will use the PM CPMS to demonstrate continuous compliance with this operating limit. You must repeat the performance test annually and reassess and adjust the site-specific operating limit in accordance with the results of the performance test.

(i) To determine continuous compliance, you must record the PM CPMS output data for all periods when the process is operating and the PM CPMS is not out-of-control. You must demonstrate continuous compliance by using all quality-assured hourly average data collected by the PM CPMS for all operating hours to calculate the arithmetic average operating parameter in units of the operating limit (milliamps) on a 30-day rolling average basis.

(ii) For any deviation of the 30-day rolling PM CPMS average value from the established operating parameter limit, you must:

(A) Within 48 hours of the deviation, visually inspect the air pollution control device (APCD);

(B) If inspection of the APCD identifies the cause of the deviation, take corrective action as soon as possible and return the PM CPMS measurement to within the established value; and

(C) Within 30 days of the deviation or at the time of the annual compliance test, whichever comes first, conduct a PM emissions compliance test to determine compliance with the PM emissions limit and to verify or re-establish the CPMS operating limit. You are not required to conduct additional testing for any deviations that occur between the time of the original deviation and the PM emissions compliance test required under this paragraph.

(iii) PM CPMS deviations from the operating limit leading to more than four required performance tests in a 12-month operating period constitute a separate violation of this subpart.

(19) If you choose to comply with the PM filterable emissions limit by using PM CEMS you must install, certify, operate, and maintain a PM CEMS and record the output of the PM CEMS as specified in paragraphs (a)(19)(i) through (vii) of this section. The compliance limit will be expressed as a 30-day rolling average of the numerical emissions limit value applicable for your unit in Tables 1 or 2 or 11 through 13 of this subpart.

(i) Install and certify your PM CEMS according to the procedures and requirements in Performance Specification 11—Specifications and Test Procedures for Particulate Matter Continuous Emission Monitoring Systems at Stationary Sources in Appendix B to part 60 of this chapter, using test criteria outlined in Table V of this rule. The reportable measurement output from the PM CEMS must be expressed in units of the applicable emissions limit (e.g., lb/MMBtu, lb/MWh).

(ii) Operate and maintain your PM CEMS according to the procedures and requirements in Procedure 2—Quality Assurance Requirements for Particulate Matter Continuous Emission Monitoring Systems at Stationary Sources in Appendix F to part 60 of this chapter.

(A) You must conduct the relative response audit (RRA) for your PM CEMS at least once annually.

(B) You must conduct the relative correlation audit (RCA) for your PM CEMS at least once every 3 years.

(iii) Collect PM CEMS hourly average output data for all boiler operating hours except as indicated in paragraph (v) of this section.

(iv) Calculate the arithmetic 30-day rolling average of all of the hourly average PM CEMS output data collected during all nonexempt boiler or process heater operating hours.

(v) You must collect data using the PM CEMS at all times the unit is operating and at the intervals specified this paragraph (a), except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities.

(vi) You must use all the data collected during all boiler or process heater operating hours in assessing the compliance with your operating limit except:

(A) Any data collected during monitoring system malfunctions, repairs associated with monitoring system malfunctions, or required monitoring system quality assurance or control activities conducted during monitoring system malfunctions in calculations and report any such periods in your annual deviation report;

(B) Any data collected during periods when the monitoring system is out of control as specified in your site-specific monitoring plan, repairs associated with periods when the monitoring system is out of control, or required monitoring system quality assurance or control activities conducted during out of control periods in calculations used to report emissions or operating levels and report any such periods in your annual deviation report;

(C) Any data recorded during periods of startup or shutdown.

(vii) You must record and make available upon request results of PM CEMS system performance audits, dates and duration of periods when the PM CEMS is out of control to completion of the corrective actions necessary to return the PM CEMS to operation consistent with your site-specific monitoring plan.

(b) You must report each instance in which you did not meet each emission limit and operating limit in Tables 1 through 4 or 11 through 13 to this subpart that apply to you. These instances are deviations from the emission limits or operating limits, respectively, in this subpart. These deviations must be reported according to the requirements in §63.7550.

(c) If you elected to demonstrate that the unit meets the specification for mercury for the unit designed to burn gas 1 subcategory, you must follow the sampling frequency specified in paragraphs (c)(1) through (4) of this section and conduct this sampling according to the procedures in §63.7521(f) through (i).

(1) If the initial mercury constituents in the gaseous fuels are measured to be equal to or less than half of the mercury specification as defined in §63.7575, you do not need to conduct further sampling.

(2) If the initial mercury constituents are greater than half but equal to or less than 75 percent of the mercury specification as defined in §63.7575, you will conduct semi-annual sampling. If 6 consecutive semi-annual fuel analyses demonstrate 50 percent or less of the mercury specification, you do not need to conduct further sampling. If any semi-annual sample exceeds 75 percent of the mercury specification, you must return to monthly sampling for that fuel, until 12 months of fuel analyses again are less than 75 percent of the compliance level.

(3) If the initial mercury constituents are greater than 75 percent of the mercury specification as defined in §63.7575, you will conduct monthly sampling. If 12 consecutive monthly fuel analyses demonstrate 75 percent or less of the mercury specification, you may decrease the fuel analysis frequency to semi-annual for that fuel.

(4) If the initial sample exceeds the mercury specification as defined in §63.7575, each affected boiler or process heater combusting this fuel is not part of the unit designed to burn gas 1 subcategory and must be in compliance with the emission and operating limits for the appropriate subcategory. You may elect to conduct additional monthly sampling while complying with these emissions and operating limits to demonstrate that the fuel qualifies as another gas 1 fuel. If 12 consecutive monthly fuel analyses samples are at or below the mercury specification as defined in §63.7575, each affected boiler or process heater combusting the fuel can elect to switch back into the unit designed to burn gas 1 subcategory until the mercury specification is exceeded.

(d) For startup and shutdown, you must meet the work practice standards according to items 5 and 6 of Table 3 of this subpart.

**§63.7541 How do I demonstrate continuous compliance under the emissions averaging provision?**

(a) Following the compliance date, the owner or operator must demonstrate compliance with this subpart on a continuous basis by meeting the requirements of paragraphs (a)(1) through (5) of this section.

(1) For each calendar month, demonstrate compliance with the average weighted emissions limit for the existing units participating in the emissions averaging option as determined in §63.7522(f) and (g).

(2) You must maintain the applicable opacity limit according to paragraphs (a)(2)(i) and (ii) of this section.

(i) For each existing unit participating in the emissions averaging option that is equipped with a dry control system and not vented to a common stack, maintain opacity at or below the applicable limit.

(ii) For each group of units participating in the emissions averaging option where each unit in the group is equipped with a dry control system and vented to a common stack that does not receive emissions from non-affected units, maintain opacity at or below the applicable limit at the common stack.

(3) For each existing unit participating in the emissions averaging option that is equipped with a wet scrubber, maintain the 30-day rolling average parameter values at or above the operating limits established during the most recent performance test.

(4) For each existing unit participating in the emissions averaging option that has an approved alternative operating parameter, maintain the 30-day rolling average parameter values consistent with the approved monitoring plan.

(5) For each existing unit participating in the emissions averaging option venting to a common stack configuration containing affected units from other subcategories, maintain the appropriate operating limit for each unit as specified in Table 4 to this subpart that applies.

(b) Any instance where the owner or operator fails to comply with the continuous monitoring requirements in paragraphs (a)(1) through (5) of this section is a deviation.

## NOTIFICATION, REPORTS, AND RECORDS

### §63.7545 What notifications must I submit and when?

(a) You must submit to the Administrator all of the notifications in §§63.7(b) and (c), 63.8(e), (f)(4) and (6), and 63.9(b) through (h) that apply to you by the dates specified.

(b) As specified in §63.9(b)(2), if you startup your affected source before January 31, 2013, you must submit an Initial Notification not later than 120 days after January 31, 2013.

(c) As specified in §63.9(b)(4) and (5), if you startup your new or reconstructed affected source on or after January 31, 2013, you must submit an Initial Notification not later than 15 days after the actual date of startup of the affected source.

(d) If you are required to conduct a performance test you must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin.

(e) If you are required to conduct an initial compliance demonstration as specified in §63.7530, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii). For the initial compliance demonstration for each boiler or process heater, you must submit the Notification of Compliance Status, including all performance test results and fuel analyses, before the close of business on the 60th day following the completion of all performance test and/or other initial compliance demonstrations for all boiler or process heaters at the facility according to §63.10(d)(2). The Notification of Compliance Status report must contain all the information specified in paragraphs (e)(1) through (8) of this section, as applicable. If you are not required to conduct an initial compliance demonstration as specified in §63.7530(a), the Notification of Compliance Status must only contain the information specified in paragraphs (e)(1) and (8) of this section and must be submitted within 60 days of the compliance date specified at §63.7495(b).

(1) A description of the affected unit(s) including identification of which subcategories the unit is in, the design heat input capacity of the unit, a description of the add-on controls used on the unit to comply with this subpart, description of the fuel(s) burned, including whether the fuel(s) were a secondary material determined by you or the EPA through a petition process to be a non-waste under §241.3 of this chapter, whether the fuel(s) were a secondary material processed from discarded non-hazardous secondary materials within the meaning of §241.3 of this chapter, and justification for the selection of fuel(s) burned during the compliance demonstration.

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters**



(2) Summary of the results of all performance tests and fuel analyses, and calculations conducted to demonstrate initial compliance including all established operating limits, and including:

(i) Identification of whether you are complying with the PM emission limit or the alternative TSM emission limit.

(ii) Identification of whether you are complying with the output-based emission limits or the heat input-based (i.e., lb/MMBtu or ppm) emission limits,

(iii) Identification of whether you are complying the arithmetic mean of all valid hours of data from the previous 30 operating days or of the previous 720 hours. This identification shall be specified separately for each operating parameter.

(3) A summary of the maximum CO emission levels recorded during the performance test to show that you have met any applicable emission standard in Tables 1, 2, or 11 through 13 to this subpart, if you are not using a CO CEMS to demonstrate compliance.

(4) Identification of whether you plan to demonstrate compliance with each applicable emission limit through performance testing, a CEMS, or fuel analysis.

(5) Identification of whether you plan to demonstrate compliance by emissions averaging and identification of whether you plan to demonstrate compliance by using efficiency credits through energy conservation:

(i) If you plan to demonstrate compliance by emission averaging, report the emission level that was being achieved or the control technology employed on January 31, 2013.

(ii) [Reserved]

(6) A signed certification that you have met all applicable emission limits and work practice standards.

(7) If you had a deviation from any emission limit, work practice standard, or operating limit, you must also submit a description of the deviation, the duration of the deviation, and the corrective action taken in the Notification of Compliance Status report.

(8) In addition to the information required in §63.9(h)(2), your notification of compliance status must include the following certification(s) of compliance, as applicable, and signed by a responsible official:

(i) "This facility completed the required initial tune-up for all of the boilers and process heaters covered by 40 CFR part 63 subpart DDDDD at this site according to the procedures in §63.7540(a)(10)(i) through (vi)."

(ii) "This facility has had an energy assessment performed according to §63.7530(e)."

(iii) Except for units that burn only natural gas, refinery gas, or other gas 1 fuel, or units that qualify for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act, include the following: "No secondary materials that are solid waste were combusted in any affected unit."

(f) If you operate a unit designed to burn natural gas, refinery gas, or other gas 1 fuels that is subject to this subpart, and you intend to use a fuel other than natural gas, refinery gas, gaseous fuel subject to another subpart of this part, part 60, 61, or 65, or other gas 1 fuel to fire the affected unit during a period of natural gas curtailment or supply interruption, as defined in §63.7575, you must submit a notification of alternative fuel use within 48 hours of the declaration of each period of natural gas curtailment or supply interruption, as defined in §63.7575. The notification must include the information specified in paragraphs (f)(1) through (5) of this section.

(1) Company name and address.

(2) Identification of the affected unit.

(3) Reason you are unable to use natural gas or equivalent fuel, including the date when the natural gas curtailment was declared or the natural gas supply interruption began.

(4) Type of alternative fuel that you intend to use.

(5) Dates when the alternative fuel use is expected to begin and end.

(g) If you intend to commence or recommence combustion of solid waste, you must provide 30 days prior notice of the date upon which you will commence or recommence combustion of solid waste. The notification must identify:

(1) The name of the owner or operator of the affected source, as defined in §63.7490, the location of the source, the boiler(s) or process heater(s) that will commence burning solid waste, and the date of the notice.

(2) The currently applicable subcategories under this subpart.

(3) The date on which you became subject to the currently applicable emission limits.

(4) The date upon which you will commence combusting solid waste.

(h) If you have switched fuels or made a physical change to the boiler or process heater and the fuel switch or physical change resulted in the applicability of a different subcategory, you must provide notice of the date upon which you switched fuels or made the physical change within 30 days of the switch/change. The notification must identify:

(1) The name of the owner or operator of the affected source, as defined in §63.7490, the location of the source, the boiler(s) and process heater(s) that have switched fuels, were physically changed, and the date of the notice.

(2) The currently applicable subcategory under this subpart.

(3) The date upon which the fuel switch or physical change occurred.

**§63.7550 What reports must I submit and when?**

(a) You must submit each report in Table 9 to this subpart that applies to you.

(b) Unless the EPA Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report, according to paragraph (h) of this section, by the date in Table 9 to this subpart and according to the requirements in paragraphs (b)(1) through (4) of this section. For units that are subject only to a requirement to conduct subsequent annual, biennial, or 5-year tune-up according to §63.7540(a)(10), (11), or (12), respectively, and not subject to emission limits or Table 4 operating limits, you may submit only an annual, biennial, or 5-year compliance report, as applicable, as specified in paragraphs (b)(1) through (4) of this section, instead of a semi-annual compliance report.

(1) The first semi-annual compliance report must cover the period beginning on the compliance date that is specified for each boiler or process heater in §63.7495 and ending on June 30 or December 31, whichever date is the first date that occurs at least 180 days after the compliance date that is specified for your source in §63.7495. If submitting an annual, biennial, or 5-year compliance report, the first compliance report must cover the period beginning on the compliance date that is specified for each boiler or process heater in §63.7495 and ending on December 31 within 1, 2, or 5 years, as applicable, after the compliance date that is specified for your source in §63.7495.

(2) The first semi-annual compliance report must be postmarked or submitted no later than July 31 or January 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for each boiler or process heater in §63.7495. The first annual, biennial, or 5-year compliance report must be postmarked or submitted no later than January 31.

(3) Each subsequent semi-annual compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Annual, biennial, and 5-year compliance reports must cover the applicable 1-, 2-, or 5-year periods from January 1 to December 31.

(4) Each subsequent semi-annual compliance report must be postmarked or submitted no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period. Annual, biennial, and 5-year compliance reports must be postmarked or submitted no later than January 31.

(5) For each affected source that is subject to permitting regulations pursuant to part 70 or part 71 of this chapter, and if the permitting authority has established dates for submitting semiannual reports pursuant to 70.6(a)(3)(iii)(A) or 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established in the permit instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) A compliance report must contain the following information depending on how the facility chooses to comply with the limits set in this rule.

(1) If the facility is subject to the requirements of a tune up you must submit a compliance report with the information in paragraphs (c)(5)(i) through (iii) of this section, (xiv) and (xvii) of this section, and paragraph (c)(5)(iv) of this section for limited-use boiler or process heater.

(2) If you are complying with the fuel analysis you must submit a compliance report with the information in paragraphs (c)(5)(i) through (iii), (vi), (x), (xi), (xiii), (xv), (xvii), (xviii) and paragraph (d) of this section.

(3) If you are complying with the applicable emissions limit with performance testing you must submit a compliance report with the information in (c)(5)(i) through (iii), (vi), (vii), (viii), (ix), (xi), (xiii), (xv), (xvii), (xviii) and paragraph (d) of this section.

(4) If you are complying with an emissions limit using a CMS the compliance report must contain the information required in paragraphs (c)(5)(i) through (iii), (v), (vi), (xi) through (xiii), (xv) through (xviii), and paragraph (e) of this section.

(5)(i) Company and Facility name and address.

(ii) Process unit information, emissions limitations, and operating parameter limitations.

(iii) Date of report and beginning and ending dates of the reporting period.

(iv) The total operating time during the reporting period.

(v) If you use a CMS, including CEMS, COMS, or CPMS, you must include the monitoring equipment manufacturer(s) and model numbers and the date of the last CMS certification or audit.

(vi) The total fuel use by each individual boiler or process heater subject to an emission limit within the reporting period, including, but not limited to, a description of the fuel, whether the fuel has received a non-waste determination by the EPA or your basis for concluding that the fuel is not a waste, and the total fuel usage amount with units of measure.

(vii) If you are conducting performance tests once every 3 years consistent with §63.7515(b) or (c), the date of the last 2 performance tests and a statement as to whether there have been any operational changes since the last performance test that could increase emissions.

(viii) A statement indicating that you burned no new types of fuel in an individual boiler or process heater subject to an emission limit. Or, if you did burn a new type of fuel and are subject to a HCl emission limit, you must submit the calculation of chlorine input, using Equation 7 of §63.7530, that demonstrates that your source is still within its maximum chlorine input level established during the previous performance testing (for sources that demonstrate compliance through performance testing) or you must submit the calculation of HCl emission rate using Equation 16 of §63.7530 that demonstrates that your source is still meeting the emission limit for HCl emissions (for boilers or process heaters that demonstrate compliance through fuel analysis). If you burned a new type of fuel and are subject to a mercury emission limit, you must submit the calculation of mercury input, using Equation 8 of §63.7530, that demonstrates that your source is still within its maximum mercury input level established during the previous performance testing (for sources that demonstrate compliance through performance testing), or you must submit the calculation of mercury emission rate using Equation 17 of §63.7530 that demonstrates that your source is still meeting the emission limit for mercury emissions (for boilers or process heaters that demonstrate compliance through fuel analysis). If you burned a new type of fuel and are subject to a TSM emission limit, you must submit the calculation of TSM input, using Equation 9 of §63.7530, that demonstrates that your source is still within its maximum TSM input level established during the previous performance testing (for sources that demonstrate compliance through performance testing), or you must submit the calculation of TSM emission rate, using Equation 18 of §63.7530, that demonstrates that your source

is still meeting the emission limit for TSM emissions (for boilers or process heaters that demonstrate compliance through fuel analysis).

(ix) If you wish to burn a new type of fuel in an individual boiler or process heater subject to an emission limit and you cannot demonstrate compliance with the maximum chlorine input operating limit using Equation 7 of §63.7530 or the maximum mercury input operating limit using Equation 8 of §63.7530, or the maximum TSM input operating limit using Equation 9 of §63.7530 you must include in the compliance report a statement indicating the intent to conduct a new performance test within 60 days of starting to burn the new fuel.

(x) A summary of any monthly fuel analyses conducted to demonstrate compliance according to §§63.7521 and 63.7530 for individual boilers or process heaters subject to emission limits, and any fuel specification analyses conducted according to §§63.7521(f) and 63.7530(g).

(xi) If there are no deviations from any emission limits or operating limits in this subpart that apply to you, a statement that there were no deviations from the emission limits or operating limits during the reporting period.

(xii) If there were no deviations from the monitoring requirements including no periods during which the CMSs, including CEMS, COMS, and CPMS, were out of control as specified in §63.8(c)(7), a statement that there were no deviations and no periods during which the CMS were out of control during the reporting period.

(xiii) If a malfunction occurred during the reporting period, the report must include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by you during a malfunction of a boiler, process heater, or associated air pollution control device or CMS to minimize emissions in accordance with §63.7500(a)(3), including actions taken to correct the malfunction.

(xiv) Include the date of the most recent tune-up for each unit subject to only the requirement to conduct an annual, biennial, or 5-year tune-up according to §63.7540(a)(10), (11), or (12) respectively. Include the date of the most recent burner inspection if it was not done annually, biennially, or on a 5-year period and was delayed until the next scheduled or unscheduled unit shutdown.

(xv) If you plan to demonstrate compliance by emission averaging, certify the emission level achieved or the control technology employed is no less stringent than the level or control technology contained in the notification of compliance status in §63.7545(e)(5)(i).

(xvi) For each reporting period, the compliance reports must include all of the calculated 30 day rolling average values for CEMS (CO, HCl, $SO_2$, and mercury), 10 day rolling average values for CO CEMS when the limit is expressed as a 10 day instead of 30 day rolling average, and the PM CPMS data.

(xvii) Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(xviii) For each instance of startup or shutdown include the information required to be monitored, collected, or recorded according to the requirements of §63.7555(d).

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(d) For each deviation from an emission limit or operating limit in this subpart that occurs at an individual boiler or process heater where you are not using a CMS to comply with that emission limit or operating limit, or from the work practice standards for periods if startup and shutdown, the compliance report must additionally contain the information required in paragraphs (d)(1) through (3) of this section.

(1) A description of the deviation and which emission limit, operating limit, or work practice standard from which you deviated.

(2) Information on the number, duration, and cause of deviations (including unknown cause), as applicable, and the corrective action taken.

(3) If the deviation occurred during an annual performance test, provide the date the annual performance test was completed.

(e) For each deviation from an emission limit, operating limit, and monitoring requirement in this subpart occurring at an individual boiler or process heater where you are using a CMS to comply with that emission limit or operating limit, the compliance report must additionally contain the information required in paragraphs (e)(1) through (9) of this section. This includes any deviations from your site-specific monitoring plan as required in §63.7505(d).

(1) The date and time that each deviation started and stopped and description of the nature of the deviation (i.e., what you deviated from).

(2) The date and time that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out of control, including the information in §63.8(c)(8).

(4) The date and time that each deviation started and stopped.

(5) A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(6) A characterization of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS's downtime during the reporting period and the total duration of CMS downtime as a percent of the total source operating time during that reporting period.

(8) A brief description of the source for which there was a deviation.

(9) A description of any changes in CMSs, processes, or controls since the last reporting period for the source for which there was a deviation.

(f)-(g) [Reserved]

(h) You must submit the reports according to the procedures specified in paragraphs (h)(1) through (3) of this section.

(1) Within 60 days after the date of completing each performance test (as defined in §63.2) required by this subpart, you must submit the results of the performance tests, including any fuel analyses, following the procedure specified in either paragraph (h)(1)(i) or (ii) of this section.

(i) For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (*http://www.epa.gov/ttn/chief/ert/index.html*), you must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). (CEDRI can be accessed through the EPA's Central Data Exchange (CDX) (*https://cdx.epa.gov/*).) Performance test data must be submitted in a file format generated through use of the EPA's ERT or an electronic file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site. If you claim that some of the performance test information being submitted is confidential business information (CBI), you must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

(ii) For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, you must submit the results of the performance test to the Administrator at the appropriate address listed in §63.13.

(2) Within 60 days after the date of completing each CEMS performance evaluation (as defined in 63.2), you must submit the results of the performance evaluation following the procedure specified in either paragraph (h)(2)(i) or (ii) of this section.

(i) For performance evaluations of continuous monitoring systems measuring relative accuracy test audit (RATA) pollutants that are supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the evaluation, you must submit the results of the performance evaluation to the EPA via the CEDRI. (CEDRI can be accessed through the EPA's CDX.) Performance evaluation data must be submitted in a file format generated through the use of the EPA's ERT or an alternate file format consistent with the XML schema listed on the EPA's ERT Web site. If you claim that some of the performance evaluation information being transmitted is CBI, you must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

(ii) For any performance evaluations of continuous monitoring systems measuring RATA pollutants that are not supported by the EPA's ERT as listed on the ERT Web site at the time of the evaluation, you must submit the results of the performance evaluation to the Administrator at the appropriate address listed in §63.13.

(3) You must submit all reports required by Table 9 of this subpart electronically to the EPA via the CEDRI. (CEDRI can be accessed through the EPA's CDX.) You must use the appropriate electronic report in CEDRI for this

subpart. Instead of using the electronic report in CEDRI for this subpart, you may submit an alternate electronic file consistent with the XML schema listed on the CEDRI Web site (*http://www.epa.gov/ttn/chief/cedri/index.html*), once the XML schema is available. If the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, you must submit the report to the Administrator at the appropriate address listed in §63.13. You must begin submitting reports via CEDRI no later than 90 days after the form becomes available in CEDRI.

**§63.7555 What records must I keep?**

(a) You must keep records according to paragraphs (a)(1) and (2) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report that you submitted, according to the requirements in §63.10(b)(2)(xiv).

(2) Records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations as required in §63.10(b)(2)(viii).

(3) For units in the limited use subcategory, you must keep a copy of the federally enforceable permit that limits the annual capacity factor to less than or equal to 10 percent and fuel use records for the days the boiler or process heater was operating.

(b) For each CEMS, COMS, and continuous monitoring system you must keep records according to paragraphs (b)(1) through (5) of this section.

(1) Records described in §63.10(b)(2)(vii) through (xi).

(2) Monitoring data for continuous opacity monitoring system during a performance evaluation as required in §63.6(h)(7)(i) and (ii).

(3) Previous (*i.e.,* superseded) versions of the performance evaluation plan as required in §63.8(d)(3).

(4) Request for alternatives to relative accuracy test for CEMS as required in §63.8(f)(6)(i).

(5) Records of the date and time that each deviation started and stopped.

(c) You must keep the records required in Table 8 to this subpart including records of all monitoring data and calculated averages for applicable operating limits, such as opacity, pressure drop, pH, and operating load, to show continuous compliance with each emission limit and operating limit that applies to you.

(d) For each boiler or process heater subject to an emission limit in Tables 1, 2, or 11 through 13 to this subpart, you must also keep the applicable records in paragraphs (d)(1) through (11) of this section.

(1) You must keep records of monthly fuel use by each boiler or process heater, including the type(s) of fuel and amount(s) used.

(2) If you combust non-hazardous secondary materials that have been determined not to be solid waste pursuant to §241.3(b)(1) and (2) of this chapter, you must keep a record that documents how the secondary material meets each of the legitimacy criteria under §241.3(d)(1) of this chapter. If you combust a fuel that has been processed from a discarded non-hazardous secondary material pursuant to §241.3(b)(4) of this chapter, you must keep records as to how the operations that produced the fuel satisfy the definition of processing in §241.2 of this chapter. If the fuel received a non-waste determination pursuant to the petition process submitted under §241.3(c) of this chapter, you must keep a record that documents how the fuel satisfies the requirements of the petition process. For operating units that combust non-hazardous secondary materials as fuel per §241.4 of this chapter, you must keep records documenting that the material is listed as a non-waste under §241.4(a) of this chapter. Units exempt from the incinerator standards under section 129(g)(1) of the Clean Air Act because they are qualifying facilities burning a homogeneous waste stream do not need to maintain the records described in this paragraph (d)(2).

(3) A copy of all calculations and supporting documentation of maximum chlorine fuel input, using Equation 7 of §63.7530, that were done to demonstrate continuous compliance with the HCl emission limit, for sources that demonstrate compliance through performance testing. For sources that demonstrate compliance through fuel analysis, a copy of all calculations and supporting documentation of HCl emission rates, using Equation 16 of §63.7530, that were done to demonstrate compliance with the HCl emission limit. Supporting documentation should include results of any fuel analyses and basis for the estimates of maximum chlorine fuel input or HCl emission rates. You can use the results from one fuel analysis for multiple boilers and process heaters provided they are all burning the same fuel type. However, you must calculate chlorine fuel input, or HCl emission rate, for each boiler and process heater.

(4) A copy of all calculations and supporting documentation of maximum mercury fuel input, using Equation 8 of §63.7530, that were done to demonstrate continuous compliance with the mercury emission limit for sources that demonstrate compliance through performance testing. For sources that demonstrate compliance through fuel analysis, a copy of all calculations and supporting documentation of mercury emission rates, using Equation 17 of §63.7530, that were done to demonstrate compliance with the mercury emission limit. Supporting documentation should include results of any fuel analyses and basis for the estimates of maximum mercury fuel input or mercury emission rates. You can use the results from one fuel analysis for multiple boilers and process heaters provided they are all burning the same fuel type. However, you must calculate mercury fuel input, or mercury emission rates, for each boiler and process heater.

(5) If, consistent with §63.7515(b), you choose to stack test less frequently than annually, you must keep a record that documents that your emissions in the previous stack test(s) were less than 75 percent of the applicable emission limit (or, in specific instances noted in Tables 1 and 2 or 11 through 13 to this subpart, less than the applicable emission limit), and document that there was no change in source operations including fuel composition and operation of air pollution control equipment that would cause emissions of the relevant pollutant to increase within the past year.

(6) Records of the occurrence and duration of each malfunction of the boiler or process heater, or of the associated air pollution control and monitoring equipment.

(7) Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in §63.7500(a)(3), including corrective actions to restore the malfunctioning boiler or process heater, air pollution control, or monitoring equipment to its normal or usual manner of operation.

(8) A copy of all calculations and supporting documentation of maximum TSM fuel input, using Equation 9 of §63.7530, that were done to demonstrate continuous compliance with the TSM emission limit for sources that demonstrate compliance through performance testing. For sources that demonstrate compliance through fuel analysis, a copy of all calculations and supporting documentation of TSM emission rates, using Equation 18 of §63.7530, that were done to demonstrate compliance with the TSM emission limit. Supporting documentation should include results of any fuel analyses and basis for the estimates of maximum TSM fuel input or TSM emission rates. You can use the results from one fuel analysis for multiple boilers and process heaters provided they are all burning the same fuel type. However, you must calculate TSM fuel input, or TSM emission rates, for each boiler and process heater.

(9) You must maintain records of the calendar date, time, occurrence and duration of each startup and shutdown.

(10) You must maintain records of the type(s) and amount(s) of fuels used during each startup and shutdown.

(11) For each startup period, for units selecting paragraph (2) of the definition of "startup" in §63.7575 you must maintain records of the time that clean fuel combustion begins; the time when you start feeding fuels that are not clean fuels; the time when useful thermal energy is first supplied; and the time when the PM controls are engaged.

(12) If you choose to rely on paragraph (2) of the definition of "startup" in §63.7575, for each startup period, you must maintain records of the hourly steam temperature, hourly steam pressure, hourly steam flow, hourly flue gas temperature, and all hourly average CMS data (*e.g.,* CEMS, PM CPMS, COMS, ESP total secondary electric power input, scrubber pressure drop, scrubber liquid flow rate) collected during each startup period to confirm that the control devices are engaged. In addition, if compliance with the PM emission limit is demonstrated using a PM control device, you must maintain records as specified in paragraphs (d)(12)(i) through (iii) of this section.

(i) For a boiler or process heater with an electrostatic precipitator, record the number of fields in service, as well as each field's secondary voltage and secondary current during each hour of startup.

(ii) For a boiler or process heater with a fabric filter, record the number of compartments in service, as well as the differential pressure across the baghouse during each hour of startup.

(iii) For a boiler or process heater with a wet scrubber needed for filterable PM control, record the scrubber's liquid flow rate and the pressure drop during each hour of startup.

(13) If you choose to use paragraph (2) of the definition of "startup" in §63.7575 and you find that you are unable to safely engage and operate your PM control(s) within 1 hour of first firing of non-clean fuels, you may

choose to rely on paragraph (1) of definition of "startup" in §63.7575 or you may submit to the delegated permitting authority a request for a variance with the PM controls requirement, as described below.

(i) The request shall provide evidence of a documented manufacturer-identified safety issue.

(ii) The request shall provide information to document that the PM control device is adequately designed and sized to meet the applicable PM emission limit.

(iii) In addition, the request shall contain documentation that:

(A) The unit is using clean fuels to the maximum extent possible to bring the unit and PM control device up to the temperature necessary to alleviate or prevent the identified safety issues prior to the combustion of primary fuel;

(B) The unit has explicitly followed the manufacturer's procedures to alleviate or prevent the identified safety issue; and

(C) Identifies with specificity the details of the manufacturer's statement of concern.

(iv) You must comply with all other work practice requirements, including but not limited to data collection, recordkeeping, and reporting requirements.

(e) If you elect to average emissions consistent with §63.7522, you must additionally keep a copy of the emission averaging implementation plan required in §63.7522(g), all calculations required under §63.7522, including monthly records of heat input or steam generation, as applicable, and monitoring records consistent with §63.7541.

(f) If you elect to use efficiency credits from energy conservation measures to demonstrate compliance according to §63.7533, you must keep a copy of the Implementation Plan required in §63.7533(d) and copies of all data and calculations used to establish credits according to §63.7533(b), (c), and (f).

(g) If you elected to demonstrate that the unit meets the specification for mercury for the unit designed to burn gas 1 subcategory, you must maintain monthly records (or at the frequency required by §63.7540(c)) of the calculations and results of the fuel specification for mercury in Table 6.

(h) If you operate a unit in the unit designed to burn gas 1 subcategory that is subject to this subpart, and you use an alternative fuel other than natural gas, refinery gas, gaseous fuel subject to another subpart under this part, other gas 1 fuel, or gaseous fuel subject to another subpart of this part or part 60, 61, or 65, you must keep records of the total hours per calendar year that alternative fuel is burned and the total hours per calendar year that the unit operated during periods of gas curtailment or gas supply emergencies.

**§63.7560 In what form and how long must I keep my records?**

(a) Your records must be in a form suitable and readily available for expeditious review, according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record on site, or they must be accessible from on site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1). You can keep the records off site for the remaining 3 years.

## OTHER REQUIREMENTS AND INFORMATION

### §63.7565 What parts of the General Provisions apply to me?

Table 10 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you.

### §63.7570 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the EPA, or an Administrator such as your state, local, or tribal agency. If the EPA Administrator has delegated authority to your state, local, or tribal agency, then that agency (as well as the EPA) has the authority to implement and enforce this subpart. You should contact your EPA Regional Office to find out if this subpart is delegated to your state, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a state, local, or tribal agency under 40 CFR part 63, subpart E, the authorities listed in paragraphs (b)(1) through (4) of this section are retained by the EPA Administrator and are not transferred to the state, local, or tribal agency, however, the EPA retains oversight of this subpart and can take enforcement actions, as appropriate.

(1) Approval of alternatives to the emission limits and work practice standards in §63.7500(a) and (b) under §63.6(g), except as specified in §63.7555(d)(13).

(2) Approval of major change to test methods in Table 5 to this subpart under §63.7(e)(2)(ii) and (f) and as defined in §63.90, and alternative analytical methods requested under §63.7521(b)(2).

(3) Approval of major change to monitoring under §63.8(f) and as defined in §63.90, and approval of alternative operating parameters under §§63.7500(a)(2) and 63.7522(g)(2).

(4) Approval of major change to recordkeeping and reporting under §63.10(e) and as defined in §63.90.

### §63.7575 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in §63.2 (the General Provisions), and in this section as follows:

*10-day rolling average* means the arithmetic mean of the previous 240 hours of valid operating data. Valid data excludes hours during startup and shutdown, data collected during periods when the monitoring system is out of control as specified in your site-specific monitoring plan, while conducting repairs associated with periods when the monitoring system is out of control, or while conducting required monitoring system quality assurance

or quality control activities, and periods when this unit is not operating. The 240 hours should be consecutive, but not necessarily continuous if operations were intermittent.

*30-day rolling average* means the arithmetic mean of the previous 720 hours of valid CO CEMS data. The 720 hours should be consecutive, but not necessarily continuous if operations were intermittent. For parameters other than CO, 30-day rolling average means either the arithmetic mean of all valid hours of data from 30 successive operating days or the arithmetic mean of the previous 720 hours of valid operating data. Valid data excludes hours during startup and shutdown, data collected during periods when the monitoring system is out of control as specified in your site-specific monitoring plan, while conducting repairs associated with periods when the monitoring system is out of control, or while conducting required monitoring system quality assurance or quality control activities, and periods when this unit is not operating.

*Annual capacity factor* means the ratio between the actual heat input to a boiler or process heater from the fuels burned during a calendar year and the potential heat input to the boiler or process heater had it been operated for 8,760 hours during a year at the maximum steady state design heat input capacity.

*Annual heat input* means the heat input for the 12 months preceding the compliance demonstration.

*Average annual heat input rate* means total heat input divided by the hours of operation for the 12 months preceding the compliance demonstration.

*Bag leak detection system* means a group of instruments that are capable of monitoring particulate matter loadings in the exhaust of a fabric filter (*i.e.,* baghouse) in order to detect bag failures. A bag leak detection system includes, but is not limited to, an instrument that operates on electrodynamic, triboelectric, light scattering, light transmittance, or other principle to monitor relative particulate matter loadings.

*Benchmark* means the fuel heat input for a boiler or process heater for the one-year period before the date that an energy demand reduction occurs, unless it can be demonstrated that a different time period is more representative of historical operations.

*Biodiesel* means a mono-alkyl ester derived from biomass and conforming to ASTM D6751-11b, Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels (incorporated by reference, see §63.14).

*Biomass or bio-based solid fuel* means any biomass-based solid fuel that is not a solid waste. This includes, but is not limited to, wood residue; wood products (*e.g.,* trees, tree stumps, tree limbs, bark, lumber, sawdust, sander dust, chips, scraps, slabs, millings, and shavings); animal manure, including litter and other bedding materials; vegetative agricultural and silvicultural materials, such as logging residues (slash), nut and grain hulls and chaff (*e.g.,* almond, walnut, peanut, rice, and wheat), bagasse, orchard prunings, corn stalks, coffee bean hulls and grounds. This definition of biomass is not intended to suggest that these materials are or are not solid waste.

*Blast furnace gas fuel-fired boiler or process heater* means an industrial/commercial/institutional boiler or process heater that receives 90 percent or more of its total annual gas volume from blast furnace gas.

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters**



*Boiler* means an enclosed device using controlled flame combustion and having the primary purpose of recovering thermal energy in the form of steam or hot water. Controlled flame combustion refers to a steady-state, or near steady-state, process wherein fuel and/or oxidizer feed rates are controlled. A device combusting solid waste, as defined in §241.3 of this chapter, is not a boiler unless the device is exempt from the definition of a solid waste incineration unit as provided in section 129(g)(1) of the Clean Air Act. Waste heat boilers are excluded from this definition.

*Boiler system* means the boiler and associated components, such as, the feed water system, the combustion air system, the fuel system (including burners), blowdown system, combustion control systems, steam systems, and condensate return systems.

*Calendar year* means the period between January 1 and December 31, inclusive, for a given year.

*Clean dry biomass* means any biomass-based solid fuel that have not been painted, pigment-stained, or pressure treated, does not contain contaminants at concentrations not normally associated with virgin biomass materials and has a moisture content of less than 20 percent and is not a solid waste.

*Coal* means all solid fuels classifiable as anthracite, bituminous, sub-bituminous, or lignite by ASTM D388 (incorporated by reference, see §63.14), coal refuse, and petroleum coke. For the purposes of this subpart, this definition of "coal" includes synthetic fuels derived from coal, including but not limited to, solvent-refined coal, coal-oil mixtures, and coal-water mixtures. Coal derived gases are excluded from this definition.

*Coal refuse* means any by-product of coal mining or coal cleaning operations with an ash content greater than 50 percent (by weight) and a heating value less than 13,900 kilojoules per kilogram (6,000 Btu per pound) on a dry basis.

*Commercial/institutional boiler* means a boiler used in commercial establishments or institutional establishments such as medical centers, nursing homes, research centers, institutions of higher education, elementary and secondary schools, libraries, religious establishments, governmental buildings, hotels, restaurants, and laundries to provide electricity, steam, and/or hot water.

*Common stack* means the exhaust of emissions from two or more affected units through a single flue. Affected units with a common stack may each have separate air pollution control systems located before the common stack, or may have a single air pollution control system located after the exhausts come together in a single flue.

*Cost-effective energy conservation measure* means a measure that is implemented to improve the energy efficiency of the boiler or facility that has a payback (return of investment) period of 2 years or less.

*Daily block average* means the arithmetic mean of all valid emission concentrations or parameter levels recorded when a unit is operating measured over the 24-hour period from 12 a.m. (midnight) to 12 a.m. (midnight), except for periods of startup and shutdown or downtime.

*Deviation.* (1) *Deviation* means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(i) Fails to meet any applicable requirement or obligation established by this subpart including, but not limited to, any emission limit, operating limit, or work practice standard; or

(ii) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit.

(2) A deviation is not always a violation.

*Dioxins/furans* means tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans.

*Distillate oil* means fuel oils that contain 0.05 weight percent nitrogen or less and comply with the specifications for fuel oil numbers 1 and 2, as defined by the American Society of Testing and Materials in ASTM D396 (incorporated by reference, see §63.14) or diesel fuel oil numbers 1 and 2, as defined by the American Society for Testing and Materials in ASTM D975 (incorporated by reference, see §63.14), kerosene, and biodiesel as defined by the American Society of Testing and Materials in ASTM D6751-11b (incorporated by reference, see §60.14).

*Dry scrubber* means an add-on air pollution control system that injects dry alkaline sorbent (dry injection) or sprays an alkaline sorbent (spray dryer) to react with and neutralize acid gas in the exhaust stream forming a dry powder material. Sorbent injection systems used as control devices in fluidized bed boilers and process heaters are included in this definition. A dry scrubber is a dry control system.

*Dutch oven* means a unit having a refractory-walled cell connected to a conventional boiler setting. Fuel materials are introduced through an opening in the roof of the dutch oven and burn in a pile on its floor. Fluidized bed boilers are not part of the dutch oven design category.

*Efficiency credit* means emission reductions above those required by this subpart. Efficiency credits generated may be used to comply with the emissions limits. Credits may come from pollution prevention projects that result in reduced fuel use by affected units. Boilers that are shut down cannot be used to generate credits unless the facility provides documentation linking the permanent shutdown to implementation of the energy conservation measures identified in the energy assessment.

*Electric utility steam generating unit (EGU)* means a fossil fuel-fired combustion unit of more than 25 megawatts electric (MWe) that serves a generator that produces electricity for sale. A fossil fuel-fired unit that cogenerates steam and electricity and supplies more than one-third of its potential electric output capacity and more than 25 MWe output to any utility power distribution system for sale is considered an electric utility steam generating unit. To be "capable of combusting" fossil fuels, an EGU would need to have these fuels allowed in their operating permits and have the appropriate fuel handling facilities on-site or otherwise available (e.g., coal handling equipment, including coal storage area, belts and conveyers, pulverizers, etc.; oil storage facilities). In addition, fossil fuel-fired EGU means any EGU that fired fossil fuel for more than 10.0 percent of the average annual heat input in any 3 consecutive calendar years or for more than 15.0 percent of the annual heat input during any one calendar year after April 16, 2012.

*Electrostatic precipitator (ESP)* means an add-on air pollution control device used to capture particulate matter by charging the particles using an electrostatic field, collecting the particles using a grounded collecting surface, and transporting the particles into a hopper. An electrostatic precipitator is usually a dry control system.

*Energy assessment* means the following for the emission units covered by this subpart:

(1) The energy assessment for facilities with affected boilers and process heaters with a combined heat input capacity of less than 0.3 trillion Btu (TBtu) per year will be 8 on-site technical labor hours in length maximum, but may be longer at the discretion of the owner or operator of the affected source. The boiler system(s), process heater(s), and any on-site energy use system(s) accounting for at least 50 percent of the affected boiler(s) energy (*e.g.,* steam, hot water, process heat, or electricity) production, as applicable, will be evaluated to identify energy savings opportunities, within the limit of performing an 8-hour on-site energy assessment.

(2) The energy assessment for facilities with affected boilers and process heaters with a combined heat input capacity of 0.3 to 1.0 TBtu/year will be 24 on-site technical labor hours in length maximum, but may be longer at the discretion of the owner or operator of the affected source. The boiler system(s), process heater(s), and any on-site energy use system(s) accounting for at least 33 percent of the energy (*e.g.,* steam, hot water, process heat, or electricity) production, as applicable, will be evaluated to identify energy savings opportunities, within the limit of performing a 24-hour on-site energy assessment.

(3) The energy assessment for facilities with affected boilers and process heaters with a combined heat input capacity greater than 1.0 TBtu/year will be up to 24 on-site technical labor hours in length for the first TBtu/yr plus 8 on-site technical labor hours for every additional 1.0 TBtu/yr not to exceed 160 on-site technical hours, but may be longer at the discretion of the owner or operator of the affected source. The boiler system(s), process heater(s), and any on-site energy use system(s) accounting for at least 20 percent of the energy (*e.g.,* steam, process heat, hot water, or electricity) production, as applicable, will be evaluated to identify energy savings opportunities.

(4) The on-site energy use systems serving as the basis for the percent of affected boiler(s) and process heater(s) energy production in paragraphs (1), (2), and (3) of this definition may be segmented by production area or energy use area as most logical and applicable to the specific facility being assessed (*e.g.,* product X manufacturing area; product Y drying area; Building Z).

*Energy management practices* means the set of practices and procedures designed to manage energy use that are demonstrated by the facility's energy policies, a facility energy manager and other staffing responsibilities, energy performance measurement and tracking methods, an energy saving goal, action plans, operating procedures, internal reporting requirements, and periodic review intervals used at the facility.

*Energy management program* means a program that includes a set of practices and procedures designed to manage energy use that are demonstrated by the facility's energy policies, a facility energy manager and other staffing responsibilities, energy performance measurement and tracking methods, an energy saving goal, action plans, operating procedures, internal reporting requirements, and periodic review intervals used at the facility. Facilities may establish their program through energy management systems compatible with ISO 50001.

*Energy use system* includes the following systems located on-site that use energy (steam, hot water, or electricity) provided by the affected boiler or process heater: process heating; compressed air systems; machine drive (motors, pumps, fans); process cooling; facility heating, ventilation, and air-conditioning systems; hot water systems; building envelop; and lighting; or other systems that use steam, hot water, process heat, or electricity provided by the affected boiler or process heater. Energy use systems are only those systems using energy clearly produced by affected boilers and process heaters.

*Equivalent* means the following only as this term is used in Table 6 to this subpart:

(1) An equivalent sample collection procedure means a published voluntary consensus standard or practice (VCS) or EPA method that includes collection of a minimum of three composite fuel samples, with each composite consisting of a minimum of three increments collected at approximately equal intervals over the test period.

(2) An equivalent sample compositing procedure means a published VCS or EPA method to systematically mix and obtain a representative subsample (part) of the composite sample.

(3) An equivalent sample preparation procedure means a published VCS or EPA method that: Clearly states that the standard, practice or method is appropriate for the pollutant and the fuel matrix; or is cited as an appropriate sample preparation standard, practice or method for the pollutant in the chosen VCS or EPA determinative or analytical method.

(4) An equivalent procedure for determining heat content means a published VCS or EPA method to obtain gross calorific (or higher heating) value.

(5) An equivalent procedure for determining fuel moisture content means a published VCS or EPA method to obtain moisture content. If the sample analysis plan calls for determining metals (especially the mercury, selenium, or arsenic) using an aliquot of the dried sample, then the drying temperature must be modified to prevent vaporizing these metals. On the other hand, if metals analysis is done on an "as received" basis, a separate aliquot can be dried to determine moisture content and the metals concentration mathematically adjusted to a dry basis.

(6) An equivalent pollutant (mercury, HCl) determinative or analytical procedure means a published VCS or EPA method that clearly states that the standard, practice, or method is appropriate for the pollutant and the fuel matrix and has a published detection limit equal or lower than the methods listed in Table 6 to this subpart for the same purpose.

*Fabric filter* means an add-on air pollution control device used to capture particulate matter by filtering gas streams through filter media, also known as a baghouse. A fabric filter is a dry control system.

*Federally enforceable* means all limitations and conditions that are enforceable by the EPA Administrator, including, but not limited to, the requirements of 40 CFR parts 60, 61, 63, and 65, requirements within any applicable state implementation plan, and any permit requirements established under 40 CFR 52.21 or under 40 CFR 51.18 and 40 CFR 51.24.

*Fluidized bed boiler* means a boiler utilizing a fluidized bed combustion process that is not a pulverized coal boiler.

*Fluidized bed boiler with an integrated fluidized bed heat exchanger* means a boiler utilizing a fluidized bed combustion where the entire tube surface area is located outside of the furnace section at the exit of the cyclone section and exposed to the flue gas stream for conductive heat transfer. This design applies only to boilers in the unit designed to burn coal/solid fossil fuel subcategory that fire coal refuse.

*Fluidized bed combustion* means a process where a fuel is burned in a bed of granulated particles, which are maintained in a mobile suspension by the forward flow of air and combustion products.

*Fossil fuel* means natural gas, oil, coal, and any form of solid, liquid, or gaseous fuel derived from such material.

*Fuel cell* means a boiler type in which the fuel is dropped onto suspended fixed grates and is fired in a pile. The refractory-lined fuel cell uses combustion air preheating and positioning of secondary and tertiary air injection ports to improve boiler efficiency. Fluidized bed, dutch oven, pile burner, hybrid suspension grate, and suspension burners are not part of the fuel cell subcategory.

*Fuel type* means each category of fuels that share a common name or classification. Examples include, but are not limited to, bituminous coal, sub-bituminous coal, lignite, anthracite, biomass, distillate oil, residual oil. Individual fuel types received from different suppliers are not considered new fuel types.

*Gaseous fuel* includes, but is not limited to, natural gas, process gas, landfill gas, coal derived gas, refinery gas, and biogas. Blast furnace gas and process gases that are regulated under another subpart of this part, or part 60, part 61, or part 65 of this chapter, are exempted from this definition.

*Heat input* means heat derived from combustion of fuel in a boiler or process heater and does not include the heat input from preheated combustion air, recirculated flue gases, returned condensate, or exhaust gases from other sources such as gas turbines, internal combustion engines, kilns, etc.

*Heavy liquid* includes residual oil and any other liquid fuel not classified as a light liquid.

*Hourly average* means the arithmetic average of at least four CMS data values representing the four 15-minute periods in an hour, or at least two 15-minute data values during an hour when CMS calibration, quality assurance, or maintenance activities are being performed.

*Hot water heater* means a closed vessel with a capacity of no more than 120 U.S. gallons in which water is heated by combustion of gaseous, liquid, or biomass/bio-based solid fuel and is withdrawn for use external to the vessel. Hot water boilers (i.e., not generating steam) combusting gaseous, liquid, or biomass fuel with a heat input capacity of less than 1.6 million Btu per hour are included in this definition. The 120 U.S. gallon capacity threshold to be considered a hot water heater is independent of the 1.6 MMBtu/hr heat input capacity threshold for hot water boilers. Hot water heater also means a tankless unit that provides on demand hot water.

*Hybrid suspension grate boiler* means a boiler designed with air distributors to spread the fuel material over the entire width and depth of the boiler combustion zone. The biomass fuel combusted in these units exceeds a

moisture content of 40 percent on an as-fired annual heat input basis as demonstrated by monthly fuel analysis. The drying and much of the combustion of the fuel takes place in suspension, and the combustion is completed on the grate or floor of the boiler. Fluidized bed, dutch oven, and pile burner designs are not part of the hybrid suspension grate boiler design category.

*Industrial boiler* means a boiler used in manufacturing, processing, mining, and refining or any other industry to provide steam, hot water, and/or electricity.

*Light liquid* includes distillate oil, biodiesel, or vegetable oil.

*Limited-use boiler or process heater* means any boiler or process heater that burns any amount of solid, liquid, or gaseous fuels and has a federally enforceable annual capacity factor of no more than 10 percent.

*Liquid fuel* includes, but is not limited to, light liquid, heavy liquid, any form of liquid fuel derived from petroleum, used oil, liquid biofuels, biodiesel, and vegetable oil.

*Load fraction* means the actual heat input of a boiler or process heater divided by heat input during the performance test that established the minimum sorbent injection rate or minimum activated carbon injection rate, expressed as a fraction (*e.g.,* for 50 percent load the load fraction is 0.5). For boilers and process heaters that co-fire natural gas or refinery gas with a solid or liquid fuel, the load fraction is determined by the actual heat input of the solid or liquid fuel divided by heat input of the solid or liquid fuel fired during the performance test (*e.g.,* if the performance test was conducted at 100 percent solid fuel firing, for 100 percent load firing 50 percent solid fuel and 50 percent natural gas the load fraction is 0.5).

*Major source for oil and natural gas production facilities,* as used in this subpart, shall have the same meaning as in §63.2, except that:

(1) Emissions from any oil or gas exploration or production well (with its associated equipment, as defined in this section), and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units to determine whether such emission points or stations are major sources, even when emission points are in a contiguous area or under common control;

(2) Emissions from processes, operations, or equipment that are not part of the same facility, as defined in this section, shall not be aggregated; and

(3) For facilities that are production field facilities, only HAP emissions from glycol dehydration units and storage vessels with the potential for flash emissions shall be aggregated for a major source determination. For facilities that are not production field facilities, HAP emissions from all HAP emission units shall be aggregated for a major source determination.

*Metal process furnaces* are a subcategory of process heaters, as defined in this subpart, which include natural gas-fired annealing furnaces, preheat furnaces, reheat furnaces, aging furnaces, heat treat furnaces, and homogenizing furnaces.

*Million Btu (MMBtu)* means one million British thermal units.

*Minimum activated carbon injection rate* means load fraction multiplied by the lowest hourly average activated carbon injection rate measured according to Table 7 to this subpart during the most recent performance test demonstrating compliance with the applicable emission limit.

*Minimum oxygen level* means the lowest hourly average oxygen level measured according to Table 7 to this subpart during the most recent performance test demonstrating compliance with the applicable emission limit.

*Minimum pressure drop* means the lowest hourly average pressure drop measured according to Table 7 to this subpart during the most recent performance test demonstrating compliance with the applicable emission limit.

*Minimum scrubber effluent pH* means the lowest hourly average sorbent liquid pH measured at the inlet to the wet scrubber according to Table 7 to this subpart during the most recent performance test demonstrating compliance with the applicable hydrogen chloride emission limit.

*Minimum scrubber liquid flow rate* means the lowest hourly average liquid flow rate (e.g., to the PM scrubber or to the acid gas scrubber) measured according to Table 7 to this subpart during the most recent performance stack test demonstrating compliance with the applicable emission limit.

*Minimum scrubber pressure drop* means the lowest hourly average scrubber pressure drop measured according to Table 7 to this subpart during the most recent performance test demonstrating compliance with the applicable emission limit.

*Minimum sorbent injection rate* means:

(1) The load fraction multiplied by the lowest hourly average sorbent injection rate for each sorbent measured according to Table 7 to this subpart during the most recent performance test demonstrating compliance with the applicable emission limits; or

(2) For fluidized bed combustion not using an acid gas wet scrubber or dry sorbent injection control technology to comply with the HCl emission limit, the lowest average ratio of sorbent to sulfur measured during the most recent performance test.

*Minimum total secondary electric power* means the lowest hourly average total secondary electric power determined from the values of secondary voltage and secondary current to the electrostatic precipitator measured according to Table 7 to this subpart during the most recent performance test demonstrating compliance with the applicable emission limits.

*Natural gas* means:

(1) A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal constituent is methane; or

(2) Liquefied petroleum gas, as defined in ASTM D1835 (incorporated by reference, see §63.14); or

(3) A mixture of hydrocarbons that maintains a gaseous state at ISO conditions. Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 35 and 41 megajoules (MJ) per dry standard cubic meter (950 and 1,100 Btu per dry standard cubic foot); or

(4) Propane or propane derived synthetic natural gas. Propane means a colorless gas derived from petroleum and natural gas, with the molecular structure $C_3H_8$.

*Opacity* means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.

*Operating day* means a 24-hour period between 12 midnight and the following midnight during which any fuel is combusted at any time in the boiler or process heater unit. It is not necessary for fuel to be combusted for the entire 24-hour period. For calculating rolling average emissions, an operating day does not include the hours of operation during startup or shutdown.

*Other combustor* means a unit designed to burn solid fuel that is not classified as a dutch oven, fluidized bed, fuel cell, hybrid suspension grate boiler, pulverized coal boiler, stoker, sloped grate, or suspension boiler as defined in this subpart.

*Other gas 1 fuel* means a gaseous fuel that is not natural gas or refinery gas and does not exceed a maximum concentration of 40 micrograms/cubic meters of mercury.

*Oxygen analyzer system* means all equipment required to determine the oxygen content of a gas stream and used to monitor oxygen in the boiler or process heater flue gas, boiler or process heater, firebox, or other appropriate location. This definition includes oxygen trim systems. The source owner or operator must install, calibrate, maintain, and operate the oxygen analyzer system in accordance with the manufacturer's recommendations.

*Oxygen trim system* means a system of monitors that is used to maintain excess air at the desired level in a combustion device over its operating load range. A typical system consists of a flue gas oxygen and/or CO monitor that automatically provides a feedback signal to the combustion air controller or draft controller.

*Particulate matter (PM)* means any finely divided solid or liquid material, other than uncombined water, as measured by the test methods specified under this subpart, or an approved alternative method.

*Period of gas curtailment or supply interruption* means a period of time during which the supply of gaseous fuel to an affected boiler or process heater is restricted or halted for reasons beyond the control of the facility. The act of entering into a contractual agreement with a supplier of natural gas established for curtailment purposes does not constitute a reason that is under the control of a facility for the purposes of this definition. An increase in the cost or unit price of natural gas due to normal market fluctuations not during periods of supplier delivery restriction does not constitute a period of natural gas curtailment or supply interruption. On-site gaseous fuel system emergencies or equipment failures qualify as periods of supply interruption when the emergency or failure is beyond the control of the facility.

*Pile burner* means a boiler design incorporating a design where the anticipated biomass fuel has a high relative moisture content. Grates serve to support the fuel, and underfire air flowing up through the grates

provides oxygen for combustion, cools the grates, promotes turbulence in the fuel bed, and fires the fuel. The most common form of pile burning is the dutch oven.

*Process heater* means an enclosed device using controlled flame, and the unit's primary purpose is to transfer heat indirectly to a process material (liquid, gas, or solid) or to a heat transfer material (e.g., glycol or a mixture of glycol and water) for use in a process unit, instead of generating steam. Process heaters are devices in which the combustion gases do not come into direct contact with process materials. A device combusting solid waste, as defined in §241.3 of this chapter, is not a process heater unless the device is exempt from the definition of a solid waste incineration unit as provided in section 129(g)(1) of the Clean Air Act. Process heaters do not include units used for comfort heat or space heat, food preparation for on-site consumption, or autoclaves. Waste heat process heaters are excluded from this definition.

*Pulverized coal boiler* means a boiler in which pulverized coal or other solid fossil fuel is introduced into an air stream that carries the coal to the combustion chamber of the boiler where it is fired in suspension.

*Qualified energy assessor* means:

(1) Someone who has demonstrated capabilities to evaluate energy savings opportunities for steam generation and major energy using systems, including, but not limited to:

(i) Boiler combustion management.

(ii) Boiler thermal energy recovery, including

(A) Conventional feed water economizer,

(B) Conventional combustion air preheater, and

(C) Condensing economizer.

(iii) Boiler blowdown thermal energy recovery.

(iv) Primary energy resource selection, including

(A) Fuel (primary energy source) switching, and

(B) Applied steam energy versus direct-fired energy versus electricity.

(v) Insulation issues.

(vi) Steam trap and steam leak management.

(vi) Condensate recovery.

(viii) Steam end-use management.

(2) Capabilities and knowledge includes, but is not limited to:

(i) Background, experience, and recognized abilities to perform the assessment activities, data analysis, and report preparation.

(ii) Familiarity with operating and maintenance practices for steam or process heating systems.

(iii) Additional potential steam system improvement opportunities including improving steam turbine operations and reducing steam demand.

(iv) Additional process heating system opportunities including effective utilization of waste heat and use of proper process heating methods.

(v) Boiler-steam turbine cogeneration systems.

(vi) Industry specific steam end-use systems.

*Refinery gas* means any gas that is generated at a petroleum refinery and is combusted. Refinery gas includes natural gas when the natural gas is combined and combusted in any proportion with a gas generated at a refinery. Refinery gas includes gases generated from other facilities when that gas is combined and combusted in any proportion with gas generated at a refinery.

*Regulated gas stream* means an offgas stream that is routed to a boiler or process heater for the purpose of achieving compliance with a standard under another subpart of this part or part 60, part 61, or part 65 of this chapter.

*Residential boiler* means a boiler used to provide heat and/or hot water and/or as part of a residential combined heat and power system. This definition includes boilers located at an institutional facility (e.g., university campus, military base, church grounds) or commercial/industrial facility (e.g., farm) used primarily to provide heat and/or hot water for:

(1) A dwelling containing four or fewer families; or

(2) A single unit residence dwelling that has since been converted or subdivided into condominiums or apartments.

*Residual oil* means crude oil, fuel oil that does not comply with the specifications under the definition of distillate oil, and all fuel oil numbers 4, 5, and 6, as defined by the American Society of Testing and Materials in ASTM D396-10 (incorporated by reference, *see* §63.14(b)).

*Responsible official* means responsible official as defined in §70.2.

*Rolling average* means the average of all data collected during the applicable averaging period. For demonstration of compliance with a CO CEMS-based emission limit based on CO concentration a 30-day (10-day) rolling average is comprised of the average of all the hourly average concentrations over the previous 720 (240) operating hours calculated each operating day. To demonstrate compliance on a 30-day rolling average basis for parameters other than CO, you must indicate the basis of the 30-day rolling average period you are using for compliance, as discussed in §63.7545(e)(2)(iii). If you indicate the 30 operating day basis, you must

calculate a new average value each operating day and shall include the measured hourly values for the preceding 30 operating days. If you select the 720 operating hours basis, you must average of all the hourly average concentrations over the previous 720 operating hours calculated each operating day.

*Secondary material* means the material as defined in §241.2 of this chapter.

*Shutdown* means the period in which cessation of operation of a boiler or process heater is initiated for any purpose. Shutdown begins when the boiler or process heater no longer supplies useful thermal energy (such as heat or steam) for heating, cooling, or process purposes and/or generates electricity or when no fuel is being fed to the boiler or process heater, whichever is earlier. Shutdown ends when the boiler or process heater no longer supplies useful thermal energy (such as steam or heat) for heating, cooling, or process purposes and/or generates electricity, and no fuel is being combusted in the boiler or process heater.

*Sloped grate* means a unit where the solid fuel is fed to the top of the grate from where it slides downwards; while sliding the fuel first dries and then ignites and burns. The ash is deposited at the bottom of the grate. Fluidized bed, dutch oven, pile burner, hybrid suspension grate, suspension burners, and fuel cells are not considered to be a sloped grate design.

*Solid fossil fuel* includes, but is not limited to, coal, coke, petroleum coke, and tire derived fuel.

*Solid fuel* means any solid fossil fuel or biomass or bio-based solid fuel.

*Startup* means:

(1) Either the first-ever firing of fuel in a boiler or process heater for the purpose of supplying useful thermal energy for heating and/or producing electricity, or for any other purpose, or the firing of fuel in a boiler after a shutdown event for any purpose. Startup ends when any of the useful thermal energy from the boiler or process heater is supplied for heating, and/or producing electricity, or for any other purpose, or

(2) The period in which operation of a boiler or process heater is initiated for any purpose. Startup begins with either the first-ever firing of fuel in a boiler or process heater for the purpose of supplying useful thermal energy (such as steam or heat) for heating, cooling or process purposes, or producing electricity, or the firing of fuel in a boiler or process heater for any purpose after a shutdown event. Startup ends four hours after when the boiler or process heater supplies useful thermal energy (such as heat or steam) for heating, cooling, or process purposes, or generates electricity, whichever is earlier.

*Steam output* means:

(1) For a boiler that produces steam for process or heating only (no power generation), the energy content in terms of MMBtu of the boiler steam output,

(2) For a boiler that cogenerates process steam and electricity (also known as combined heat and power), the total energy output, which is the sum of the energy content of the steam exiting the turbine and sent to process in MMBtu and the energy of the electricity generated converted to MMBtu at a rate of 10,000 Btu per kilowatt-hour generated (10 MMBtu per megawatt-hour), and

(3) For a boiler that generates only electricity, the alternate output-based emission limits would be the appropriate emission limit from Table 1 or 2 of this subpart in units of pounds per million Btu heat input (lb per MWh).

(4) For a boiler that performs multiple functions and produces steam to be used for any combination of paragraphs (1), (2), and (3) of this definition that includes electricity generation of paragraph (3) of this definition, the total energy output, in terms of MMBtu of steam output, is the sum of the energy content of steam sent directly to the process and/or used for heating ($S_1$), the energy content of turbine steam sent to process plus energy in electricity according to paragraph (2) of this definition ($S_2$), and the energy content of electricity generated by a electricity only turbine as paragraph (3) of this definition ($MW_{(3)}$) and would be calculated using Equation 21 of this section. In the case of boilers supplying steam to one or more common heaters, $S_1$, $S_2$, and $MW_{(3)}$ for each boiler would be calculated based on the its (steam energy) contribution (fraction of total steam energy) to the common heater.

$$SO_M = S_1 + S_2 + (MW_{(3)} \times CFn) \qquad \text{(Eq. 21)}$$

Where:

$SO_M$ = Total steam output for multi-function boiler, MMBtu

$S_1$ = Energy content of steam sent directly to the process and/or used for heating, MMBtu

$S_2$ = Energy content of turbine steam sent to the process plus energy in electricity according to (2) above, MMBtu

$MW_{(3)}$ = Electricity generated according to paragraph (3) of this definition, MWh

CFn = Conversion factor for the appropriate subcategory for converting electricity generated according to paragraph (3) of this definition to equivalent steam energy, MMBtu/MWh

CFn for emission limits for boilers in the unit designed to burn solid fuel subcategory = 10.8

CFn PM and CO emission limits for boilers in one of the subcategories of units designed to burn coal = 11.7

CFn PM and CO emission limits for boilers in one of the subcategories of units designed to burn biomass = 12.1

CFn for emission limits for boilers in one of the subcategories of units designed to burn liquid fuel = 11.2

CFn for emission limits for boilers in the unit designed to burn gas 2 (other) subcategory = 6.2

*Stoker* means a unit consisting of a mechanically operated fuel feeding mechanism, a stationary or moving grate to support the burning of fuel and admit under-grate air to the fuel, an overfire air system to complete combustion, and an ash discharge system. This definition of stoker includes air swept stokers. There are two general types of stokers: Underfeed and overfeed. Overfeed stokers include mass feed and spreader stokers. Fluidized bed, dutch oven, pile burner, hybrid suspension grate, suspension burners, and fuel cells are not considered to be a stoker design.

*Stoker/sloped grate/other unit designed to burn kiln dried biomass* means the unit is in the units designed to burn biomass/bio-based solid subcategory that is either a stoker, sloped grate, or other combustor design and is not in the stoker/sloped grate/other units designed to burn wet biomass subcategory.

*Stoker/sloped grate/other unit designed to burn wet biomass* means the unit is in the units designed to burn biomass/bio-based solid subcategory that is either a stoker, sloped grate, or other combustor design and any of the biomass/bio-based solid fuel combusted in the unit exceeds 20 percent moisture on an annual heat input basis.

*Suspension burner* means a unit designed to fire dry biomass/biobased solid particles in suspension that are conveyed in an airstream to the furnace like pulverized coal. The combustion of the fuel material is completed on a grate or floor below. The biomass/biobased fuel combusted in the unit shall not exceed 20 percent moisture on an annual heat input basis. Fluidized bed, dutch oven, pile burner, and hybrid suspension grate units are not part of the suspension burner subcategory.

*Temporary boiler* means any gaseous or liquid fuel boiler or process heater that is designed to, and is capable of, being carried or moved from one location to another by means of, for example, wheels, skids, carrying handles, dollies, trailers, or platforms. A boiler or process heater is not a temporary boiler or process heater if any one of the following conditions exists:

(1) The equipment is attached to a foundation.

(2) The boiler or process heater or a replacement remains at a location within the facility and performs the same or similar function for more than 12 consecutive months, unless the regulatory agency approves an extension. An extension may be granted by the regulating agency upon petition by the owner or operator of a unit specifying the basis for such a request. Any temporary boiler or process heater that replaces a temporary boiler or process heater at a location and performs the same or similar function will be included in calculating the consecutive time period.

(3) The equipment is located at a seasonal facility and operates during the full annual operating period of the seasonal facility, remains at the facility for at least 2 years, and operates at that facility for at least 3 months each year.

(4) The equipment is moved from one location to another within the facility but continues to perform the same or similar function and serve the same electricity, process heat, steam, and/or hot water system in an attempt to circumvent the residence time requirements of this definition.

*Total selected metals (TSM)* means the sum of the following metallic hazardous air pollutants: arsenic, beryllium, cadmium, chromium, lead, manganese, nickel and selenium.

*Traditional fuel* means the fuel as defined in §241.2 of this chapter.

*Tune-up* means adjustments made to a boiler or process heater in accordance with the procedures outlined in §63.7540(a)(10).

*Ultra low sulfur liquid fuel* means a distillate oil that has less than or equal to 15 ppm sulfur.

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters**



*Unit designed to burn biomass/bio-based solid subcategory* includes any boiler or process heater that burns at least 10 percent biomass or bio-based solids on an annual heat input basis in combination with solid fossil fuels, liquid fuels, or gaseous fuels.

*Unit designed to burn coal/solid fossil fuel subcategory* includes any boiler or process heater that burns any coal or other solid fossil fuel alone or at least 10 percent coal or other solid fossil fuel on an annual heat input basis in combination with liquid fuels, gaseous fuels, or less than 10 percent biomass and bio-based solids on an annual heat input basis.

*Unit designed to burn gas 1 subcategory* includes any boiler or process heater that burns only natural gas, refinery gas, and/or other gas 1 fuels. Gaseous fuel boilers and process heaters that burn liquid fuel for periodic testing of liquid fuel, maintenance, or operator training, not to exceed a combined total of 48 hours during any calendar year, are included in this definition. Gaseous fuel boilers and process heaters that burn liquid fuel during periods of gas curtailment or gas supply interruptions of any duration are also included in this definition.

*Unit designed to burn gas 2 (other) subcategory* includes any boiler or process heater that is not in the unit designed to burn gas 1 subcategory and burns any gaseous fuels either alone or in combination with less than 10 percent coal/solid fossil fuel, and less than 10 percent biomass/bio-based solid fuel on an annual heat input basis, and no liquid fuels. Gaseous fuel boilers and process heaters that are not in the unit designed to burn gas 1 subcategory and that burn liquid fuel for periodic testing of liquid fuel, maintenance, or operator training, not to exceed a combined total of 48 hours during any calendar year, are included in this definition. Gaseous fuel boilers and process heaters that are not in the unit designed to burn gas 1 subcategory and that burn liquid fuel during periods of gas curtailment or gas supply interruption of any duration are also included in this definition.

*Unit designed to burn heavy liquid subcategory* means a unit in the unit designed to burn liquid subcategory where at least 10 percent of the heat input from liquid fuels on an annual heat input basis comes from heavy liquids.

*Unit designed to burn light liquid subcategory* means a unit in the unit designed to burn liquid subcategory that is not part of the unit designed to burn heavy liquid subcategory.

*Unit designed to burn liquid subcategory* includes any boiler or process heater that burns any liquid fuel, but less than 10 percent coal/solid fossil fuel and less than 10 percent biomass/bio-based solid fuel on an annual heat input basis, either alone or in combination with gaseous fuels. Units in the unit design to burn gas 1 or unit designed to burn gas 2 (other) subcategories that burn liquid fuel for periodic testing of liquid fuel, maintenance, or operator training, not to exceed a combined total of 48 hours during any calendar year are not included in this definition. Units in the unit design to burn gas 1 or unit designed to burn gas 2 (other) subcategories during periods of gas curtailment or gas supply interruption of any duration are also not included in this definition.

*Unit designed to burn liquid fuel that is a non-continental unit* means an industrial, commercial, or institutional boiler or process heater meeting the definition of the unit designed to burn liquid subcategory located in the State of Hawaii, the Virgin Islands, Guam, American Samoa, the Commonwealth of Puerto Rico, or the Northern Mariana Islands.

*Unit designed to burn solid fuel subcategory* means any boiler or process heater that burns only solid fuels or at least 10 percent solid fuel on an annual heat input basis in combination with liquid fuels or gaseous fuels.

*Useful thermal energy* means energy (*i.e.,* steam, hot water, or process heat) that meets the minimum operating temperature, flow, and/or pressure required by any energy use system that uses energy provided by the affected boiler or process heater.

*Vegetable oil* means oils extracted from vegetation.

*Voluntary Consensus Standards or VCS* mean technical standards (*e.g.,* materials specifications, test methods, sampling procedures, business practices) developed or adopted by one or more voluntary consensus bodies. EPA/Office of Air Quality Planning and Standards, by precedent, has only used VCS that are written in English. Examples of VCS bodies are: American Society of Testing and Materials (ASTM 100 Barr Harbor Drive, P.O. Box CB700, West Conshohocken, Pennsylvania 19428-B2959, (800) 262-1373, *http://www.astm.org*), American Society of Mechanical Engineers (ASME ASME, Three Park Avenue, New York, NY 10016-5990, (800) 843-2763, *http://www.asme.org*), International Standards Organization (ISO 1, ch. de la Voie-Creuse, Case postale 56, CH-1211 Geneva 20, Switzerland, + 41 22 749 01 11, *http://www.iso.org/iso/home.htm*), Standards Australia (AS Level 10, The Exchange Centre, 20 Bridge Street, Sydney, GPO Box 476, Sydney NSW 2001, + 61 2 9237 6171 *http://www.stadards.org.au*), British Standards Institution (BSI, 389 Chiswick High Road, London, W4 4AL, United Kingdom, + 44 (0)20 8996 9001, *http://www.bsigroup.com*), Canadian Standards Association (CSA 5060 Spectrum Way, Suite 100, Mississauga, Ontario L4W 5N6, Canada, 800-463-6727, *http://www.csa.ca*), European Committee for Standardization (CEN CENELEC Management Centre Avenue Marnix 17 B-1000 Brussels, Belgium + 32 2 550 08 11, *http://www.cen.eu/cen*), and German Engineering Standards (VDI VDI Guidelines Department, P.O. Box 10 11 39 40002, Duesseldorf, Germany, + 49 211 6214-230, *http://www.vdi.eu*). The types of standards that are not considered VCS are standards developed by: The United States, *e.g.,* California (CARB) and Texas (TCEQ); industry groups, such as American Petroleum Institute (API), Gas Processors Association (GPA), and Gas Research Institute (GRI); and other branches of the U.S. government, *e.g.,* Department of Defense (DOD) and Department of Transportation (DOT). This does not preclude EPA from using standards developed by groups that are not VCS bodies within their rule. When this occurs, EPA has done searches and reviews for VCS equivalent to these non-EPA methods.

*Waste heat boiler* means a device that recovers normally unused energy (i.e., hot exhaust gas) and converts it to usable heat. Waste heat boilers are also referred to as heat recovery steam generators. Waste heat boilers are heat exchangers generating steam from incoming hot exhaust gas from an industrial (e.g., thermal oxidizer, kiln, furnace) or power (e.g., combustion turbine, engine) equipment. Duct burners are sometimes used to increase the temperature of the incoming hot exhaust gas.

*Waste heat process heater* means an enclosed device that recovers normally unused energy (i.e., hot exhaust gas) and converts it to usable heat. Waste heat process heaters are also referred to as recuperative process heaters. This definition includes both fired and unfired waste heat process heaters.

*Wet scrubber* means any add-on air pollution control device that mixes an aqueous stream or slurry with the exhaust gases from a boiler or process heater to control emissions of particulate matter or to absorb and neutralize acid gases, such as hydrogen chloride. A wet scrubber creates an aqueous stream or slurry as a byproduct of the emissions control process.

*Work practice standard* means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

**Table 1 to Subpart DDDDD of Part 63—Emission Limits for New or Reconstructed Boilers and Process Heaters**

As stated in §63.7500, you must comply with the following applicable emission limits:

[Units with heat input capacity of 10 million Btu per hour or greater]

| **If your boiler or process heater is in this subcategory . . .** | **For the following pollutants . . .** | **The emissions must not exceed the following emission limits, except during startup and shutdown . . .** | **Or the emissions must not exceed the following alternative output-based limits, except during startup and shutdown . . .** | **Using this specified sampling volume or test run duration . . .** |
|---|---|---|---|---|
| 1. Units in all subcategories designed to burn solid fuel. | a. HCl | 2.2E-02 lb per MMBtu of heat input | 2.5E-02 lb per MMBtu of steam output or 0.28 lb per MWh | For M26A, collect a minimum of 1 dscm per run; for M26 collect a minimum of 120 liters per run. |
| | b. Mercury | 8.0E-07[a] lb per MMBtu of heat input | 8.7E-07[a] lb per MMBtu of steam output or 1.1E-05[a] lb per MWh | For M29, collect a minimum of 4 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 4 dscm. |
| 2. Units designed to burn coal/solid fossil fuel | a. Filterable PM (or TSM) | 1.1E-03 lb per MMBtu of heat input; or (2.3E-05 lb per MMBtu of heat input) | 1.1E-03 lb per MMBtu of steam output or 1.4E-02 lb per MWh; or (2.7E-05 lb per MMBtu of steam output or 2.9E-04 lb per MWh) | Collect a minimum of 3 dscm per run. |
| 3. Pulverized coal boilers designed to burn coal/solid fossil fuel | a. Carbon monoxide (CO) (or CEMS) | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (320 ppm by | 0.11 lb per MMBtu of steam output or 1.4 lb per MWh; 3-run average | 1 hr minimum sampling time. |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during startup and shutdown . . . | Or the emissions must not exceed the following alternative output-based limits, except during startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|---|
| | | volume on a dry basis corrected to 3 percent oxygen,[d] 30-day rolling average) | | |
| 4. Stokers/others designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (340 ppm by volume on a dry basis corrected to 3 percent oxygen,[d] 30-day rolling average) | 0.12 lb per MMBtu of steam output or 1.4 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| 5. Fluidized bed units designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (230 ppm by volume on a dry basis corrected to 3 percent oxygen,[d] 30-day rolling average) | 0.11 lb per MMBtu of steam output or 1.4 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| 6. Fluidized bed units with an integrated heat exchanger designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 140 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (150 ppm by volume on a dry basis corrected to 3 percent oxygen,[d] 30-day rolling average) | 1.2E-01 lb per MMBtu of steam output or 1.5 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| 7. Stokers/sloped grate/others designed to burn wet biomass fuel | a. CO (or CEMS) | 620 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (390 ppm by volume on a dry basis corrected to 3 percent oxygen,[d] 30-day rolling | 5.8E-01 lb per MMBtu of steam output or 6.8 lb per MWh; 3-run average | 1 hr minimum sampling time. |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during startup and shutdown . . . | Or the emissions must not exceed the following alternative output-based limits, except during startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|---|
| | | average) | | |
| | b. Filterable PM (or TSM) | 3.0E-02 lb per MMBtu of heat input; or (2.6E-05 lb per MMBtu of heat input) | 3.5E-02 lb per MMBtu of steam output or 4.2E-01 lb per MWh; or (2.7E-05 lb per MMBtu of steam output or 3.7E-04 lb per MWh) | Collect a minimum of 2 dscm per run. |
| 8. Stokers/sloped grate/others designed to burn kiln-dried biomass fuel | a. CO | 460 ppm by volume on a dry basis corrected to 3 percent oxygen | 4.2E-01 lb per MMBtu of steam output or 5.1 lb per MWh | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 3.0E-02 lb per MMBtu of heat input; or (4.0E-03 lb per MMBtu of heat input) | 3.5E-02 lb per MMBtu of steam output or 4.2E-01 lb per MWh; or (4.2E-03 lb per MMBtu of steam output or 5.6E-02 lb per MWh) | Collect a minimum of 2 dscm per run. |
| 9. Fluidized bed units designed to burn biomass/bio-based solids | a. CO (or CEMS) | 230 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (310 ppm by volume on a dry basis corrected to 3 percent oxygen,[d] 30-day rolling average) | 2.2E-01 lb per MMBtu of steam output or 2.6 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 9.8E-03 lb per MMBtu of heat input; or (8.3E-05[a] lb per MMBtu of heat input) | 1.2E-02 lb per MMBtu of steam output or 0.14 lb per MWh; or (1.1E-04[a] lb per MMBtu of steam output or 1.2E-03[a] lb per MWh) | Collect a minimum of 3 dscm per run. |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during startup and shutdown . . . | Or the emissions must not exceed the following alternative output-based limits, except during startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|---|
| 10. Suspension burners designed to burn biomass/bio-based solids | a. CO (or CEMS) | 2,400 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (2,000 ppm by volume on a dry basis corrected to 3 percent oxygen,[d] 10-day rolling average) | 1.9 lb per MMBtu of steam output or 27 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 3.0E-02 lb per MMBtu of heat input; or (6.5E-03 lb per MMBtu of heat input) | 3.1E-02 lb per MMBtu of steam output or 4.2E-01 lb per MWh; or (6.6E-03 lb per MMBtu of steam output or 9.1E-02 lb per MWh) | Collect a minimum of 2 dscm per run. |
| 11. Dutch Ovens/Pile burners designed to burn biomass/bio-based solids | a. CO (or CEMS) | 330 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (520 ppm by volume on a dry basis corrected to 3 percent oxygen,[d] 10-day rolling average) | 3.5E-01 lb per MMBtu of steam output or 3.6 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 3.2E-03 lb per MMBtu of heat input; or (3.9E-05 lb per MMBtu of heat input) | 4.3E-03 lb per MMBtu of steam output or 4.5E-02 lb per MWh; or (5.2E-05 lb per MMBtu of steam output or 5.5E-04 lb per MWh) | Collect a minimum of 3 dscm per run. |
| 12. Fuel cell units designed to burn biomass/bio-based solids | a. CO | 910 ppm by volume on a dry basis corrected to 3 percent oxygen | 1.1 lb per MMBtu of steam output or 1.0E + 01 lb per MWh | 1 hr minimum sampling time. |
| | b. Filterable | 2.0E-02 lb per MMBtu of | 3.0E-02 lb per MMBtu | Collect a minimum of 2 |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during startup and shutdown . . . | Or the emissions must not exceed the following alternative output-based limits, except during startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|---|
| | PM (or TSM) | heat input; or (2.9E-05[a] lb per MMBtu of heat input) | of steam output or 2.8E-01 lb per MWh; or (5.1E-05 lb per MMBtu of steam output or 4.1E-04 lb per MWh) | dscm per run. |
| 13. Hybrid suspension grate boiler designed to burn biomass/bio-based solids | a. CO (or CEMS) | 1,100 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (900 ppm by volume on a dry basis corrected to 3 percent oxygen,[d] 30-day rolling average) | 1.4 lb per MMBtu of steam output or 12 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 2.6E-02 lb per MMBtu of heat input; or (4.4E-04 lb per MMBtu of heat input) | 3.3E-02 lb per MMBtu of steam output or 3.7E-01 lb per MWh; or (5.5E-04 lb per MMBtu of steam output or 6.2E-03 lb per MWh) | Collect a minimum of 3 dscm per run. |
| 14. Units designed to burn liquid fuel | a. HCl | 4.4E-04 lb per MMBtu of heat input | 4.8E-04 lb per MMBtu of steam output or 6.1E-03 lb per MWh | For M26A: Collect a minimum of 2 dscm per run; for M26, collect a minimum of 240 liters per run. |
| | b. Mercury | 4.8E-07[a] lb per MMBtu of heat input | 5.3E-07[a] lb per MMBtu of steam output or 6.7E-06[a] lb per MWh | For M29, collect a minimum of 4 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 4 dscm. |
| 15. Units designed to | a. CO | 130 ppm by volume on a | 0.13 lb per MMBtu of | 1 hr minimum sampling |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during startup and shutdown . . . | Or the emissions must not exceed the following alternative output-based limits, except during startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|---|
| burn heavy liquid fuel | | dry basis corrected to 3 percent oxygen, 3-run average | steam output or 1.4 lb per MWh; 3-run average | time. |
| | b. Filterable PM (or TSM) | 1.3E-02 lb per MMBtu of heat input; or (7.5E-05 lb per MMBtu of heat input) | 1.5E-02 lb per MMBtu of steam output or 1.8E-01 lb per MWh; or (8.2E-05 lb per MMBtu of steam output or 1.1E-03 lb per MWh) | Collect a minimum of 3 dscm per run. |
| 16. Units designed to burn light liquid fuel | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen | 0.13 lb per MMBtu of steam output or 1.4 lb per MWh | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 1.1E-03[a] lb per MMBtu of heat input; or (2.9E-05 lb per MMBtu of heat input) | 1.2E-03[a] lb per MMBtu of steam output or 1.6E-02[a] lb per MWh; or (3.2E-05 lb per MMBtu of steam output or 4.0E-04 lb per MWh) | Collect a minimum of 3 dscm per run. |
| 17. Units designed to burn liquid fuel that are non-continental units | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average based on stack test | 0.13 lb per MMBtu of steam output or 1.4 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 2.3E-02 lb per MMBtu of heat input; or (8.6E-04 lb per MMBtu of heat input) | 2.5E-02 lb per MMBtu of steam output or 3.2E-01 lb per MWh; or (9.4E-04 lb per MMBtu of steam output or 1.2E-02 lb per MWh) | Collect a minimum of 4 dscm per run. |
| 18. Units designed to burn gas 2 (other) | a. CO | 130 ppm by volume on a dry basis corrected to 3 | 0.16 lb per MMBtu of steam output or 1.0 lb | 1 hr minimum sampling time. |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during startup and shutdown . . . | Or the emissions must not exceed the following alternative output-based limits, except during startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|---|
| gases | | percent oxygen | per MWh | |
| | b. HCl | 1.7E-03 lb per MMBtu of heat input | 2.9E-03 lb per MMBtu of steam output or 1.8E-02 lb per MWh | For M26A, Collect a minimum of 2 dscm per run; for M26, collect a minimum of 240 liters per run. |
| | c. Mercury | 7.9E-06 lb per MMBtu of heat input | 1.4E-05 lb per MMBtu of steam output or 8.3E-05 lb per MWh | For M29, collect a minimum of 3 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 3 dscm. |
| | d. Filterable PM (or TSM) | 6.7E-03 lb per MMBtu of heat input; or (2.1E-04 lb per MMBtu of heat input) | 1.2E-02 lb per MMBtu of steam output or 7.0E-02 lb per MWh; or (3.5E-04 lb per MMBtu of steam output or 2.2E-03 lb per MWh) | Collect a minimum of 3 dscm per run. |

[a]If you are conducting stack tests to demonstrate compliance and your performance tests for this pollutant for at least 2 consecutive years show that your emissions are at or below this limit, you can skip testing according to §63.7515 if all of the other provisions of §63.7515 are met. For all other pollutants that do not contain a footnote "a", your performance tests for this pollutant for at least 2 consecutive years must show that your emissions are at or below 75 percent of this limit in order to qualify for skip testing.

[b]Incorporated by reference, see §63.14.

[c]If your affected source is a new or reconstructed affected source that commenced construction or reconstruction after June 4, 2010, and before April 1, 2013, you may comply with the emission limits in Tables 11, 12 or 13 to this subpart until January 31, 2016. On and after January 31, 2016, you must comply with the emission limits in Table 1 to this subpart.

[d]An owner or operator may request an alternative test method under §63.7 of this chapter, in order that compliance with the carbon monoxide emissions limit be determined using carbon dioxide as a diluent correction in place of oxygen at 3%. EPA Method 19 F-factors and EPA Method 19 equations must be used to generate the appropriate $CO_2$ correction percentage for the fuel type burned in the unit, and must also take into account that the 3% oxygen correction is to be done on a dry basis. The alternative test method request must account for any $CO_2$ being added to, or removed from, the emissions gas stream as a result of limestone injection, scrubber media, etc.

**Table 2 to Subpart DDDDD of Part 63—Emission Limits for Existing Boilers and Process Heaters**

As stated in §63.7500, you must comply with the following applicable emission limits:

[Units with heat input capacity of 10 million Btu per hour or greater]

| **If your boiler or process heater is in this subcategory . . .** | **For the following pollutants . . .** | **The emissions must not exceed the following emission limits, except during startup and shutdown . . .** | **The emissions must not exceed the following alternative output-based limits, except during startup and shutdown . . .** | **Using this specified sampling volume or test run duration . . .** |
|---|---|---|---|---|
| 1. Units in all subcategories designed to burn solid fuel | a. HCl | 2.2E-02 lb per MMBtu of heat input | 2.5E-02 lb per MMBtu of steam output or 0.27 lb per MWh | For M26A, Collect a minimum of 1 dscm per run; for M26, collect a minimum of 120 liters per run. |
| | b. Mercury | 5.7E-06 lb per MMBtu of heat input | 6.4E-06 lb per MMBtu of steam output or 7.3E-05 lb per MWh | For M29, collect a minimum of 3 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 3 dscm. |
| 2. Units design to burn coal/solid fossil fuel | a. Filterable PM (or TSM) | 4.0E-02 lb per MMBtu of heat input; or (5.3E-05 lb per MMBtu of heat input) | 4.2E-02 lb per MMBtu of steam output or 4.9E-01 lb per MWh; or (5.6E-05 lb per MMBtu of steam output or 6.5E-04 lb per MWh) | Collect a minimum of 2 dscm per run. |
| 3. Pulverized coal | a. CO (or | 130 ppm by volume on a | 0.11 lb per MMBtu of | 1 hr minimum sampling |

| | | | | |
|---|---|---|---|---|
| boilers designed to burn coal/solid fossil fuel | CEMS) | dry basis corrected to 3 percent oxygen, 3-run average; or (320 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | steam output or 1.4 lb per MWh; 3-run average | time. |
| 4. Stokers/others designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 160 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (340 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 0.14 lb per MMBtu of steam output or 1.7 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| 5. Fluidized bed units designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (230 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 0.12 lb per MMBtu of steam output or 1.4 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| 6. Fluidized bed units with an integrated heat exchanger designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 140 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (150 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1.3E-01 lb per MMBtu of steam output or 1.5 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| 7. Stokers/sloped grate/others designed to burn wet biomass fuel | a. CO (or CEMS) | 1,500 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (720 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1.4 lb per MMBtu of steam output or 17 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| | b. Filterable | 3.7E-02 lb per MMBtu of | 4.3E-02 lb per MMBtu | Collect a minimum of 2 |

| | | | | |
|---|---|---|---|---|
| | PM (or TSM) | heat input; or (2.4E-04 lb per MMBtu of heat input) | of steam output or 5.2E-01 lb per MWh; or (2.8E-04 lb per MMBtu of steam output or 3.4E-04 lb per MWh) | dscm per run. |
| 8. Stokers/sloped grate/others designed to burn kiln-dried biomass fuel | a. CO | 460 ppm by volume on a dry basis corrected to 3 percent oxygen | 4.2E-01 lb per MMBtu of steam output or 5.1 lb per MWh | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 3.2E-01 lb per MMBtu of heat input; or (4.0E-03 lb per MMBtu of heat input) | 3.7E-01 lb per MMBtu of steam output or 4.5 lb per MWh; or (4.6E-03 lb per MMBtu of steam output or 5.6E-02 lb per MWh) | Collect a minimum of 1 dscm per run. |
| 9. Fluidized bed units designed to burn biomass/bio-based solid | a. CO (or CEMS) | 470 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (310 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 4.6E-01 lb per MMBtu of steam output or 5.2 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 1.1E-01 lb per MMBtu of heat input; or (1.2E-03 lb per MMBtu of heat input) | 1.4E-01 lb per MMBtu of steam output or 1.6 lb per MWh; or (1.5E-03 lb per MMBtu of steam output or 1.7E-02 lb per MWh) | Collect a minimum of 1 dscm per run. |
| 10. Suspension burners designed to burn biomass/bio-based solid | a. CO (or CEMS) | 2,400 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (2,000 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 10-day rolling average) | 1.9 lb per MMBtu of steam output or 27 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 5.1E-02 lb per MMBtu of heat input; or (6.5E-03 lb | 5.2E-02 lb per MMBtu of steam output or | Collect a minimum of 2 dscm per run. |

| | | | | |
|---|---|---|---|---|
| | | per MMBtu of heat input) | 7.1E-01 lb per MWh; or (6.6E-03 lb per MMBtu of steam output or 9.1E-02 lb per MWh) | |
| 11. Dutch Ovens/Pile burners designed to burn biomass/bio-based solid | a. CO (or CEMS) | 770 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (520 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 10-day rolling average) | 8.4E-01 lb per MMBtu of steam output or 8.4 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 2.8E-01 lb per MMBtu of heat input; or (2.0E-03 lb per MMBtu of heat input) | 3.9E-01 lb per MMBtu of steam output or 3.9 lb per MWh; or (2.8E-03 lb per MMBtu of steam output or 2.8E-02 lb per MWh) | Collect a minimum of 1 dscm per run. |
| 12. Fuel cell units designed to burn biomass/bio-based solid | a. CO | 1,100 ppm by volume on a dry basis corrected to 3 percent oxygen | 2.4 lb per MMBtu of steam output or 12 lb per MWh | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 2.0E-02 lb per MMBtu of heat input; or (5.8E-03 lb per MMBtu of heat input) | 5.5E-02 lb per MMBtu of steam output or 2.8E-01 lb per MWh; or (1.6E-02 lb per MMBtu of steam output or 8.1E-02 lb per MWh) | Collect a minimum of 2 dscm per run. |
| 13. Hybrid suspension grate units designed to burn biomass/bio-based solid | a. CO (or CEMS) | 3,500 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (900 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 3.5 lb per MMBtu of steam output or 39 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 4.4E-01 lb per MMBtu of heat input; or (4.5E-04 lb per MMBtu of heat input) | 5.5E-01 lb per MMBtu of steam output or 6.2 lb per MWh; or (5.7E- | Collect a minimum of 1 dscm per run. |

| | | | | |
|---|---|---|---|---|
| | | | 04 lb per MMBtu of steam output or 6.3E-03 lb per MWh) | |
| 14. Units designed to burn liquid fuel | a. HCl | 1.1E-03 lb per MMBtu of heat input | 1.4E-03 lb per MMBtu of steam output or 1.6E-02 lb per MWh | For M26A, collect a minimum of 2 dscm per run; for M26, collect a minimum of 240 liters per run. |
| | b. Mercury | 2.0E-06[a] lb per MMBtu of heat input | 2.5E-06[a] lb per MMBtu of steam output or 2.8E-05 lb per MWh | For M29, collect a minimum of 3 dscm per run; for M30A or M30B collect a minimum sample as specified in the method, for ASTM D6784,[b] collect a minimum of 2 dscm. |
| 15. Units designed to burn heavy liquid fuel | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average | 0.13 lb per MMBtu of steam output or 1.4 lb per MWh; 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 6.2E-02 lb per MMBtu of heat input; or (2.0E-04 lb per MMBtu of heat input) | 7.5E-02 lb per MMBtu of steam output or 8.6E-01 lb per MWh; or (2.5E-04 lb per MMBtu of steam output or 2.8E-03 lb per MWh) | Collect a minimum of 1 dscm per run. |
| 16. Units designed to burn light liquid fuel | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen | 0.13 lb per MMBtu of steam output or 1.4 lb per MWh | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 7.9E-03[a] lb per MMBtu of heat input; or (6.2E-05 lb per MMBtu of heat input) | 9.6E-03[a] lb per MMBtu of steam output or 1.1E-01[a] lb per MWh; or (7.5E-05 lb per MMBtu of steam output or 8.6E-04 lb per MWh) | Collect a minimum of 3 dscm per run. |
| 17. Units designed to burn liquid fuel that are non-continental | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run | 0.13 lb per MMBtu of steam output or 1.4 lb per MWh; 3-run | 1 hr minimum sampling time. |

| | | | | |
|---|---|---|---|---|
| units | | average based on stack test | average | |
| | b. Filterable PM (or TSM) | 2.7E-01 lb per MMBtu of heat input; or (8.6E-04 lb per MMBtu of heat input) | 3.3E-01 lb per MMBtu of steam output or 3.8 lb per MWh; or (1.1E-03 lb per MMBtu of steam output or 1.2E-02 lb per MWh) | Collect a minimum of 2 dscm per run. |
| 18. Units designed to burn gas 2 (other) gases | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen | 0.16 lb per MMBtu of steam output or 1.0 lb per MWh | 1 hr minimum sampling time. |
| | b. HCl | 1.7E-03 lb per MMBtu of heat input | 2.9E-03 lb per MMBtu of steam output or 1.8E-02 lb per MWh | For M26A, collect a minimum of 2 dscm per run; for M26, collect a minimum of 240 liters per run. |
| | c. Mercury | 7.9E-06 lb per MMBtu of heat input | 1.4E-05 lb per MMBtu of steam output or 8.3E-05 lb per MWh | For M29, collect a minimum of 3 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 2 dscm. |
| | d. Filterable PM (or TSM) | 6.7E-03 lb per MMBtu of heat input or (2.1E-04 lb per MMBtu of heat input) | 1.2E-02 lb per MMBtu of steam output or 7.0E-02 lb per MWh; or (3.5E-04 lb per MMBtu of steam output or 2.2E-03 lb per MWh) | Collect a minimum of 3 dscm per run. |

[a]If you are conducting stack tests to demonstrate compliance and your performance tests for this pollutant for at least 2 consecutive years show that your emissions are at or below this limit, you can skip testing according to §63.7515 if all of the other provisions of §63.7515 are met. For all other pollutants that do not contain a footnote a, your performance tests for this pollutant for at least 2 consecutive years must show that your emissions are at or below 75 percent of this limit in order to qualify for skip testing.

[b]Incorporated by reference, see §63.14.

[c]An owner or operator may request an alternative test method under §63.7 of this chapter, in order that compliance with the carbon monoxide emissions limit be determined using carbon dioxide as a diluent

correction in place of oxygen at 3%. EPA Method 19 F-factors and EPA Method 19 equations must be used to generate the appropriate $CO_2$ correction percentage for the fuel type burned in the unit, and must also take into account that the 3% oxygen correction is to be done on a dry basis. The alternative test method request must account for any $CO_2$ being added to, or removed from, the emissions gas stream as a result of limestone injection, scrubber media, etc.

**Table 3 to Subpart DDDDD of Part 63—Work Practice Standards**

As stated in §63.7500, you must comply with the following applicable work practice standards:

| **If your unit is . . .** | **You must meet the following . . .** |
|---|---|
| 1. A new or existing boiler or process heater with a continuous oxygen trim system that maintains an optimum air to fuel ratio, or a heat input capacity of less than or equal to 5 million Btu per hour in any of the following subcategories: unit designed to burn gas 1; unit designed to burn gas 2 (other); or unit designed to burn light liquid, or a limited use boiler or process heater | Conduct a tune-up of the boiler or process heater every 5 years as specified in §63.7540. |
| 2. A new or existing boiler or process heater without a continuous oxygen trim system and with heat input capacity of less than 10 million Btu per hour in the unit designed to burn heavy liquid or unit designed to burn solid fuel subcategories; or a new or existing boiler or process heater with heat input capacity of less than 10 million Btu per hour, but greater than 5 million Btu per hour, in any of the following subcategories: unit designed to burn gas 1; unit designed to burn gas 2 (other); or unit designed to burn light liquid | Conduct a tune-up of the boiler or process heater biennially as specified in §63.7540. |
| 3. A new or existing boiler or process heater without a continuous oxygen trim system and with heat input capacity of 10 million Btu per hour or greater | Conduct a tune-up of the boiler or process heater annually as specified in §63.7540. Units in either the Gas 1 or Metal Process Furnace subcategories will conduct this tune-up as a work practice for all regulated emissions under this subpart. Units in all other subcategories will conduct this tune-up as a work practice for dioxins/furans. |
| 4. An existing boiler or process heater located at a major source facility, not including limited use units | Must have a one-time energy assessment performed by a qualified energy assessor. An energy assessment completed on or after January 1, 2008, that meets or is amended to meet the energy assessment requirements in |

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|---|---|
| | this table, satisfies the energy assessment requirement. A facility that operated under an energy management program developed according to the ENERGY STAR guidelines for energy management or compatible with ISO 50001 for at least one year between January 1, 2008 and the compliance date specified in §63.7495 that includes the affected units also satisfies the energy assessment requirement. The energy assessment must include the following with extent of the evaluation for items a. to e. appropriate for the on-site technical hours listed in §63.7575: |
| | a. A visual inspection of the boiler or process heater system. |
| | b. An evaluation of operating characteristics of the boiler or process heater systems, specifications of energy using systems, operating and maintenance procedures, and unusual operating constraints. |
| | c. An inventory of major energy use systems consuming energy from affected boilers and process heaters and which are under the control of the boiler/process heater owner/operator. |
| | d. A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage. |
| | e. A review of the facility's energy management program and provide recommendations for improvements consistent with the definition of energy management program, if identified. |
| | f. A list of cost-effective energy conservation measures that are within the facility's control. |
| | g. A list of the energy savings potential of the energy conservation measures identified. |
| | h. A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments. |
| 5. An existing or new boiler or process heater subject to emission limits in Table 1 or 2 or 11 through 13 to | a. You must operate all CMS during startup. b. For startup of a boiler or process heater, you must use |

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|---|---|
| this subpart during startup | one or a combination of the following clean fuels: Natural gas, synthetic natural gas, propane, other Gas 1 fuels, distillate oil, syngas, ultra-low sulfur diesel, fuel oil-soaked rags, kerosene, hydrogen, paper, cardboard, refinery gas, liquefied petroleum gas, clean dry biomass, and any fuels meeting the appropriate HCl, mercury and TSM emission standards by fuel analysis.<br>c. You have the option of complying using either of the following work practice standards.<br>(1) If you choose to comply using definition (1) of "startup" in §63.7575, once you start firing fuels that are not clean fuels, you must vent emissions to the main stack(s) and engage all of the applicable control devices except limestone injection in fluidized bed combustion (FBC) boilers, dry scrubber, fabric filter, and selective catalytic reduction (SCR). You must start your limestone injection in FBC boilers, dry scrubber, fabric filter, and SCR systems as expeditiously as possible. Startup ends when steam or heat is supplied for any purpose, OR<br>(2) If you choose to comply using definition (2) of "startup" in §63.7575, once you start to feed fuels that are not clean fuels, you must vent emissions to the main stack(s) and engage all of the applicable control devices so as to comply with the emission limits within 4 hours of start of supplying useful thermal energy. You must engage and operate PM control within one hour of first feeding fuels that are not clean fuels[a]. You must start all applicable control devices as expeditiously as possible, but, in any case, when necessary to comply with other standards applicable to the source by a permit limit or a rule other than this subpart that require operation of the control devices. You must develop and implement a written startup and shutdown plan, as specified in §63.7505(e).<br>d. You must comply with all applicable emission limits at all times except during startup and shutdown periods at which time you must meet this work practice. You must collect monitoring data during periods of startup, as specified in §63.7535(b). You must keep records during periods of startup. You must provide reports concerning activities and periods of startup, as specified in §63.7555. |
| 6. An existing or new boiler or process heater subject | You must operate all CMS during shutdown. |

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|---|---|
| to emission limits in Tables 1 or 2 or 11 through 13 to this subpart during shutdown | While firing fuels that are not clean fuels during shutdown, you must vent emissions to the main stack(s) and operate all applicable control devices, except limestone injection in FBC boilers, dry scrubber, fabric filter, and SCR but, in any case, when necessary to comply with other standards applicable to the source that require operation of the control device. If, in addition to the fuel used prior to initiation of shutdown, another fuel must be used to support the shutdown process, that additional fuel must be one or a combination of the following clean fuels: Natural gas, synthetic natural gas, propane, other Gas 1 fuels, distillate oil, syngas, ultra-low sulfur diesel, refinery gas, and liquefied petroleum gas. You must comply with all applicable emissions limits at all times except for startup or shutdown periods conforming with this work practice. You must collect monitoring data during periods of shutdown, as specified in §63.7535(b). You must keep records during periods of shutdown. You must provide reports concerning activities and periods of shutdown, as specified in §63.7555. |

[a]As specified in §63.7555(d)(13), the source may request an alternative timeframe with the PM controls requirement to the permitting authority (state, local, or tribal agency) that has been delegated authority for this subpart by EPA. The source must provide evidence that (1) it is unable to safely engage and operate the PM control(s) to meet the "fuel firing + 1 hour" requirement and (2) the PM control device is appropriately designed and sized to meet the filterable PM emission limit. It is acknowledged that there may be another control device that has been installed other than ESP that provides additional PM control (*e.g.*, scrubber).

**Table 4 to Subpart DDDDD of Part 63—Operating Limits for Boilers and Process Heaters**

As stated in §63.7500, you must comply with the applicable operating limits:

**TABLE 4 TO SUBPART DDDDD OF PART 63—OPERATING LIMITS FOR BOILERS AND PROCESS HEATERS**

| **When complying with a Table 1, 2, 11, 12, or 13 numerical emission limit using . . .** | **You must meet these operating limits . . .** |
|---|---|
| 1. Wet PM scrubber control on a boiler or process heater not using a PM CPMS | Maintain the 30-day rolling average pressure drop and the 30-day rolling average liquid flow rate at or above the lowest one-hour average pressure drop and the lowest one-hour average liquid flow rate, respectively, measured during the performance test demonstrating compliance with the PM emission limitation |

| **When complying with a Table 1, 2, 11, 12, or 13 numerical emission limit using . . .** | **You must meet these operating limits . . .** |
|---|---|
| | according to §63.7530(b) and Table 7 to this subpart. |
| 2. Wet acid gas (HCl) scrubber[a] control on a boiler or process heater not using a HCl CEMS | Maintain the 30-day rolling average effluent pH at or above the lowest one-hour average pH and the 30-day rolling average liquid flow rate at or above the lowest one-hour average liquid flow rate measured during the performance test demonstrating compliance with the HCl emission limitation according to §63.7530(b) and Table 7 to this subpart. |
| 3. Fabric filter control on a boiler or process heater not using a PM CPMS | a. Maintain opacity to less than or equal to 10 percent opacity or the highest hourly average opacity reading measured during the performance test run demonstrating compliance with the PM (or TSM) emission limitation (daily block average); or |
| | b. Install and operate a bag leak detection system according to §63.7525 and operate the fabric filter such that the bag leak detection system alert is not activated more than 5 percent of the operating time during each 6-month period. |
| 4. Electrostatic precipitator control on a boiler or process heater not using a PM CPMS | a. This option is for boilers and process heaters that operate dry control systems (*i.e.*, an ESP without a wet scrubber). Existing and new boilers and process heaters must maintain opacity to less than or equal to 10 percent opacity or the highest hourly average opacity reading measured during the performance test run demonstrating compliance with the PM (or TSM) emission limitation (daily block average). |
| | b. This option is only for boilers and process heaters not subject to PM CPMS or continuous compliance with an opacity limit (*i.e.*, dry ESP). Maintain the 30-day rolling average total secondary electric power input of the electrostatic precipitator at or above the operating limits established during the performance test according to §63.7530(b) and Table 7 to this subpart. |
| 5. Dry scrubber or carbon injection control on a boiler or process heater not using a mercury CEMS | Maintain the minimum sorbent or carbon injection rate as defined in §63.7575 of this subpart. |
| 6. Any other add-on air pollution control type on a boiler or process heater not using a PM CPMS | This option is for boilers and process heaters that operate dry control systems. Existing and new boilers and process heaters must maintain opacity to less than or equal to 10 percent opacity or the highest hourly average opacity reading measured during the performance test run demonstrating compliance with the PM (or TSM) emission limitation (daily block average). |
| 7. Performance testing | For boilers and process heaters that demonstrate compliance with a performance test, maintain the 30-day rolling average operating load of each unit such that it does not exceed 110 percent of the highest hourly average operating load recorded during the performance test. |

| When complying with a Table 1, 2, 11, 12, or 13 numerical emission limit using . . . | You must meet these operating limits . . . |
|---|---|
| 8. Oxygen analyzer system | For boilers and process heaters subject to a CO emission limit that demonstrate compliance with an $O_2$ analyzer system as specified in §63.7525(a), maintain the 30-day rolling average oxygen content at or above the lowest hourly average oxygen concentration measured during the CO performance test, as specified in Table 8. This requirement does not apply to units that install an oxygen trim system since these units will set the trim system to the level specified in §63.7525(a). |
| 9. $SO_2$ CEMS | For boilers or process heaters subject to an HCl emission limit that demonstrate compliance with an $SO_2$ CEMS, maintain the 30-day rolling average $SO_2$ emission rate at or below the highest hourly average $SO_2$ concentration measured during the HCl performance test, as specified in Table 8. |

[a]A wet acid gas scrubber is a control device that removes acid gases by contacting the combustion gas with an alkaline slurry or solution. Alkaline reagents include, but not limited to, lime, limestone and sodium.

**Table 5 to Subpart DDDDD of Part 63—Performance Testing Requirements**

As stated in §63.7520, you must comply with the following requirements for performance testing for existing, new or reconstructed affected sources:

| To conduct a performance test for the following pollutant . . . | You must. . . | Using, as appropriate . . . |
|---|---|---|
| 1. Filterable PM | a. Select sampling ports location and the number of traverse points | Method 1 at 40 CFR part 60, appendix A-1 of this chapter. |
| | b. Determine velocity and volumetric flow-rate of the stack gas | Method 2, 2F, or 2G at 40 CFR part 60, appendix A-1 or A-2 to part 60 of this chapter. |
| | c. Determine oxygen or carbon dioxide concentration of the stack gas | Method 3A or 3B at 40 CFR part 60, appendix A-2 to part 60 of this chapter, or ANSI/ASME PTC 19.10-1981.[a] |
| | d. Measure the moisture content of the stack gas | Method 4 at 40 CFR part 60, appendix A-3 of this chapter. |
| | e. Measure the PM emission concentration | Method 5 or 17 (positive pressure fabric filters must use Method 5D) at 40 CFR part 60, appendix A-3 or A-6 of this chapter. |

| To conduct a performance test for the following pollutant . . . | You must. . . | Using, as appropriate . . . |
|---|---|---|
| | f. Convert emissions concentration to lb per MMBtu emission rates | Method 19 F-factor methodology at 40 CFR part 60, appendix A-7 of this chapter. |
| 2. TSM | a. Select sampling ports location and the number of traverse points | Method 1 at 40 CFR part 60, appendix A-1 of this chapter. |
| | b. Determine velocity and volumetric flow-rate of the stack gas | Method 2, 2F, or 2G at 40 CFR part 60, appendix A-1 or A-2 of this chapter. |
| | c. Determine oxygen or carbon dioxide concentration of the stack gas | Method 3A or 3B at 40 CFR part 60, appendix A-1 of this chapter, or ANSI/ASME PTC 19.10-1981.[a] |
| | d. Measure the moisture content of the stack gas | Method 4 at 40 CFR part 60, appendix A-3 of this chapter. |
| | e. Measure the TSM emission concentration | Method 29 at 40 CFR part 60, appendix A-8 of this chapter |
| | f. Convert emissions concentration to lb per MMBtu emission rates | Method 19 F-factor methodology at 40 CFR part 60, appendix A-7 of this chapter. |
| 3. Hydrogen chloride | a. Select sampling ports location and the number of traverse points | Method 1 at 40 CFR part 60, appendix A-1 of this chapter. |
| | b. Determine velocity and volumetric flow-rate of the stack gas | Method 2, 2F, or 2G at 40 CFR part 60, appendix A-2 of this chapter. |
| | c. Determine oxygen or carbon dioxide concentration of the stack gas | Method 3A or 3B at 40 CFR part 60, appendix A-2 of this chapter, or ANSI/ASME PTC 19.10-1981.[a] |
| | d. Measure the moisture content of the stack gas | Method 4 at 40 CFR part 60, appendix A-3 of this chapter. |
| | e. Measure the hydrogen chloride emission concentration | Method 26 or 26A (M26 or M26A) at 40 CFR part 60, appendix A-8 of this chapter. |
| | f. Convert emissions concentration to lb per | Method 19 F-factor methodology at 40 CFR part 60, appendix A-7 of this chapter. |

| To conduct a performance test for the following pollutant . . . | You must. . . | Using, as appropriate . . . |
|---|---|---|
| | MMBtu emission rates | |
| 4. Mercury | a. Select sampling ports location and the number of traverse points | Method 1 at 40 CFR part 60, appendix A-1 of this chapter. |
| | b. Determine velocity and volumetric flow-rate of the stack gas | Method 2, 2F, or 2G at 40 CFR part 60, appendix A-1 or A-2 of this chapter. |
| | c. Determine oxygen or carbon dioxide concentration of the stack gas | Method 3A or 3B at 40 CFR part 60, appendix A-1 of this chapter, or ANSI/ASME PTC 19.10-1981.[a] |
| | d. Measure the moisture content of the stack gas | Method 4 at 40 CFR part 60, appendix A-3 of this chapter. |
| | e. Measure the mercury emission concentration | Method 29, 30A, or 30B (M29, M30A, or M30B) at 40 CFR part 60, appendix A-8 of this chapter or Method 101A at 40 CFR part 61, appendix B of this chapter, or ASTM Method D6784.[a] |
| | f. Convert emissions concentration to lb per MMBtu emission rates | Method 19 F-factor methodology at 40 CFR part 60, appendix A-7 of this chapter. |
| 5. CO | a. Select the sampling ports location and the number of traverse points | Method 1 at 40 CFR part 60, appendix A-1 of this chapter. |
| | b. Determine oxygen concentration of the stack gas | Method 3A or 3B at 40 CFR part 60, appendix A-3 of this chapter, or ASTM D6522-00 (Reapproved 2005), or ANSI/ASME PTC 19.10-1981.[a] |
| | c. Measure the moisture content of the stack gas | Method 4 at 40 CFR part 60, appendix A-3 of this chapter. |
| | d. Measure the CO emission concentration | Method 10 at 40 CFR part 60, appendix A-4 of this chapter. Use a measurement span value of 2 times the concentration of the applicable emission limit. |

[a]Incorporated by reference, see §63.14.

**Table 6 to Subpart DDDDD of Part 63—Fuel Analysis Requirements**

# ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD— National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters



As stated in §63.7521, you must comply with the following requirements for fuel analysis testing for existing, new or reconstructed affected sources. However, equivalent methods (as defined in §63.7575) may be used in lieu of the prescribed methods at the discretion of the source owner or operator:

| **To conduct a fuel analysis for the following pollutant . . .** | **You must . . .** | **Using . . .** |
|---|---|---|
| 1. Mercury | a. Collect fuel samples | Procedure in §63.7521(c) or ASTM D5192,[a] or ASTM D7430,[a] or ASTM D6883,[a] or ASTM D2234/D2234M[a] (for coal) or ASTM D6323[a] (for solid), or ASTM D4177[a] (for liquid), or ASTM D4057[a] (for liquid), or equivalent. |
| | b. Composite fuel samples | Procedure in §63.7521(d) or equivalent. |
| | c. Prepare composited fuel samples | EPA SW-846-3050B[a] (for solid samples), ASTM D2013/D2013M[a] (for coal), ASTM D5198[a] (for biomass), or EPA 3050[a] (for solid fuel), or EPA 821-R-01-013[a] (for liquid or solid), or equivalent. |
| | d. Determine heat content of the fuel type | ASTM D5865[a] (for coal) or ASTM E711[a] (for biomass), or ASTM D5864[a] for liquids and other solids, or ASTM D240[a] or equivalent. |
| | e. Determine moisture content of the fuel type | ASTM D3173,[a] ASTM E871,[a] or ASTM D5864,[a] or ASTM D240, or ASTM D95[a] (for liquid fuels), or ASTM D4006[a] (for liquid fuels), or equivalent. |
| | f. Measure mercury concentration in fuel sample | ASTM D6722[a] (for coal), EPA SW-846-7471B[a] or EPA 1631 or EPA 1631E (for solid samples), or EPA SW-846-7470A[a] (for liquid samples), or EPA 821-R-01-013 (for liquid or solid), or equivalent. |
| | g. Convert concentration into units of pounds of mercury per MMBtu of heat content | For fuel mixtures use Equation 8 in §63.7530. |
| 2. HCl | a. Collect fuel samples | Procedure in §63.7521(c) or ASTM D5192,[a] or ASTM D7430,[a] or ASTM D6883,[a] or ASTM D2234/D2234M[a] (for coal) or ASTM D6323[a] (for coal or biomass), ASTM D4177[a] (for liquid fuels) or ASTM D4057[a] (for liquid fuels), or equivalent. |
| | b. Composite fuel samples | Procedure in §63.7521(d) or equivalent. |
| | c. Prepare composited fuel samples | EPA SW-846-3050B[a] (for solid samples), ASTM D2013/D2013M[a] (for coal), or ASTM D5198[a] (for biomass), or EPA 3050[a] or equivalent. |
| | d. Determine heat content of the fuel type | ASTM D5865[a] (for coal) or ASTM E711[a] (for biomass), ASTM D5864, ASTM D240[a] or equivalent. |

| To conduct a fuel analysis for the following pollutant . . . | You must . . . | Using . . . |
|---|---|---|
| | e. Determine moisture content of the fuel type | ASTM D3173[a] or ASTM E871,[a] or D5864,[a] or ASTM D240,[a] or ASTM D95[a] (for liquid fuels), or ASTM D4006[a] (for liquid fuels), or equivalent. |
| | f. Measure chlorine concentration in fuel sample | EPA SW-846-9250,[a] ASTM D6721,[a] ASTM D4208[a] (for coal), or EPA SW-846-5050[a] or ASTM E776[a] (for solid fuel), or EPA SW-846-9056[a] or SW-846-9076[a] (for solids or liquids) or equivalent. |
| | g. Convert concentrations into units of pounds of HCl per MMBtu of heat content | For fuel mixtures use Equation 7 in §63.7530 and convert from chlorine to HCl by multiplying by 1.028. |
| 3. Mercury Fuel Specification for other gas 1 fuels | a. Measure mercury concentration in the fuel sample and convert to units of micrograms per cubic meter, or | Method 30B (M30B) at 40 CFR part 60, appendix A-8 of this chapter or ASTM D5954,[a] ASTM D6350,[a] ISO 6978-1:2003(E),[a] or ISO 6978-2:2003(E),[a] or EPA-1631[a] or equivalent. |
| | b. Measure mercury concentration in the exhaust gas when firing only the other gas 1 fuel is fired in the boiler or process heater | Method 29, 30A, or 30B (M29, M30A, or M30B) at 40 CFR part 60, appendix A-8 of this chapter or Method 101A or Method 102 at 40 CFR part 61, appendix B of this chapter, or ASTM Method D6784[a] or equivalent. |
| 4. TSM | a. Collect fuel samples | Procedure in §63.7521(c) or ASTM D5192,[a] or ASTM D7430,[a] or ASTM D6883,[a] or ASTM D2234/D2234M[a] (for coal) or ASTM D6323[a] (for coal or biomass), or ASTM D4177,[a] (for liquid fuels) or ASTM D4057[a] (for liquid fuels), or equivalent. |
| | b. Composite fuel samples | Procedure in §63.7521(d) or equivalent. |
| | c. Prepare composited fuel samples | EPA SW-846-3050B[a] (for solid samples), ASTM D2013/D2013M[a] (for coal), ASTM D5198[a] or TAPPI T266[a] (for biomass), or EPA 3050[a] or equivalent. |
| | d. Determine heat content of the fuel type | ASTM D5865[a] (for coal) or ASTM E711[a] (for biomass), or ASTM D5864[a] for liquids and other solids, or ASTM D240[a] or equivalent. |
| | e. Determine moisture content of the fuel type | ASTM D3173[a] or ASTM E871,[a] or D5864, or ASTM D240,[a] or ASTM D95[a] (for liquid fuels), or ASTM D4006[a] (for liquid fuels), or ASTM D4177[a] (for liquid fuels) or ASTM D4057[a] (for liquid fuels), or equivalent. |
| | f. Measure TSM concentration in fuel sample | ASTM D3683,[a] or ASTM D4606,[a] or ASTM D6357[a] or EPA 200.8[a] or EPA SW-846-6020,[a] or EPA SW-846- |

| To conduct a fuel analysis for the following pollutant . . . | You must . . . | Using . . . |
|---|---|---|
| | | 6020A,[a] or EPA SW-846-6010C,[a] EPA 7060[a] or EPA 7060A[a] (for arsenic only), or EPA SW-846-7740[a] (for selenium only). |
| | g. Convert concentrations into units of pounds of TSM per MMBtu of heat content | For fuel mixtures use Equation 9 in §63.7530. |

[a]Incorporated by reference, see §63.14.

**Table 7 to Subpart DDDDD of Part 63—Establishing Operating Limits[ab]**

As stated in §63.7520, you must comply with the following requirements for establishing operating limits:

**TABLE 7 TO SUBPART DDDDD OF PART 63—ESTABLISHING OPERATING LIMITS[AB]**

| If you have an applicable emission limit for . . . | And your operating limits are based on . . . | You must . . . | Using . . . | According to the following requirements |
|---|---|---|---|---|
| 1. PM, TSM, or mercury | a. Wet scrubber operating parameters | i. Establish a site-specific minimum scrubber pressure drop and minimum flow rate operating limit according to §63.7530(b) | (1) Data from the scrubber pressure drop and liquid flow rate monitors and the PM, TSM, or mercury performance test | (a) You must collect scrubber pressure drop and liquid flow rate data every 15 minutes during the entire period of the performance tests. (b) Determine the lowest hourly average scrubber pressure drop and liquid flow rate by computing the hourly averages using all of the 15-minute readings taken during each performance test. |
| | b. Electrostatic precipitator operating parameters (option only for units that operate wet scrubbers) | i. Establish a site-specific minimum total secondary electric power input according to §63.7530(b) | (1) Data from the voltage and secondary amperage monitors during the PM or mercury performance test | (a) You must collect secondary voltage and secondary amperage for each ESP cell and calculate total secondary electric power input data every 15 minutes during the entire period of the performance tests. |

| If you have an applicable emission limit for . . . | And your operating limits are based on . . . | You must . . . | Using . . . | According to the following requirements |
|---|---|---|---|---|
| | | | | (b) Determine the average total secondary electric power input by computing the hourly averages using all of the 15-minute readings taken during each performance test. |
| | c. Opacity | i. Establish a site-specific maximum opacity level | (1) Data from the opacity monitoring system during the PM performance test | (a) You must collect opacity readings every 15 minutes during the entire period of the performance tests. (b) Determine the average hourly opacity reading for each performance test run by computing the hourly averages using all of the 15-minute readings taken during each performance test run. (c) Determine the highest hourly average opacity reading measured during the test run demonstrating compliance with the PM (or TSM) emission limitation. |
| 2. HCl | a. Wet scrubber operating parameters | i. Establish site-specific minimum effluent pH and flow rate operating limits according to §63.7530(b) | (1) Data from the pH and liquid flow-rate monitors and the HCl performance test | (a) You must collect pH and liquid flow-rate data every 15 minutes during the entire period of the performance tests. (b) Determine the hourly average pH and liquid flow rate by computing the hourly averages using all of the 15-minute readings taken during each performance test. |
| | b. Dry scrubber operating parameters | i. Establish a site-specific minimum sorbent injection rate operating limit according to | (1) Data from the sorbent injection rate monitors and HCl or mercury | (a) You must collect sorbent injection rate data every 15 minutes during the entire period of the performance |

| If you have an applicable emission limit for . . . | And your operating limits are based on . . . | You must . . . | Using . . . | According to the following requirements |
|---|---|---|---|---|
| | | §63.7530(b). If different acid gas sorbents are used during the HCl performance test, the average value for each sorbent becomes the site-specific operating limit for that sorbent | performance test | tests.<br>(b) Determine the hourly average sorbent injection rate by computing the hourly averages using all of the 15-minute readings taken during each performance test.<br>(c) Determine the lowest hourly average of the three test run averages established during the performance test as your operating limit. When your unit operates at lower loads, multiply your sorbent injection rate by the load fraction, as defined in §63.7575, to determine the required injection rate. |
| | c. Alternative Maximum $SO_2$ emission rate | i. Establish a site-specific maximum $SO_2$ emission rate operating limit according to §63.7530(b) | (1) Data from $SO_2$ CEMS and the HCl performance test | (a) You must collect the $SO_2$ emissions data according to §63.7525(m) during the most recent HCl performance tests.<br>(b) The maximum $SO_2$ emission rate is equal to the highest hourly average $SO_2$ emission rate measured during the most recent HCl performance tests. |
| 3. Mercury | a. Activated carbon injection | i. Establish a site-specific minimum activated carbon injection rate operating limit according to §63.7530(b) | (1) Data from the activated carbon rate monitors and mercury performance test | (a) You must collect activated carbon injection rate data every 15 minutes during the entire period of the performance tests.<br>(b) Determine the hourly average activated carbon injection rate by computing the hourly averages using all of the 15-minute readings |

| If you have an applicable emission limit for . . . | And your operating limits are based on . . . | You must . . . | Using . . . | According to the following requirements |
|---|---|---|---|---|
| | | | | taken during each performance test. (c) Determine the lowest hourly average established during the performance test as your operating limit. When your unit operates at lower loads, multiply your activated carbon injection rate by the load fraction, as defined in §63.7575, to determine the required injection rate. |
| 4. Carbon monoxide for which compliance is demonstrated by a performance test | a. Oxygen | i. Establish a unit-specific limit for minimum oxygen level according to §63.7530(b) | (1) Data from the oxygen analyzer system specified in §63.7525(a) | (a) You must collect oxygen data every 15 minutes during the entire period of the performance tests. (b) Determine the hourly average oxygen concentration by computing the hourly averages using all of the 15-minute readings taken during each performance test. (c) Determine the lowest hourly average established during the performance test as your minimum operating limit. |
| 5. Any pollutant for which compliance is demonstrated by a performance test | a. Boiler or process heater operating load | i. Establish a unit specific limit for maximum operating load according to §63.7520(c) | (1) Data from the operating load monitors or from steam generation monitors | (a) You must collect operating load or steam generation data every 15 minutes during the entire period of the performance test. (b) Determine the average operating load by computing the hourly averages using all of the 15-minute readings taken during each |

| If you have an applicable emission limit for . . . | And your operating limits are based on . . . | You must . . . | Using . . . | According to the following requirements |
|---|---|---|---|---|
| | | | | performance test. (c) Determine the highest hourly average of the three test run averages during the performance test, and multiply this by 1.1 (110 percent) as your operating limit. |

[a]Operating limits must be confirmed or reestablished during performance tests.

[b]If you conduct multiple performance tests, you must set the minimum liquid flow rate and pressure drop operating limits at the higher of the minimum values established during the performance tests. For a minimum oxygen level, if you conduct multiple performance tests, you must set the minimum oxygen level at the lower of the minimum values established during the performance tests.

**Table 8 to Subpart DDDDD of Part 63—Demonstrating Continuous Compliance**

As stated in §63.7540, you must show continuous compliance with the emission limitations for each boiler or process heater according to the following:

| If you must meet the following operating limits or work practice standards . . . | You must demonstrate continuous compliance by . . . |
|---|---|
| 1. Opacity | a. Collecting the opacity monitoring system data according to §63.7525(c) and §63.7535; and |
| | b. Reducing the opacity monitoring data to 6-minute averages; and |
| | c. Maintaining daily block average opacity to less than or equal to 10 percent or the highest hourly average opacity reading measured during the performance test run demonstrating compliance with the PM (or TSM) emission limitation. |
| 2. PM CPMS | a. Collecting the PM CPMS output data according to §63.7525; |
| | b. Reducing the data to 30-day rolling averages; and |
| | c. Maintaining the 30-day rolling average PM CPMS output data to less than the operating limit established during the performance test according to §63.7530(b)(4). |
| 3. Fabric Filter Bag Leak Detection Operation | Installing and operating a bag leak detection system according to §63.7525 and operating the fabric filter such that the requirements in §63.7540(a)(7) are met. |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters**



| **If you must meet the following operating limits or work practice standards . . .** | **You must demonstrate continuous compliance by . . .** |
|---|---|
| 4. Wet Scrubber Pressure Drop and Liquid Flow-rate | a. Collecting the pressure drop and liquid flow rate monitoring system data according to §§63.7525 and 63.7535; and |
| | b. Reducing the data to 30-day rolling averages; and |
| | c. Maintaining the 30-day rolling average pressure drop and liquid flow-rate at or above the operating limits established during the performance test according to §63.7530(b). |
| 5. Wet Scrubber pH | a. Collecting the pH monitoring system data according to §§63.7525 and 63.7535; and |
| | b. Reducing the data to 30-day rolling averages; and |
| | c. Maintaining the 30-day rolling average pH at or above the operating limit established during the performance test according to §63.7530(b). |
| 6. Dry Scrubber Sorbent or Carbon Injection Rate | a. Collecting the sorbent or carbon injection rate monitoring system data for the dry scrubber according to §§63.7525 and 63.7535; and |
| | b. Reducing the data to 30-day rolling averages; and |
| | c. Maintaining the 30-day rolling average sorbent or carbon injection rate at or above the minimum sorbent or carbon injection rate as defined in §63.7575. |
| 7. Electrostatic Precipitator Total Secondary Electric Power Input | a. Collecting the total secondary electric power input monitoring system data for the electrostatic precipitator according to §§63.7525 and 63.7535; and |
| | b. Reducing the data to 30-day rolling averages; and |
| | c. Maintaining the 30-day rolling average total secondary electric power input at or above the operating limits established during the performance test according to §63.7530(b). |
| 8. Emission limits using fuel analysis | a. Conduct monthly fuel analysis for HCl or mercury or TSM according to Table 6 to this subpart; and |
| | b. Reduce the data to 12-month rolling averages; and |
| | c. Maintain the 12-month rolling average at or below the applicable emission limit for HCl or mercury or TSM in Tables 1 and 2 or 11 through 13 to this subpart. |
| | d. Calculate the HCI, mercury, and/or TSM emission rate from the boiler or process heater in units of lb/MMBtu using Equation 15 and Equations 17, 18, and/or 19 in §63.7530. |
| 9. Oxygen content | a. Continuously monitor the oxygen content using an oxygen analyzer system according to §63.7525(a). This requirement does not apply to units that install an oxygen trim system since these units will set the trim system to the level specified in §63.7525(a)(7). |

| If you must meet the following operating limits or work practice standards . . . | You must demonstrate continuous compliance by . . . |
|---|---|
| | b. Reducing the data to 30-day rolling averages; and |
| | c. Maintain the 30-day rolling average oxygen content at or above the lowest hourly average oxygen level measured during the CO performance test. |
| 10. Boiler or process heater operating load | a. Collecting operating load data or steam generation data every 15 minutes.<br>b. Reducing the data to 30-day rolling averages; and |
| | c. Maintaining the 30-day rolling average operating load such that it does not exceed 110 percent of the highest hourly average operating load recorded during the performance test according to §63.7520(c). |
| 11. $SO_2$ emissions using $SO_2$ CEMS | a. Collecting the $SO_2$ CEMS output data according to §63.7525; |
| | b. Reducing the data to 30-day rolling averages; and |
| | c. Maintaining the 30-day rolling average $SO_2$ CEMS emission rate to a level at or below the highest hourly $SO_2$ rate measured during the HCl performance test according to §63.7530. |

**Table 9 to Subpart DDDDD of Part 63—Reporting Requirements**

As stated in §63.7550, you must comply with the following requirements for reports:

| You must submit a(n) | The report must contain . . . | You must submit the report . . . |
|---|---|---|
| 1. Compliance report | a. Information required in §63.7550(c)(1) through (5); and | Semiannually, annually, biennially, or every 5 years according to the requirements in §63.7550(b). |
| | b. If there are no deviations from any emission limitation (emission limit and operating limit) that applies to you and there are no deviations from the requirements for work practice standards for periods of startup and shutdown in Table 3 to this subpart that apply to you, a statement that there were no deviations from the emission limitations and work practice standards during the reporting period. If there were no periods during which the CMSs, including continuous emissions monitoring system, continuous opacity monitoring system, and operating parameter monitoring systems, were out-of-control as specified in §63.8(c)(7), a statement that there were no periods during which the CMSs were out-of-control during the reporting period; and | |

| You must submit a(n) | The report must contain . . . | You must submit the report . . . |
|---|---|---|
| | c. If you have a deviation from any emission limitation (emission limit and operating limit) where you are not using a CMS to comply with that emission limit or operating limit, or a deviation from a work practice standard for periods of startup and shutdown, during the reporting period, the report must contain the information in §63.7550(d); and | |
| | d. If there were periods during which the CMSs, including continuous emissions monitoring system, continuous opacity monitoring system, and operating parameter monitoring systems, were out-of-control as specified in §63.8(c)(7), or otherwise not operating, the report must contain the information in §63.7550(e) | |

**Table 10 to Subpart DDDDD of Part 63—Applicability of General Provisions to Subpart DDDDD**

As stated in §63.7565, you must comply with the applicable General Provisions according to the following:

| Citation | Subject | Applies to subpart DDDDD |
|---|---|---|
| §63.1 | Applicability | Yes. |
| §63.2 | Definitions | Yes. Additional terms defined in §63.7575 |
| §63.3 | Units and Abbreviations | Yes. |
| §63.4 | Prohibited Activities and Circumvention | Yes. |
| §63.5 | Preconstruction Review and Notification Requirements | Yes. |
| §63.6(a), (b)(1)-(b)(5), (b)(7), (c) | Compliance with Standards and Maintenance Requirements | Yes. |
| §63.6(e)(1)(i) | General duty to minimize emissions. | No. See §63.7500(a)(3) for the general duty requirement. |
| §63.6(e)(1)(ii) | Requirement to correct malfunctions as soon as practicable. | No. |
| §63.6(e)(3) | Startup, shutdown, and malfunction plan requirements. | No. |
| §63.6(f)(1) | Startup, shutdown, and malfunction exemptions for | No. |

| Citation | Subject | Applies to subpart DDDDD |
|---|---|---|
| | compliance with non-opacity emission standards. | |
| §63.6(f)(2) and (3) | Compliance with non-opacity emission standards. | Yes. |
| §63.6(g) | Use of alternative standards | Yes, except §63.7555(d)(13) specifies the procedure for application and approval of an alternative timeframe with the PM controls requirement in the startup work practice (2). |
| §63.6(h)(1) | Startup, shutdown, and malfunction exemptions to opacity standards. | No. See §63.7500(a). |
| §63.6(h)(2) to (h)(9) | Determining compliance with opacity emission standards | No. Subpart DDDDD specifies opacity as an operating limit not an emission standard. |
| §63.6(i) | Extension of compliance | Yes. Note: Facilities may also request extensions of compliance for the installation of combined heat and power, waste heat recovery, or gas pipeline or fuel feeding infrastructure as a means of complying with this subpart. |
| §63.6(j) | Presidential exemption. | Yes. |
| §63.7(a), (b), (c), and (d) | Performance Testing Requirements | Yes. |
| §63.7(e)(1) | Conditions for conducting performance tests | No. Subpart DDDDD specifies conditions for conducting performance tests at §63.7520(a) to (c). |
| §63.7(e)(2)-(e)(9), (f), (g), and (h) | Performance Testing Requirements | Yes. |
| §63.8(a) and (b) | Applicability and Conduct of Monitoring | Yes. |
| §63.8(c)(1) | Operation and maintenance of CMS | Yes. |
| §63.8(c)(1)(i) | General duty to minimize emissions and CMS operation | No. See §63.7500(a)(3). |
| §63.8(c)(1)(ii) | Operation and maintenance of CMS | Yes. |
| §63.8(c)(1)(iii) | Startup, shutdown, and malfunction plans for CMS | No. |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters**



| Citation | Subject | Applies to subpart DDDDD |
|---|---|---|
| §63.8(c)(2) to (c)(9) | Operation and maintenance of CMS | Yes. |
| §63.8(d)(1) and (2) | Monitoring Requirements, Quality Control Program | Yes. |
| §63.8(d)(3) | Written procedures for CMS | Yes, except for the last sentence, which refers to a startup, shutdown, and malfunction plan. Startup, shutdown, and malfunction plans are not required. |
| §63.8(e) | Performance evaluation of a CMS | Yes. |
| §63.8(f) | Use of an alternative monitoring method. | Yes. |
| §63.8(g) | Reduction of monitoring data | Yes. |
| §63.9 | Notification Requirements | Yes. |
| §63.10(a), (b)(1) | Recordkeeping and Reporting Requirements | Yes. |
| §63.10(b)(2)(i) | Recordkeeping of occurrence and duration of startups or shutdowns | Yes. |
| §63.10(b)(2)(ii) | Recordkeeping of malfunctions | No. See §63.7555(d)(7) for recordkeeping of occurrence and duration and §63.7555(d)(8) for actions taken during malfunctions. |
| §63.10(b)(2)(iii) | Maintenance records | Yes. |
| §63.10(b)(2)(iv) and (v) | Actions taken to minimize emissions during startup, shutdown, or malfunction | No. |
| §63.10(b)(2)(vi) | Recordkeeping for CMS malfunctions | Yes. |
| §63.10(b)(2)(vii) to (xiv) | Other CMS requirements | Yes. |
| §63.10(b)(3) | Recordkeeping requirements for applicability determinations | No. |
| §63.10(c)(1) to (9) | Recordkeeping for sources with CMS | Yes. |
| §63.10(c)(10) and (11) | Recording nature and cause of malfunctions, and corrective actions | No. See §63.7555(d)(7) for recordkeeping of occurrence and duration and §63.7555(d)(8) for actions taken during malfunctions. |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters**



| Citation | Subject | Applies to subpart DDDDD |
|---|---|---|
| §63.10(c)(12) and (13) | Recordkeeping for sources with CMS | Yes. |
| §63.10(c)(15) | Use of startup, shutdown, and malfunction plan | No. |
| §63.10(d)(1) and (2) | General reporting requirements | Yes. |
| §63.10(d)(3) | Reporting opacity or visible emission observation results | No. |
| §63.10(d)(4) | Progress reports under an extension of compliance | Yes. |
| §63.10(d)(5) | Startup, shutdown, and malfunction reports | No. See §63.7550(c)(11) for malfunction reporting requirements. |
| §63.10(e) | Additional reporting requirements for sources with CMS | Yes. |
| §63.10(f) | Waiver of recordkeeping or reporting requirements | Yes. |
| §63.11 | Control Device Requirements | No. |
| §63.12 | State Authority and Delegation | Yes. |
| §63.13-63.16 | Addresses, Incorporation by Reference, Availability of Information, Performance Track Provisions | Yes. |
| §63.1(a)(5),(a)(7)-(a)(9), (b)(2), (c)(3)-(4), (d), 63.6(b)(6), (c)(3), (c)(4), (d), (e)(2), (e)(3)(ii), (h)(3), (h)(5)(iv), 63.8(a)(3), 63.9(b)(3), (h)(4), 63.10(c)(2)-(4), (c)(9). | Reserved | No. |

**Table 11 to Subpart DDDDD of Part 63—Alternative Emission Limits for New or Reconstructed Boilers and Process Heaters That Commenced Construction or Reconstruction After June 4, 2010, and Before May 20, 2011**

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters**



| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| 1. Units in all subcategories designed to burn solid fuel | a. HCl | 0.022 lb per MMBtu of heat input | For M26A, collect a minimum of 1 dscm per run; for M26 collect a minimum of 120 liters per run. |
| 2. Units in all subcategories designed to burn solid fuel that combust at least 10 percent biomass/bio-based solids on an annual heat input basis and less than 10 percent coal/solid fossil fuels on an annual heat input basis | a. Mercury | 8.0E-07[a] lb per MMBtu of heat input | For M29, collect a minimum of 4 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 4 dscm. |
| 3. Units in all subcategories designed to burn solid fuel that combust at least 10 percent coal/solid fossil fuels on an annual heat input basis and less than 10 percent biomass/bio-based solids on an annual heat input basis | a. Mercury | 2.0E-06 lb per MMBtu of heat input | For M29, collect a minimum of 4 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 4 dscm. |
| 4. Units design to burn coal/solid fossil fuel | a. Filterable PM (or TSM) | 1.1E-03 lb per MMBtu of heat input; or (2.3E-05 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 5. Pulverized coal boilers designed to burn coal/solid fossil fuel | a. Carbon monoxide (CO) (or CEMS) | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (320 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1 hr minimum sampling time. |
| 6. Stokers designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (340 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 10-day rolling average) | 1 hr minimum sampling time. |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters**



| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| 7. Fluidized bed units designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (230 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1 hr minimum sampling time. |
| 8. Fluidized bed units with an integrated heat exchanger designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 140 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (150 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1 hr minimum sampling time. |
| 9. Stokers/sloped grate/others designed to burn wet biomass fuel | a. CO (or CEMS) | 620 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (390 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 3.0E-02 lb per MMBtu of heat input; or (2.6E-05 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |
| 10. Stokers/sloped grate/others designed to burn kiln-dried biomass fuel | a. CO | 560 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 3.0E-02 lb per MMBtu of heat input; or (4.0E-03 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |
| 11. Fluidized bed units designed to burn biomass/bio-based solids | a. CO (or CEMS) | 230 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (310 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling | 1 hr minimum sampling time. |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| | | average) | |
| | b. Filterable PM (or TSM) | 9.8E-03 lb per MMBtu of heat input; or (8.3E-05[a] lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 12. Suspension burners designed to burn biomass/bio-based solids | a. CO (or CEMS) | 2,400 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (2,000 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 10-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 3.0E-02 lb per MMBtu of heat input; or (6.5E-03 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |
| 13. Dutch Ovens/Pile burners designed to burn biomass/bio-based solids | a. CO (or CEMS) | 1,010 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (520 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 10-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 8.0E-03 lb per MMBtu of heat input; or (3.9E-05 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 14. Fuel cell units designed to burn biomass/bio-based solids | a. CO | 910 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 2.0E-02 lb per MMBtu of heat input; or (2.9E-05 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |
| 15. Hybrid suspension grate boiler designed to burn biomass/bio-based solids | a. CO (or CEMS) | 1,100 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (900 ppm by | 1 hr minimum sampling time. |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| | | volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | |
| | b. Filterable PM (or TSM) | 2.6E-02 lb per MMBtu of heat input; or (4.4E-04 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 16. Units designed to burn liquid fuel | a. HCl | 4.4E-04 lb per MMBtu of heat input | For M26A: Collect a minimum of 2 dscm per run; for M26, collect a minimum of 240 liters per run. |
| | b. Mercury | 4.8E-07[a] lb per MMBtu of heat input | For M29, collect a minimum of 4 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 4 dscm. |
| 17. Units designed to burn heavy liquid fuel | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 1.3E-02 lb per MMBtu of heat input; or (7.5E-05 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 18. Units designed to burn light liquid fuel | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 2.0E-03[a] lb per MMBtu of heat input; or (2.9E-05 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 19. Units designed to burn liquid fuel that are non-continental units | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average based on stack test | 1 hr minimum sampling time. |
| | b. Filterable | 2.3E-02 lb per MMBtu of heat | Collect a minimum of 4 |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| | PM (or TSM) | input; or (8.6E-04 lb per MMBtu of heat input) | dscm per run. |
| 20. Units designed to burn gas 2 (other) gases | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average | 1 hr minimum sampling time. |
| | b. HCl | 1.7E-03 lb per MMBtu of heat input | For M26A, Collect a minimum of 2 dscm per run; for M26, collect a minimum of 240 liters per run. |
| | c. Mercury | 7.9E-06 lb per MMBtu of heat input | For M29, collect a minimum of 3 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 3 dscm. |
| | d. Filterable PM (or TSM) | 6.7E-03 lb per MMBtu of heat input; or (2.1E-04 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |

[a]If you are conducting stack tests to demonstrate compliance and your performance tests for this pollutant for at least 2 consecutive years show that your emissions are at or below this limit, you can skip testing according to §63.7515 if all of the other provision of §63.7515 are met. For all other pollutants that do not contain a footnote "a", your performance tests for this pollutant for at least 2 consecutive years must show that your emissions are at or below 75 percent of this limit in order to qualify for skip testing.

[b]Incorporated by reference, see §63.14.

[c]An owner or operator may request an alternative test method under §63.7 of this chapter, in order that compliance with the carbon monoxide emissions limit be determined using carbon dioxide as a diluent correction in place of oxygen at 3%. EPA Method 19 F-factors and EPA Method 19 equations must be used to generate the appropriate $CO_2$ correction percentage for the fuel type burned in the unit, and must also take into account that the 3% oxygen correction is to be done on a dry basis. The alternative test method request must account for any $CO_2$ being added to, or removed from, the emissions gas stream as a result of limestone injection, scrubber media, etc.

# ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters



**Table 12 to Subpart DDDDD of Part 63—Alternative Emission Limits for New or Reconstructed Boilers and Process Heaters That Commenced Construction or Reconstruction After May 20, 2011, and Before December 23, 2011**

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| 1. Units in all subcategories designed to burn solid fuel | a. HCl | 0.022 lb per MMBtu of heat input | For M26A, collect a minimum of 1 dscm per run; for M26 collect a minimum of 120 liters per run. |
| | b. Mercury | 3.5E-06[a] lb per MMBtu of heat input | For M29, collect a minimum of 3 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 3 dscm. |
| 2. Units design to burn coal/solid fossil fuel | a. Filterable PM (or TSM) | 1.1E-03 lb per MMBtu of heat input; or (2.3E-05 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 3. Pulverized coal boilers designed to burn coal/solid fossil fuel | a. Carbon monoxide (CO) (or CEMS) | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (320 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1 hr minimum sampling time. |
| 4. Stokers designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (340 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 10-day rolling average) | 1 hr minimum sampling time. |
| 5. Fluidized bed units designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (230 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1 hr minimum sampling time. |
| 6. Fluidized bed units with an integrated heat exchanger designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 140 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (150 ppm by volume on a dry basis corrected to | 1 hr minimum sampling time. |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| | | 3 percent oxygen,[c] 30-day rolling average) | |
| 7. Stokers/sloped grate/others designed to burn wet biomass fuel | a. CO (or CEMS) | 620 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (390 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 3.0E-02 lb per MMBtu of heat input; or (2.6E-05 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |
| 8. Stokers/sloped grate/others designed to burn kiln-dried biomass fuel | a. CO<br>b. Filterable PM (or TSM) | 460 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average<br>3.0E-02 lb per MMBtu of heat input; or (4.0E-03 lb per MMBtu of heat input) | 1 hr minimum sampling time.<br>Collect a minimum of 2 dscm per run. |
| 9. Fluidized bed units designed to burn biomass/bio-based solids | a. CO (or CEMS) | 260 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (310 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 9.8E-03 lb per MMBtu of heat input; or (8.3E-05[a] lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 10. Suspension burners designed to burn biomass/bio-based solids | a. CO (or CEMS) | 2,400 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (2,000 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 10-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 3.0E-02 lb per MMBtu of heat input; or (6.5E-03 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |
| 11. Dutch Ovens/Pile burners designed to burn | a. CO (or CEMS) | 470 ppm by volume on a dry basis corrected to 3 percent oxygen, 3- | 1 hr minimum sampling time. |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| biomass/bio-based solids | | run average; or (520 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 10-day rolling average) | |
| | b. Filterable PM (or TSM) | 3.2E-03 lb per MMBtu of heat input; or (3.9E-05 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 12. Fuel cell units designed to burn biomass/bio-based solids | a. CO<br>b. Filterable PM (or TSM) | 910 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average<br>2.0E-02 lb per MMBtu of heat input; or (2.9E-05 lb per MMBtu of heat input) | 1 hr minimum sampling time. Collect a minimum of 2 dscm per run. |
| 13. Hybrid suspension grate boiler designed to burn biomass/bio-based solids | a. CO (or CEMS) | 1,500 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (900 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 2.6E-02 lb per MMBtu of heat input; or (4.4E-04 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 14. Units designed to burn liquid fuel | a. HCl | 4.4E-04 lb per MMBtu of heat input | For M26A: Collect a minimum of 2 dscm per run; for M26, collect a minimum of 240 liters per run. |
| | b. Mercury | 4.8E-07[a] lb per MMBtu of heat input | For M29, collect a minimum of 4 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 4 dscm. |
| 15. Units designed to burn heavy liquid fuel | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 1.3E-02 lb per MMBtu of heat input; or (7.5E-05 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| 16. Units designed to burn light liquid fuel | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 1.3E-03[a] lb per MMBtu of heat input; or (2.9E-05 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 17. Units designed to burn liquid fuel that are non-continental units | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average based on stack test | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 2.3E-02 lb per MMBtu of heat input; or (8.6E-04 lb per MMBtu of heat input) | Collect a minimum of 4 dscm per run. |
| 18. Units designed to burn gas 2 (other) gases | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average | 1 hr minimum sampling time. |
| | b. HCl | 1.7E-03 lb per MMBtu of heat input | For M26A, Collect a minimum of 2 dscm per run; for M26, collect a minimum of 240 liters per run. |
| | c. Mercury | 7.9E-06 lb per MMBtu of heat input | For M29, collect a minimum of 3 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 3 dscm. |
| | d. Filterable PM (or TSM) | 6.7E-03 lb per MMBtu of heat input; or (2.1E-04 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |

[a]If you are conducting stack tests to demonstrate compliance and your performance tests for this pollutant for at least 2 consecutive years show that your emissions are at or below this limit, you can skip testing according to §63.7515 if all of the other provision of §63.7515 are met. For all other pollutants that do not contain a footnote "a", your performance tests for this pollutant for at least 2 consecutive years must show that your emissions are at or below 75 percent of this limit in order to qualify for skip testing.

[b]Incorporated by reference, see §63.14.

[c]An owner or operator may request an alternative test method under §63.7 of this chapter, in order that compliance with the carbon monoxide emissions limit be determined using carbon dioxide as a diluent

correction in place of oxygen at 3%. EPA Method 19 F-factors and EPA Method 19 equations must be used to generate the appropriate $CO_2$ correction percentage for the fuel type burned in the unit, and must also take into account that the 3% oxygen correction is to be done on a dry basis. The alternative test method request must account for any $CO_2$ being added to, or removed from, the emissions gas stream as a result of limestone injection, scrubber media, etc.

**Table 13 to Subpart DDDDD of Part 63—Alternative Emission Limits for New or Reconstructed Boilers and Process Heaters That Commenced Construction or Reconstruction After December 23, 2011, and Before April 1, 2013**

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| 1. Units in all subcategories designed to burn solid fuel | a. HCl | 0.022 lb per MMBtu of heat input | For M26A, collect a minimum of 1 dscm per run; for M26 collect a minimum of 120 liters per run. |
| | b. Mercury | 8.6E-07[a] lb per MMBtu of heat input | For M29, collect a minimum of 4 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 4 dscm. |
| 2. Pulverized coal boilers designed to burn coal/solid fossil fuel | a. Carbon monoxide (CO) (or CEMS) | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (320 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 1.1E-03 lb per MMBtu of heat input; or (2.8E-05 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 3. Stokers designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (340 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 10-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 2.8E-02 lb per MMBtu of heat input; or (2.3E-05 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |
| 4. Fluidized bed units | a. CO (or | 130 ppm by volume on a dry basis | 1 hr minimum sampling time. |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| designed to burn coal/solid fossil fuel | CEMS) | corrected to 3 percent oxygen, 3-run average; or (230 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | |
| | b. Filterable PM (or TSM) | 1.1E-03 lb per MMBtu of heat input; or (2.3E-05 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 5. Fluidized bed units with an integrated heat exchanger designed to burn coal/solid fossil fuel | a. CO (or CEMS) | 140 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (150 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 1.1E-03 lb per MMBtu of heat input; or (2.3E-05 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 6. Stokers/sloped grate/others designed to burn wet biomass fuel | a. CO (or CEMS) | 620 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (410 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 10-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 3.0E-02 lb per MMBtu of heat input; or (2.6E-05 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |
| 7. Stokers/sloped grate/others designed to burn kiln-dried biomass fuel | a. CO | 460 ppm by volume on a dry basis corrected to 3 percent oxygen | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 3.2E-01 lb per MMBtu of heat input; or (4.0E-03 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |
| 8. Fluidized bed units designed to burn biomass/bio-based solids | a. CO (or CEMS) | 230 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (310 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 9.8E-03 lb per MMBtu of heat input; or (8.3E-05[a] lb per MMBtu of heat | Collect a minimum of 3 dscm per run. |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| | | input) | |
| 9. Suspension burners designed to burn biomass/bio-based solids | a. CO (or CEMS) | 2,400 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (2,000 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 10-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 5.1E-02 lb per MMBtu of heat input; or (6.5E-03 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |
| 10. Dutch Ovens/Pile burners designed to burn biomass/bio-based solids | a. CO (or CEMS) | 810 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (520 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 10-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 3.6E-02 lb per MMBtu of heat input; or (3.9E-05 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |
| 11. Fuel cell units designed to burn biomass/bio-based solids | a. CO | 910 ppm by volume on a dry basis corrected to 3 percent oxygen | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 2.0E-02 lb per MMBtu of heat input; or (2.9E-05 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |
| 12. Hybrid suspension grate boiler designed to burn biomass/bio-based solids | a. CO (or CEMS) | 1,500 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (900 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 30-day rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 2.6E-02 lb per MMBtu of heat input; or (4.4E-04 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 13. Units designed to burn liquid fuel | a. HCl | 1.2E-03 lb per MMBtu of heat input | For M26A: Collect a minimum of 2 dscm per run; for M26, collect a minimum of 240 liters per run. |
| | b. Mercury | 4.9E-07[a] lb per MMBtu of heat input | For M29, collect a minimum of 4 dscm per run; for M30A or |

**ATTACHMENT – S.C. Regulation 61-62.63 and 40 CFR 63, Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters**



| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| | | | M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 4 dscm. |
| 14. Units designed to burn heavy liquid fuel | a. CO (or CEMS) | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average; or (18 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 10-day rolling average) | 1 hr minimum sampling time. |
| 15. Units designed to burn light liquid fuel | a. CO (or CEMS) | 130[a] ppm by volume on a dry basis corrected to 3 percent oxygen; or (60 ppm by volume on a dry basis corrected to 3 percent oxygen,[c] 1-day block average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 1.1E-03[a] lb per MMBtu of heat input; or (2.9E-05 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |
| 16. Units designed to burn liquid fuel that are non-continental units | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-run average based on stack test; or (91 ppm by volume on a dry basis corrected to 3 percent oxygen, 3-hour rolling average) | 1 hr minimum sampling time. |
| | b. Filterable PM (or TSM) | 2.3E-02 lb per MMBtu of heat input; or (8.6E-04 lb per MMBtu of heat input) | Collect a minimum of 2 dscm per run. |
| 17. Units designed to burn gas 2 (other) gases | a. CO | 130 ppm by volume on a dry basis corrected to 3 percent oxygen | 1 hr minimum sampling time. |
| | b. HCl | 1.7E-03 lb per MMBtu of heat input | For M26A, Collect a minimum of 2 dscm per run; for M26, collect a minimum of 240 liters per run. |
| | c. Mercury | 7.9E-06 lb per MMBtu of heat input | For M29, collect a minimum of 3 dscm per run; for M30A or M30B, collect a minimum sample as specified in the method; for ASTM D6784[b] collect a minimum of 3 dscm. |

| If your boiler or process heater is in this subcategory . . . | For the following pollutants . . . | The emissions must not exceed the following emission limits, except during periods of startup and shutdown . . . | Using this specified sampling volume or test run duration . . . |
|---|---|---|---|
| | d. Filterable PM (or TSM) | 6.7E-03 lb per MMBtu of heat input; or (2.1E-04 lb per MMBtu of heat input) | Collect a minimum of 3 dscm per run. |

[a]If you are conducting stack tests to demonstrate compliance and your performance tests for this pollutant for at least 2 consecutive years show that your emissions are at or below this limit and you are not required to conduct testing for CEMS or CPMS monitor certification, you can skip testing according to §63.7515 if all of the other provision of §63.7515 are met. For all other pollutants that do not contain a footnote "a", your performance tests for this pollutant for at least 2 consecutive years must show that your emissions are at or below 75 percent of this limit in order to qualify for skip testing.

[b]Incorporated by reference, see §63.14.

[c]An owner or operator may request an alternative test method under §63.7 of this chapter, in order that compliance with the carbon monoxide emissions limit be determined using carbon dioxide as a diluent correction in place of oxygen at 3%. EPA Method 19 F-factors and EPA Method 19 equations must be used to generate the appropriate $CO_2$ correction percentage for the fuel type burned in the unit, and must also take into account that the 3% oxygen correction is to be done on a dry basis. The alternative test method request must account for any $CO_2$ being added to, or removed from, the emissions gas stream as a result of limestone injection, scrubber media, etc.

# ATTACHMENT - Pollution Control Equipment – Parameter Ranges

## New-Indy Catawba LLC
## TV-2440-0005
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**Table H-1 Pollution Control Equipment Parameter Ranges**

| Unit ID | Equip. No. | Control Device No. | Pollutant | Applicable Requirement | Parameter Monitored, Performance Indicator, etc. | Ranges | Range Basis |
|---|---|---|---|---|---|---|---|
| 02 | 5210<br>5250 | 2605<br>3705 | TRS | 40 CFR 60, Subparts A and BB (NSPS BB);<br><br>40 CFR Part 64 (CAM);<br><br>SC Reg. 61-62.70(6)(3) (Streamlining); | •Track periods when TRS gases from affected sources are not combusted (Flame failure system)<br><br>•Record any bypass vent times and other TRS collection system losses | ≤ 5 ppmv (dry basis) 10% $O_2$ | NSPS BB |
| 02 | 5210<br>5220<br>5230<br>5240<br>5250 | 2605<br>3705 | HAP | 40 CFR Part 63, Subparts A and S (MACT S) | HAP stream introduced with combustion air in unit > 150 million BTU/hour | Streams to sources | MACT S |
| 02 | 5260 | 5260C | TRS | 40 CFR 60, Subparts A and BB (NSPS BB) | **Title V Parameter Monitoring:** LVHC Scrubber<br>**Parameter Range(s):** Parameter exceedance if outside the following parameter ranges: | | • Test data |
| | | | | | Scrubber liquid flow, at least once per day: | **≥ 30 gpm** | |
| | | | | | Scrubber liquid pH, at least once per day: | **≥ 10 pH** | |
| 03 | 5300 | 5300C | HAP ($Cl_2$) | 40 CFR Part 63, Subparts A and S (MACT S);<br><br>SC Reg. 61-62.5, Std. 4 | **MACT S monitoring used:** Bleaching System Scrubber<br>**Excess Emissions:** Potential excess emissions if outside the following ranges under conditions defined by regulation: | | • Test data<br>• Alternative monitoring |
| | | | | | • Scrubber liquid recirculation (influent) flow, minimum, 3-hr average: | **> 87 gpm** | |
| | | | | | • Scrubber pH (influent), 3-hr average: | **> 10.4 pH** | |
| | | | | | • Fan status: | **= On** | |
| 04 | 1790 | 1790C; 1790Ca | Opacity | SC Reg. 61-62.5, Std. 4 | **Title V Parameter Monitoring:** $ClO_2$ Generator Scrubber<br>**Parameter Range(s)** Parameter exceedance if outside the following parameter ranges: | | • Test data |
| | | | | | • Scrubber pressure drop, at least once per day: | **≤ 18 in $H_2O$** | |
| | | | | | • Scrubber liquid flow, at least once per day: | **≥ 50 gpm** | |
| | | | | | • Scrubber liquid pH, at least once per day: | **≥ 10 pH** | |
| 06 | 9700 | B-2000 | PM | SC Reg. 61-62.5, Std. 4 | **CAM Indicator Range(s)**: two Starch Silos Baghouses<br>**Excursion range** Corrective action | | • Visible observations |

# ATTACHMENT - Pollution Control Equipment – Parameter Ranges

## New-Indy Catawba LLC
## TV-2440-0005
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| Table H-1 Pollution Control Equipment Parameter Ranges | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Unit ID** | **Equip. No.** | **Control Device No.** | **Pollutant** | **Applicable Requirement** | **Parameter Monitored, Performance Indicator, etc.** | **Ranges** | **Range Basis** |
| | | | | | required if outside following range under conditions defined by CAM condition: | | |
| | | | | | • Visual emissions | **= 0** | |
| 07 | 2723 | 2723S2 | Opacity, PM | SC Reg. 61-62.5, Std. 4<br>40 CFR 60, Subpart BB<br>SC 61-62.2, Sec. II(E) | **CAM Indicator Range(s)**: No. 2 Lime Kiln ESP {MACT MM Presumptive for CAM}<br>**Excursion range** Corrective action required if outside following range under conditions defined by CAM condition: | | • Based on MACT MM requirement |
| | | | | | • COMs Direct Opacity [average of ten consecutive six-minute averages] | **≤ 20** | |
| 07 | 2505 | 2505C | Opacity, PM | SC Reg. 61-62.5, Std. 4 | **CAM Indicator Range(s)**: No. 2 Recovery Furnace ESP {MACT MM Presumptive for CAM}<br>**Excursion range** Corrective action required if outside following range under conditions defined by CAM condition: | | • Based on MACT MM requirement |
| | | | | | • COMs Direct Opacity [average of ten consecutive six-minute averages] | **≤ 20** | |
| 07 | 5105 | 5105C | Opacity,PM | SC Reg. 61-62.5, Std. 4<br>40 CFR 60, Subpart BB | **CAM Indicator Range(s)**: No. 3 Recovery Furnace ESP {MACT MM Presumptive for CAM}<br>**Excursion range** Corrective action required if outside following range(s) under conditions defined by CAM condition: | | • Based on MACT MM requirement |
| | | | | | • COMs Direct Opacity [average of ten consecutive six-minute averages] | **≤ 20** | |
| 07 | 5105 | 5105C | PM | SC Reg. 61-62.5, Std. 7 | **CAM Indicator Range(s)**: No. 3 Recovery Furnace ESP<br>**Excursion range** Corrective action required if outside following range(s) under conditions defined by CAM condition: | | • Test Data |
| | | | | | • COMs Direct Opacity [average of ten consecutive six-minute averages] | **≤ 20** | |
| 07 | 2510<br>5110 | 2511C | HAP Metals (PM) | 40 CFR 63, Subpart MM | **MACT Operating Range(s):** No. 2 and 3 Smelt Dissolving Tank Scrubber<br>**Exceedance** Corrective action required if outside the following ranges under conditions defined by regulation: | | • Test Data |
| | | | | | • Scrubbing liquid flow, 3-hr average: | **≥65 gpm** | |
| | | | | | • Scrubber pressure drop, 3-hr average: | **≥ 1.5 in $H_2O$** | |
| | | | | | **Exceedance** violation if outside the following ranges under conditions defined | | |

# ATTACHMENT - Pollution Control Equipment – Parameter Ranges

## New-Indy Catawba LLC
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| Table H-1 Pollution Control Equipment Parameter Ranges | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Unit ID** | **Equip. No.** | **Control Device No.** | **Pollutant** | **Applicable Requirement** | **Parameter Monitored, Performance Indicator, etc.** | **Ranges** | **Range Basis** |
| | | | | | by regulation: | | |
| | | | | | • Scrubbing liquid flow, 3-hr average: | **≥65 gpm** | |
| | | | | | • Scrubber pressure drop, 3-hr average: | **≥ 1.5 in $H_2O$** | |
| 07 | 2510<br>5110 | 2511C | Opacity | SC Reg. 61-62.5, Std. 4 | **Title V Parameter Range(s):** No. 2 and No. 3 Smelt Tanks Scrubber {MACT MM streamlining for TV}<br>**Parameter Range(s)** Parameter exceedance if outside the following parameter ranges: | | • Test Data |
| | | | | | • Scrubber liquid flow, 3-hr average: | **≥ 65 gpm** | |
| | | | | | • Scrubber liquid pH, 3-hr average: | **≥ 1.5 in. $H_2O$** | |
| 07 | 5110 | 2511C | PM | SC Reg. 61-62.5, Std. 7<br>40 CFR 60, Subpart BB | **CAM Indicator Range(s)**: No. 2 and No. 3 Smelt Tanks Scrubber {MACT MM Presumptive for CAM}<br>**Excursion range** Corrective action required if outside following ranges under conditions defined by CAM condition: | | • Test Data |
| | | | | | • Scrubbing liquid flow, 3-hr average: | **≥ 65 gpm** | |
| | | | | | • Scrubber pressure drop, 3-hr average: | **≥ 1.5 in $H_2O$** | |
| 07 | 2510<br>5110 | 2511C | TRS | 2510:<br>SC Reg. 61-62.5, Std. 4<br><br>5110:<br>SC Reg. 61-62.5, Std. 7<br>40 CFR 60, Subpart BB | **Title V Parameter Range(s):** No. 2 and No. 3 Smelt Tank Scrubber {MACT MM streamlining for TV}<br>**Parameter Range(s)** Parameter exceedance if outside the following parameter ranges: | | • Test Data |
| | | | | | • Scrubber liquid flow, 3-hr average: | **≥65 gpm** | |
| | | | | | • Scrubber pressure drop, 3-hr average: | **≥ 1.5 in $H_2O$** | |
| 07 | 2700<br>2701 | 2725C | Opacity, PM | SC Reg. 61-62.5, Std. 4 | **CAM Performance Indicator**: Slaker Venturi Caustic Scrubber<br>**Excursion range** Corrective action required if outside following range under conditions defined by CAM condition: | | • Test Data |
| | | | | | • Scrubbing liquid flow, once per shift: | **≥ 10 gpm** | |
| 07 | 2702 | 2726C | PM | SC Reg. 61-62.5, Std. 4 | **CAM Indicator Range(s)**: Purchased lime silo bag house<br>**Excursion range** corrective action required if outside following range under conditions defined by CAM condition: | | • Visible observations |
| | | | | | • Visual emissions | **= 0** | |

# ATTACHMENT - Pollution Control Equipment – Parameter Ranges

## New-Indy Catawba LLC
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| Table H-1 Pollution Control Equipment Parameter Ranges | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Unit ID** | **Equip. No.** | **Control Device No.** | **Pollutant** | **Applicable Requirement** | **Parameter Monitored, Performance Indicator, etc.** | **Ranges** | **Range Basis** |
| 07 | 2703 | 2724C | PM | SC Reg. 61-62.5, Std. 4 | **CAM Indicator Range(s)**: Reburned lime silo bag house<br>**Excursion range** Corrective action required if outside following range under conditions defined by CAM condition: | | • Visible observations |
| | | | | | • Visual emissions | **= 0** | |
| 08 | 2605 | 2605C | PM | SC Reg. 61-62.5, Std. 1 | **CAM Indicator Range(s)**: No. 1 Combination Boiler {MACT DDDDD presumptive for CAM}<br><br>**Excursion range** Corrective action required if outside following range under conditions defined by CAM condition: | | • Test Data |
| | | | | | • Maximum Opacity, daily block average: | **≤ 10%** | |
| | | | | | • Maximum Steam Load, 30-day block average: | **≤ 314,900 lb/hr** | |
| | | | | | • Minimum oxygen ($O_2$) concentration, 30-day block average: | **≥ 4.2%** | |
| 08 | 2605 | 2605 | TRS | SC Reg. 61-62.5, Std. 4<br>40 CFR 60, Subpart BB | **CAM Indicator Range(s)**: No. 1 Combination Boiler<br>**Excursion range** Corrective action required if outside following range under conditions defined by CAM condition: | | • Visible observations |
| | | | | | • Venting: | **= 0** | |
| 08 | 3705 | 3705C | PM | SC Reg. 61-62.5, Std. 1 | **CAM Indicator Range(s)**: No. 2 Combination Boiler {MACT DDDDD presumptive for CAM}<br><br>**Excursion range** Corrective action required if outside following range under conditions defined by CAM condition: | | • Test Data |
| | | | | | • Maximum Opacity, daily block average: | **≤ 16%** | |
| | | | | | • Maximum Steam Load, 30-day block average: | **≤ 308,000 lb/hr** | |
| | | | | | • Minimum oxygen ($O_2$) concentration, 30-day block average: | **≥ 7.0%** | |
| 08 | 3705 | 3705 | TRS | SC Reg. 61-62.5, Std. 4<br>40 CFR 60, Subpart BB | **CAM Indicator Range(s)**: No. 2 Combination Boiler<br>**Excursion range** Corrective action required if outside following range under conditions defined by CAM condition: | | • Visible observations |
| | | | | | • Venting: | **= 0** | |

# ATTACHMENT - Pollution Control Equipment – Parameter Ranges

## New-Indy Catawba LLC
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$Cl_2$ = Elemental chlorine
TRS = Total reduced sulfur
PM = Particulate Matter
MACT = Maximum achievable control technology (control level required by NESHAP 40 CFR Part 63)
MACT S = 40 CFR 63, Subparts A and S; and SC Reg. 61-62.63, Subparts A and S
MACT MM = NESHAP 40 CFR 63, Subparts A and MM; and SC Reg. 61-62.63, Subparts A and MM
NSPS = New Source Performance Standard
NSPS BB = *NSPS 40 CFR 60, Subparts A and BB; and SC Reg. 61-62.60, Subparts A and BB*
PSD = Prevention of significant deterioration
COMS = Continuous opacity monitoring system
CPMS = Continuous parametric monitoring system
$SO_2$ = Sulfur Dioxide
SC Reg. = South Carolina regulation
SC Std. 1 = SC Reg. 61-62.5, Standard No. 1 {Emissions From Fuel Burning}
SC Std. 1 = SC Reg. 61-62.5, Standard No. 4 {Emissions From Process Industries}
SC Std. 1 = SC Reg. 61-62.5, Standard No. 7 {Prevention of Significant Deterioration}
SC SM = SC Reg. 61-62, Section II(E) {Synthetic Minor}
< = less than; > = greater than; ≤ = less than or equal to; ≥ = greater than or equal to

**ATTACHMENT – CAIR Permit**

**New-Indy Catawba LLC**
**TV-2440-0005**


# South Carolina CAIR Permit

## (for sources covered under the South Carolina CAIR SIP)

**For more information, refer to:**
**40 CFR 96.121, 96.122, 96.221, 96.222, 96.321, 96.322, and South Carolina Regulation 61-62.96.**

| **STEP 1** Identify the source by plant name, State, and ORIS or facility code | New-Indy Catawba LLC (Plant Name) | SC (State) | 002440 (ORIS/Facility Code) |
|---|---|---|---|

| **STEP 2** Identify the unit ID# for each CAIR unit and indicate to which CAIR programs each unit is subject (by placing an "X" in the column) | Unit ID# | $NO_X$ Annual | $SO_2$ | $NO_X$ Ozone Season |
|---|---|---|---|---|
| | 2550 | N/A | N/A | X |

**STEP 3**
**Identify the standard requirements.**

**Standard Requirements**

(a) Permit Requirements.

(1) The CAIR designated representative of each CAIR $NO_X$ source, CAIR $SO_2$ source, and CAIR $NO_X$ Ozone Season source (as applicable) required to have a title V operating permit and each CAIR $NO_X$ unit, CAIR $SO_2$ unit, and CAIR $NO_X$ Ozone Season unit (as applicable) required to have a title V operating permit at the source shall:

(i) Submit to the South Carolina Department of Health and Environmental Control a complete CAIR permit application under §96.122, §96.222, and §96.322 (as applicable) in accordance with the deadlines specified in §96.121, §96.221, and §96.321 (as applicable); and

(ii) Submit in a timely manner any supplemental information that the South Carolina Department of Health and Environmental Control determines is necessary in order to review a CAIR permit application and issue or deny a CAIR permit.

(2) The owners and operators of each CAIR $NO_X$ source, CAIR $SO_2$ source, and CAIR $NO_X$ Ozone Season source (as applicable) required to have a title V operating permit and each CAIR $NO_X$ unit, CAIR $SO_2$ unit, and CAIR $NO_X$ Ozone Season unit (as applicable) required to have a title V operating permit at the source shall have a CAIR permit issued by the South Carolina Department of Health and Environmental Control under subpart CC, CCC, and CCCC (as applicable) of 40 CFR part 96 for the source and operate the source and the unit in compliance with such CAIR permit.

(3) Except as provided in subpart II, III, and IIII (as applicable) of 40 CFR part 96, the owners and operators of a CAIR $NO_X$ source, CAIR $SO_2$ source, and CAIR $NO_X$ Ozone Season source (as applicable) that is not otherwise required to have a title V operating permit and each CAIR $NO_X$ unit, CAIR $SO_2$ unit, and CAIR $NO_X$ Ozone Season unit (as applicable) that is not otherwise required to have a title V operating permit are not required to submit a CAIR permit application, and to have a CAIR permit, under subpart CC, CCC, and CCCC (as applicable) of 40 CFR part 96 for such CAIR $NO_X$ source, CAIR $SO_2$ source, and CAIR $NO_X$ Ozone Season source (as applicable) and such CAIR $NO_X$ unit, CAIR $SO_2$ unit, and CAIR $NO_X$ Ozone Season unit (as applicable).

(b) Monitoring, reporting, and recordkeeping requirements.

(1) The owners and operators, and the CAIR designated representative, of each CAIR $NO_X$ source, CAIR $SO_2$ source, and CAIR $NO_X$ Ozone Season source (as applicable) and each CAIR $NO_X$ unit, CAIR $SO_2$ unit, and CAIR $NO_X$ Ozone Season unit (as applicable) at the source shall comply with the monitoring, reporting, and recordkeeping requirements of subparts HH, HHH, and HHHH (as applicable) of 40 CFR part 96.

(2) The emissions measurements recorded and reported in accordance with subparts HH, HHH, and HHHH (as applicable) of 40 CFR part 96 shall be used to determine compliance by each CAIR $NO_X$ source, CAIR $SO_2$ source, and CAIR $NO_X$ Ozone Season source (as applicable) with the CAIR $NO_X$ emissions limitation, CAIR $SO_2$ emissions limitation, and CAIR $NO_X$ Ozone Season emissions limitation (as applicable) under paragraph (c) of §96.106, §96.206, and §96.306 (as applicable).

| | |
|---|---|
| | (c) Nitrogen oxides emissions requirements. (Not Applicable)<br><br>Sulfur dioxide emission requirements. (Not Applicable)<br><br>Nitrogen oxides ozone season emissions requirements.<br>(1) As of the allowance transfer deadline for a control period, the owners and operators of each CAIR $NO_X$ Ozone Season source and each CAIR $NO_X$ Ozone Season unit at the source shall hold, in the source's compliance account, CAIR $NO_X$ Ozone Season allowances available for compliance deductions for the control period under §96.354(a) in an amount not less than the tons of total nitrogen oxides emissions for the control period from all CAIR $NO_X$ Ozone Season units at the source, as determined in accordance with subpart HHHH of 40 CFR part 96.<br>(2) A CAIR $NO_X$ Ozone Season unit shall be subject to the requirements under paragraph (c)(1) of §96.306 for the control period starting on the later of May 1, 2009 or the deadline for meeting the unit's monitor certification requirements under §96.370(b)(1), (2), (3) or (7) and for each control period thereafter.<br>(3) A CAIR $NO_X$ Ozone Season allowance shall not be deducted, for compliance with the requirements under paragraph (c)(1) of §96.306, for a control period in a calendar year before the year for which the CAIR $NO_X$ Ozone Season allowance was allocated.<br>(4) CAIR $NO_X$ Ozone Season allowances shall be held in, deducted from, or transferred into or among CAIR $NO_X$ Ozone Season Allowance Tracking System accounts in accordance with subparts FFFF, GGGG, and IIII of 40 CFR part 96.<br>(5) A CAIR $NO_X$ allowance is a limited authorization to emit one ton of nitrogen oxides in accordance with the CAIR $NO_X$ Ozone Season Trading Program. No provision of the CAIR $NO_X$ Ozone Season Trading Program, the CAIR permit application, the CAIR permit, or an exemption under §96.305 and no provision of law shall be construed to limit the authority of the State or the United States to terminate or limit such authorization.<br>(6) A CAIR $NO_X$ allowance does not constitute a property right.<br>(7) Upon recordation by the Administrator under subpart EEEE, FFFF, GGGG, or IIII of 40 CFR part 96, every allocation, transfer, or deduction of a CAIR $NO_X$ Ozone Season allowance to or from a CAIR $NO_X$ Ozone Season source's compliance account is incorporated automatically in any CAIR permit of the source.<br><br>(d) Excess emissions requirements.<br>If a CAIR $NO_X$ source emits nitrogen oxides during any control period in excess of the CAIR $NO_X$ emissions limitation, then:<br>(1) The owners and operators of the source and each CAIR $NO_X$ unit at the source shall surrender the CAIR $NO_X$ allowances required for deduction under §96.154(d)(1) and pay any fine, penalty, or assessment or comply with any other remedy imposed, for the same violations, under the Clean Air Act or applicable State law; and<br>(2) Each ton of such excess emissions and each day of such control period shall constitute a separate violation of this subpart, the Clean Air Act, and applicable State law.<br><br>If a CAIR $SO_2$ source emits sulfur dioxide during any control period in excess of the CAIR $SO_2$ emissions limitation, then:<br>(1) The owners and operators of the source and each CAIR $SO_2$ unit at the source shall surrender the CAIR $SO_2$ allowances required for deduction under §96.254(d)(1) and pay any fine, penalty, or assessment or comply with any other remedy imposed, for the same violations, under the Clean Air Act or applicable State law; and<br>(2) Each ton of such excess emissions and each day of such control period shall constitute a separate violation of this subpart, the Clean Air Act, and applicable State law.<br>If a CAIR $NO_X$ Ozone Season source emits nitrogen oxides during any control period in excess of the CAIR $NO_X$ Ozone Season emissions limitation, then:<br>(1) The owners and operators of the source and each CAIR $NO_X$ Ozone Season unit at the source shall surrender the CAIR $NO_X$ Ozone Season allowances required for deduction under §96.354(d)(1) and pay any fine, penalty, or assessment or comply with any other remedy imposed, for the same violations, under the Clean Air Act or applicable State law; and<br>(2) Each ton of such excess emissions and each day of such control period shall constitute a separate violation of this subpart, the Clean Air Act, and applicable State law.<br><br>(e) Recordkeeping and Reporting Requirements.<br>(1) Unless otherwise provided, the owners and operators of the CAIR $NO_X$ source, CAIR $SO_2$ source, and CAIR $NO_X$ Ozone Season source (as applicable) and each CAIR $NO_X$ unit, CAIR $SO_2$ unit, and CAIR $NO_X$ Ozone Season unit (as applicable) at the source shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time before the end of 5 years, in writing by the South Carolina |

| | |
|---|---|
| | Department of Health and Environmental Control or the Administrator.<br>(i) The certificate of representation under §96.113, §96.213, and §96.313 (as applicable) for the CAIR designated representative for the source and each CAIR $NO_X$ unit, CAIR $SO_2$ unit, and CAIR $NO_X$ Ozone Season unit (as applicable) at the source and all documents that demonstrate the truth of the statements in the certificate of representation; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such documents are superseded because of the submission of a new certificate of representation under §96.113, §96.213, and §96.313 (as applicable) changing the CAIR designated representative.<br>(ii) All emissions monitoring information, in accordance with subparts HH, HHH, and HHHH (as applicable) of 40 CFR part 96, provided that to the extent that subparts HH, HHH, and HHHH (as applicable) of 40 CFR part 96 provides for a 3-year period for recordkeeping, the 3-year period shall apply.<br>(iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under the CAIR $NO_X$ Annual Trading Program, CAIR $SO_2$ Trading Program, and CAIR $NO_X$ Ozone Season Trading Program (as applicable).<br>(iv) Copies of all documents used to complete a CAIR permit application and any other submission under the CAIR $NO_X$ Annual Trading Program, CAIR $SO_2$ Trading Program, and CAIR $NO_X$ Ozone Season Trading Program (as applicable) or to demonstrate compliance with the requirements of the CAIR $NO_X$ Annual Trading Program, CAIR $SO_2$ Trading Program, and CAIR $NO_X$ Ozone Season Trading Program (as applicable).<br>(2) The CAIR designated representative of a CAIR $NO_X$ source, CAIR $SO_2$ source, and CAIR $NO_X$ Ozone Season source (as applicable) and each CAIR $NO_X$ unit, CAIR $SO_2$ unit, and CAIR $NO_X$ Ozone Season unit (as applicable) at the source shall submit the reports required under the CAIR $NO_X$ Annual Trading Program, CAIR $SO_2$ Trading Program, and CAIR $NO_X$ Ozone Season Trading Program (as applicable) including those under subparts HH, HHH, and HHHH (as applicable) of 40 CFR part 96.<br><br>(f) Liability.<br>(1) Each CAIR $NO_X$ source, CAIR $SO_2$ source, and CAIR $NO_X$ Ozone Season source (as applicable) and each $NO_X$ unit, CAIR $SO_2$ unit, and CAIR $NO_X$ Ozone Season unit (as applicable) shall meet the requirements of the CAIR $NO_X$ Annual Trading Program, CAIR $SO_2$ Trading Program, and CAIR $NO_X$ Ozone Season Trading Program (as applicable).<br>(2) Any provision of the CAIR $NO_X$ Annual Trading Program, CAIR $SO_2$ Trading Program, and CAIR $NO_X$ Ozone Season Trading Program (as applicable) that applies to a CAIR $NO_X$ source, CAIR $SO_2$ source, and CAIR $NO_X$ Ozone Season source (as applicable) or the CAIR designated representative of a CAIR $NO_X$ source, CAIR $SO_2$ source, and CAIR $NO_X$ Ozone Season source (as applicable) shall also apply to the owners and operators of such source and of the CAIR $NO_X$ units, CAIR $SO_2$ units, and CAIR $NO_X$ Ozone Season units (as applicable) at the source.<br>(3) Any provision of the CAIR $NO_X$ Annual Trading Program, CAIR $SO_2$ Trading Program, and CAIR $NO_X$ Ozone Season Trading Program (as applicable) that applies to a CAIR $NO_X$ unit, CAIR $SO_2$ unit, and CAIR $NO_X$ Ozone Season unit (as applicable) or the CAIR designated representative of a CAIR $NO_X$ unit, CAIR $SO_2$ unit, and CAIR $NO_X$ Ozone Season unit (as applicable) shall also apply to the owners and operators of such unit.<br><br>(g) Effect on Other Authorities.<br>No provision of the CAIR $NO_X$ Annual Trading Program, CAIR $SO_2$ Trading Program, and CAIR $NO_X$ Ozone Season Trading Program (as applicable), a CAIR permit application, a CAIR permit, or an exemption under § 96.105, §96.205, and §96.305 (as applicable) shall be construed as exempting or excluding the owners and operators, and the CAIR designated representative, of a CAIR $NO_X$ source, CAIR $SO_2$ source, and CAIR $NO_X$ Ozone Season source (as applicable) or CAIR $NO_X$ unit, CAIR $SO_2$ unit, and CAIR $NO_X$ Ozone Season unit (as applicable) from compliance with any other provision of the applicable, approved State implementation plan, a federally enforceable permit, or the Clean Air Act. |

# ATTACHMENT - Abbreviations and Symbols

## New-Indy Catawba LLC
## TV-2440-0005
## PAGE 1 OF 2

| Table I-1 Abbreviations and Symbols | |
|---|---|
| **Abbreviation** | **Description** |
| AA | Administrative amendment |
| ADT | Air dried ton (assumes 10 % moisture) |
| ADTBP | Air dried tons of bleached pulp (Assumes 10 % moisture) |
| ADTFP | Air dried tons of finished paper or pulp (Assumes 10 % moisture) |
| ADTUBP | Air dried tons of unbleached pulp (Assumes 10 % moisture) |
| BACT | Best available control technology |
| BAQ | Bureau of Air Quality |
| BLS | Black liquor solids |
| Btu | British thermal units |
| CAIR | Clean Air Interstate Rule |
| CAM | Compliance assurance monitoring |
| CEMS | Continuous emissions monitoring system |
| CFR | Code of Federal Register |
| CMS | Continuous monitoring system |
| CO | Carbon monoxide |
| COMS | Continuous opacity monitoring system |
| CPMS | Continuous parametric monitoring system |
| DHEC | Department of Health and Environmental Control |
| EPA | Environmental Protection Agency |
| ERC | Emission reduction credit |
| ESP | Electrostatic precipitator |
| GA | Georgia |
| gr/dscf@10%$O_2$ | Grains per dry standard cubic foot corrected to 10 percent oxygen |
| gr/dscf@8%$O_2$ | Grains per dry standard cubic foot corrected to 8 percent oxygen |
| $H_2S$ | Hydrogen sulfide |
| $H_2SO_4$ | Sulfuric acid |
| HAP | Hazardous air pollutants |
| hr | Hour |
| HVLC | High volume low concentration |
| LAER | Lowest Achievable Emission Rate |
| lb | pound |
| lb/hr@tph | pounds per hour at tons per hour process rate |
| lb/ETADUBP | Pounds per equivalent ton of air dried unbleached pulp (Assumes 10 % moisture) |
| lb/hr | Pound/hour |
| Lb/TBLS (dry weight) | pounds per ton of black liquor solids (dry weight) |
| lb/T BLSF | Pounds per ton of black liquor solids fired |
| lb/$10^6$ Btu | Pounds per million British thermal units |
| LVHC | Low volume high concentration |
| MACT | Maximum achievable control technology |
| MACT DDDDD | 40 CFR 63, Subparts A-General Provisions and DDDDD-National Emission Standards For Hazardous Air Pollutants For Industrial, Commercial, And Institutional Boilers And Process Heaters |
| MACT JJJJ | 40 CFR 63, Subparts A-General Provisions and JJJJ-National Emission Standards For Hazardous Air Pollutants: Paper And Other Web Coating |
| MACT MM | 40 CFR 63, Subparts A-General Provisions and MM-National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources At Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills |
| MACT RR | 40 CFR 63, Subparts A-General Provisions and RR-National Emission Standards For Individual Drain Systems |
| MACT S | 40 CFR 63, Subparts A-General Provisions and S-National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry |
| MM | Minor modification |

# ATTACHMENT - Abbreviations and Symbols

## New-Indy Catawba LLC
## TV-2440-0005
## PAGE 2 OF 2

| Table I-1 Abbreviations and Symbols | |
|---|---|
| **Abbreviation** | **Description** |
| N/A | Not applicable |
| NCASI | National Council for Air and Stream Improvement |
| NESHAP | National emission standards for hazardous air pollutants |
| $NO_x$ | Nitrogen oxides |
| NSPS | New source performance standards |
| NSPS BB | 40 CFR 60, Subparts A-General Provisions and BB-Standards Of Performance For Kraft Pulp Mills |
| NSR | Non-attainment new source review |
| $O_2$ | Oxygen |
| ODTP | Oven dried tons of pulp (0% moisture) |
| Pb | Lead |
| PM | Particulate matter |
| $PM_{10}$ | Particulate matter less than 10 microns |
| $PM_{25}$ | Particulate matter less than 2.5 microns |
| ppm | Parts per million |
| ppmv | Parts per million volume |
| ppmv@10%$O_2$ | Parts per million volume corrected to 10 percent oxygen |
| ppmv@8%$O_2$ | Parts per million volume corrected to 8 percent oxygen |
| PSD | Prevention of significant deterioration |
| QA | Quality assurance |
| QC | Quality control |
| Reg. | Regulation |
| RMP | Risk Management Plan |
| Sec. or § | Section |
| SC | South Carolina |
| SC DHEC | South Carolina Department of Health and Environmental Control |
| SC Reg. 61-62.5, Std. | South Carolina Regulation 61-62.5, Standard |
| SC Std. | South Carolina Standard |
| SIP | State Implementation Plan |
| SM | Signification modification |
| SOG | Stripper off gases |
| $SO_2$ | Sulfur dioxide |
| SSM | Startup, shutdown, malfunction |
| TDF | Tire-derived fuel |
| T | Tons |
| T BLS/day | Tons of black liquor solids per day |
| T CaO/day | Tons of calcium oxide per day |
| TMP | Thermo mechanical pulping |
| tph | Tons per hour |
| TPD | Tons per day |
| tpy | Tons per year |
| TRS | Total reduced sulfur |
| US EPA | United States Environmental Protection Agency |
| VE | Visual emission inspections |
| VOC | Volatile organic compounds |

ATTACHMENT B
Emissions Data for Regulated Pollutants

## Statement of Limitations

1. This emission inventory has been prepared for New-Indy Catawba LLC for operations at the mill located in Catawba, South Carolina.

2. The primary purpose of the inventory is in support of the Title V Operating Permit Application Renewal and Annual Air Emission Inventory.

3. This inventory has been prepared using representative emission factors and other information developed from New-Indy Catawba LLC, NCASI, EPA, and other paper industry information.

4. This emission factors and other information contained within this inventory are subject to periodic re-evaluation and revision.

5. This inventory may vary from air emissions statements and other air emission information prepared or submitted for other non-Title V air permitting purposes (e.g., EPA GHG Mandatory Reporting Rule, New-Indy Catawba LLC GHG reporting, Form R reporting).

6. On March 3, 2014 this inventory was revised at the request of DHEC (February 10, 2014) for the following:
1) Included all compounds for which NCASI lists an emission factor (such as speciated TRS compounds). This inventory now includes many unregulated compounds.
2) Included VOC emissions as the sum of all VOC compounds.
3) Deleted emission factors shown as "0.00" representing "non-detect" emissions.

7. On November 21, 2014 this inventory was revised at the request of DHEC (November 6, 2014) for the following:
1) Included all compounds for which EPA indicates in AP-42 they are "PAH" in the "POM" category, except where a specific POM or PAH emission factor is provided.
2) Updated CO2e emissions using current GWP from 40CFR98, Table A-1 .
3) Moved green liquor tanks and high density pulp storage tanks from insignificant list into emisison units.

8. On March 6, 2017 this inventory was updated at the request of DHEC (December 9, 2016) to reflect all changes to the Title V application based on DHEC review.

9. On September 25, 2020 this inventory was updated for Project Columbia (CP-DF) to reflect the changes at the mill going from manufacturing bleached pulp and paper grades to unbleached pulp, linerboard, and unbleached paper grades.

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| FUEL BURNING INSTALLATION, INCINERATOR, OR PROCESS EMISSION SOURCE | Title V Emission Unit ID | Title V Equipment Number | Plant Operating Statistics | Units | MAXIMUM PRODUCTION RATE | MAXIMUM OPERATING DAYS | ACTUAL PRODUCTION RATE | ACTUAL OPERATING DAYS | PRODUCTION RATE UNITS | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| **Combination Boiler 1** | **8** | **2605** | | | | | | | | |
| Natural Gas | | | 57,509.0 | MM Btu | 405.0 | 365 | 6.6 | 365.0 | MM Btu/hr | |
| No. 6 Fuel Oil | | | 310,348.4 | gal | 392.0 | 365 | 5.3 | 365.0 | MM Btu/hr | |
| Bark | | | 247,387.1 | tons | 392.0 | 365 | 254.2 | 365.0 | MM Btu/hr | |
| Bark | | | 3,918.3 | tons | 1.5000 | 365 | 0.4 | 365.0 | tons/hr | |
| | | | | | | | | | | |
| **Combination Boiler 2** | **8** | **3705** | | | | | | | | |
| Natural Gas | | | 89,107.6 | MM Btu | 720.0 | 365 | 10.2 | 365.0 | MM Btu/hr | |
| No. 6 Fuel Oil | | | 527,595.8 | gal | 700.0 | 365 | 9.0 | 365.0 | MM Btu/hr | |
| Bark | | | 342,133.6 | tons | 498.0 | 365 | 351.5 | 365.0 | MM Btu/hr | |
| Tire-Derived Fuel (TDF) | | | 5,378.6 | tons | 1.5000 | 365 | 0.6 | 365.0 | tons/hr | |
| | | | | | | | | | | |
| **Evaporators and Steam Stripper** | **7 & 9** | **2405 & 9801** | 5,365,207.5 | lb BLS/day | 3,169.0 | 365.0 | 2,682.6 | 365.0 | Ton BLS/Day | |
| | | | | | | | | | | |
| **Recovery Furnace No. 2** | **7** | **2505** | | | | | | | | |
| No. 6 Fuel Oil | | | 349,617.2 | gal | 360.0 | 365 | 6.0 | 365.0 | MM Btu/hr | |
| Black Liquor Solids (BLS) | | | 1,860,556.7 | lb BLS/day | 1,129.0 | 365 | 930.3 | 365.0 | Ton BLS/Day | |
| | | | | | | | 0.347 | | | |
| **Recovery Furnace 3** | **7** | **5105** | | | | | | | | |
| Natural Gas | | | 7,817.5 | MM Btu | 370.0 | 365 | 0.9 | 365.0 | MM Btu/hr | |
| No. 6 Fuel Oil | | | 328,372.3 | gal | 360.0 | 365 | 5.6 | 365.0 | MM Btu/hr | |
| Black Liquor Solids (BLS) | | | 3,504,650.8 | lb BLS/day | 2,040.0 | 365 | 1,752.3 | 365.0 | Ton BLS/Day | |
| | | | | | | | 0.653 | | | |
| **Paper Mill** | | | | | | | | | | |
| Paper Machine No. 2 | | | 261,643.0 | tons | 716.8 | 365 | 716.8 | 365.0 | ADTFP/Day | |
| | | | | | | | | | | |
| Linerboard Machine No. 3 | | | 1,095,000.0 | tons | 3,000.0 | 365 | 3,000.0 | 365.0 | ADTFP/Day | |
| | | | | | | | | | | |
| Pulp Dryer | | | 296,334.0 | tons | 811.9 | 365 | 811.9 | 365.0 | ADTFP/Day | |
| | | | | | | | | | | |
| *Air Make-Up Units* | **6** | **9900** | | | | | | | | |
| Natural Gas | | | 16,644.5 | MM Btu | 126.3 | 365 | 3.9 | 180 | MM Btu | |
| Propane | | | 0.0 | gal | 126.3 | 365 | - | 180 | MM Btu/hr | |
| | | | | | | | | | | |
| **Kraft Pulp Mill** | **2** | **5200-5250** | 985,500.0 | ADTP/yr | 2,700.0 | 365 | 2,700.0 | 365 | ADTP/Day | |
| | | | | | | | | | | |
| **Smelt Tank 2** | **7** | **2510** | 1860556.7 | lb BLS/day | 1129.0 | 365.0 | 930.3 | 365 | Ton BLS/Day | |
| | | | | | | | | | | |
| **Smelt Tank 3** | **7** | **5110** | 3504650.8 | lb BLS/day | 2040.0 | 365.0 | 1752.3 | 365 | Ton BLS/Day | |
| | | | | | | | | | | |
| **Precipitator Mix Tanks** | **7** | **2400** | 5365207.5 | lb BLS/day | 3,169.0 | 365 | 2682.6 | 365 | Ton BLS/Day | |
| | | | | | | | | | | |
| **Causticizing Area** | **7** | **2700** | | | 465 | 365 | 343.4 | 365 | Ton CaO/Day | |
| | | | | | | | | | | |
| **Lime Kiln 2** | **7** | **2723** | | | 465 | 365 | 343.4 | 365 | Ton CaO/Day | |
| | | | | | | | | | | |
| **Lime Slaker 2** | **7** | **2700** | | | 465 | 365 | 343.4 | 365 | Ton CaO/Day | |
| | | | | | | | | | | |
| **Woodyard** | **1** | **1300** | 3,445,000.0 | tons/yr | 3,445,000 | tons/yr | 3,445,000.0 | 365 | tons/year | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**CONFIDENTIAL Alternate Form D-2943 - Summary of Facility Wide Total Emissions**

**Summary of Criteria Pollutant Emissions for the Facility.**
**New-Indy Catawba LLC - Catawba, South Carolina**

| POLLUTANT | CAS # | TYPE | Maximum Uncontrolled Emissions TPY | Maximum Controlled Emissions TPY | **Actual Emissions TPY** |
|---|---|---|---|---|---|
| Filterable particulate matter | | | **109,694.64** | **1,990.92** | **1,681.23** |
| Filterable particulate matter < 10 microns | | Criteria | **76,476.09** | **982.64** | **758.03** |
| Filterable particulate matter < 2.5 microns | | Criteria | **64,791.88** | **732.41** | **539.25** |
| Condensible particulate matter < 2.5 microns | | Criteria | **130.01** | **130.01** | **97.22** |
| Total particulate matter < 10 microns | | Criteria | **76,606.00** | **1,112.56** | **855.25** |
| Total particulate matter < 2.5 microns | | Criteria | **64,921.79** | **862.33** | **636.47** |
| Sulfur dioxide | 7446095 | Criteria | **19,104.95** | **18,230.57** | **1,134.91** |
| Volatile organic compounds (as carbon) | | Criteria | **1,283.37** | **970.11** | **935.84** |
| Volatile organic compounds (as VOC) | | Criteria | **2,324.20** | **1,690.48** | **1,617.36** |
| Volatile organic compounds (sum of VOC) | | Criteria | **3,327.98** | **1,644.08** | **1,589.46** |
| Carbon monoxide | | Criteria | **3,108.44** | **3,108.44** | **2,214.39** |
| Lead | | Criteria | **14.25** | **14.25** | **4.99** |
| Nitrogen oxides | | Criteria | **2,818.28** | **2,818.28** | **1,506.11** |
| | | | | | |
| Carbon dioxide | 124389 | GHG | **1,464,967** | **1,464,967** | **84,267** |
| Biogenic carbon dioxide | 124389 | GHG | **3,694,762** | **3,694,762** | **2,993,867** |
| Methane | 74828 | GHG, (112r) | **1,199** | **1,199** | **967** |
| Nitrous oxide | 10024972 | GHG | **190** | **190** | **154** |
| Carbon dioxide equivalent | | GHG | **3,980,752** | **3,980,752** | **3,148,311** |
| | | | | | |
| Chlorine dioxide | 10049044 | 112r | **0.00** | **0.00** | **0.00** |
| Sulfuric acid mist | 7664939 | TAP | **775.84** | **775.84** | **20.91** |
| Hydrogen Sulfide | 7783064 | NSPS, TAP | **399.89** | **23.36** | **21.41** |
| Total Reduced Sulfur (as TRS) | | NSPS | **1,380.69** | **245.24** | **242.67** |
| Total Reduced Sulfur (as Sulfur) | | NSPS | **952.45** | **129.56** | **127.34** |
| Total Reduced Sulfur (as Hydrogen Sulfide) | | NSPS | **1,011.98** | **137.66** | **135.30** |
| | | | | | |
| Total 112(b) Hazardous Air Pollutants | | | **1,447.15** | **1,090.66** | **1,048.00** |
| 1,1,1-Trichloroethane | 71556 | HAP | **2.12** | **2.05** | **1.93** |
| 1,1-Dichloroethane | 75343 | HAP | **0.00** | **0.00** | **0.00** |
| 1,1-Dichloroethene | 75354 | HAP, (112r) | **0.00** | **0.00** | **0.00** |
| 1,1,2-Trichloroethane | 79005 | HAP | **2.69** | **2.63** | **2.40** |
| 1,2-Dichloroethane | 107062 | HAP | **0.62** | **0.55** | **0.44** |
| 1,2-Dichloropropane | 78875 | HAP | **0.13** | **0.13** | **0.09** |
| 1,2,4-Trichlorobenzene | 120821 | HAP | **10.51** | **9.84** | **9.69** |
| 1,4-Dichlorobenzene | 106467 | HAP | **0.00** | **0.00** | **0.00** |
| 2-chloro-1,3-butadiene (POM) | 126998 | HAP, TAP | **0.01** | **0.01** | **0.01** |
| 2-Chloroacetophenone | 532274 | HAP | **0.00** | **0.00** | **0.00** |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 1746016 | HAP | **0.00** | **0.00** | **0.00** |
| 2,4-Dinitrophenol | 51286 | HAP | **0.00** | **0.00** | **0.00** |
| 2,4-Dinitrotoluene | 121142 | HAP | **0.00** | **0.00** | **0.00** |
| 2,4,6-Trichlorophenol | 88062 | HAP | **0.00** | **0.00** | **0.00** |
| 4-Nitrophenol | 100027 | HAP | **0.00** | **0.00** | **0.00** |
| Acetaldehyde | 75070 | AP, TAP, (112r | **27.60** | **25.28** | **24.88** |
| Acetophenone | 98862 | HAP, TAP | **9.01** | **7.98** | **6.71** |
| Acrolein | 107028 | AP, TAP, (112r | **3.02** | **2.96** | **2.83** |
| Acrylonitrile | 107131 | AP, TAP, (112r | **0.00** | **0.00** | **0.00** |
| Aniline | 62533 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Antimony Compounds | | HAP, TAP | **0.34** | **0.34** | **0.01** |
| Arsenic Compounds | | HAP, TAP | **0.21** | **0.21** | **0.01** |
| Benzene | 71432 | HAP, TAP | **2.05** | **2.03** | **1.63** |
| Benzyl chloride | 100447 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Beryllium Compounds | | HAP, TAP | **0.01** | **0.01** | **0.00** |
| Biphenyl | 92524 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Bis(2-ethylhexyl)phthalate | 117817 | HAP, TAP | **0.01** | **0.01** | **0.01** |
| Bromoform | 75252 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Bromomethane | 74839 | HAP, TAP | **0.08** | **0.08** | **0.06** |
| Cadmium Compounds | | HAP, TAP | **0.28** | **0.28** | **0.01** |
| Carbon disulfide | 75150 | AP, TAP, (112r | **5.58** | **5.45** | **4.66** |
| Carbon tetrachloride | 56235 | HAP, TAP | **1.06** | **0.74** | **0.60** |
| Carbonyl sulfide | 463581 | AP, TAP, (112r | **0.81** | **0.48** | **0.37** |
| Catechol | 120809 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Chlorine | 7782505 | AP, TAP, (112r | **18.41** | **18.41** | **0.32** |
| Chlorobenzene | 108907 | HAP, TAP | **0.78** | **0.75** | **0.73** |
| Chloroform | 67663 | AP, TAP, (112r | **1.62** | **0.26** | **0.20** |
| Chloromethane | 74873 | AP, TAP, (112r | **0.35** | **0.35** | **0.24** |
| Chromium Compounds | | HAP | **0.07** | **0.07** | **0.02** |
| Chromium(+6) Compounds | | HAP, TAP | **0.05** | **0.05** | **0.03** |
| Cobalt Compounds | | HAP, TAP | **0.41** | **0.41** | **0.01** |
| Cresols | 1319773 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Cumene | 98828 | HAP, TAP | **11.00** | **9.21** | **7.75** |
| Cyanide Compounds | | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Dibenzofuran | 132649 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Diethanolamine | 111422 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Dimethyl phthalate | 131113 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Dimethyl sulfate | 77781 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| di-n-butyl phthalate (POM) | 84742 | HAP, TAP | **0.27** | **0.27** | **0.21** |
| Ethylbenzene | 100414 | HAP, TAP | **8.23** | **7.81** | **6.58** |
| Ethyl chloride | 75003 | AP, TAP, (112r | **0.00** | **0.00** | **0.00** |
| Ethylene dibromide | 106934 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Formaldehyde | 50000 | AP, TAP, (112r | **10.39** | **10.18** | **8.18** |
| Glycol Ethers | | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Hexachlorobenzene | 118741 | HAP, TAP | **0.00** | **0.00** | **0.00** |

| | | | | | |
|---|---|---|---|---|---|
| Hexachlorocyclopentadiene | 77474 | HAP, TAP | **1.08** | **1.08** | **0.81** |
| Hexachloroethane | 67721 | HAP, TAP | **27.16** | **2.45** | **2.06** |
| Hydrochloric acid | 7647010 | AP, TAP, (112r | **40.32** | **40.32** | **30.42** |
| Hydrofluoric acid | 7664393 | HAP, (112r) | **2.08** | **2.08** | **0.03** |
| Iodomethane | 74884 | HAP | **0.00** | **0.00** | **0.00** |
| isooctane (POM) | 540841 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Isophorone | 78591 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Lead Compounds | | HAP, TAP | **0.26** | **0.26** | **0.04** |
| Manganese Compounds | | HAP, TAP | **0.62** | **0.62** | **0.36** |
| m-Cresol | 108394 | HAP, TAP | **6.75** | **0.93** | **0.71** |
| Mercury Compounds | | HAP | **0.53** | **0.53** | **0.01** |
| Methanol | 67561 | HAP, TAP | **1,207.00** | **907.11** | **895.80** |
| Methyl isobutyl ketone | 108101 | HAP, TAP | **1.15** | **1.05** | **1.01** |
| Methyl hydrazine | 60334 | AP, TAP, (112r | **0.00** | **0.00** | **0.00** |
| Methyl methacrylate | 80626 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Methyl tert butyl ether | 1634044 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Methylene chloride | 75092 | HAP, TAP | **5.71** | **5.61** | **5.11** |
| m-Xylene | 108383 | HAP, TAP | **0.83** | **0.78** | **0.74** |
| Naphthalene | 91203 | HAP, TAP | **1.83** | **1.83** | **1.39** |
| n-Hexane | 110543 | HAP, TAP | **13.23** | **13.17** | **1.35** |
| Nickel Compounds | | HAP, TAP | **10.73** | **10.73** | **0.20** |
| o-Cresol | 95487 | HAP, TAP | **15.53** | **8.89** | **7.55** |
| o-Xylene | 95476 | HAP, TAP | **0.76** | **0.68** | **0.64** |
| p-Cresol | 106445 | HAP, TAP | **5.91** | **0.12** | **0.12** |
| Pentachlorophenol | 87865 | HAP, TAP | **0.00** | **0.00** | **0.00** |
| Phenol | 108952 | HAP, TAP | **11.48** | **9.07** | **7.99** |
| Phosphorus | 7723140 | HAP, TAP | **0.64** | **0.64** | **0.41** |
| Polycyclic organic matter | | HAP, TAP | **0.31** | **0.31** | **0.22** |
| Propionaldehyde | 123386 | HAP, TAP | **1.67** | **0.90** | **0.82** |
| p-Xylene | 106423 | HAP, TAP | **0.83** | **0.78** | **0.74** |
| Selenium Compounds | | HAP, TAP | **0.13** | **0.13** | **0.02** |
| Styrene | 100425 | HAP, TAP | **2.28** | **2.12** | **2.02** |
| Tetrachloroethylene | 127184 | HAP, TAP | **6.25** | **5.83** | **5.71** |
| Toluene | 108883 | HAP, TAP | **1.02** | **0.93** | **0.62** |
| Trichloroethylene | 79016 | HAP, TAP | **0.94** | **0.51** | **0.41** |
| Vinyl acetate | 108054 | AP, TAP, (112r | **0.03** | **0.03** | **0.03** |
| Vinyl chloride | 75014 | HAP, TAP | **0.07** | **0.07** | **0.05** |
| Xylenes | 1330207 | HAP, TAP | **0.00** | **0.00** | **0.00** |

Summary of Other Air Pollutant Emissions for the Facility.

**CONFIDENTIAL Alternate Form D-2943 - Summary of Facility Wide Total Emissions**

**Summary of Other Compound Emissions for the Facility.**
**New-Indy Catawba LLC - Catawba, South Carolina**

| POLLUTANT | CAS # | TYPE | Maximum Uncontrolled Emissions TPY | Maximum Controlled Emissions TPY | **Actual Emissions TPY** |
|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | |
| Hydrogen sulfide | | | **399.89** | **25.24** | **23.30** |
| Methyl mercaptan | | | **485.55** | **34.14** | **33.82** |
| dimethyl disulfide | | | **166.87** | **121.16** | **120.99** |
| dimethyl sulfide | | | **356.51** | **113.41** | **113.26** |
| Total Other Air Pollutants | | | **1,216.32** | **617.48** | **515.61** |
| 1,2-dibromoethene | 540498 | | **0.21** | **0.21** | **0.15** |
| 1,2-dichloroethylene | | | **10.89** | **10.85** | **10.83** |
| 1,2-Dimethoxyethane | 110714 | | **0.00** | **0.00** | **0.00** |
| 2-Chlorophenol | 95578 | | **0.00** | **0.00** | **0.00** |
| 2-dinitro-4,6-methylphenol | | | **0.01** | **0.01** | **0.01** |
| 2-hexanone | | | **0.00** | **0.00** | **0.00** |
| 2-methylnapthalene | | | **0.02** | **0.02** | **0.02** |
| 2-methyl propene | 115117 | (112r) | **0.00** | **0.00** | **0.00** |
| 2-methyl-2-propanol benzene | | | **0.00** | **0.00** | **0.00** |
| 2-nitrophenol | | | **0.00** | **0.00** | **0.00** |
| 2-propanol | | | **0.00** | **0.00** | **0.00** |
| 2,5-dimethyl benzaldehyde | | | **0.18** | **0.18** | **0.13** |
| 3-carene | | | **10.30** | **10.07** | **7.65** |
| 3-methylchloranthrene (POM) | | | **0.00** | **0.00** | **0.00** |
| 5-methyl chrysene (POM) | | | **0.00** | **0.00** | **0.00** |
| 7-12,dimethylbenz(a)anthracene (POM) | | | **0.00** | **0.00** | **0.00** |
| acenaphthene (POM) | | | **0.00** | **0.00** | **0.00** |
| acenaphthylene (POM) | | | **0.00** | **0.00** | **0.00** |
| acetone | | | **17.73** | **6.65** | **6.06** |
| alpha-pinene | | | **439.34** | **21.68** | **21.55** |
| alpha-terpiniene | | | **0.00** | **0.00** | **0.00** |
| alpha-terpiniol | | | **0.63** | **0.43** | **0.33** |
| ammonia | 7664417 | (112r) | **108.44** | **108.44** | **87.58** |
| anthracene (POM) | | | **0.00** | **0.00** | **0.00** |
| barium | | | **0.71** | **0.71** | **0.45** |
| benzaldehyde | | | **2.72** | **2.56** | **2.11** |
| benzoic acid | | | **0.09** | **0.09** | **0.06** |
| benzo(a)anthracene (POM) | | | **0.00** | **0.00** | **0.00** |
| benzo(a)pyrene (POM) | | | **0.00** | **0.00** | **0.00** |
| benzo(b)fluoranthene (POM) | | | **0.00** | **0.00** | **0.00** |
| benzo(ghi)perylene (POM) | | | **0.00** | **0.00** | **0.00** |
| benzo(k)fluoranthene (POM) | | | **0.00** | **0.00** | **0.00** |
| benzyl alcohol | | | **1.74** | **1.74** | **1.47** |
| beta-pinene | | | **139.14** | **15.39** | **15.30** |
| bis (2-Chloroisopropyl) ether | | | **0.00** | **0.00** | **0.00** |
| boron | | | **0.00** | **0.00** | **0.00** |
| bromine | | | **0.00** | **0.00** | **0.00** |
| bromodichloromethane | | | **11.72** | **11.72** | **7.98** |
| butane | 106978 | (112r) | **14.91** | **14.91** | **0.18** |
| butylbenzylphthalate | | | **0.05** | **0.05** | **0.03** |
| camphene | | | **0.00** | **0.00** | **0.00** |
| camphor | | | **0.26** | **0.01** | **0.01** |
| chrysene (POM) | | | **0.00** | **0.00** | **0.00** |
| copper | | | **0.15** | **0.15** | **0.03** |
| crotonaldehyde | 4170303 | (112r) | **0.17** | **0.14** | **0.12** |
| cyclohexanone | | | **0.00** | **0.00** | **0.00** |
| decachlorobiphenyl | | | **0.00** | **0.00** | **0.00** |
| dibenzo(ah)anthracene (POM) | | | **0.00** | **0.00** | **0.00** |
| dibromomethane | | | **0.00** | **0.00** | **0.00** |
| dichlorobenzene | 25321226 | | **0.01** | **0.01** | **0.00** |
| dichlorobiphenyl | | | **0.00** | **0.00** | **0.00** |
| diethylphthalate | | | **0.09** | **0.09** | **0.06** |
| di-n-octyl phthalate | | | **0.00** | **0.00** | **0.00** |
| dysprosium | | | **0.00** | **0.00** | **0.00** |
| ethane | 74840 | (112r) | **22.01** | **22.01** | **0.27** |
| ethanol | | | **14.63** | **6.63** | **5.80** |
| fluoranthene (POM) | | | **0.00** | **0.00** | **0.00** |
| fluorene (POM) | | | **0.00** | **0.00** | **0.00** |
| gamma-Terpinene | | | **0.05** | **0.00** | **0.00** |
| germanium | | | **0.00** | **0.00** | **0.00** |
| heptane | | | **0.00** | **0.00** | **0.00** |
| hexachlorobiphenyl | | | **0.00** | **0.00** | **0.00** |
| hexaldehyde | | | **0.24** | **0.24** | **0.19** |
| indeno(123-cd)pyrene (POM) | | | **0.00** | **0.00** | **0.00** |
| iodine | | | **0.00** | **0.00** | **0.00** |
| iron | | | **0.00** | **0.00** | **0.00** |
| isopropanol | | | **16.11** | **15.41** | **11.29** |
| isovaleraldehyde | | | **0.12** | **0.12** | **0.10** |
| limonene | | | **1.28** | **0.03** | **0.03** |
| lithium | | | **0.00** | **0.00** | **0.00** |
| methyl anthracene | | | **0.00** | **0.00** | **0.00** |
| Methyl ethyl ketone | 78933 | TAP | **12.55** | **10.32** | **10.18** |
| molybdenum | | | **0.04** | **0.04** | **0.00** |
| m-tolualdehyde | | | **0.06** | **0.06** | **0.05** |
| myrcene | | | **0.00** | **0.00** | **0.00** |
| n-butylaldehyde | | | **0.50** | **0.50** | **0.39** |
| neodymium | | | **0.00** | **0.00** | **0.00** |
| niobium | | | **0.00** | **0.00** | **0.00** |
| nitric oxide | | | **15.62** | **15.62** | **0.19** |

| | | | | | |
|---|---|---|---|---|---|
| nonane | | | **0.00** | **0.00** | **0.00** |
| o-tolualdehyde | | | **0.53** | **0.53** | **0.36** |
| pah | | | **0.42** | **0.42** | **0.01** |
| p-cymene | | | **0.94** | **0.71** | **0.60** |
| pentachlorobiphenyl | | | **0.00** | **0.00** | **0.00** |
| pentane | 109660 | (112r) | **18.46** | **18.46** | **0.22** |
| phenanthrene (POM) | | | **0.00** | **0.00** | **0.00** |
| polychlorinated dibenzo-p-dioxins | | | **0.00** | **0.00** | **0.00** |
| polychlorinated dibenzo-p-furans | | | **0.00** | **0.00** | **0.00** |
| potassium | | | **152.03** | **152.03** | **103.46** |
| praeseodymium | | | **0.00** | **0.00** | **0.00** |
| propane | 74986 | (112r) | **11.36** | **11.36** | **0.14** |
| propylene | | | **0.02** | **0.02** | **0.02** |
| p-tolualdehyde | | | **0.06** | **0.06** | **0.05** |
| pyrene (POM) | | | **0.00** | **0.00** | **0.00** |
| rubidium | | | **0.00** | **0.00** | **0.00** |
| samarium | | | **0.00** | **0.00** | **0.00** |
| silver | | | **0.01** | **0.01** | **0.01** |
| sodium | | | **1.40** | **1.40** | **0.96** |
| solicyladehyde | | | **0.00** | **0.00** | **0.00** |
| strontium | | | **0.04** | **0.04** | **0.03** |
| terpenes | | | **250.86** | **217.88** | **216.88** |
| tert-butyl methyl ether | | | **0.00** | **0.00** | **0.00** |
| tetrachlorobiphenyl | | | **0.00** | **0.00** | **0.00** |
| thallium | | | **0.01** | **0.01** | **0.01** |
| thorium | | | **0.00** | **0.00** | **0.00** |
| tin | | | **0.15** | **0.15** | **0.10** |
| titanium | | | **0.19** | **0.19** | **0.13** |
| trichlorobiphenyl | | | **0.00** | **0.00** | **0.00** |
| trichlorofluoromethane | | | **0.18** | **0.18** | **0.13** |
| tungsten | | | **0.00** | **0.00** | **0.00** |
| valeradehyde | | | **0.70** | **0.70** | **0.53** |
| vanadium | | | **1.68** | **1.68** | **0.03** |
| yttrium | | | **0.00** | **0.00** | **0.00** |
| zinc | | | **6.63** | **6.63** | **1.37** |
| zirconium | | | **0.00** | **0.00** | **0.00** |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| NCG Gases Summary | 2.700 | ADTP/Day | 2.700 | ADTP/Day | 2 | 7 | 365 | 365 |

Detailed Process Unit Emissions en ered in o AEI
T tle V Unit ID = 02. Equipment ID = All

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Su fur dioxide | 7 6095 | Cr teria | | | | | | 377 09 | 1 651 67 | 177 46 | 777 30 | 177 46 | 777 30 |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | | | 72 98 | 319 65 | 1 46 | 6 39 | 1 46 | 6 39 |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | | | 147 64 | 646 66 | 2 95 | 12 93 | 2 95 | 12 93 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | | | 390 55 | 1 710 63 | 6 10 | 26 74 | 6 10 | 26 74 |
| Carbon monox de | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nitrogen oxides | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biogenic carbon dioxide | 12 389 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methane | 7 828 | GHG, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nitrous ox de | 1002 972 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon dioxide equivalent | | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Su furic acid m st | 766 939 | TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | | | 86 40 | 378 43 | 0 43 | 1 90 | 0 43 | 1 90 |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | | | 260 83 | 1 142 45 | 1 60 | 7 01 | 1 60 | 7 01 |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | | | 188 98 | 827 75 | 1 11 | 4 87 | 1 11 | 4 87 |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | | | 200 80 | 879 49 | 1 18 | 5 17 | 1 18 | 5 17 |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 83 05 | 363 77 | 1 66 | 7 28 | 1 66 | 7 28 |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | | | 0 02 | 0 07 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1-Dichloroethane | 753 3 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | | | 0 01 | 0 06 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dichloroethane | 107062 | HAP | | | | | | 0 02 | 0 07 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dichloropropane | 78875 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | | | 0 15 | 0 68 | 0 00 | 0 01 | 0 00 | 0 01 |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch oroacetophenone | 53227 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trophenol | 51286 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trotoluene | 1211 2 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| -Nitrophenol | 100027 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Aceta dehyde | 75070 | tAP, TAP, (112r) | | | | | | 0 54 | 2 37 | 0 01 | 0 05 | 0 01 | 0 05 |
| Acetophenone | 98862 | HAP, TAP | | | | | | 0 24 | 1 05 | 0 00 | 0 02 | 0 00 | 0 02 |
| Acrolein | 107028 | tAP, TAP, (112r) | | | | | | 0 01 | 0 07 | 0 00 | 0 00 | 0 00 | 0 00 |
| Acrylonitr le | 107131 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| An line | 62533 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Antimony Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Arsenic Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Benzene | 71 32 | HAP, TAP | | | | | | 0 01 | 0 02 | 0 00 | 0 00 | 0 00 | 0 00 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Beryllium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biphenyl | 9252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromoform | 75252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromomethane | 7 839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cadmium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon disulf de | 75150 | tAP, TAP, (112r) | | | | | | 0 03 | 0 13 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | | | 0 07 | 0 32 | 0 00 | 0 01 | 0 00 | 0 01 |
| Carbonyl sulf de | 63581 | tAP, TAP, (112r) | | | | | | 0 08 | 0 34 | 0 00 | 0 01 | 0 00 | 0 01 |
| Catechol | 120809 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorine | 7782505 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorobenzene | 108907 | HAP, TAP | | | | | | 0 01 | 0 03 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chloroform | 67663 | tAP, TAP, (112r) | | | | | | 0 32 | 1 39 | 0 01 | 0 03 | 0 01 | 0 03 |
| Chloromethane | 7 873 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium Compounds | | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium( 6) Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cobalt Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cresols | 1319773 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cumene | 98828 | HAP, TAP | | | | | | 0 42 | 1 83 | 0 01 | 0 04 | 0 01 | 0 04 |
| Cyanide Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Diethanolamine | 111 22 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl su fate | 77781 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylbenzene | 100 1 | HAP, TAP | | | | | | 0 10 | 0 43 | 0 00 | 0 01 | 0 00 | 0 01 |
| Ethyl ch oride | 75003 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Forma dehyde | 50000 | tAP, TAP, (112r) | | | | | | 0 05 | 0 22 | 0 00 | 0 00 | 0 00 | 0 00 |
| Glycol Ethers | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachloroethane | 67721 | HAP, TAP | | | | | | 5 76 | 25 21 | 0 12 | 0 50 | 0 12 | 0 50 |
| Hydrochlor c ac d | 76 7010 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Iodomethane | 7 88 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isophorone | 78591 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Manganese Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-Cresol | 10839 | HAP, TAP | | | | | | 1 36 | 5 94 | 0 03 | 0 12 | 0 03 | 0 12 |
| Mercury Compounds | | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methanol | 67561 | HAP, TAP | | | | | | 69 86 | 306 01 | 1 40 | 6 12 | 1 40 | 6 12 |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | | | 0 02 | 0 10 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl hydrazine | 6033 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl methacrylate | 80626 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methylene chloride | 75092 | HAP, TAP | | | | | | 0 02 | 0 10 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-Xylene | 108383 | HAP, TAP | | | | | | 0 01 | 0 06 | 0 00 | 0 00 | 0 00 | 0 00 |
| Naphthalene | 91203 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-Hexane | 1105 3 | HAP, TAP | | | | | | 0 01 | 0 06 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nickel Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-Cresol | 95 87 | HAP, TAP | | | | | | 1 55 | 6 78 | 0 03 | 0 14 | 0 03 | 0 14 |
| o-Xylene | 95 76 | HAP, TAP | | | | | | 0 02 | 0 08 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-Cresol | 106 5 | HAP, TAP | | | | | | 1 35 | 5 91 | 0 03 | 0 12 | 0 03 | 0 12 |
| Pentachlorophenol | 87865 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Phenol | 108952 | HAP, TAP | | | | | | 0 56 | 2 46 | 0 01 | 0 05 | 0 01 | 0 05 |
| Phosphorus | 77231 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Polycyclic organic matter | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Prop onaldehyde | 123386 | HAP, TAP | | | | | | 0 18 | 0 79 | 0 00 | 0 02 | 0 00 | 0 02 |
| p-Xylene | 106 23 | HAP, TAP | | | | | | 0 01 | 0 06 | 0 00 | 0 00 | 0 00 | 0 00 |
| Selenium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Styrene | 100 25 | HAP, TAP | | | | | | 0 04 | 0 17 | 0 00 | 0 00 | 0 00 | 0 00 |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | | | 0 10 | 0 42 | 0 00 | 0 01 | 0 00 | 0 01 |
| Toluene | 108883 | HAP, TAP | | | | | | 0 02 | 0 09 | 0 00 | 0 00 | 0 00 | 0 00 |
| Trichloroethy ene | 79016 | HAP, TAP | | | | | | 0 10 | 0 45 | 0 00 | 0 01 | 0 00 | 0 01 |
| Vinyl acetate | 10805 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl ch oride | 7501 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Xy enes | 1330207 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

8. REFERENCES:

9. NOTES:

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| NCG Gases Summary | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| Detailed Process Unit Emissions en ered in o AEI | | | | | | | | |
| T tle V Unit ID = 02. Equipment ID = All | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | | | 86 40 | 378 43 | 0 86 | 3 78 | 0 86 | 3 78 |
| Methyl mercaptan | | | | | | | | 104 10 | 455 97 | 1 04 | 4 56 | 1 04 | 4 56 |
| dimethyl d su fide | | | | | | | | 10 54 | 46 18 | 0 11 | 0 46 | 0 11 | 0 46 |
| dimethyl suff de | | | | | | | | 56 06 | 245 56 | 0 56 | 2 46 | 0 56 | 2 46 |
| To al Other Air Pollutants | | | | | | | | 139 51 | 611 07 | 2 79 | 12 22 | 2 79 | 12 22 |
| 1,2-dibromoethene | 5 0 98 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-dich oroethylene | | | | | | | | 0 01 | 0 04 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dimethoxyethane | 11071 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch orophenol | 95578 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-din tro- 6-methylphenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-hexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methylnaptha ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl propene | 115117 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl-2-propanol benzene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-nitrophenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-propanol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,5-dimethyl benzaldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 3-carene | | | | | | | | 0 05 | 0 23 | 0 00 | 0 00 | 0 00 | 0 00 |
| 3-methylch oranthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 5-methyl chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthy ene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acetone | | | | | | | | 2 58 | 11 31 | 0 05 | 0 23 | 0 05 | 0 23 |
| alpha-pinene | | | | | | | | 97 30 | 426 18 | 1 95 | 8 52 | 1 95 | 8 52 |
| alpha-terpininene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-terpiniol | | | | | | | | 0 05 | 0 20 | 0 00 | 0 00 | 0 00 | 0 00 |
| ammonia | 766 17 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| barium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzaldehyde | | | | | | | | 0 04 | 0 17 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzoic acid | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(b)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(gh )perylene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(k)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzyl alcohol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| beta-pinene | | | | | | | | 28 83 | 126 28 | 0 58 | 2 53 | 0 58 | 2 53 |
| b s (2-Chloroisopropy ) ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| boron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromodichloromethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| butane | 106978 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| butylbenzylphtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphor | | | | | | | | 0 06 | 0 26 | 0 00 | 0 01 | 0 00 | 0 01 |
| chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| copper | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| crotonaldehyde | 170303 | (112r) | | | | | | 0 01 | 0 02 | 0 00 | 0 00 | 0 00 | 0 00 |
| cyc ohexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| decach orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibenzo(ah)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibromomethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobenzene | 25321226 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ethylphthala e | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-octyl phtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dysprosium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ethane | 7 8 0 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ethanol | | | | | | | | 1 86 | 8 16 | 0 04 | 0 16 | 0 04 | 0 16 |
| fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| fluorene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| gamma-Terpinene | | | | | | | | 0 01 | 0 05 | 0 00 | 0 00 | 0 00 | 0 00 |
| germanium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| heptane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexa dehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| indeno(123-cd)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iodine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| isopropanol | | | | | | | | 0 16 | 0 71 | 0 00 | 0 01 | 0 00 | 0 01 |
| isovaleraldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| limonene | | | | | | | | 0 29 | 1 28 | 0 01 | 0 03 | 0 01 | 0 03 |
| lithium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| methyl anthracene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl ethyl ketone | 78933 | TAP | | | | | | 0 52 | 2 28 | 0 01 | 0 05 | 0 01 | 0 05 |
| molybdenum | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| myrcene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-buty aldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| neodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| niobium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| nitric ox de | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| nonane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pah | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-cymene | | | | | | | | 0 05 | 0 23 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentane | 109660 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| phenanthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-dioxins | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-furans | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| po assium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| praeseodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| propane | 7 986 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| propy ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| rub dium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| samarium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| s lver | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| sodium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| solicy adehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| strontium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| terpenes | | | | | | | | 7 68 | 33 65 | 0 15 | 0 67 | 0 15 | 0 67 |
| tert-butyl methyl ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tetrachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thallium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thorium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tin | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ti anium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orofluoromethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tungsten | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| valeradehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| vanadium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| yttrium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| zinc | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| zirconium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

**CONFIDENTIAL Alternate Form D 2943 Emission Data for Regulated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| HVLC Gases Summary | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |

Detailed Process Unit Emissions entered in o AEI

Title V Unit ID = 02. Equipment ID = 5270

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Su fur dioxide | 7 6095 | Cr teria | | | | | | 66 57 | 291 57 | 53 25 | 233 25 | 53 25 | 233 25 |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | | | 64 95 | 284 47 | 1 30 | 5 69 | 1 30 | 5 69 |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | | | 126 22 | 552 83 | 2 52 | 11 06 | 2 52 | 11 06 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | | | 252 18 | 1 104 54 | 4 49 | 19 68 | 4 49 | 19 68 |
| Carbon monox de | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nitrogen oxides | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biogenic carbon dioxide | 12 389 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methane | 7 828 | GHG, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nitrous ox de | 1002 972 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon dioxide equivalent | | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Su furic acid m st | 766 939 | TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | | | 0 38 | 1 67 | 0 00 | 0 02 | 0 00 | 0 02 |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | | | 59 08 | 258 77 | 0 59 | 2 59 | 0 59 | 2 59 |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | | | 33 32 | 145 96 | 0 33 | 1 46 | 0 33 | 1 46 |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | | | 35 41 | 155 08 | 0 35 | 1 55 | 0 35 | 1 55 |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 61 52 | 269 47 | 1 23 | 5 39 | 1 23 | 5 39 |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | | | 0 02 | 0 07 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1-Dichloroethane | 753 3 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | | | 0 01 | 0 06 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dichloroethane | 107062 | HAP | | | | | | 0 02 | 0 07 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dichloropropane | 78875 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2,. -Tr chlorobenzene | 120821 | HAP | | | | | | 0 15 | 0 68 | 0 00 | 0 01 | 0 00 | 0 01 |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch oroacetophenone | 53227 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trophenol | 51286 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trotoluene | 1211 2 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| -Nitrophenol | 100027 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | | | 0 54 | 2 37 | 0 01 | 0 05 | 0 01 | 0 05 |
| Acetophenone | 98862 | HAP, TAP | | | | | | 0 24 | 1 05 | 0 00 | 0 02 | 0 00 | 0 02 |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | | | 0 01 | 0 07 | 0 00 | 0 00 | 0 00 | 0 00 |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| An line | 62533 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Antimony Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Arsenic Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Benzene | 71 32 | HAP, TAP | | | | | | 0 01 | 0 02 | 0 00 | 0 00 | 0 00 | 0 00 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Beryllium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biphenyl | 9252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromoform | 75252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromomethane | 7 839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cadmium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | | | 0 03 | 0 13 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | | | 0 07 | 0 32 | 0 00 | 0 01 | 0 00 | 0 01 |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | | | 0 08 | 0 34 | 0 00 | 0 01 | 0 00 | 0 01 |
| Catechol | 120809 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorobenzene | 108907 | HAP, TAP | | | | | | 0 01 | 0 03 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | | | 0 26 | 1 15 | 0 01 | 0 02 | 0 01 | 0 02 |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium Compounds | | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium( 6) Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cobalt Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cresols | 1319773 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cumene | 98828 | HAP, TAP | | | | | | 0 36 | 1 59 | 0 01 | 0 03 | 0 01 | 0 03 |
| Cyanide Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Diethanolamine | 111 22 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl su fate | 77781 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylbenzene | 100 1 | HAP, TAP | | | | | | 0 10 | 0 43 | 0 00 | 0 01 | 0 00 | 0 01 |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | | | 0 05 | 0 22 | 0 00 | 0 00 | 0 00 | 0 00 |
| Glycol Ethers | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachloroethane | 67721 | HAP, TAP | | | | | | 5 76 | 25 21 | 0 12 | 0 50 | 0 12 | 0 50 |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Iodomethane | 7 88 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isophorone | 78591 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Manganese Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-Cresol | 10839 | HAP, TAP | | | | | | 1 36 | 5 94 | 0 03 | 0 12 | 0 03 | 0 12 |
| Mercury Compounds | | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methanol | 67561 | HAP, TAP | | | | | | 48 44 | 212 18 | 0 97 | 4 24 | 0 97 | 4 24 |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | | | 0 02 | 0 10 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl methacrylate | 80626 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methylene chloride | 75092 | HAP, TAP | | | | | | 0 02 | 0 10 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-Xylene | 108383 | HAP, TAP | | | | | | 0 01 | 0 06 | 0 00 | 0 00 | 0 00 | 0 00 |
| Naphthalene | 91203 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-Hexane | 1105 3 | HAP, TAP | | | | | | 0 01 | 0 06 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nickel Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-Cresol | 95 87 | HAP, TAP | | | | | | 1 55 | 6 78 | 0 03 | 0 14 | 0 03 | 0 14 |
| o-Xylene | 95 76 | HAP, TAP | | | | | | 0 02 | 0 08 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-Cresol | 106 5 | HAP, TAP | | | | | | 1 35 | 5 91 | 0 03 | 0 12 | 0 03 | 0 12 |
| Pentachlorophenol | 87865 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Phenol | 108952 | HAP, TAP | | | | | | 0 56 | 2 46 | 0 01 | 0 05 | 0 01 | 0 05 |
| Phosphorus | 77231 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Polycyclic organic matter | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Prop onaldehyde | 123386 | HAP, TAP | | | | | | 0 18 | 0 79 | 0 00 | 0 02 | 0 00 | 0 02 |
| p-Xylene | 106 23 | HAP, TAP | | | | | | 0 01 | 0 06 | 0 00 | 0 00 | 0 00 | 0 00 |
| Selenium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Styrene | 100 25 | HAP, TAP | | | | | | 0 04 | 0 17 | 0 00 | 0 00 | 0 00 | 0 00 |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | | | 0 10 | 0 42 | 0 00 | 0 01 | 0 00 | 0 01 |
| Toluene | 108883 | HAP, TAP | | | | | | 0 02 | 0 09 | 0 00 | 0 00 | 0 00 | 0 00 |
| Trichloroethy ene | 79016 | HAP, TAP | | | | | | 0 10 | 0 45 | 0 00 | 0 01 | 0 00 | 0 01 |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl ch oride | 7501 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Xy enes | 1330207 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

8. REFERENCES:

9. NOTES:

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| HVLC Gases Summary | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| Detailed Process Unit Emissions en ered in o AEI | | | | | | | | |
| Ti le V Unit D = 02. Equipment ID = 5270 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | | | 0 38 | 1 67 | 0 00 | 0 02 | 0 00 | 0 02 |
| Methyl mercaptan | | | | | | | | 4 77 | 20 91 | 0 05 | 0 21 | 0 05 | 0 21 |
| dimethyl d su fide | | | | | | | | 10 43 | 45 68 | 0 10 | 0 46 | 0 10 | 0 46 |
| dimethyl suff de | | | | | | | | 39 77 | 174 20 | 0 40 | 1 74 | 0 40 | 1 74 |
| To al Other Air Pollutants | | | | | | | | 138 35 | 606 95 | 2 77 | 12 12 | 2 77 | 12 12 |
| 1,2-dibromoethene | 5 0 98 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-dich oroethylene | | | | | | | | 0 01 | 0 03 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dimethoxyethane | 11071 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch orophenol | 95578 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-din tro- 6-methylphenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-hexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methylnaptha ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl propene | 115117 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl-2-propanol benzene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-nitrophenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-propanol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,5-dimethyl benzaldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 3-carene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 3-methylch oranthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 5-methyl chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthy ene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acetone | | | | | | | | 2 53 | 11 08 | 0 05 | 0 22 | 0 05 | 0 22 |
| alpha-pinene | | | | | | | | 96 97 | 424 75 | 1 94 | 8 49 | 1 94 | 8 49 |
| alpha-terpininene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-terpiniol | | | | | | | | 0 05 | 0 20 | 0 00 | 0 00 | 0 00 | 0 00 |
| ammonia | 766 17 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| barium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzaldehyde | | | | | | | | 0 04 | 0 17 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzoic acid | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(b)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(gh )perylene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(k)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzyl alcohol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| beta-pinene | | | | | | | | 28 67 | 125 57 | 0 57 | 2 51 | 0 57 | 2 51 |
| b s (2-Chloroisopropy ) ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| boron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromodichloromethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| butane | 106978 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| butylbenzylphtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphor | | | | | | | | 0 06 | 0 26 | 0 00 | 0 01 | 0 00 | 0 01 |
| chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| copper | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| crotonaldehyde | 170303 | (112r) | | | | | | 0 01 | 0 02 | 0 00 | 0 00 | 0 00 | 0 00 |
| cyc ohexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| decach orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibenzo(ah)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibromomethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobenzene | 25321226 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ethylphthala e | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-octyl phtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dysprosium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ethane | 7 8 0 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ethanol | | | | | | | | 1 81 | 7 93 | 0 04 | 0 16 | 0 04 | 0 16 |
| fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| fluorene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| gamma-Terpinene | | | | | | | | 0 01 | 0 05 | 0 00 | 0 00 | 0 00 | 0 00 |
| germanium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| heptane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexa dehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| indeno(123-cd)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iodine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| isopropanol | | | | | | | | 0 16 | 0 71 | 0 00 | 0 01 | 0 00 | 0 01 |
| isovaleraldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| limonene | | | | | | | | 0 29 | 1 28 | 0 01 | 0 03 | 0 01 | 0 03 |
| lithium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| methyl anthracene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl ethyl ketone | 78933 | TAP | | | | | | 0 52 | 2 28 | 0 01 | 0 05 | 0 01 | 0 05 |
| molybdenum | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| myrcene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-buty aldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| neodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| niobium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| nitric ox de | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| nonane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pah | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-cymene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentane | 109660 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| phenanthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-dioxins | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-furans | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| po assium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| praeseodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| propane | 7 986 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| propy ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| rub dium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| samarium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| s lver | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| sodium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| solicy adehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| strontium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| terpenes | | | | | | | | 7 22 | 31 63 | 0 14 | 0 63 | 0 14 | 0 63 |
| tert-butyl methyl ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tetrachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thallium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thorium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tin | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ti anium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orofluoromethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tungsten | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| valeradehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| vanadium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| yttrium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| zinc | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| zirconium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

**CONFIDENTIAL Alternate Form D 2943 Emission Data for Regulated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| LVHC Gases Summary | 2.700 | ADTP/Day | 2.700 | ADTP/Day | 2 | 7 | 365 | 365 |

Detailed Process Unit Emissions en ered in o AEI

Ti le V Unit D = 02. Equipment ID = 5260

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Su fur dioxide | 7 6095 | Cr teria | | | | | | **310 53** | **1 360 11** | **124 21** | **544 04** | **124 21** | **544 04** |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | | | **8 03** | **35 18** | **0 16** | **0 70** | **0 16** | **0 70** |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | | | **21 42** | **93 82** | **0 43** | **1 88** | **0 43** | **1 88** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | | | **138 38** | **606 09** | **1 61** | **7 05** | **1 61** | **7 05** |
| Carbon monox de | | Cr teria | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Lead | | Cr teria | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methane | 7 828 | GHG, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nitrous ox de | 1002 972 | GHG | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon dioxide equivalent | | GHG | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Su furic acid m st | 766 939 | TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | | | **86 02** | **376 76** | **0 43** | **1 88** | **0 43** | **1 88** |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | | | **201 75** | **883 68** | **1 01** | **4 42** | **1 01** | **4 42** |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | | | **155 66** | **681 80** | **0 78** | **3 41** | **0 78** | **3 41** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | | | **165 39** | **724 41** | **0 83** | **3 62** | **0 83** | **3 62** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **21 53** | **94 29** | **0 43** | **1 89** | **0 43** | **1 89** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloropropane | 78875 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2,- -Tr chlorobenzene | 120821 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-Ch oroacetophenone | 53227 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2, -Din trophenol | 51286 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2, -Din trotoluene | 1211 2 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| -Nitrophenol | 100027 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acetophenone | 98862 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| An line | 62533 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Antimony Compounds | | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Beryllium Compounds | | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Bromoform | 75252 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Bromomethane | 7 839 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cadmium Compounds | | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Catechol | 120809 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chlorobenzene | 108907 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | | | **0 05** | **0 23** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chromium Compounds | | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cobalt Compounds | | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cumene | 98828 | HAP, TAP | | | | | | **0 05** | **0 23** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cyanide Compounds | | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Diethanolamine | 111 22 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Dimethyl su fate | 77781 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Ethylbenzene | 100 1 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Glycol Ethers | | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Hexachloroethane | 67721 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Iodomethane | 7 88 | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Isophorone | 78591 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Lead Compounds | | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Cresol | 10839 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Mercury Compounds | | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | | | | | | **21 42** | **93 82** | **0 43** | **1 88** | **0 43** | **1 88** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl methacrylate | 80626 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methylene chloride | 75092 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Xylene | 108383 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| n-Hexane | 1105 3 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-Cresol | 95 87 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-Xylene | 95 76 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Pentachlorophenol | 87865 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Phenol | 108952 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Phosphorus | 77231 0 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Polycyclic organic matter | | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Prop onaldehyde | 123386 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Xylene | 106 23 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Selenium Compounds | | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trichloroethy ene | 79016 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl ch oride | 7501 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Xy enes | 1330207 | HAP, TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |

8. REFERENCES:

9. NOTES:

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| LVHC Gases Summary | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| Detailed Process Unit Emissions en ered in o AEI | | | | | | | | |
| Ti le V Unit D = 02. Equipment ID = 5260 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | | | **86 02** | **376 76** | **0 86** | **3 77** | **0 86** | **3 77** |
| Methyl mercaptan | | | | | | | | **99 33** | **435 06** | **0 99** | **4 35** | **0 99** | **4 35** |
| dimethyl d su fide | | | | | | | | **0 11** | **0 50** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl sulf de | | | | | | | | **16 29** | **71 36** | **0 16** | **0 71** | **0 16** | **0 71** |
| To al Other Air Pollutants | | | | | | | | **1 17** | **5 11** | **0 02** | **0 10** | **0 02** | **0 10** |
| 1,2-dibromoethene | 5 0 98 | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-dich oroethylene | | | | | | | | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-Ch orophenol | 95578 | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-din tro- 6-methylphenol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-hexanone | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methylnaptha ene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methyl propene | 115117 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methyl-2-propanol benzene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-nitrophenol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-propanol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2,5-dimethyl benzaldehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 3-carene | | | | | | | | **0 05** | **0 23** | **0 00** | **0 00** | **0 00** | **0 00** |
| 3-methylch oranthrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 5-methyl chrysene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acenaphthene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acenaphthy ene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acetone | | | | | | | | **0 05** | **0 23** | **0 00** | **0 00** | **0 00** | **0 00** |
| alpha-pinene | | | | | | | | **0 33** | **1 43** | **0 01** | **0 03** | **0 01** | **0 03** |
| alpha-terpininene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| alpha-terpiniol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| ammonia | 766 17 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| anthracene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| barium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzaldehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzoic acid | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)anthracene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)pyrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(b)fluoranthene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(gh )perylene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(k)fluoranthene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzyl alcohol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| beta-pinene | | | | | | | | **0 16** | **0 72** | **0 00** | **0 01** | **0 00** | **0 01** |
| b s (2-Chloroisopropy ) ether | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| boron | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| bromine | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| bromodichloromethane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| butane | 106978 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| butylbenzylphtha ate | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| camphene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| camphor | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| chrysene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| copper | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| cyc ohexanone | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| decach orobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibenzo(ah)anthracene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibromomethane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ch orobenzene | 25321226 | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ch orobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ethylphthala e | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| di-n-octyl phtha ate | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dysprosium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| ethane | 7 8 0 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| ethanol | | | | | | | | **0 05** | **0 23** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluoranthene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluorene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| gamma-Terpinene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| germanium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| heptane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| hexachlorobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| hexa dehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| indeno(123-cd)pyrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| iodine | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| iron | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| isopropanol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| isovaleraldehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| limonene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| lithium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| methyl anthracene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl ethyl ketone | 78933 | TAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| molybdenum | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-tolualdehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| myrcene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| n-buty aldehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| neodymium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| niobium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| nitric ox de | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| nonane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-tolualdehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pah | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-cymene | | | | | | | | **0 05** | **0 23** | **0 00** | **0 00** | **0 00** | **0 00** |
| pentachlorobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pentane | 109660 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| phenanthrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polychlorinated dibenzo-p-dioxins | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polychlorinated dibenzo-p-furans | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| po assium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| praeseodymium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| propane | 7 986 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| propy ene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-tolualdehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pyrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| rub dium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| samarium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| s lver | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| sodium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| solicy adehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| strontium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| terpenes | | | | | | | | **0 46** | **2 02** | **0 01** | **0 04** | **0 01** | **0 04** |
| tert-butyl methyl ether | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| tetrachlorobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thallium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thorium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| tin | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| ti anium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| trich orobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| trich orofluoromethane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| tungsten | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| valeradehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| vanadium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| yttrium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| zinc | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| zirconium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Digester Chip Bin | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = 3 | | | | | | | | |
| T tle V Unit ID = 02. Equipment ID = 5210, 5270 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | 2.5E-01 | #/ADTP | J | 1 | 20% | **28 35** | **124 17** | **22 68** | **99 34** | **22 68** | **99 34** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 2.9E-01 | #/ADTP | F, K | 1 | 98% | **32 68** | **143 16** | **0 65** | **2 86** | **0 65** | **2 86** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 5.1E-01 | #/ADTP | J | 1 | 98% | **57 92** | **253 71** | **1 16** | **5 07** | **1 16** | **5 07** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | H | 1 | 98% | **27 08** | **118 60** | **0 28** | **1 24** | **0 28** | **1 24** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | #/ADTP | J | 1 | 99% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as TRS) | | NSPS | 2.3E-01 | #/ADTP | J | 1 | 99% | **25 80** | **113 00** | **0 26** | **1 13** | **0 26** | **1 13** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 1.3E-01 | #/ADTP | J | 1 | 99% | **14 18** | **62 09** | **0 14** | **0 62** | **0 14** | **0 62** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 1.3E-01 | #/ADTP | D | 1 | 99% | **15 06** | **65 97** | **0 15** | **0 66** | **0 15** | **0 66** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 53** | **2 33** | **0 01** | **0 05** | **0 01** | **0 05** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | .7E-03 | #/ADTP | A, K | 1 | 98% | **0 53** | **2 33** | **0 01** | **0 05** | **0 01** | **0 05** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Med an em ssion factors from NCASI Technical Bul etin No. 858, Table 9H - Con inuous Digester.
B) Emission factors from New Fiberline PSD Permit App ication
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Assumed 100% conversion of TRS (as S) to SO2 in Combination Bo ler. Sulfur capture in bo ler ash approximately 32.5% per CP-DC.
F) Emission factor from NCASI Technical Bulletin 88 , Table 2 - adjusted from #/ on chips to #/ADTP assuming 50% yie d.
G) Em ssion factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC species.
H) VOC em ssions are sum of indiv dual specia ed VOC.
I) Sum of speciated POM and PAH.
J) Emiss on factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .
K) Emission factor adjusted by NCASI Reduction Factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Digester Chip Bin | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |

AEI Group ID = 002, Process Unit D = 3

T tle V Unit ID = 02. Equipment ID = 5210, 5270

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 0.0E 00 | #/ADTP | J | 1 | 99% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl mercaptan | | | 1.6E-02 | #/ADTP | A, K | 1 | 99% | **1 80** | **7 86** | **0 02** | **0 08** | **0 02** | **0 08** |
| dimethyl d su fide | | | 2.9E-02 | #/ADTP | A, K | 1 | 99% | **3 21** | **14 07** | **0 03** | **0 14** | **0 03** | **0 14** |
| dimethyl suff de | | | 1.8E-01 | #/ADTP | A, K | 1 | 99% | **20 79** | **91 06** | **0 21** | **0 91** | **0 21** | **0 91** |
| To al Other Air Pollutants | | | | | | 1 | | **0 75** | **3 27** | **0 01** | **0 07** | **0 01** | **0 07** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | 6.6E-03 | #/ADTP | A, K | 1 | 98% | **0 75** | **3 27** | **0 01** | **0 07** | **0 01** | **0 07** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Digester Re ief Gas | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = 3 | | | | | | | | |
| T tle V Unit ID = 02. Equipment ID = 5210, 5270 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | 7.1E-02 | #/ADTP | J | 1 | 20% | **7 94** | **34 77** | **6 35** | **27 81** | **6 35** | **27 81** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 5.0E-0 | #/ADTP | B, K | 1 | 98% | **0 06** | **0 25** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 8.2E-0 | #/ADTP | J | 1 | 98% | **0 09** | **0 40** | **0 00** | **0 01** | **0 00** | **0 01** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | F | 1 | 98% | **6 25** | **27 39** | **0 06** | **0 28** | **0 06** | **0 28** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 3.0E-03 | #/ADTP | J | 1 | 99% | **0 34** | **1 49** | **0 00** | **0 01** | **0 00** | **0 01** |
| To al Reduced Sulfur (as TRS) | | NSPS | 5.8E-02 | #/ADTP | J | 1 | 99% | **6 50** | **28 48** | **0 07** | **0 28** | **0 07** | **0 28** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 3.5E-02 | #/ADTP | J | 1 | 99% | **3 97** | **17 38** | **0 04** | **0 17** | **0 04** | **0 17** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 3.7E-02 | #/ADTP | D | 1 | 99% | **4 22** | **18 47** | **0 04** | **0 18** | **0 04** | **0 18** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 05** | **0 22** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | . E-0 | #/ADTP | A, K | 1 | 98% | **0 05** | **0 22** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Med an em ssion factors from NCASI Technical Bul etin No. 858, Table 9A - Continuous Diges er.
B) Emission factor adjusted from VOC as VOC to VOC as carbon based on molecular weight of predominate VOC spec es.
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Assumed 100% conversion of TRS (as S) to SO2 in Combination Bo ler. Sulfur capture in bo ler ash approximately 32.5% per CP-DC.
F) VOC emissions are sum of individual speciated VOC.
G) VOC em ssions are sum of terpenes and methanol.
H) Sum of spec ated POM and PAH.
I) Reserved.
J) Emiss on factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .
K) Emission factor adjusted by NCASI Reduction Factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Digester Re ief Gas | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |

AEI Group ID = 002, Process Unit D = 3

T tle V Unit ID = 02, Equipment ID = 5210, 5270

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 3.0E-03 | #/ADTP | J | 1 | 99% | **0 34** | **1 49** | **0 00** | **0 01** | **0 00** | **0 01** |
| Methyl mercaptan | | | 2. E-02 | #/ADTP | A, K | 1 | 99% | **2 65** | **11 59** | **0 03** | **0 12** | **0 03** | **0 12** |
| dimethyl d su fide | | | 5.2E-03 | #/ADTP | A, K | 1 | 99% | **0 59** | **2 57** | **0 01** | **0 03** | **0 01** | **0 03** |
| dimethyl suff de | | | 2.6E-02 | #/ADTP | A, K | 1 | 99% | **2 93** | **12 83** | **0 03** | **0 13** | **0 03** | **0 13** |
| To al Other Air Pollutants | | | | | | 1 | | **0 04** | **0 19** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | 3.8E-0 | #/ADTP | A, K | 1 | 98% | **0 04** | **0 19** | **0 00** | **0 00** | **0 00** | **0 00** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Pressure D ffusion Washer | 2.700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = 8 | | | | | | | | |
| T tle V Unit ID = 02. Equipment ID = 5230, 5270 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | 6.0E-02 | #/ADTP | J | 1 | 20% | **6 80** | **29 80** | **5 44** | **23 84** | **5 44** | **23 84** |
| Vo ati e organic compounds (as carbon) | | Cr teria | .1E-02 | #/ADTP | F, K | 1 | 98% | **4 62** | **20 23** | **0 09** | **0 40** | **0 09** | **0 40** |
| Vo ati e organic compounds (as VOC) | | Cr teria | .7E-02 | #/ADTP | J | 1 | 98% | **5 23** | **22 93** | **0 10** | **0 46** | **0 10** | **0 46** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | H | 1 | 98% | **72 32** | **316 77** | **1 39** | **6 07** | **1 39** | **6 07** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | .5E-05 | #/ADTP | J | 1 | 99% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as TRS) | | NSPS | 5.5E-02 | #/ADTP | J | 1 | 99% | **6 15** | **26 92** | **0 06** | **0 27** | **0 06** | **0 27** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 3.0E-02 | #/ADTP | J | 1 | 99% | **3 40** | **14 90** | **0 03** | **0 15** | **0 03** | **0 15** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 3.2E-02 | #/ADTP | D | 1 | 99% | **3 61** | **15 83** | **0 04** | **0 16** | **0 04** | **0 16** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **6 44** | **28 21** | **0 13** | **0 56** | **0 13** | **0 56** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 7.3E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 7.3E-07 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 1.1E-0 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 05** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112 | 5.7E-0 | #/ADTP | A, K | 1 | 98% | **0 06** | **0 28** | **0 00** | **0 01** | **0 00** | **0 01** |
| Acetophenone | 98862 | HAP, TAP | 5.7E-0 | #/ADTP | A, K | 1 | 98% | **0 06** | **0 28** | **0 00** | **0 01** | **0 00** | **0 01** |
| Acrolein | 107028 | MAP, TAP, (112 | 1. E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 2.6E-07 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | MAP, TAP, (112 | 1.3E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon tetrachloride | 56235 | HAP, TAP | 1.3E-0 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 06** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbonyl sulf de | 63581 | MAP, TAP, (112 | 3.5E-0 | #/ADTP | A, K | 1 | 98% | **0 04** | **0 17** | **0 00** | **0 00** | **0 00** | **0 00** |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 1. E-07 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | MAP, TAP, (112 | 2.2E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112 | 8.2E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | 2.6E-02 | #/ADTP | A, K | 1 | 98% | **2 88** | **12 60** | **0 06** | **0 25** | **0 06** | **0 25** |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 2.6E-02 | #/ADTP | A, K | 1 | 98% | **2 88** | **12 60** | **0 06** | **0 25** | **0 06** | **0 25** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 2.1E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 1.3E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Xylene | 108383 | HAP, TAP | . E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | 1.9E-03 | #/ADTP | A, K | 1 | 98% | **0 21** | **0 92** | **0 00** | **0 02** | **0 00** | **0 02** |
| o-Xylene | 95 76 | HAP, TAP | 1.9E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 2.0E-03 | #/ADTP | A, K | 1 | 98% | **0 23** | **1 00** | **0 00** | **0 02** | **0 00** | **0 02** |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | . E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 5.1E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | 2.1E-0 | #/ADTP | A, K | 1 | 98% | **0 02** | **0 11** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | .7E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 8.8E-07 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Med an em ssion factors from NCASI Technical Bul etin No. 858, Table 7 - non-vacuum drum washers.
B) Emission factors from New Fiberline PSD Permit App ication
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Assumed 100% conversion of TRS (as S) to SO2 in Combination Bo ler. Sulfur capture in bo ler ash approximately 32.5% per CP-DC.
F) Emission factor from NCASI Technical Bulletin 88 , Table .6.
G) Em ssion factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC species.
H) VOC em ssions are sum of indiv dual specia ed VOC.
I) Sum of speciated POM and PAH.
J) Emiss on factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .
K) Emission factor adjusted by NCASI Reduction Factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Pressure D ffusion Washer | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |

AEI Group ID = 002, Process Unit D = 8

T tle V Unit ID = 02. Equipment ID = 5230, 5270

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | .5E-05 | #/ADTP | J | 1 | 99% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl mercaptan | | | 8.3E-0 | #/ADTP | A, K | 1 | 99% | **0 09** | **0 41** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl d su fide | | | 1.. E-02 | #/ADTP | A, K | 1 | 99% | **1 61** | **7 04** | **0 02** | **0 07** | **0 02** | **0 07** |
| dimethyl suff de | | | 3.9E-02 | #/ADTP | A, K | 1 | 99% | **4 44** | **19 45** | **0 04** | **0 19** | **0 04** | **0 19** |
| To al Other Air Pollutants | | | | | | 1 | | **59 99** | **262 32** | **1 20** | **5 25** | **1 20** | **5 25** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 7.9E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 1.1E-03 | #/ADTP | A, K | 1 | 98% | **0 12** | **0 54** | **0 00** | **0 01** | **0 00** | **0 01** |
| alpha-pinene | | | .1E-01 | #/ADTP | A, K | 1 | 98% | **46 18** | **202 29** | **0 92** | **4 05** | **0 92** | **4 05** |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | 1.1E-01 | #/ADTP | A, K | 1 | 98% | **12 79** | **56 02** | **0 26** | **1 12** | **0 26** | **1 12** |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 2.8E-03 | #/ADTP | A, K | 1 | 98% | **0 32** | **1 40** | **0 01** | **0 03** | **0 01** | **0 03** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | .1E-0 | #/ADTP | A, K | 1 | 98% | **0 05** | **0 20** | **0 00** | **0 00** | **0 00** | **0 00** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 3.8E-03 | #/ADTP | A, K | 1 | 98% | **0 43** | **1 87** | **0 01** | **0 04** | **0 01** | **0 04** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Digester B ow Tank | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = 3 | | | | | | | | |
| T tle V Unit ID = 02. Equipment ID = 5210, 5270 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | 3.2E-02 | #/ADTP | J | 1 | 20% | **3 59** | **15 73** | **2 87** | **12 58** | **2 87** | **12 58** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 1.1E-01 | #/ADTP | F, K | 1 | 98% | **12 43** | **54 46** | **0 25** | **1 09** | **0 25** | **1 09** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 1.3E-01 | #/ADTP | J | 1 | 98% | **14 74** | **64 56** | **0 29** | **1 29** | **0 29** | **1 29** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | H | 1 | 98% | **11 79** | **51 66** | **0 20** | **0 89** | **0 20** | **0 89** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 2.7E-0 | #/ADTP | J | 1 | 99% | **0 03** | **0 13** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as TRS) | | NSPS | 2.9E-02 | #/ADTP | J | 1 | 99% | **3 27** | **14 34** | **0 03** | **0 14** | **0 03** | **0 14** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 1.6E-02 | #/ADTP | J | 1 | 99% | **1 80** | **7 86** | **0 02** | **0 08** | **0 02** | **0 08** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 1.7E-02 | #/ADTP | D | 1 | 99% | **1 91** | **8 36** | **0 02** | **0 08** | **0 02** | **0 08** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 40** | **1 75** | **0 01** | **0 03** | **0 01** | **0 03** |
| 1,1,1-Tr chloroethane | 71556 | HAP | .7E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | .7E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | .7E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrolein | 107028 | HAP, TAP, (112 | 1.6E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112 | 2.5E-0 | #/ADTP | A, K | 1 | 98% | **0 03** | **0 12** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon tetrachloride | 56235 | HAP, TAP | .7E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112 | 7.9E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | 6.3E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 2.5E-03 | #/ADTP | A, K | 1 | 98% | **0 28** | **1 23** | **0 01** | **0 02** | **0 01** | **0 02** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Xylene | 108383 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-Xylene | 95 76 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | .7E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Med an em ssion factors from NCASI Technical Bul etin No. 858, Table 9B - Continuous Diges er.
B) Emission factors from New Fiberline PSD Permit App ication
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Assumed 100% conversion of TRS (as S) to SO2 in Combination Bo ler. Sulfur capture in bo ler ash approximately 32.5% per CP-DC.
F) Emission factor from NCASI Technical Bulletin 88 , Table 2 - adjusted for evaporator emiss ons assuming 50/50 split with pulping.
G) Em ssion factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC species.
H) VOC em ssions are sum of indiv dual specia ed VOC.
I) Sum of speciated POM and PAH.
J) Emiss on factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .
K) Emission factor adjusted by NCASI Reduction Factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Digester B ow Tank | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = 3 | | | | | | | | |
| T tle V Unit ID = 02. Equipment ID = 5210, 5270 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 2.7E-0 | #/ADTP | J | 1 | 99% | **0 03** | **0 13** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl mercaptan | | | 1.3E-05 | #/ADTP | A, K | 1 | 99% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl d su fide | | | 2.8E-03 | #/ADTP | A, K | 1 | 99% | **0 31** | **1 37** | **0 00** | **0 01** | **0 00** | **0 01** |
| dimethyl suff de | | | 2.6E-02 | #/ADTP | A, K | 1 | 99% | **2 93** | **12 83** | **0 03** | **0 13** | **0 03** | **0 13** |
| To al Other Air Pollutants | | | | | | | | **8 17** | **35 80** | **0 16** | **0 72** | **0 16** | **0 72** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 1.1E-0 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 05** | **0 00** | **0 00** | **0 00** | **0 00** |
| alpha-pinene | | | 3.1E-02 | #/ADTP | A, K | 1 | 98% | **3 45** | **15 09** | **0 07** | **0 30** | **0 07** | **0 30** |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | .1E-0 | #/ADTP | A, K | 1 | 98% | **0 05** | **0 20** | **0 00** | **0 00** | **0 00** | **0 00** |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | 1.3E-02 | #/ADTP | A, K | 1 | 98% | **1 46** | **6 38** | **0 03** | **0 13** | **0 03** | **0 13** |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | 5. E-0 | #/ADTP | A, K | 1 | 98% | **0 06** | **0 26** | **0 00** | **0 01** | **0 00** | **0 01** |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 1. E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | 1.1E-0 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 05** | **0 00** | **0 00** | **0 00** | **0 00** |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | .1E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | 2.6E-03 | #/ADTP | A, K | 1 | 98% | **0 29** | **1 28** | **0 01** | **0 03** | **0 01** | **0 03** |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 3.5E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 2.5E-02 | #/ADTP | A, K | 1 | 98% | **2 84** | **12 45** | **0 06** | **0 25** | **0 06** | **0 25** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Brownstock Washers | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = 8 | | | | | | | | |
| T tle V Unit ID = 02. Equipment ID = 5230, 5270 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | 6.0E-02 | #/ADTP | J | 1 | 20% | **6 80** | **29 80** | **5 44** | **23 84** | **5 44** | **23 84** |
| Vo ati e organic compounds (as carbon) | | Cr teria | .1E-02 | #/ADTP | F, K | 1 | 98% | **4 62** | **20 23** | **0 09** | **0 40** | **0 09** | **0 40** |
| Vo ati e organic compounds (as VOC) | | Cr teria | .7E-02 | #/ADTP | J | 1 | 98% | **5 23** | **22 93** | **0 10** | **0 46** | **0 10** | **0 46** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | H | 1 | 98% | **72 32** | **316 77** | **1 39** | **6 07** | **1 39** | **6 07** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | .5E-05 | #/ADTP | J | 1 | 99% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as TRS) | | NSPS | 5.5E-02 | #/ADTP | J | 1 | 99% | **6 15** | **26 92** | **0 06** | **0 27** | **0 06** | **0 27** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 3.0E-02 | #/ADTP | J | 1 | 99% | **3 40** | **14 90** | **0 03** | **0 15** | **0 03** | **0 15** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 3.2E-02 | #/ADTP | D | 1 | 99% | **3 61** | **15 83** | **0 04** | **0 16** | **0 04** | **0 16** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **6 44** | **28 21** | **0 13** | **0 56** | **0 13** | **0 56** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 7.3E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 7.3E-07 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 1.1E-0 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 05** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112 | 5.7E-0 | #/ADTP | A, K | 1 | 98% | **0 06** | **0 28** | **0 00** | **0 01** | **0 00** | **0 01** |
| Acetophenone | 98862 | HAP, TAP | 5.7E-0 | #/ADTP | A, K | 1 | 98% | **0 06** | **0 28** | **0 00** | **0 01** | **0 00** | **0 01** |
| Acrolein | 107028 | MAP, TAP, (112 | 1. E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 2.6E-07 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | MAP, TAP, (112 | 1.3E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon tetrachloride | 56235 | HAP, TAP | 1.3E-0 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 06** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbonyl sulf de | 63581 | MAP, TAP, (112 | 3.5E-0 | #/ADTP | A, K | 1 | 98% | **0 04** | **0 17** | **0 00** | **0 00** | **0 00** | **0 00** |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 1. E-07 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | MAP, TAP, (112 | 2.2E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112 | 8.2E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | 2.6E-02 | #/ADTP | A, K | 1 | 98% | **2 88** | **12 60** | **0 06** | **0 25** | **0 06** | **0 25** |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 2.6E-02 | #/ADTP | A, K | 1 | 98% | **2 88** | **12 60** | **0 06** | **0 25** | **0 06** | **0 25** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 2.1E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 1.3E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Xylene | 108383 | HAP, TAP | . E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 3.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | 1.9E-03 | #/ADTP | A, K | 1 | 98% | **0 21** | **0 92** | **0 00** | **0 02** | **0 00** | **0 02** |
| o-Xylene | 95 76 | HAP, TAP | 1.9E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 2.0E-03 | #/ADTP | A, K | 1 | 98% | **0 23** | **1 00** | **0 00** | **0 02** | **0 00** | **0 02** |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | . E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 5.1E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | 2.1E-0 | #/ADTP | A, K | 1 | 98% | **0 02** | **0 11** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | .7E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 8.8E-07 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Med an em ssion factors from NCASI Technical Bul etin No. 858, Table 7 - non-vacuum drum washers.
B) Emission factors from New Fiberline PSD Permit App ication
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Assumed 100% conversion of TRS (as S) to SO2 in Combination Bo ler. Sulfur capture in bo ler ash approximately 32.5% per CP-DC.
F) Emission factor from NCASI Technical Bulletin 88 , Table .6.
G) Em ssion factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC species.
H) VOC em ssions are sum of indiv dual specia ed VOC.
I) Sum of speciated POM and PAH.
J) Emiss on factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .
K) Emission factor adjusted by NCASI Reduction Factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Brownstock Washers | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = 8 | | | | | | | | |
| T tle V Unit ID = 02, Equipment ID = 5230, 5270 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | .5E-05 | #/ADTP | J | 1 | 99% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl mercaptan | | | 8.3E-0 | #/ADTP | A, K | 1 | 99% | **0 09** | **0 41** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl d su fide | | | 1. E-02 | #/ADTP | A, K | 1 | 99% | **1 61** | **7 04** | **0 02** | **0 07** | **0 02** | **0 07** |
| dimethyl suff de | | | 3.9E-02 | #/ADTP | A, K | 1 | 99% | **4 44** | **19 45** | **0 04** | **0 19** | **0 04** | **0 19** |
| To al Other Air Pollutants | | | | | | 1 | | **59 99** | **262 32** | **1 20** | **5 25** | **1 20** | **5 25** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 7.9E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 1.1E-03 | #/ADTP | A, K | 1 | 98% | **0 12** | **0 54** | **0 00** | **0 01** | **0 00** | **0 01** |
| alpha-pinene | | | .1E-01 | #/ADTP | A, K | 1 | 98% | **46 18** | **202 29** | **0 92** | **4 05** | **0 92** | **4 05** |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | 1.1E-01 | #/ADTP | A, K | 1 | 98% | **12 79** | **56 02** | **0 26** | **1 12** | **0 26** | **1 12** |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 2.8E-03 | #/ADTP | A, K | 1 | 98% | **0 32** | **1 40** | **0 01** | **0 03** | **0 01** | **0 03** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | .1E-0 | #/ADTP | A, K | 1 | 98% | **0 05** | **0 20** | **0 00** | **0 00** | **0 00** | **0 00** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 3.8E-03 | #/ADTP | A, K | 1 | 98% | **0 43** | **1 87** | **0 01** | **0 04** | **0 01** | **0 04** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Washed Stock Storage Tank | 1 | tanks | 1 | tanks | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = 5 | 2,700 | ADTP/Day | 2,700 | ADTP/Day | | | | |
| T tle V Unit ID = 02. Equipment ID = 5230, 5270 | | | | | | | | |

| 8. EM SSION FACTOR INFORMATION | | | | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | 5. E-02 | lb/ADTP | J | 1 | 20% | **6 05** | **26 50** | **4 84** | **21 20** | **4 84** | **21 20** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 8.6E-01 | lb/hr/tank | C | 1 | 98% | **0 86** | **3 77** | **0 02** | **0 08** | **0 02** | **0 08** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 2. E-01 | lb/ADTP | J | 1 | 98% | **26 57** | **116 38** | **0 53** | **2 33** | **0 53** | **2 33** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | D | 1 | 98% | **11 84** | **51 88** | **0 22** | **0 96** | **0 22** | **0 96** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | .9E-02 | lb/ADTP | J | 1 | 99% | **5 50** | **24 08** | **0 05** | **0 24** | **0 05** | **0 24** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 2.7E-02 | lb/ADTP | J | 1 | 99% | **3 02** | **13 25** | **0 03** | **0 13** | **0 03** | **0 13** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 2.9E-02 | lb/ADTP | L | 1 | 99% | **3 21** | **14 08** | **0 03** | **0 14** | **0 03** | **0 14** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **9 22** | **40 40** | **0 18** | **0 81** | **0 18** | **0 81** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 6.0E-06 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | 5.2E-03 | lb/hr/tank | A, K | 1 | 98% | **0 01** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | .3E-06 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 1.2E-06 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112 | 1.3E-0 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 9.2E 00 | lb/hr/tank | F, K | 1 | 98% | **9 20** | **40 30** | **0 18** | **0 81** | **0 18** | **0 81** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 1.1E-05 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | 6.5E-06 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 2.0E-05 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 1.8E-06 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 1.9E-02 | lb/hr/tank | A, K | 1 | 98% | **0 02** | **0 08** | **0 00** | **0 00** | **0 00** | **0 00** |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 6.5E-06 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 2.7E-0 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | .7E-05 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | 8.6E-06 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 5.2E-06 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Med an em ssion factors from NCASI Technical Bulletin 858, Table 11.
B) Emission factor adjusted from VOC as carbon o total VOC based on molecu ar we ght of predominate VOC species.
C) Minimum emission factor from NCASI Technical Bulletin 858, Table 11 - Unb eached HD Storage Tank.
D) VOC em ssions are sum of indiv dual specia ed VOC.
E) Sum of spec ated POM and PAH.
F) Emission factors from NCASI Techn cal Bu letin 858, Tab e A-8, M II PSTIE3 Unscreened stock chest.
G) Assumed 100% convers on of TRS (as S) to SO2 in Combinat on Boi er. Sulfur capture in boi er ash approximately 32.5% per CP-DC.
H) Reserved.
I) Reserved.
J) Emiss on factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .
K) Emission factor adjusted by NCASI Reduction Factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .
L) Assumed TRS (as S) conver ed o H2S based on molecular weight.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Washed Stock Storage Tank | 1 | tanks | 1 | tanks | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit .D = 5 | 2,700 | ADTP/Day | 2,700 | ADTP/Day | | | | |
| T tle V Unit ID = 02. Equipment ID = 5230, 5270 | | | | | | | | |

| | | 8. EM SSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 0.0E 00 | lb/hr/tank | A, K | 1 | 99% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl mercaptan | | | 6.5E-02 | lb/hr/tank | A, K | 1 | 99% | **0 06** | **0 28** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl d su fide | | | 3.3E-01 | lb/hr/tank | A, K | 1 | 99% | **0 33** | **1 42** | **0 00** | **0 01** | **0 00** | **0 01** |
| dimethyl suff de | | | 1.5E 00 | lb/hr/tank | A, K | 1 | 99% | **1 45** | **6 37** | **0 01** | **0 06** | **0 01** | **0 06** |
| To al Other Air Pollutants | | | | | | | | **1 12** | **4 89** | **0 02** | **0 10** | **0 02** | **0 10** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 6.0E-05 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 3. E-01 | lb/hr/tank | F, K | 1 | 98% | **0 34** | **1 49** | **0 01** | **0 03** | **0 01** | **0 03** |
| alpha-pinene | | | 1.7E-01 | lb/hr/tank | A, K | 1 | 98% | **0 17** | **0 74** | **0 00** | **0 01** | **0 00** | **0 01** |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | 1.7E-01 | lb/hr/tank | A, K | 1 | 98% | **0 17** | **0 74** | **0 00** | **0 01** | **0 00** | **0 01** |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | 2.8E-0 | lb/hr/tank | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 2.8E-01 | lb/hr/tank | F, K | 1 | 98% | **0 28** | **1 23** | **0 01** | **0 02** | **0 01** | **0 02** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 1.5E-01 | lb/hr/tank | F, K | 1 | 98% | **0 15** | **0 66** | **0 00** | **0 01** | **0 00** | **0 01** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 7.0E-03 | lb/hr/tank | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Deshive Refiners | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |

AEI Group ID = 002, Process Unit D = 5

T tle V Unit ID = 02. Equipment ID = 5255, 5270

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | 3.7E-03 | #/ADTP | J | 1 | 20% | **0 42** | **1 82** | **0 33** | **1 46** | **0 33** | **1 46** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 9.0E-03 | #/ADTP | F, K | 1 | 98% | **1 01** | **4 43** | **0 02** | **0 09** | **0 02** | **0 09** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 2.3E-02 | #/ADTP | J | 1 | 98% | **2 58** | **11 29** | **0 05** | **0 23** | **0 05** | **0 23** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | H | 1 | 98% | **29 84** | **130 68** | **0 59** | **2 60** | **0 59** | **2 60** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | #/ADTP | J | 1 | 99% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as TRS) | | NSPS | .0E-03 | #/ADTP | J | 1 | 99% | **0 45** | **1 97** | **0 00** | **0 02** | **0 00** | **0 02** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 2.2E-03 | #/ADTP | J | 1 | 99% | **0 25** | **1 08** | **0 00** | **0 01** | **0 00** | **0 01** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 2.3E-03 | #/ADTP | D | 1 | 99% | **0 26** | **1 15** | **0 00** | **0 01** | **0 00** | **0 01** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **28 93** | **126 71** | **0 58** | **2 53** | **0 58** | **2 53** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 1.7E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 1.7E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | 1.7E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 5.9E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | 1.3E-03 | #/ADTP | A, K | 1 | 98% | **0 15** | **0 66** | **0 00** | **0 01** | **0 00** | **0 01** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112 | 6.9E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 7.1E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | 6.3E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | .6E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112 | 5.8E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | 3.6E-0 | #/ADTP | A, K | 1 | 98% | **0 04** | **0 18** | **0 00** | **0 00** | **0 00** | **0 00** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 2.6E-01 | #/ADTP | A, K | 1 | 98% | **28 69** | **125 65** | **0 57** | **2 51** | **0 57** | **2 51** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 6.1E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 3.0E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Xylene | 108383 | HAP, TAP | 1.8E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 1.0E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 3.0E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 1.8E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 1.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | 2.1E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | 2.9E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 1.6E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Med an em ssion factors from NCASI Technical Bul etin No. 858, Tables and 5 (knot ers and screens) added together.
B) Emission factors from New Fiberline PSD Permit App ication
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Assumed 100% conversion of TRS (as S) to SO2 in Combination Bo ler. Sulfur capture in bo ler ash approximately 32.5% per CP-DC.
F) Emission factor from NCASI Technical Bulletin 88 , Table .5 (knotters and screens) added together.
G) Em ssion factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC species.
H) VOC em ssions are sum of indiv dual specia ed VOC.
I) Sum of speciated POM and PAH.
J) Emiss on factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .
K) Emission factor adjusted by NCASI Reduction Factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Deshive Refiners | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = 5 | | | | | | | | |
| T tle V Unit ID = 02. Equipment ID = 5255, 5270 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| hydrogen sulf de | | | 0.0E 00 | #/ADTP | J | 1 | | | | | | | |
| Methyl mercaptan | | | 8.0E-05 | #/ADTP | A | 1 | 99% | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl d su fide | | | 1.2E-03 | #/ADTP | A | 1 | 99% | **0 13** | **0 59** | **0 00** | **0 01** | **0 00** | **0 01** |
| dimethyl sulf de | | | 2.1E-03 | #/ADTP | A | 1 | 99% | **0 23** | **1 03** | **0 00** | **0 01** | **0 00** | **0 01** |
| To al Other Air Pollutants | | | | | | | | **1 55** | **6 80** | **0 03** | **0 14** | **0 03** | **0 14** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 3.0E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 9.0E-03 | #/ADTP | A, K | 1 | 98% | **1 02** | **4 45** | **0 02** | **0 09** | **0 02** | **0 09** |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpinene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 2.5E-03 | #/ADTP | A, K | 1 | 98% | **0 28** | **1 23** | **0 01** | **0 02** | **0 01** | **0 02** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 9.6E-0 | #/ADTP | A, K | 1 | 98% | **0 11** | **0 47** | **0 00** | **0 01** | **0 00** | **0 01** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 1.3E-03 | #/ADTP | A | 1 | 98% | **0 14** | **0 63** | **0 00** | **0 01** | **0 00** | **0 01** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Screw Presses | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = 5 | | | | | | | | |
| T tle V Unit ID = 02. Equipment ID = 5255, 5270 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | 5.9E-02 | #/ADTP | J | 1 | 20% | **6 62** | **28 97** | **5 29** | **23 18** | **5 29** | **23 18** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 7.7E-02 | #/ADTP | F, K | 1 | 98% | **8 66** | **37 94** | **0 17** | **0 76** | **0 17** | **0 76** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 1.2E-01 | #/ADTP | J | 1 | 98% | **13 85** | **60 65** | **0 28** | **1 21** | **0 28** | **1 21** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | H | 1 | 98% | **20 73** | **90 79** | **0 36** | **1 59** | **0 36** | **1 59** |
| | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | #/ADTP | J | 1 | 99% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as TRS) | | NSPS | .7E-02 | #/ADTP | J | 1 | 99% | **5 27** | **23 07** | **0 05** | **0 23** | **0 05** | **0 23** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 2.9E-02 | #/ADTP | J | 1 | 99% | **3 31** | **14 49** | **0 03** | **0 14** | **0 03** | **0 14** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 3.1E-02 | #/ADTP | D | 1 | 99% | **3 51** | **15 39** | **0 04** | **0 15** | **0 04** | **0 15** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **9 51** | **41 64** | **0 19** | **0 83** | **0 19** | **0 83** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 6.0E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 6.0E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | 6.0E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 1.1E-03 | #/ADTP | A, K | 1 | 98% | **0 12** | **0 54** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | 2.3E-03 | #/ADTP | A, K | 1 | 98% | **0 26** | **1 13** | **0 01** | **0 02** | **0 01** | **0 02** |
| Acetophenone | 98862 | HAP, TAP | 9.5E-0 | #/ADTP | A, K | 1 | 98% | **0 11** | **0 47** | **0 00** | **0 01** | **0 00** | **0 01** |
| Acrolein | 107028 | HAP, TAP, (112 | 8.1E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 5.8E-06 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | 2.9E-0 | #/ADTP | A, K | 1 | 98% | **0 03** | **0 14** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 2.6E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112 | 2.2E-03 | #/ADTP | A, K | 1 | 98% | **0 25** | **1 08** | **0 00** | **0 02** | **0 00** | **0 02** |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | 3.2E-03 | #/ADTP | A, K | 1 | 98% | **0 36** | **1 58** | **0 01** | **0 03** | **0 01** | **0 03** |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | 8.5E-0 | #/ADTP | A, K | 1 | 98% | **0 10** | **0 42** | **0 00** | **0 01** | **0 00** | **0 01** |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | 7.0E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | 1.2E-02 | #/ADTP | A, K | 1 | 98% | **1 35** | **5 91** | **0 03** | **0 12** | **0 03** | **0 12** |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 3.5E-02 | #/ADTP | A, K | 1 | 98% | **3 94** | **17 25** | **0 08** | **0 34** | **0 08** | **0 34** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 7.7E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 1.1E-0 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 05** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Xylene | 108383 | HAP, TAP | 5.5E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 2.5E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | 1.0E-02 | #/ADTP | A, K | 1 | 98% | **1 13** | **4 93** | **0 02** | **0 10** | **0 02** | **0 10** |
| o-Xylene | 95 76 | HAP, TAP | 5.3E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | 1.2E-02 | #/ADTP | A, K | 1 | 98% | **1 35** | **5 91** | **0 03** | **0 12** | **0 03** | **0 12** |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 7.5E-0 | #/ADTP | A, K | 1 | 98% | **0 08** | **0 37** | **0 00** | **0 01** | **0 00** | **0 01** |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | 1.6E-03 | #/ADTP | A, K | 1 | 98% | **0 18** | **0 79** | **0 00** | **0 02** | **0 00** | **0 02** |
| p-Xylene | 106 23 | HAP, TAP | 5.5E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 2.3E-0 | #/ADTP | A, K | 1 | 98% | **0 03** | **0 11** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | .1E-0 | #/ADTP | A, K | 1 | 98% | **0 05** | **0 20** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | 5.3E-05 | #/ADTP | A, K | 1 | 98% | **0 01** | **0 03** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 8. E-0 | #/ADTP | A, K | 1 | 98% | **0 09** | **0 41** | **0 00** | **0 01** | **0 00** | **0 01** |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Med an em ssion factors from NCASI Technical Bul etin No. 858, Table 8.
B) Emission factors from New Fiberline PSD Permit App ication
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Assumed 100% conversion of TRS (as S) to SO2 in Combination Bo ler. Sulfur capture in bo ler ash approximately 32.5% per CP-DC.
F) Emission factor from NCASI Technical Bulletin 88 , Table 7.
G) Em ssion factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC species.
H) VOC em ssions are sum of indiv dual specia ed VOC.
I) Sum of speciated POM and PAH.
J) Emiss on factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .
K) Emission factor adjusted by NCASI Reduction Factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Screw Presses | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = 5 | | | | | | | | |
| T tle V Unit ID = 02. Equipment ID = 5255, 5270 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| Hydrogen suff de | | | 0.0E 00 | #/ADTP | J | 1 | | | | | | | |
| Methyl mercaptan | | | 6.2E-0 | #/ADTP | A, K | 1 | 99% | **0 07** | **0 31** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl d su fide | | | 2. E-02 | #/ADTP | A, K | 1 | 99% | **2 65** | **11 59** | **0 03** | **0 12** | **0 03** | **0 12** |
| dimethyl suff de | | | 2.3E-02 | #/ADTP | A, K | 1 | 99% | **2 55** | **11 18** | **0 03** | **0 11** | **0 03** | **0 11** |
| To al Other Air Pollutants | | | | | | | | **6 93** | **30 35** | **0 14** | **0 61** | **0 14** | **0 61** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 1.1E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 8.1E-03 | #/ADTP | A, K | 1 | 98% | **0 91** | **3 99** | **0 02** | **0 08** | **0 02** | **0 08** |
| alpha-pinene | | | 8.8E-03 | #/ADTP | A, K | 1 | 98% | **0 99** | **4 34** | **0 02** | **0 09** | **0 02** | **0 09** |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | 3. E-0 | #/ADTP | A, K | 1 | 98% | **0 04** | **0 17** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | 1.3E-02 | #/ADTP | A, K | 1 | 98% | **1 46** | **6 41** | **0 03** | **0 13** | **0 03** | **0 13** |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | . E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 02** | **0 00** | **0 00** | **0 00** | **0 00** |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 5. E-03 | #/ADTP | A, K | 1 | 98% | **0 61** | **2 66** | **0 01** | **0 05** | **0 01** | **0 05** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | 1. E-03 | #/ADTP | A, K | 1 | 98% | **0 16** | **0 69** | **0 00** | **0 01** | **0 00** | **0 01** |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 1.5E-03 | #/ADTP | A, K | 1 | 98% | **0 17** | **0 74** | **0 00** | **0 01** | **0 00** | **0 01** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 2.3E-02 | #/ADTP | A, K | 1 | 98% | **2 59** | **11 33** | **0 05** | **0 23** | **0 05** | **0 23** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Turpentine recovery | 2.700 | ADTP/Day | 2.700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = 6 | | | | | | | | |
| T tle V Unit ID = 02. Equipment ID = 5220, 5260 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | 5.0E-03 | #/ADTP | J | 1 | 60% | **0 57** | **2 48** | **0 23** | **0 99** | **0 23** | **0 99** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 1.1E-0 | #/ADTP | B, K | 1 | 98% | **0 01** | **0 05** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 2.9E-0 | #/ADTP | J | 1 | 98% | **0 03** | **0 14** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | F | 1 | 98% | **0 48** | **2 09** | **0 01** | **0 02** | **0 01** | **0 02** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 2.1E-0 | #/ADTP | J | 1 | 99.5% | **0 02** | **0 10** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as TRS) | | NSPS | .2E-03 | #/ADTP | J | 1 | 99.5% | **0 47** | **2 05** | **0 00** | **0 01** | **0 00** | **0 01** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 2.5E-03 | #/ADTP | J | 1 | 99.5% | **0 28** | **1 24** | **0 00** | **0 01** | **0 00** | **0 01** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 2.7E-03 | #/ADTP | D | 1 | 99.5% | **0 30** | **1 32** | **0 00** | **0 01** | **0 00** | **0 01** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 03** | **0 14** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 2.9E-0 | #/ADTP | A, K | 1 | 98% | **0 03** | **0 14** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Med an em ssion factors from NCASI Technical Bul etin No. 858, Table 9l.
B) Emission factor adjusted from total VOC to VOC as carbon based on molecu ar we ght of predominate VOC species.
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Assumed 50% removal of TRS in LVHC system scrubber and 100% conversion of TRS into SO2. Su fur capture in boi er ash approximately 32.5% per CP-DC.
F) VOC emissions are sum of individual speciated VOC.
G) Sum of speciated POM and PAH.
H) Reserved.
I) Reserved.
J) Emiss on factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .
K) Emission factor adjusted by NCASI Reduction Factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Turpentine recovery | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |

AEI Group ID = 002, Process Unit D = 6

T tle V Unit ID = 02, Equipment ID = 5220, 5260

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 2.1E-0 | #/ADTP | J | 1 | 99% | **0 02** | **0 10** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl mercaptan | | | 9.2E-0 | #/ADTP | A, K | 1 | 99% | **0 10** | **0 46** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl d su fide | | | 1.0E-03 | #/ADTP | A, K | 1 | 99% | **0 11** | **0 50** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl suff de | | | 2.0E-03 | #/ADTP | A, K | 1 | 99% | **0 23** | **0 99** | **0 00** | **0 01** | **0 00** | **0 01** |
| To al Other Air Pollutants | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Evaporators | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit D = 1 | | | | | | | | |
| V Un t ID = 07. Equipment D = 2 00, 2500, 5100, 5260 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | 2.76E 00 | #/ADTP | J | 1 | 60% | **309 96** | **1 357 62** | **123 98** | **543 05** | **123 98** | **543 05** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 5.8E-02 | #/ADTP | F, K | 1 | 98% | **6 53** | **28 59** | **0 13** | **0 57** | **0 13** | **0 57** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 1.5E-01 | #/ADTP | J | 1 | 98% | **17 41** | **76 25** | **0 35** | **1 52** | **0 35** | **1 52** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | G | 1 | 98% | **133 92** | **586 56** | **1 53** | **6 68** | **1 53** | **6 68** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 7.6E-01 | #/ADTP | J | 1 | 99.5% | **86 00** | **376 66** | **0 43** | **1 88** | **0 43** | **1 88** |
| To al Reduced Sulfur (as TRS) | | NSPS | 1.79E 00 | #/ADTP | J | 1 | 99.5% | **201 29** | **881 63** | **1 01** | **4 41** | **1 01** | **4 41** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 1.38E 00 | #/ADTP | J | 1 | 99.5% | **155 38** | **680 56** | **0 78** | **3 40** | **0 78** | **3 40** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 1. 7E 00 | #/ADTP | D | 1 | 99.5% | **165 09** | **723 09** | **0 83** | **3 62** | **0 83** | **3 62** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **17 51** | **76 71** | **0 35** | **1 53** | **0 35** | **1 53** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112 | .7E-0 | #/ADTP | A, K | 1 | 98% | **0 05** | **0 23** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | .7E-0 | #/ADTP | A, K | 1 | 98% | **0 05** | **0 23** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 1.5E-01 | #/ADTP | B, K | 1 | 98% | **17 41** | **76 25** | **0 35** | **1 52** | **0 35** | **1 52** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Emission factors from NCASI Technical Bul etin 858, Tab e 9C - Evapora ors at Mil s w th Continuous Digesters.
B) Emission factors based on Bowater source es ing Sep ember 11, 1996.
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Assumed 50% removal of TRS in LVHC system scrubber and 100% conversion of TRS into SO2. Su fur capture in boi er ash approximately 32.5% per CP-DC.
F) Emission factor adjusted from to al VOC to VOC as carbon based on molecular weight of predominate VOC spec es.
G) VOC em ssions are sum of individual speciated VOC.
H) Sum of spec ated POM and PAH.
I) Reserved.
J) Emiss on factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .
K) Emission factor adjusted by NCASI Reduction Factor from Project Columbia (cp-DF.R1), see tab A - Catawba NCG Factors .

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Evaporators | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |

AEI Group ID = 007, Process Unit D = 1

V Un t ID = 07. Equipment D = 2 00, 2500, 5100, 5260

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 7.6E-01 | #/ADTP | J | 1 | 99% | **86 00** | **376 66** | **0 86** | **3 77** | **0 86** | **3 77** |
| Methyl mercaptan | | | 8.8E-01 | #/ADTP | B, K | 1 | 99% | **99 23** | **434 61** | **0 99** | **4 35** | **0 99** | **4 35** |
| dimethyl d su fide | | | 0.0E 00 | #/ADTP | B, K | 1 | 99% | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl sulf de | | | 1. E-01 | #/ADTP | B, K | 1 | 99% | **16 07** | **70 36** | **0 16** | **0 70** | **0 16** | **0 70** |
| To al Other Air Pollutants | | | | | | 1 | | **1 17** | **5 11** | **0 02** | **0 10** | **0 02** | **0 10** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 2.2E-05 | #/ADTP | A, K | 1 | 98% | **0 00** | **0 01** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | .7E-0 | #/ADTP | A, K | 1 | 98% | **0 05** | **0 23** | **0 00** | **0 00** | **0 00** | **0 00** |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | .7E-0 | #/ADTP | A, K | 1 | 98% | **0 05** | **0 23** | **0 00** | **0 00** | **0 00** | **0 00** |
| alpha-pinene | | | 2.9E-03 | #/ADTP | A, K | 1 | 98% | **0 33** | **1 43** | **0 01** | **0 03** | **0 01** | **0 03** |
| alpha-terpinene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | 1.5E-03 | #/ADTP | A, K | 1 | 98% | **0 16** | **0 72** | **0 00** | **0 01** | **0 00** | **0 01** |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | .7E-0 | #/ADTP | A, K | 1 | 98% | **0 05** | **0 23** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | .7E-0 | #/ADTP | A, K | 1 | 98% | **0 05** | **0 23** | **0 00** | **0 00** | **0 00** | **0 00** |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | .1E-03 | #/ADTP | A, K | 1 | 98% | **0 46** | **2 02** | **0 01** | **0 04** | **0 01** | **0 04** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Condensa e Co lection Tank | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = | | | | | | | | |
| T tle V Unit ID = 09. Equipment ID = 9800, 5260 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 1.33E-02 | #/ADTP | B | 1 | 98% | **1 49** | **6 54** | **0 03** | **0 13** | **0 03** | **0 13** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 3.5 E-02 | #/ADTP | A | 1 | 98% | **3 98** | **17 43** | **0 08** | **0 35** | **0 08** | **0 35** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | A | 1 | 98% | **3 98** | **17 43** | **0 08** | **0 35** | **0 08** | **0 35** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **3 98** | **17 43** | **0 08** | **0 35** | **0 08** | **0 35** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 3.5 E-02 | #/ADTP | A | 1 | 98% | **3 98** | **17 43** | **0 08** | **0 35** | **0 08** | **0 35** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | | 1 | | | | | | | |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emissions rate ( .3 lb/hr) from cp-CF (condensate collect on ank), ra ioed by f ow (1.728 MGD/2.800 MGD) and methanol concentrat on (1500 ppm/1000 ppm), divide by new product on rate (2700 ADTP/day).
B) Emission factor adjusted from total VOC to VOC as carbon based on molecu ar we ght of methanol.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Condensa e Co lection Tank | 2,700 | ADTP/Day | 2,700 | ADTP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 002, Process Unit D = | | | | | | | | |
| T tle V Unit ID = 09. Equipment ID = 9800, 5260 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpinene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Woodyard | 3, 5,000 | tons/yr | 3, 5,000 | tons/yr | | | | |
| AEI Group ID = 001, Process Unit ID = 10 | | | | | | | | |
| Ti le V Unit D = 01, Equipment ID = 1300 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | A | 1 | | **23 97** | **105 00** | **23 97** | **105 00** | **23 97** | **105 00** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | C | 1 | | **3 60** | **15 75** | **3 60** | **15 75** | **3 60** | **15 75** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | C | 1 | | **0 24** | **1 05** | **0 24** | **1 05** | **0 24** | **1 05** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **3 60** | **15 75** | **3 60** | **15 75** | **3 60** | **15 75** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **0 24** | **1 05** | **0 24** | **1 05** | **0 24** | **1 05** |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | B | 1 | | **0 84** | **3 70** | **0 84** | **3 70** | **0 84** | **3 70** |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | B | 1 | | **0 96** | **4 20** | **0 96** | **4 20** | **0 96** | **4 20** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | B | 1 | | **0 96** | **4 20** | **0 96** | **4 20** | **0 96** | **4 20** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | | 1 | | | | | | | |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Ca culat ons in Ti le V applicat on.
B) VOC emissions from woodyard activit es estimated in WOODYARD VOC EF tab.
C) PM-10 and PM-2 5 ra io based on AP- 2, Appendix B-2, Category 6.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Woodyard | 3, 5,000 | tons/yr | 3, 5,000 | tons/yr | | | | |
| AEI Group ID = 001, Process Unit ID = 10 | | | | | | | | |
| Ti le V Unit D = 01. Equipment ID = 1300 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | | | | | | |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| Lithium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| H gh Dens ty Pulp Storage Tanks | 12 | tanks | 12 | tanks | 2 | 7 | 365 | 365 |

EI emissions reported under Ins gn ficant Summary

Ti le V Unit D = 12. Equipment ID = 1299

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EM SSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 8.6E-01 | lb/hr/tank | C | 1 | | **10 32** | **45 20** | **10 32** | **45 20** | **10 32** | **45 20** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 2.3E 00 | lb/hr/tank | B | 1 | | **28 08** | **122 99** | **28 08** | **122 99** | **28 08** | **122 99** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | D | 1 | | **19 84** | **86 89** | **19 84** | **86 89** | **19 84** | **86 89** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as TRS) | | NSPS | 7.7E-01 | lb/hr/tank | A | 1 | | **9 20** | **40 31** | **9 20** | **40 31** | **9 20** | **40 31** |
| To al Reduced Sulfur (as Su fur) | | NSPS | .2E-01 | lb/hr/tank | A | 1 | | **5 04** | **22 08** | **5 04** | **22 08** | **5 04** | **22 08** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | .5E-01 | lb/hr/tank | A | 1 | | **5 36** | **23 45** | **5 36** | **23 45** | **5 36** | **23 45** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **6 18** | **27 05** | **6 18** | **27 05** | **6 18** | **27 05** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 6.0E-06 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112 | 5.2E-03 | lb/hr/tank | A | 1 | | **0 06** | **0 27** | **0 06** | **0 27** | **0 06** | **0 27** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | .3E-06 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 1.2E-06 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | MAP, TAP, (112 | 1.3E-0 | lb/hr/tank | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Chloromethane | 7 873 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | .9E-01 | lb/hr/tank | A | 1 | | **5 88** | **25 75** | **5 88** | **25 75** | **5 88** | **25 75** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 1.1E-05 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | 6.5E-06 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 2.0E-05 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 1.8E-06 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 1.9E-02 | lb/hr/tank | A | 1 | | **0 23** | **1 00** | **0 23** | **1 00** | **0 23** | **1 00** |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 6.5E-06 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 2.7E-0 | lb/hr/tank | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Tetrachloroethylene | 12718 | HAP, TAP | .7E-05 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | 8.6E-06 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 5.2E-06 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Med an em ssion factors from NCASI Technical Bulletin 858, Table 11.
B) Emission factor adjusted from VOC as carbon o total VOC based on molecu ar we ght of predominate VOC species.
C) Minimum emission factor from NCASI Technical Bulletin 858, Table 11 - Unb eached HD Storage Tank.
D) VOC em ssions are sum of indiv dual specia ed VOC.
E) Sum of spec ated POM and PAH.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| H gh Dens ty Pulp Storage Tanks | 12 | tanks | 12 | tanks | 2 | 7 | 365 | 365 |

El emissions reported under Ins gn fcant Summary

Ti le V Unit D = 12. Equipment ID = 1299

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EM SSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl mercaptan | | | 3.7E-02 | lb/hr/tank | A | 1 | | **0 44** | **1 94** | **0 44** | **1 94** | **0 44** | **1 94** |
| dimethyl d su fide | | | 2.3E-01 | lb/hr/tank | A | 1 | | **2 76** | **12 09** | **2 76** | **12 09** | **2 76** | **12 09** |
| dimethyl suff de | | | 5.0E-01 | lb/hr/tank | A | 1 | | **6 00** | **26 28** | **6 00** | **26 28** | **6 00** | **26 28** |
| To al Other Air Pollutants | | | | | | 1 | | **4 60** | **20 15** | **4 60** | **20 15** | **4 60** | **20 15** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 6.0E-05 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 1.2E-02 | lb/hr/tank | A | 1 | | **0 14** | **0 63** | **0 14** | **0 63** | **0 14** | **0 63** |
| alpha-pinene | | | 1.7E-01 | lb/hr/tank | A | 1 | | **2 04** | **8 94** | **2 04** | **8 94** | **2 04** | **8 94** |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | 1.7E-01 | lb/hr/tank | A | 1 | | **2 04** | **8 94** | **2 04** | **8 94** | **2 04** | **8 94** |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | 2.8E-0 | lb/hr/tank | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 2.1E-02 | lb/hr/tank | A | 1 | | **0 25** | **1 10** | **0 25** | **1 10** | **0 25** | **1 10** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 3.1E-03 | lb/hr/tank | A | 1 | | **0 04** | **0 16** | **0 04** | **0 16** | **0 04** | **0 16** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 7.0E-03 | lb/hr/tank | A | 1 | | **0 08** | **0 37** | **0 08** | **0 37** | **0 08** | **0 37** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Paper Mill Summary | | | | | | | | |
| Detailed Process Unit Emissions en ered in o AEI tle V Unit ID = 06. Equipment ID = 2100, 600, 100 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | | | 0 30 | 1 32 | 0 30 | 1 32 | 0 30 | 1 32 |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | | | 0 30 | 1 32 | 0 30 | 1 32 | 0 30 | 1 32 |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | | | 0 30 | 1 32 | 0 30 | 1 32 | 0 30 | 1 32 |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | 0 30 | 1 32 | 0 30 | 1 32 | 0 30 | 1 32 |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | 0 30 | 1 32 | 0 30 | 1 32 | 0 30 | 1 32 |
| Su fur dioxide | 7 6095 | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | | | 113 22 | 495 89 | 113 22 | 495 89 | 113 22 | 495 89 |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | | | 118 94 | 520 96 | 118 94 | 520 96 | 118 94 | 520 96 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | | | 119 08 | 521 56 | 119 08 | 521 56 | 119 08 | 521 56 |
| Carbon monox de | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nitrogen oxides | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biogenic carbon dioxide | 12 389 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methane | 7 828 | GHG, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nitrous ox de | 1002 972 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon dioxide equivalent | | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Su furic acid m st | 766 939 | TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | | | 4 72 | 20 66 | 4 72 | 20 66 | 4 72 | 20 66 |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | | | 2 75 | 12 03 | 2 75 | 12 03 | 2 75 | 12 03 |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | | | 2 92 | 12 79 | 2 92 | 12 79 | 2 92 | 12 79 |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 65 39 | 286 42 | 65 39 | 286 42 | 65 39 | 286 42 |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | | | 0 34 | 1 49 | 0 34 | 1 49 | 0 34 | 1 49 |
| 1,1-Dichloroethane | 753 3 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | | | 0 40 | 1 74 | 0 40 | 1 74 | 0 40 | 1 74 |
| 1,2-Dichloroethane | 107062 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dichloropropane | 78875 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | | | 2 08 | 9 09 | 2 08 | 9 09 | 2 08 | 9 09 |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch oroacetophenone | 53227 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trophenol | 51286 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trotoluene | 1211 2 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| -Nitrophenol | 100027 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | | | 1 68 | 7 36 | 1 68 | 7 36 | 1 68 | 7 36 |
| Acetophenone | 98862 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | | | 0 57 | 2 48 | 0 57 | 2 48 | 0 57 | 2 48 |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| An line | 62533 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Antimony Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Arsenic Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Benzene | 71 32 | HAP, TAP | | | | | | 0 08 | 0 33 | 0 08 | 0 33 | 0 08 | 0 33 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Beryllium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biphenyl | 9252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromoform | 75252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromomethane | 7 839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cadmium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Catechol | 120809 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorobenzene | 108907 | HAP, TAP | | | | | | 0 14 | 0 63 | 0 14 | 0 63 | 0 14 | 0 63 |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium Compounds | | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium( 6) Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cobalt Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cresols | 1319773 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cumene | 98828 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cyanide Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Diethanolamine | 111 22 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl su fate | 77781 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylbenzene | 100 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | | | 0 32 | 1 41 | 0 32 | 1 41 | 0 32 | 1 41 |
| Glycol Ethers | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachloroethane | 67721 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Iodomethane | 7 88 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isophorone | 78591 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Manganese Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-Cresol | 10839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Mercury Compounds | | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methanol | 67561 | HAP, TAP | | | | | | 56 61 | 247 95 | 56 61 | 247 95 | 56 61 | 247 95 |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | | | 0 13 | 0 57 | 0 13 | 0 57 | 0 13 | 0 57 |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl methacrylate | 80626 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methylene chloride | 75092 | HAP, TAP | | | | | | 0 89 | 3 88 | 0 89 | 3 88 | 0 89 | 3 88 |
| m-Xylene | 108383 | HAP, TAP | | | | | | 0 14 | 0 60 | 0 14 | 0 60 | 0 14 | 0 60 |
| Naphthalene | 91203 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-Hexane | 1105 3 | HAP, TAP | | | | | | 0 07 | 0 32 | 0 07 | 0 32 | 0 07 | 0 32 |
| Nickel Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-Cresol | 95 87 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-Xylene | 95 76 | HAP, TAP | | | | | | 0 10 | 0 43 | 0 10 | 0 43 | 0 10 | 0 43 |
| p-Cresol | 106 5 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Pentachlorophenol | 87865 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Phenol | 108952 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Phosphorus | 77231 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Polycyclic organic matter | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Prop onaldehyde | 123386 | HAP, TAP | | | | | | 0 15 | 0 64 | 0 15 | 0 64 | 0 15 | 0 64 |
| p-Xylene | 106 23 | HAP, TAP | | | | | | 0 14 | 0 60 | 0 14 | 0 60 | 0 14 | 0 60 |
| Selenium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Styrene | 100 25 | HAP, TAP | | | | | | 0 36 | 1 57 | 0 36 | 1 57 | 0 36 | 1 57 |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | | | 1 15 | 5 04 | 1 15 | 5 04 | 1 15 | 5 04 |
| Toluene | 108883 | HAP, TAP | | | | | | 0 07 | 0 31 | 0 07 | 0 31 | 0 07 | 0 31 |
| Trichloroethy ene | 79016 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl ch oride | 7501 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Xy enes | 1330207 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

8. REFERENCES:

9. NOTES:

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Paper Mill Summary | | | | | | | | |
| Detailed Process Unit Emissions en ered in o AEI | | | | | | | | |
| tle V Unit ID = 06. Equipment ID = 2100, 600, 100 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | | | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | 2 08 | 9 09 | 2 08 | 9 09 | 2 08 | 9 09 |
| | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | 2 64 | 11 57 | 2 64 | 11 57 | 2 64 | 11 57 |
| To al Other Air Pollutants | | | | | | | | 51 34 | 224 89 | 51 34 | 224 89 | 51 34 | 224 89 |
| 1,2-dibromoethene | 5 0 98 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-dich oroethylene | | | | | | | | 2 45 | 10 74 | 2 45 | 10 74 | 2 45 | 10 74 |
| 1,2-Dimethoxyethane | 11071 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch orophenol | 95578 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-din tro- 6-methylphenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-hexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methylnaptha ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl propene | 115117 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl-2-propanol benzene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-nitrophenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-propanol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,5-dimethyl benzaldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 3-carene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 3-methylch oranthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 5-methyl chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthy ene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acetone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-pinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-terpiniene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-terpiniol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ammonia | 766 17 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| barium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzaldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzoic acid | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(b)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(gh )perylene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(k)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzyl alcohol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| beta-pinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| b s (2-Chloroisopropy ) ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| boron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromodichloromethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| butane | 106978 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| butylbenzylphtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphor | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| copper | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| crotonaldehyde | 170303 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| cyc ohexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| decach orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibenzo(ah)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibromomethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobenzene | 25321226 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ethylphthala e | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-octyl phtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dysprosium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ethane | 7 8 0 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ethanol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| fluorene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| gamma-Terpinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| germanium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| heptane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexach orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexa dehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| indeno(123-cd)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iodine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| isopropanol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| isovaleraldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| limonene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| lithium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| methyl anthracene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl ethyl ketone | 78933 | TAP | | | | | | 1 72 | 7 52 | 1 72 | 7 52 | 1 72 | 7 52 |
| molybdenum | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| myrcene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-buty aldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| neodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| niobium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| nitric ox de | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| nonane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pah | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-cymene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentane | 109660 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| phenanthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-dioxins | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-furans | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| po assium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| praeseodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| propane | 7 986 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| propy ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| rub dium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| samarium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| s lver | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| sodium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| solicy adehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| strontium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| terpenes | | | | | | | | 47 17 | 206 62 | 47 17 | 206 62 | 47 17 | 206 62 |
| tert-butyl methyl ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tetrachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thallium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thorium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tin | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ti anium | | | | | | 2.5 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orofluoromethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tungsten | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| valeradehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| vanadium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| y trium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| zinc | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| zirconium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Paper M ll - Paper Machine 2 - Process | 717 | ADTFP/Day | 717 | ADTFP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 006, Process Unit D = 2 | | | | | | | | |
| T tle V Unit ID = 06. Equipment ID = 600, 605 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 1.60E-03 | #/ADTFP | C | 1 | | **0 05** | **0 21** | **0 05** | **0 21** | **0 05** | **0 21** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.60E-03 | #/ADTFP | C | 1 | | **0 05** | **0 21** | **0 05** | **0 21** | **0 05** | **0 21** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 1.60E-03 | #/ADTFP | C | 1 | | **0 05** | **0 21** | **0 05** | **0 21** | **0 05** | **0 21** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **0 05** | **0 21** | **0 05** | **0 21** | **0 05** | **0 21** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **0 05** | **0 21** | **0 05** | **0 21** | **0 05** | **0 21** |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 6.00E-01 | #/ADTFP | A | 1 | | **17 92** | **78 49** | **17 92** | **78 49** | **17 92** | **78 49** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 6.30E-01 | #/ADTFP | B | 1 | | **18 83** | **82 46** | **18 83** | **82 46** | **18 83** | **82 46** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | D | 1 | | **18 85** | **82 55** | **18 85** | **82 55** | **18 85** | **82 55** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | 2.5E-02 | #/ADTFP | A | 1 | | **0 75** | **3 27** | **0 75** | **3 27** | **0 75** | **3 27** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 1.5E-02 | #/ADTFP | F | 1 | | **0 43** | **1 90** | **0 43** | **1 90** | **0 43** | **1 90** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 1.5E-02 | #/ADTFP | G | 1 | | **0 46** | **2 02** | **0 46** | **2 02** | **0 46** | **2 02** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **10 35** | **45 34** | **10 35** | **45 34** | **10 35** | **45 34** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 1.80E-03 | #/ADTFP | A | 1 | | **0 05** | **0 24** | **0 05** | **0 24** | **0 05** | **0 24** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 2.10E-03 | #/ADTFP | A | 1 | | **0 06** | **0 27** | **0 06** | **0 27** | **0 06** | **0 27** |
| 1,2-Dichloroethane | 107062 | HAP | ND | #/ADTFP | A | 1 | | **ND** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 1.10E-02 | #/ADTFP | A | 1 | | **0 33** | **1 44** | **0 33** | **1 44** | **0 33** | **1 44** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | tAP, TAP, (112 | 8.90E-03 | #/ADTFP | A | 1 | | **0 27** | **1 16** | **0 27** | **1 16** | **0 27** | **1 16** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | tAP, TAP, (112 | 3.00E-03 | #/ADTFP | A | 1 | | **0 09** | **0 39** | **0 09** | **0 39** | **0 09** | **0 39** |
| Acrylonitr le | 107131 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | .00E-0 | #/ADTFP | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 05** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | ND | #/ADTFP | A | 1 | | **ND** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbonyl sulf de | 63581 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 7.60E-0 | #/ADTFP | A | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 10** |
| Chloroform | 67663 | tAP, TAP, (112 | ND | #/ADTFP | A | 1 | | **ND** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | tAP, TAP, (112 | 1.70E-03 | #/ADTFP | A | 1 | | **0 05** | **0 22** | **0 05** | **0 22** | **0 05** | **0 22** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 3.00E-01 | #/ADTFP | A | 1 | | **8 96** | **39 25** | **8 96** | **39 25** | **8 96** | **39 25** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 6.90E-0 | #/ADTFP | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 09** |
| Methyl hydrazine | 6033 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | .70E-03 | #/ADTFP | A | 1 | | **0 14** | **0 61** | **0 14** | **0 61** | **0 14** | **0 61** |
| m-Xylene | 108383 | HAP, TAP | 7.20E-0 | #/ADTFP | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 09** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 3.90E-0 | #/ADTFP | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 05** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 5.20E-0 | #/ADTFP | A | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 02** | **0 07** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | 7.80E-0 | #/ADTFP | A | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 10** |
| p-Xylene | 106 23 | HAP, TAP | 7.20E-0 | #/ADTFP | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 09** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 1.90E-03 | #/ADTFP | A | 1 | | **0 06** | **0 25** | **0 06** | **0 25** | **0 06** | **0 25** |
| Tetrachloroethylene | 12718 | HAP, TAP | 6.10E-03 | #/ADTFP | A | 1 | | **0 18** | **0 80** | **0 18** | **0 80** | **0 18** | **0 80** |
| Toluene | 108883 | HAP, TAP | 3.70E-0 | #/ADTFP | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 05** |
| Trich oroethylene | 79016 | HAP, TAP | ND | #/ADTFP | A | 1 | | **ND** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factor from Project Columb a (cp-DF.R1), see tab D - Linerboard VOC_TRS Factors .
B) Emission factor adjusted from VOC as carbon o total VOC based on molecu ar we ght of predominate VOC species.
C) Em ssion factor from NCASI TB 88 , Appendix E, Tab e E1, source PMCA10 (linerboard machine).
D) VOC em ssions are sum of indiv dual specia ed VOC.
E) Sum of spec ated POM and PAH .
F) TRS (as TRS) converted to TRS (as S) based on mo ecular weights of each component.
G) TRS (as S) converted to H2S based on molecu ar we ght.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Paper M ll - Paper Machine 2 - Process | 717 | ADTFP/Day | 717 | ADTFP/Day | 2 | 7 | 365 | 365 |

AEI Group ID = 006, Process Unit .D = 2

T tle V Unit ID = 06, Equipment ID = 600, 605

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | 1.10E-02 | #/ADTFP | A | 1 | | **0 33** | **1 44** | **0 33** | **1 44** | **0 33** | **1 44** |
| dimethyl d su fide | | | ND | #/ADTFP | A | 1 | | **ND** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl suff de | | | 1. 0E-02 | #/ADTFP | A | 1 | | **0 42** | **1 83** | **0 42** | **1 83** | **0 42** | **1 83** |
| To al Other Air Pollutants | | | | | | 1 | | **8 13** | **35 60** | **8 13** | **35 60** | **8 13** | **35 60** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 1.30E-02 | #/ADTFP | A | 1 | | **0 39** | **1 70** | **0 39** | **1 70** | **0 39** | **1 70** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 9.10E-03 | #/ADTFP | A | 1 | | **0 27** | **1 19** | **0 27** | **1 19** | **0 27** | **1 19** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 2.50E-01 | #/ADTFP | A | 1 | | **7 47** | **32 71** | **7 47** | **32 71** | **7 47** | **32 71** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Paper M ll - Paper Machine 3 | 3,000 | ADTFP/Day | 3,000 | ADTFP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 006, Process Unit D = 3 | | | | | | | | |
| Ti le V Unit D = 06. Equipment ID = 100 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 1.60E-03 | #/ADTFP | C | 1 | | 0 20 | 0 88 | 0 20 | 0 88 | 0 20 | 0 88 |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.60E-03 | #/ADTFP | C | 1 | | 0 20 | 0 88 | 0 20 | 0 88 | 0 20 | 0 88 |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 1.60E-03 | #/ADTFP | C | 1 | | 0 20 | 0 88 | 0 20 | 0 88 | 0 20 | 0 88 |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | 0 20 | 0 88 | 0 20 | 0 88 | 0 20 | 0 88 |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | 0 20 | 0 88 | 0 20 | 0 88 | 0 20 | 0 88 |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 6.00E-01 | #/ADTFP | A | 1 | | 75 00 | 328 50 | 75 00 | 328 50 | 75 00 | 328 50 |
| Vo ati e organic compounds (as VOC) | | Cr teria | 6.30E-01 | #/ADTFP | B | 1 | | 78 79 | 345 11 | 78 79 | 345 11 | 78 79 | 345 11 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | D | 1 | | 78 88 | 345 50 | 78 88 | 345 50 | 78 88 | 345 50 |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | 2.5E-02 | #/ADTFP | A | 1 | | 3 13 | 13 69 | 3 13 | 13 69 | 3 13 | 13 69 |
| To al Reduced Sulfur (as Su fur) | | NSPS | 1.5E-02 | #/ADTFP | F | 1 | | 1 82 | 7 97 | 1 82 | 7 97 | 1 82 | 7 97 |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 1.5E-02 | #/ADTFP | G | 1 | | 1 93 | 8 47 | 1 93 | 8 47 | 1 93 | 8 47 |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 43 32 | 189 74 | 43 32 | 189 74 | 43 32 | 189 74 |
| 1,1,1-Tr chloroethane | 71556 | HAP | 1.80E-03 | #/ADTFP | A | 1 | | 0 23 | 0 99 | 0 23 | 0 99 | 0 23 | 0 99 |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 2.10E-03 | #/ADTFP | A | 1 | | 0 26 | 1 15 | 0 26 | 1 15 | 0 26 | 1 15 |
| 1,2-Dichloroethane | 107062 | HAP | ND | #/ADTFP | A | 1 | | ND | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 1.10E-02 | #/ADTFP | A | 1 | | 1 38 | 6 02 | 1 38 | 6 02 | 1 38 | 6 02 |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | tAP, TAP, (112 | 8.90E-03 | #/ADTFP | A | 1 | | 1 11 | 4 87 | 1 11 | 4 87 | 1 11 | 4 87 |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | tAP, TAP, (112 | 3.00E-03 | #/ADTFP | A | 1 | | 0 38 | 1 64 | 0 38 | 1 64 | 0 38 | 1 64 |
| Acrylonitr le | 107131 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | .00E-0 | #/ADTFP | A | 1 | | 0 05 | 0 22 | 0 05 | 0 22 | 0 05 | 0 22 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | ND | #/ADTFP | A | 1 | | ND | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbonyl sulf de | 63581 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 7.60E-0 | #/ADTFP | A | 1 | | 0 10 | 0 42 | 0 10 | 0 42 | 0 10 | 0 42 |
| Chloroform | 67663 | tAP, TAP, (112 | ND | #/ADTFP | A | 1 | | ND | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chloromethane | 7 873 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | tAP, TAP, (112 | 1.70E-03 | #/ADTFP | A | 1 | | 0 21 | 0 93 | 0 21 | 0 93 | 0 21 | 0 93 |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 3.00E-01 | #/ADTFP | A | 1 | | 37 50 | 164 25 | 37 50 | 164 25 | 37 50 | 164 25 |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 6.90E-0 | #/ADTFP | A | 1 | | 0 09 | 0 38 | 0 09 | 0 38 | 0 09 | 0 38 |
| Methyl hydrazine | 6033 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | .70E-03 | #/ADTFP | A | 1 | | 0 59 | 2 57 | 0 59 | 2 57 | 0 59 | 2 57 |
| m-Xylene | 108383 | HAP, TAP | 7.20E-0 | #/ADTFP | A | 1 | | 0 09 | 0 39 | 0 09 | 0 39 | 0 09 | 0 39 |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 3.90E-0 | #/ADTFP | A | 1 | | 0 05 | 0 21 | 0 05 | 0 21 | 0 05 | 0 21 |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 5.20E-0 | #/ADTFP | A | 1 | | 0 07 | 0 28 | 0 07 | 0 28 | 0 07 | 0 28 |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | E | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Propionaldehyde | 123386 | HAP, TAP | 7.80E-0 | #/ADTFP | A | 1 | | 0 10 | 0 43 | 0 10 | 0 43 | 0 10 | 0 43 |
| p-Xylene | 106 23 | HAP, TAP | 7.20E-0 | #/ADTFP | A | 1 | | 0 09 | 0 39 | 0 09 | 0 39 | 0 09 | 0 39 |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 1.90E-03 | #/ADTFP | A | 1 | | 0 24 | 1 04 | 0 24 | 1 04 | 0 24 | 1 04 |
| Tetrachloroethylene | 12718 | HAP, TAP | 6.10E-03 | #/ADTFP | A | 1 | | 0 76 | 3 34 | 0 76 | 3 34 | 0 76 | 3 34 |
| Toluene | 108883 | HAP, TAP | 3.70E-0 | #/ADTFP | A | 1 | | 0 05 | 0 20 | 0 05 | 0 20 | 0 05 | 0 20 |
| Trich oroethylene | 79016 | HAP, TAP | ND | #/ADTFP | A | 1 | | ND | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl acetate | 10805 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factor from Project Columb a (cp-DF.R1), see tab D - Linerboard VOC_TRS Factors .
B) Emission factor adjusted from VOC as carbon o total VOC based on molecu ar we ght of predominate VOC species.
C) Em ssion factor from NCASI TB 88 , Appendix E, Tab e E1, source PMCA10 (linerboard machine).
D) VOC em ssions are sum of indiv dual specia ed VOC.
E) Sum of spec ated POM and PAH.
F) TRS (as TRS) converted to TRS (as S) based on mo ecular weights of each component.
G) TRS (as S) converted to H2S based on molecu ar we ght.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Paper M ll - Paper Machine 3 | 3,000 | ADTFP/Day | 3,000 | ADTFP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 006, Process Unit D = 3 | | | | | | | | |
| Ti le V Unit D = 06. Equipment ID = 100 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | 1.10E-02 | #/ADTFP | A | 1 | | **1 38** | **6 02** | **1 38** | **6 02** | **1 38** | **6 02** |
| dimethyl d su fide | | | ND | #/ADTFP | A | 1 | | **ND** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl suff de | | | 1. 0E-02 | #/ADTFP | A | 1 | | **1 75** | **7 67** | **1 75** | **7 67** | **1 75** | **7 67** |
| To al Other Air Pollutants | | | | | | 1 | | **34 01** | **148 97** | **34 01** | **148 97** | **34 01** | **148 97** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 1.30E-02 | #/ADTFP | A | 1 | | **1 63** | **7 12** | **1 63** | **7 12** | **1 63** | **7 12** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 9.10E-03 | #/ADTFP | A | 1 | | **1 14** | **4 98** | **1 14** | **4 98** | **1 14** | **4 98** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | 2.50E-01 | #/ADTFP | A | 1 | | **31 25** | **136 88** | **31 25** | **136 88** | **31 25** | **136 88** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONFIDENTIAL Alternate Form D 2943 Emission Data for Regulated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Paper Mil l - Pulp Dryer | 812 | ADTFP/Day | 812 | ADTFP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 006, Process Unit ID = | | | | | | | | |
| Ti le V Unit ID = 06. Equipment ID = 2100 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | 1.60E-03 | #/ADTFP | C | 1 | | **0 05** | **0 24** | **0 05** | **0 24** | **0 05** | **0 24** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.60E-03 | #/ADTFP | C | 1 | | **0 05** | **0 24** | **0 05** | **0 24** | **0 05** | **0 24** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 1.60E-03 | #/ADTFP | C | 1 | | **0 05** | **0 24** | **0 05** | **0 24** | **0 05** | **0 24** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **0 05** | **0 24** | **0 05** | **0 24** | **0 05** | **0 24** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **0 05** | **0 24** | **0 05** | **0 24** | **0 05** | **0 24** |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 6.00E-01 | #/ADTFP | A | 1 | | **20 30** | **88 90** | **20 30** | **88 90** | **20 30** | **88 90** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 6.30E-01 | #/ADTFP | B | 1 | | **21 32** | **93 39** | **21 32** | **93 39** | **21 32** | **93 39** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | D | 1 | | **21 35** | **93 50** | **21 35** | **93 50** | **21 35** | **93 50** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | 2.5E-02 | #/ADTFP | A | 1 | | **0 85** | **3 70** | **0 85** | **3 70** | **0 85** | **3 70** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 1.5E-02 | #/ADTFP | F | 1 | | **0 49** | **2 16** | **0 49** | **2 16** | **0 49** | **2 16** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 1.5E-02 | #/ADTFP | G | 1 | | **0 52** | **2 29** | **0 52** | **2 29** | **0 52** | **2 29** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **11 72** | **51 35** | **11 72** | **51 35** | **11 72** | **51 35** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 1.80E-03 | #/ADTFP | A | 1 | | **0 06** | **0 27** | **0 06** | **0 27** | **0 06** | **0 27** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 2.10E-03 | #/ADTFP | A | 1 | | **0 07** | **0 31** | **0 07** | **0 31** | **0 07** | **0 31** |
| 1,2-Dichloroethane | 107062 | HAP | ND | #/ADTFP | A | 1 | | **ND** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 1.10E-02 | #/ADTFP | A | 1 | | **0 37** | **1 63** | **0 37** | **1 63** | **0 37** | **1 63** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | 8.90E-03 | #/ADTFP | A | 1 | | **0 30** | **1 32** | **0 30** | **1 32** | **0 30** | **1 32** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112 | 3.00E-03 | #/ADTFP | A | 1 | | **0 10** | **0 44** | **0 10** | **0 44** | **0 10** | **0 44** |
| Acrylonitr le | 107131 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | .00E-0 | #/ADTFP | A | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 06** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | ND | #/ADTFP | A | 1 | | **ND** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbonyl sulf de | 63581 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 7.60E-0 | #/ADTFP | A | 1 | | **0 03** | **0 11** | **0 03** | **0 11** | **0 03** | **0 11** |
| Chloroform | 67663 | HAP, TAP, (112 | ND | #/ADTFP | A | 1 | | **ND** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | 1.70E-03 | #/ADTFP | A | 1 | | **0 06** | **0 25** | **0 06** | **0 25** | **0 06** | **0 25** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 3.00E-01 | #/ADTFP | A | 1 | | **10 15** | **44 45** | **10 15** | **44 45** | **10 15** | **44 45** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 6.90E-0 | #/ADTFP | A | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 10** |
| Methyl hydrazine | 6033 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | .70E-03 | #/ADTFP | A | 1 | | **0 16** | **0 70** | **0 16** | **0 70** | **0 16** | **0 70** |
| m-Xylene | 108383 | HAP, TAP | 7.20E-0 | #/ADTFP | A | 1 | | **0 02** | **0 11** | **0 02** | **0 11** | **0 02** | **0 11** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 3.90E-0 | #/ADTFP | A | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 06** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 5.20E-0 | #/ADTFP | A | 1 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 02** | **0 08** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | 7.80E-0 | #/ADTFP | A | 1 | | **0 03** | **0 12** | **0 03** | **0 12** | **0 03** | **0 12** |
| p-Xylene | 106 23 | HAP, TAP | 7.20E-0 | #/ADTFP | A | 1 | | **0 02** | **0 11** | **0 02** | **0 11** | **0 02** | **0 11** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 1.90E-03 | #/ADTFP | A | 1 | | **0 06** | **0 28** | **0 06** | **0 28** | **0 06** | **0 28** |
| Tetrachloroethylene | 12718 | HAP, TAP | 6.10E-03 | #/ADTFP | A | 1 | | **0 21** | **0 90** | **0 21** | **0 90** | **0 21** | **0 90** |
| Toluene | 108883 | HAP, TAP | 3.70E-0 | #/ADTFP | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 05** |
| Trich oroethylene | 79016 | HAP, TAP | ND | #/ADTFP | A | 1 | | **ND** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factor from Project Columb a (cp-DF.R1), see tab D - Linerboard VOC_TRS Factors .
B) Emission factor adjusted from VOC as carbon o total VOC based on molecu ar we ght of predominate VOC species.
C) Em ssion factor from NCASI TB 88 , Appendix E, Tab e E1, source PMCA10 (linerboard machine).
D) VOC em ssions are sum of indiv dual specia ed VOC.
E) Sum of spec ated POM and PAH.
F) TRS (as TRS) converted to TRS (as S) based on mo ecular weights of each component.
G) TRS (as S) converted to H2S based on molecu ar we ght.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Paper Mi l - Pulp Dryer | 812 | ADTFP/Day | 812 | ADTFP/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 006, Process Unit D = | | | | | | | | |
| Ti le V Unit D = 06. Equipment ID = 2100 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | | | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | 1.10E-02 | #/ADTFP | A | 1 | | **0 37** | **1 63** | **0 37** | **1 63** | **0 37** | **1 63** |
| dimethyl d su fide | | | ND | #/ADTFP | A | 1 | | **ND** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl suff de | | | 1. 0E-02 | #/ADTFP | A | 1 | | **0 47** | **2 07** | **0 47** | **2 07** | **0 47** | **2 07** |
| To al Other Air Pollutants | | | | | | 1 | | **9 20** | **40 32** | **9 20** | **40 32** | **9 20** | **40 32** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 1.30E-02 | #/ADTFP | A | 1 | | **0 44** | **1 93** | **0 44** | **1 93** | **0 44** | **1 93** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpinene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 9.10E-03 | #/ADTFP | A | 1 | | **0 31** | **1 35** | **0 31** | **1 35** | **0 31** | **1 35** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 2.50E-01 | #/ADTFP | A | 1 | | **8 46** | **37 04** | **8 46** | **37 04** | **8 46** | **37 04** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Precipita or Mix Tanks | 3,169 | Ton BLS/Day | 2,683 | Ton BLS/Day | 2 | 7 | 365 | 365 |

AEI Group ID = 007, Process Unit D = 2

T tle V Unit ID = 07. Equipment ID = 2515, 5115

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 1.3E-03 | # T BLS | D | 1 | | **0 17** | **0 75** | **0 17** | **0 75** | **0 15** | **0 64** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 3.9E-03 | # T BLS | E | 1 | | **0 52** | **2 27** | **0 52** | **2 27** | **0 44** | **1 92** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | I | 1 | | **0 40** | **1 73** | **0 40** | **1 73** | **0 33** | **1 47** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | 1.7E-0 | # T BLS | G | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 08** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 1.0E-0 | # T BLS | F | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 05** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 1.1E-0 | # T BLS | H | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 05** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 36** | **1 56** | **0 36** | **1 56** | **0 30** | **1 32** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 2.6E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 8.1E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112 | 1.5E-0 | # T BLS | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 07** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | MAP, TAP, (112 | 2.7E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 2.5E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 5.8E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112 | 1.1E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 2.5E-03 | # T BLS | A | 1 | | **0 33** | **1 45** | **0 33** | **1 45** | **0 28** | **1 22** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 1.2E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | 5. E-07 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 3.6E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 7.5E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | J | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 5. E-07 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 1.6E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | 1.8E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | 1.2E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Average emiss on factors from NCASI Technical Bulletin No. 677, Salt Cake Mix Tanks.
B) Average emiss on factors from NCASI Technical Bulletin No. 677 (m-,p-xy ene), Sa t Cake Mix Tanks.
C) reserved.
D) Med an em ssion factors from NCASI Technical Bulletin No. 88 , Tab e .17 (THC - method 25A), Sa t Cake Mix Tanks .
E) Emission factor adjusted from VOC as carbon o total VOC based on molecu ar we ght of predominate VOC species.
F) Emission factor from NCASI Technical Bulletin 8 9, Table 20.
G) Sum of dimethyl disulf de, dimethyl sulfide, hydrogen sulf de, and methyl mercaptan emiss ons.
H) Assumed TRS (as S) converted to H2S based on molecular weight.
I) VOC emissions are sum of individual speciated VOC.
J) Sum of speciated POM and PAH.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Precipita or Mix Tanks | 3,169 | Ton BLS/Day | 2,683 | Ton BLS/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit D = 2 | | | | | | | | |
| T tle V Unit ID = 07, Equipment ID = 2515, 5115 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | 7.2E-05 | # T BLS | F | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 04** |
| dimethyl d su fide | | | .1E-05 | # T BLS | F | 1 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 02** |
| dimethyl suff de | | | 5.2E-05 | # T BLS | F | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 01** | **0 03** |
| To al Other Air Pollutants | | | | | | 1 | | **0 04** | **0 16** | **0 04** | **0 16** | **0 03** | **0 14** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 1. E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 1. E-0 | # T BLS | A | 1 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 02** | **0 07** |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpinene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 3.5E-05 | # T BLS | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 02** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | 1.0E-0 | # T BLS | A | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 05** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONFIDENTIAL Alternate Form D 2943 Emission Data for Regulated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 2 - Worst-Case Emissions | | | | | | | | |
| Detailed Process Unit Emissions en ered in o AEI | | | | | | | | |
| Ti le V Unit D = 07, Equipment ID = 2505 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | | | 1 740 54 | 7 623 57 | 17 41 | 76 24 | 14 35 | 62 85 |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | | | 861 57 | 3 773 67 | 8 62 | 37 74 | 7 10 | 31 11 |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | | | 588 30 | 2 576 77 | 5 88 | 25 77 | 4 85 | 21 25 |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | | | 3 76 | 16 48 | 3 76 | 16 48 | 3 16 | 13 84 |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | 865 33 | 3 790 15 | 12 38 | 54 22 | 10 26 | 44 96 |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | 592 07 | 2 593 25 | 9 65 | 42 25 | 8 01 | 35 09 |
| Su fur dioxide | 7 6095 | Cr teria | | | | | | 791 28 | 3 465 81 | 791 28 | 3 465 81 | 15 87 | 69 52 |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | | | 4 23 | 18 54 | 4 23 | 18 54 | 3 82 | 15 41 |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | | | 8 30 | 36 34 | 8 30 | 36 34 | 6 91 | 30 27 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | | | 7 13 | 31 24 | 7 13 | 31 24 | 5 88 | 25 76 |
| Carbon monox de | | Cr teria | | | | | | 56 92 | 249 31 | 56 92 | 249 31 | 47 10 | 206 30 |
| Lead | | Cr teria | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 00 | 0 00 |
| Nitrogen oxides | | Cr teria | | | | | | 112 80 | 494 06 | 112 80 | 494 06 | 57 69 | 252 69 |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | | | 59 603 17 | 261 061 90 | 59 603 17 | 261 061 90 | 991 17 | 4 341 31 |
| Biogenic carbon dioxide | 12 389 | GHG | | | | | | 234 959 44 | 1 029 122 33 | 234 959 44 | 1 029 122 33 | 193 602 90 | 847 980 70 |
| Methane | 7 828 | GHG, (112r) | | | | | | 74 67 | 327 05 | 74 67 | 327 05 | 61 57 | 269 66 |
| Nitrous ox de | 1002 972 | GHG | | | | | | 12 44 | 54 51 | 12 44 | 54 51 | 10 26 | 44 95 |
| Carbon dioxide equivalent | | GHG | | | | | | 240 534 74 | 1 053 542 18 | 240 534 74 | 1 053 542 18 | 199 191 38 | 872 488 26 |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Su furic acid m st | 766 939 | TAP | | | | | | 35 19 | 154 14 | 35 19 | 154 14 | 1 36 | 5 96 |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | | | 0 16 | 0 70 | 0 16 | 0 70 | 0 13 | 0 58 |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | | | 0 27 | 1 20 | 0 27 | 1 20 | 0 23 | 0 99 |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | | | 0 22 | 0 97 | 0 22 | 0 97 | 0 18 | 0 80 |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | | | 0 23 | 1 03 | 0 23 | 1 03 | 0 19 | 0 85 |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 8 62 | 37 75 | 8 62 | 37 75 | 7 13 | 31 23 |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | | | 0 03 | 0 12 | 0 03 | 0 12 | 0 02 | 0 10 |
| 1,1-Dichloroethane | 753 3 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | | | 0 03 | 0 12 | 0 03 | 0 12 | 0 02 | 0 10 |
| 1,2-Dichloroethane | 107062 | HAP | | | | | | 0 03 | 0 12 | 0 03 | 0 12 | 0 02 | 0 10 |
| 1,2-Dichloropropane | 78875 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | | | 0 04 | 0 16 | 0 04 | 0 16 | 0 03 | 0 13 |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch oroacetophenone | 53227 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trophenol | 51286 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trotoluene | 1211 2 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| -Nitrophenol | 100027 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | | | 0 02 | 0 09 | 0 02 | 0 09 | 0 02 | 0 07 |
| Acetophenone | 98862 | HAP, TAP | | | | | | 0 56 | 2 47 | 0 56 | 2 47 | 0 47 | 2 04 |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 01 | 0 04 |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| An line | 62533 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Antimony Compounds | | HAP, TAP | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 00 | 0 00 |
| Arsenic Compounds | | HAP, TAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 00 | 0 00 |
| Benzene | 71 32 | HAP, TAP | | | | | | 0 03 | 0 13 | 0 03 | 0 13 | 0 02 | 0 11 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Beryllium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biphenyl | 9252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromoform | 75252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromomethane | 7 839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cadmium Compounds | | HAP, TAP | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 00 | 0 00 |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | | | 0 33 | 1 44 | 0 33 | 1 44 | 0 27 | 1 19 |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | | | 0 03 | 0 11 | 0 03 | 0 11 | 0 02 | 0 09 |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Catechol | 120809 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | | | 0 83 | 3 65 | 0 83 | 3 65 | 0 01 | 0 06 |
| Chlorobenzene | 108907 | HAP, TAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium Compounds | | HAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| Chromium( 6) Compounds | | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| Cobalt Compounds | | HAP, TAP | | | | | | 0 02 | 0 08 | 0 02 | 0 08 | 0 00 | 0 00 |
| Cresols | 1319773 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cumene | 98828 | HAP, TAP | | | | | | 0 71 | 3 09 | 0 71 | 3 09 | 0 58 | 2 55 |
| Cyanide Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Diethanolamine | 111 22 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl su fate | 77781 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylbenzene | 100 1 | HAP, TAP | | | | | | 0 61 | 2 68 | 0 61 | 2 68 | 0 50 | 2 21 |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | | | 0 23 | 0 99 | 0 23 | 0 99 | 0 19 | 0 83 |
| Glycol Ethers | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachloroethane | 67721 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | | | 2 59 | 11 33 | 2 59 | 11 33 | 2 13 | 9 34 |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | | | 0 09 | 0 41 | 0 09 | 0 41 | 0 00 | 0 01 |
| Iodomethane | 7 88 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isophorone | 78591 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead Compounds | | HAP, TAP | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 00 | 0 00 |
| Manganese Compounds | | HAP, TAP | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 00 | 0 01 |
| m-Cresol | 10839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Mercury Compounds | | HAP | | | | | | 0 02 | 0 10 | 0 02 | 0 10 | 0 00 | 0 00 |
| Methanol | 67561 | HAP, TAP | | | | | | 2 07 | 9 07 | 2 07 | 9 07 | 1 71 | 7 47 |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl methacrylate | 80626 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methylene chloride | 75092 | HAP, TAP | | | | | | 0 02 | 0 10 | 0 02 | 0 10 | 0 02 | 0 08 |
| m-Xylene | 108383 | HAP, TAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| Naphthalene | 91203 | HAP, TAP | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 01 | 0 04 |
| n-Hexane | 1105 3 | HAP, TAP | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 01 | 0 04 |
| Nickel Compounds | | HAP, TAP | | | | | | 0 49 | 2 13 | 0 49 | 2 13 | 0 01 | 0 04 |
| o-Cresol | 95 87 | HAP, TAP | | | | | | 0 61 | 2 68 | 0 61 | 2 68 | 0 50 | 2 21 |
| o-Xylene | 95 76 | HAP, TAP | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 01 | 0 06 |
| p-Cresol | 106 5 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Pentachlorophenol | 87865 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Phenol | 108952 | HAP, TAP | | | | | | 0 52 | 2 27 | 0 52 | 2 27 | 0 43 | 1 87 |
| Phosphorus | 77231 0 | HAP, TAP | | | | | | 0 02 | 0 10 | 0 02 | 0 10 | 0 01 | 0 04 |
| Polycyclic organic matter | | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| Prop onaldehyde | 123386 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-Xylene | 106 23 | HAP, TAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| Selenium Compounds | | HAP, TAP | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 00 | 0 00 |
| Styrene | 100 25 | HAP, TAP | | | | | | 0 03 | 0 12 | 0 03 | 0 12 | 0 02 | 0 10 |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | | | 0 02 | 0 10 | 0 02 | 0 10 | 0 02 | 0 08 |
| Toluene | 108883 | HAP, TAP | | | | | | 0 01 | 0 07 | 0 01 | 0 07 | 0 00 | 0 01 |
| Trichloroethy ene | 79016 | HAP, TAP | | | | | | 0 03 | 0 12 | 0 03 | 0 12 | 0 02 | 0 10 |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl ch oride | 7501 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Xy enes | 1330207 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

8. REFERENCES:

9. NOTES:

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 2 - Worst-Case Emissions | | | | | | | | |
| Detailed Process Unit Emissions en ered in o AEI | | | | | | | | |
| Ti le V Unit D = 07. Equipment ID = 2505 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| | | | | | | | | 0 16 | 0 70 | 0 16 | 0 70 | 0 13 | 0 58 |
| | | | | | | | | 0 07 | 0 31 | 0 07 | 0 31 | 0 06 | 0 25 |
| | | | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 01 | 0 04 |
| | | | | | | | | 0 03 | 0 14 | 0 03 | 0 14 | 0 03 | 0 12 |
| To al Other Air Pollutants | | | | | | | | 1 18 | 5 18 | 1 18 | 5 18 | 0 98 | 4 28 |
| 1,2-dibromoethene | 5 0 98 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-dich oroethylene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dimethoxyethane | 11071 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch orophenol | 95578 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-din tro- 6-methylphenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-hexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methylnaptha ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl propene | 115117 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl-2-propanol benzene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-nitrophenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-propanol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,5-dimethyl benzaldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 3-carene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 3-methylch oranthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 5-methyl chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthy ene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acetone | | | | | | | | 0 10 | 0 43 | 0 10 | 0 43 | 0 08 | 0 36 |
| alpha-pinene | | | | | | | | 0 07 | 0 31 | 0 07 | 0 31 | 0 06 | 0 25 |
| alpha-terpiniene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-terpiniol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ammonia | 766 17 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| barium | | | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 00 | 0 00 |
| benzaldehyde | | | | | | | | 0 16 | 0 72 | 0 16 | 0 72 | 0 14 | 0 59 |
| benzoic acid | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(b)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(gh )perylene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(k)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzyl alcohol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| beta-pinene | | | | | | | | 0 05 | 0 20 | 0 05 | 0 20 | 0 04 | 0 17 |
| b s (2-Chloroisopropy ) ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| boron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromodichloromethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| butane | 106978 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| butylbenzylphtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphor | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| copper | | | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 00 | 0 00 |
| crotonaldehyde | 170303 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| cyc ohexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| decach orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibenzo(ah)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibromomethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobenzene | 25321226 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ethylphthala e | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-octyl phtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dysprosium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ethane | 7 8 0 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ethanol | | | | | | | | 0 26 | 1 13 | 0 26 | 1 13 | 0 21 | 0 93 |
| fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| fluorene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| gamma-Terpinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| germanium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| heptane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexach orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexa dehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| indeno(123-cd)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iodine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| isopropanol | | | | | | | | 0 33 | 1 44 | 0 33 | 1 44 | 0 27 | 1 19 |
| isovaleraldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| limonene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| lithium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| methyl anthracene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl ethyl ketone | 78933 | TAP | | | | | | 0 04 | 0 19 | 0 04 | 0 19 | 0 04 | 0 16 |
| molybdenum | | | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| m-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| myrcene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-buty aldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| neodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| niobium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| nitric ox de | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| nonane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pah | | | | | | | | 0 02 | 0 08 | 0 02 | 0 08 | 0 00 | 0 00 |
| p-cymene | | | | | | | | 0 06 | 0 25 | 0 06 | 0 25 | 0 05 | 0 20 |
| pentachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentane | 109660 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| phenanthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-dioxins | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-furans | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| po assium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| praeseodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| propane | 7 986 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| propy ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| rub dium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| samarium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| s lver | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| sodium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| solicy adehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| strontium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| terpenes | | | | | | | | 0 11 | 0 47 | 0 11 | 0 47 | 0 09 | 0 39 |
| tert-butyl methyl ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tetrachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thallium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thorium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tin | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ti anium | | | | | | 2.5 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orofluoromethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tungsten | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| valeradehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| vanadium | | | | | | | | 0 08 | 0 33 | 0 08 | 0 33 | 0 00 | 0 01 |
| y trium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| zinc | | | | | | | | 0 16 | 0 71 | 0 16 | 0 71 | 0 00 | 0 02 |
| zirconium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

**CONFIDENTIAL Alternate Form D 2943 Emission Data for Regulated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 2 - B ack L quor So ids | 1,129.0 | Ton BLS/Day | 930 3 | Ton BLS/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit ID = | | | | | | | | |
| Ti le V Unit ID = 07, Equipment ID = 2505 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 3.70E-01 | # T BLS | F | 1 | 99% | **1 740 54** | **7 623 57** | **17 41** | **76 24** | **14 34** | **62 82** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.83E-01 | # T BLS | F | 1 | 99% | **861 57** | **3 773 67** | **8 62** | **37 74** | **7 10** | **31 09** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 1.25E-01 | # T BLS | F | 1 | 99% | **588 30** | **2 576 77** | **5 88** | **25 77** | **4 85** | **21 23** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 8.00E-02 | # T BLS | F | 1 | | **3 76** | **16 48** | **3 76** | **16 48** | **3 10** | **13 58** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **865 33** | **3 790 15** | **12 38** | **54 22** | **10 20** | **44 68** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **592 07** | **2 593 25** | **9 65** | **42 25** | **7 95** | **34 81** |
| Su fur dioxide | 7 6095 | Cr teria | 7.00E-02 | # T BLS | F | 1 | | **3 29** | **14 42** | **3 29** | **14 42** | **2 71** | **11 88** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 9.00E-02 | # T BLS | E | 1 | | **4 23** | **18 54** | **4 23** | **18 54** | **3 49** | **15 28** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 1.76E-01 | # T BLS | G | 1 | | **8 30** | **36 34** | **8 30** | **36 34** | **6 84** | **29 94** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | J | 1 | | **7 13** | **31 24** | **7 13** | **31 24** | **5 88** | **25 74** |
| Carbon monox de | | Cr teria | 1.21E 00 | # T BLS | F | 1 | | **56 92** | **249 31** | **56 92** | **249 31** | **46 90** | **205 43** |
| Lead | | Cr teria | 1.20E-05 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | 1. E 00 | # T BLS | F | 1 | | **67 74** | **296 70** | **67 74** | **296 70** | **55 82** | **244 48** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | 9. E 01 | kg/MM Btu | H | 1 | | **234 959 44** | **1 029 122 33** | **234 959 44** | **1 029 122 33** | **193 602 90** | **847 980 70** |
| Methane | 7 828 | GHG, (112r) | 3.00E-02 | kg/MM Btu | H | 1 | | **74 67** | **327 05** | **74 67** | **327 05** | **61 53** | **269 49** |
| Nitrous ox de | 1002 972 | GHG | 5.00E-03 | kg/MM Btu | H | 1 | | **12 44** | **54 51** | **12 44** | **54 51** | **10 25** | **44 91** |
| Carbon dioxide equivalent | | GHG | | | I | 1 | | **240 534 74** | **1 053 542 18** | **240 534 74** | **1 053 542 18** | **198 196 87** | **868 102 28** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | 2.00E-02 | # T BLS | A | 1 | | **0 94** | **4 12** | **0 94** | **4 12** | **0 78** | **3 40** |
| Hydrogen Su fide | 778306 | NSPS, TAP | 3. E-03 | # T BLS | A | 1 | | **0 16** | **0 70** | **0 16** | **0 70** | **0 13** | **0 58** |
| To al Reduced Sulfur (as TRS) | | NSPS | 5.8E-03 | # T BLS | C | 1 | | **0 27** | **1 20** | **0 27** | **1 20** | **0 23** | **0 99** |
| To al Reduced Sulfur (as Su fur) | | NSPS | .7E-03 | # T BLS | A | 1 | | **0 22** | **0 97** | **0 22** | **0 97** | **0 18** | **0 80** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 5.0E-03 | # T BLS | D | 1 | | **0 23** | **1 03** | **0 23** | **1 03** | **0 19** | **0 85** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **8 62** | **37 75** | **8 62** | **37 75** | **7 10** | **31 10** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 6.00E-0 | # T BLS | A | 1 | | **0 03** | **0 12** | **0 03** | **0 12** | **0 02** | **0 10** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 6.00E-0 | # T BLS | A | 1 | | **0 03** | **0 12** | **0 03** | **0 12** | **0 02** | **0 10** |
| 1,2-Dichloroethane | 107062 | HAP | 6.00E-0 | # T BLS | A | 1 | | **0 03** | **0 12** | **0 03** | **0 12** | **0 02** | **0 10** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 7.70E-0 | # T BLS | A | 1 | | **0 04** | **0 16** | **0 04** | **0 16** | **0 03** | **0 13** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | .20E-0 | # T BLS | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 07** |
| Acetophenone | 98862 | HAP, TAP | 1.20E-02 | # T BLS | A | 1 | | **0 56** | **2 47** | **0 56** | **2 47** | **0 47** | **2 04** |
| Acrolein | 107028 | HAP, TAP, (112 | 2.60E-0 | # T BLS | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | 1.50E-06 | # T BLS | B | 1.20 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | 1.30E-08 | # T BLS | B | 1.32 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 6. 0E-0 | # T BLS | A | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 02** | **0 11** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 1.30E-08 | # T BLS | B | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | 7.10E-06 | # T BLS | B | 1.1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | HAP, TAP, (112 | 7.00E-03 | # T BLS | A | 1 | | **0 33** | **1 44** | **0 33** | **1 44** | **0 27** | **1 19** |
| Carbon tetrachloride | 56235 | HAP, TAP | 5.50E-0 | # T BLS | A | 1 | | **0 03** | **0 11** | **0 03** | **0 11** | **0 02** | **0 09** |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 1.80E-0 | # T BLS | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Chloroform | 67663 | HAP, TAP, (112 | 2. 0E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | 1.90E-05 | # T BLS | B | 1.31 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | 1. 0E-05 | # T BLS | B | 1.31 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cobalt Compounds | | HAP, TAP | 1.60E-06 | # T BLS | B | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | 1.50E-02 | # T BLS | A | 1 | | **0 71** | **3 09** | **0 71** | **3 09** | **0 58** | **2 55** |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | 1.30E-02 | # T BLS | A | 1 | | **0 61** | **2 68** | **0 61** | **2 68** | **0 50** | **2 21** |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | .80E-03 | # T BLS | A | 1 | | **0 23** | **0 99** | **0 23** | **0 99** | **0 19** | **0 81** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112 | 5.50E-02 | # T BLS | A | 1 | | **2 59** | **11 33** | **2 59** | **11 33** | **2 13** | **9 34** |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 1.20E-05 | # T BLS | B | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | 5.20E-05 | # T BLS | B | 1.29 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 1.80E-07 | # T BLS | B | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | 0E-02 | # T BLS | A | 1 | | **2 07** | **9 07** | **2 07** | **9 07** | **1 71** | **7 47** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 3.30E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | .80E-0 | # T BLS | A | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 08** |
| m-Xylene | 108383 | HAP, TAP | 1.80E-0 | # T BLS | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Naphthalene | 91203 | HAP, TAP | 2.60E-0 | # T BLS | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| n-Hexane | 1105 3 | HAP, TAP | 2.50E-0 | # T BLS | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| Nickel Compounds | | HAP, TAP | 3.30E-05 | # T BLS | B | 1.27 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| o-Cresol | 95 87 | HAP, TAP | 1.30E-02 | # T BLS | A | 1 | | **0 61** | **2 68** | **0 61** | **2 68** | **0 50** | **2 21** |
| o-Xylene | 95 76 | HAP, TAP | 3.30E-0 | # T BLS | A | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 06** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 1.10E-02 | # T BLS | A | 1 | | **0 52** | **2 27** | **0 52** | **2 27** | **0 43** | **1 87** |
| Phosphorus | 77231 0 | HAP, TAP | 2.00E-0 | # T BLS | B | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Polycyclic organ c matter | | HAP, TAP | | | K | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 1.80E-0 | # T BLS | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Se enium Compounds | | HAP, TAP | 8.00E-07 | # T BLS | B | 1. 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | 5.60E-0 | # T BLS | A | 1 | | **0 03** | **0 12** | **0 03** | **0 12** | **0 02** | **0 10** |
| Tetrachloroethylene | 12718 | HAP, TAP | .80E-0 | # T BLS | A | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 08** |
| Toluene | 108883 | HAP, TAP | 3.30E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Trich oroethylene | 79016 | HAP, TAP | 6.00E-0 | # T BLS | A | 1 | | **0 03** | **0 12** | **0 03** | **0 12** | **0 02** | **0 10** |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factors from NCASI Technical Bul etin 858, Tab e 1 A.
B) Emission factors from NCASI Technical Bul etin 858, Tab e 1 B.
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Emission factor from NCASI Technical Bulletin 88 , Table .12.
F) Emission factors from NCASI Techn cal Bu le in 1020, Table .12.
G) Em ssion factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC species.
H) Em ssion factor for north american softwood kra t pulping iquor in EPA MRR, Table AA-1, TBLS converted to MM Btu assuming 6,000 Btu/lb BLS.
I) Emission factor based on GWP in EPA MRR, Table A-1.
J) VOC emiss ons are sum of individual spec ated VOC.
K) Sum of spec ated POM and PAH.

9. NOTES:

Em ssion Factors for references G, H, I and J converted from #/ADTP to #/T BLS assuming 3 500 # BLS/ADTP.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 2 - B ack L quor So ids | 1,129.0 | Ton BLS/Day | 930 3 | Ton BLS/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit D = | | | | | | | | |
| Ti le V Unit D = 07, Equipment ID = 2505 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 3. 0E-03 | # T BLS | A | 1 | | **0 16** | **0 70** | **0 16** | **0 70** | **0 13** | **0 58** |
| Methyl mercaptan | | | 1.50E-03 | # T BLS | A | 1 | | **0 07** | **0 31** | **0 07** | **0 31** | **0 06** | **0 25** |
| dimethyl d su fide | | | 2. 0E-0 | # T BLS | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| dimethyl suff de | | | 6.80E-0 | # T BLS | A | 1 | | **0 03** | **0 14** | **0 03** | **0 14** | **0 03** | **0 12** |
| To al Other Air Pollutants | | | | | | 1 | | **1 18** | **5 18** | **1 18** | **5 18** | **0 97** | **4 26** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 2.10E-03 | # T BLS | A | 1 | | **0 10** | **0 43** | **0 10** | **0 43** | **0 08** | **0 36** |
| alpha-pinene | | | 1.50E-03 | # T BLS | A | 1 | | **0 07** | **0 31** | **0 07** | **0 31** | **0 06** | **0 25** |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | 1.70E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzaldehyde | | | 3.50E-03 | # T BLS | A | 1 | | **0 16** | **0 72** | **0 16** | **0 72** | **0 14** | **0 59** |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | 9.80E-0 | # T BLS | A | 1 | | **0 05** | **0 20** | **0 05** | **0 20** | **0 04** | **0 17** |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | 2.10E-05 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 5.50E-03 | # T BLS | A | 1 | | **0 26** | **1 13** | **0 26** | **1 13** | **0 21** | **0 93** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | 7.00E-03 | # T BLS | A | 1 | | **0 33** | **1 44** | **0 33** | **1 44** | **0 27** | **1 19** |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 9. 0E-0 | # T BLS | A | 1 | | **0 04** | **0 19** | **0 04** | **0 19** | **0 04** | **0 16** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | 1.20E-03 | # T BLS | A | 1 | | **0 06** | **0 25** | **0 06** | **0 25** | **0 05** | **0 20** |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | .10E-06 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 2.30E-03 | # T BLS | A | 1 | | **0 11** | **0 47** | **0 11** | **0 47** | **0 09** | **0 39** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | .30E-07 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | 5.80E-05 | # T BLS | B | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 2 - Residual Oil | 360 | MM Btu/hr | 6 | MM Btu/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit D = 3 | | | | | | | | |
| Ti le V Unit D = 07, Equipment ID = 2505 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 1.22E-03 | #/MM Btu | G | 1 | 99% | **43 77** | **191 71** | **0 44** | **1 92** | **0 01** | **0 03** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 7.62E-0 | #/MM Btu | G | 1 | 99% | **27 44** | **120 18** | **0 27** | **1 20** | **0 00** | **0 02** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 5.08E-0 | #/MM Btu | G | 1 | 99% | **18 29** | **80 12** | **0 18** | **0 80** | **0 00** | **0 01** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 1.00E-02 | #/MM Btu | M | 1 | | **3 60** | **15 77** | **3 60** | **15 77** | **0 06** | **0 26** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | **31 04** | **135 95** | **3 87** | **16 97** | **0 06** | **0 28** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | **21 89** | **95 89** | **3 78** | **16 57** | **0 06** | **0 28** |
| Su fur dioxide | 7 6095 | Cr teria | 2 20E 00 | #/MM Btu | E | 1 | | **791 28** | **3 465 81** | **791 28** | **3 465 81** | **13 16** | **57 63** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 5.07E-03 | #/MM Btu | F | 1 | | **1 82** | **7 99** | **1 82** | **7 99** | **0 03** | **0 13** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 5.07E-03 | #/MM Btu | O | 2.5 | | **4 56** | **19 97** | **4 56** | **19 97** | **0 08** | **0 33** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | R | 1 | | **0 18** | **0 77** | **0 18** | **0 77** | **0 00** | **0 01** |
| Carbon monox de | | Cr teria | 3.33E-02 | #/MM Btu | E | 1 | | **12 00** | **52 56** | **12 00** | **52 56** | **0 20** | **0 87** |
| Lead | | Cr teria | 2.80E-05 | #/MM Btu | K | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | 3.13E-01 | #/MM Btu | E | 1 | | **112 80** | **494 06** | **112 80** | **494 06** | **1 88** | **8 22** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 7 51E 01 | kg/MM Btu | P | 1 | | **59 603 17** | **261 061 90** | **59 603 17** | **261 061 90** | **991 17** | **4 341 31** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | | | | | |
| Methane | 7 828 | GHG, (112r) | 3.00E-03 | kg/MM Btu | P | 1 | | **2 38** | **10 43** | **2 38** | **10 43** | **0 04** | **0 17** |
| Nitrous ox de | 1002 972 | GHG | 6.00E-0 | kg/MM Btu | P | 1 | | **0 48** | **2 09** | **0 48** | **2 09** | **0 01** | **0 03** |
| Carbon dioxide equivalent | | GHG | | | Q | 1 | | **59 804 60** | **261 944 16** | **59 804 60** | **261 944 16** | **994 52** | **4 355 98** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | 7.98E-02 | #/MM Btu | N | 1.23 | | **35 19** | **154 14** | **35 19** | **154 14** | **0 59** | **2 56** |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **1 72** | **7 53** | **1 72** | **7 53** | **0 03** | **0 13** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 1.57E-06 | #/MM Btu | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | 3.50E-05 | #/MM Btu | J | 1.20 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | 2.00E-05 | #/MM Btu | L | 1.32 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 3.00E-06 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 2.10E-07 | #/MM Btu | L | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | 3.0 E-05 | #/MM Btu | L | 1.1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112 | 2.31E-03 | #/MM Btu | J | 1 | | **0 83** | **3 65** | **0 83** | **3 65** | **0 01** | **0 06** |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | 5.63E-06 | #/MM Btu | J | 1.31 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | .0 E-06 | #/MM Btu | L | 1.31 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Cobalt Compounds | | HAP, TAP | .01E-05 | #/MM Btu | J | 1.27 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | .2 E-07 | #/MM Btu | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Ethyl ch oride | 75003 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112 | .07E-0 | #/MM Btu | H | 1 | | **0 15** | **0 64** | **0 15** | **0 64** | **0 00** | **0 01** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | 2. 9E-0 | #/MM Btu | J | 1.05 | | **0 09** | **0 41** | **0 09** | **0 41** | **0 00** | **0 01** |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 2.80E-05 | #/MM Btu | K | 1.08 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | 2.60E-05 | #/MM Btu | L | 1.29 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 6.15E-05 | #/MM Btu | L | 1.08 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | 1.21E-05 | #/MM Btu | L | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 00** |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | 1.06E-03 | #/MM Btu | L | 1.27 | | **0 49** | **2 13** | **0 49** | **2 13** | **0 01** | **0 04** |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 7.27E-07 | #/MM Btu | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | 6.31E-05 | #/MM Btu | J | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 00** | **0 00** |
| Polycyclic organ c matter | | HAP, TAP | 8.67E-06 | #/MM Btu | H | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | 1.1 E-05 | #/MM Btu | L | 1. 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | .13E-05 | #/MM Btu | I | 1 | | **0 01** | **0 07** | **0 01** | **0 07** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Emission factors from AP- 2 or Uncontrol ed Ut lity/Large Industrial Natural Gas-fired Bo lers - Table 1. -1.
B) Emission factors from AP- 2 or Uncontrol ed Ut lity/Large Industrial Natural Gas-fired Bo lers - Table 1. -2.
C) Emission factors from AP- 2 for Uncontrolled Ut lity/Large Industr al Natural Gas-fired Bo lers - Table 1. -3.
D) Highest emiss on ac ors from NCASI Techn cal Bu le in No. 650 (Table c), Natural Gas-fired Ut lity Bo lers.
E) Maximum em ssion factors from AP- 2 for Uncontro led Residual Oil-fired Uti ity Bo lers Table 1.3-1; assumes 2.1% S.
F) Maximum em ssion factors from AP- 2 for Uncontrolled Residual O l-fired Ut lity Bo lers - Table 1.3-3.
G) Maximum emiss on ac ors from AP- 2 for Residual O l-fired Ut lity Boilers with ESP's Table 1.3- : assumes 2.1% Sulfur.
H) Maximum emiss on factors from AP- 2 for Uncontro led Res dual Oil-fired Uti ity Boi ers - Table 1.3-8.
I) Maximum em ssion factors from AP- 2 for Uncontrolled Residual O l-fired Ut lity Bo lers - Table 1.3-9 (PCDD is OCDD).
J) Maximum emission factors from AP- 2 or Uncontrol ed Residual Oil-fired U il ty Boilers - Tab e 1.3-11.
K) Emission factor from U.S. EPA document Estimating Air Toxic Emissions from Coal and Oil Combust on Sources [EPA- 50/2-89-001] or Uncontrol ed Residual Oil-fired U il ty Boilers (Tab e -1).
L) H ghest em ssion factors from NCASI Technical Bul etin No. 650 (Tab e b), Residual O l-fired Ut lity Boilers.
M) Em ssion factor from AP- 2 or Uncontrol ed Residual Oil-fired Boi ers - Table 1.3-2.
N) Maximum SO3 em ssion factor from AP- 2 or Uncontrol ed Residual Oil-fired U il ty Boilers Tab e 1 3-1: assumes 2.1% S. Process var ab ilty factor adjusts SO3 to H2SO .
O) Primary VOC assumed to be formaldehyde.
P) Emission factor for kerosene combustion in EPA MRR, Tab e C-1 and C-2.
Q) Em ssion factor based on GWP in EPA MRR, Table A-1.
R) VOC em ssions are sum of indiv dual specia ed VOC.

9. NOTES:

Residual oil heating value 150,000 Btu/gal.

Em ssion factors for reference D converted from #/MM Btu to #/T BLS assuming 6 000 Btu/# BLS.
Em ssion factors for references E, F, G and H converted from #/10^3 gal o l to #/T BLS assuming 150,000 Btu gal oil and 6 000 Btu/# BLS.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 2 - Residual Oil | 360 | MM Btu/hr | 6 | MM Btu/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit D = 3 | | | | | | | | |
| Ti le V Unit D = 07, Equipment ID = 2505 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | | | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | **0 27** | **1 19** | **0 27** | **1 19** | **0 00** | **0 02** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | 1. 1E-07 | #/MM Btu | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acenaphthy ene (POM) | | | 9.22E-09 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | 1. 3E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| barium | | | 1.71E-05 | #/MM Btu | J | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 00** |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | 1.02E-07 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)pyrene (POM) | | | 9.22E-09 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(b)fluoranthene (POM) | | | 3.65E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(gh )perylene (POM) | | | 6.95E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(k)fluoranthene (POM) | | | 3.65E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | 1.75E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| copper | | | 1.65E-05 | #/MM Btu | L | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | 2. 7E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | 3.23E-08 | #/MM Btu | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluorene (POM) | | | 3.15E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | 6.25E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | 5.25E-06 | #/MM Btu | J | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | 5.29E-05 | #/MM Btu | L | 1 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 00** | **0 00** |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | 1.08E-07 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polych orinated dibenzo-p-dioxins | | | 2.07E-11 | #/MM Btu | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | 3.17E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | 2.12E-0 | #/MM Btu | J | 1 | | **0 08** | **0 33** | **0 08** | **0 33** | **0 00** | **0 01** |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | .50E-0 | #/MM Btu | L | 1 | | **0 16** | **0 71** | **0 16** | **0 71** | **0 00** | **0 01** |
| zirconium | | | | | | 1 | | | | | | | |

**CONFIDENTIAL Alternate Form D 2943 Emission Data for Regulated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 3 - Worst-Case Emissions | | | | | | | | |
| Detailed Process Unit Emissions en ered in o AEI | | | | | | | | |
| Title V Unit ID = 07, Equipment ID = 5105 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | | | 3 145 00 | 13 775 10 | 31 45 | 137 75 | 27 02 | 118 36 |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | | | 1 556 78 | 6 818 67 | 15 57 | 68 19 | 13 38 | 58 60 |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | | | 1 063 01 | 4 655 98 | 10 63 | 46 56 | 9 14 | 40 01 |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | | | 6 80 | 29 78 | 6 80 | 29 78 | 5 90 | 25 85 |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | 1 563 58 | 6 848 46 | 22 37 | 97 97 | 19 28 | 84 45 |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | 1 069 81 | 4 685 77 | 17 43 | 76 34 | 15 04 | 65 87 |
| Su fur dioxide | 7 6095 | Cr teria | | | | | | 791 28 | 3 465 81 | 791 28 | 3 465 81 | 17 47 | 76 52 |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | | | 7 65 | 33 51 | 7 65 | 33 51 | 6 60 | 28 93 |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | | | 14 99 | 65 66 | 14 99 | 65 66 | 12 96 | 56 77 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | | | 12 89 | 56 45 | 12 89 | 56 45 | 11 08 | 48 54 |
| Carbon monox de | | Cr teria | | | | | | 102 85 | 450 48 | 102 85 | 450 48 | 88 61 | 388 11 |
| Lead | | Cr teria | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 00 | 0 00 |
| Nitrogen oxides | | Cr teria | | | | | | 122 40 | 536 11 | 122 40 | 536 11 | 107 15 | 469 32 |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | | | 59 603 17 | 261 061 90 | 59 603 17 | 261 061 90 | 1 035 25 | 4 534 39 |
| Biogenic carbon dioxide | 12 389 | GHG | | | | | | 424 550 26 | 1 859 530 16 | 424 550 26 | 1 859 530 16 | 364 681 48 | 1 597 304 88 |
| Methane | 7 828 | GHG, (112r) | | | | | | 134 92 | 590 95 | 134 92 | 590 95 | 115 93 | 507 79 |
| Nitrous ox de | 1002 972 | GHG | | | | | | 22 49 | 98 49 | 22 49 | 98 49 | 19 32 | 84 64 |
| Carbon dioxide equivalent | | GHG | | | | | | 434 624 34 | 1 903 654 60 | 434 624 34 | 1 903 654 60 | 374 373 44 | 1 639 755 67 |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Su furic acid m st | 766 939 | TAP | | | | | | 35 19 | 154 14 | 35 19 | 154 14 | 2 01 | 8 80 |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | | | 0 29 | 1 27 | 0 29 | 1 27 | 0 25 | 1 09 |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | | | 0 49 | 2 17 | 0 49 | 2 17 | 0 42 | 1 86 |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | | | 0 40 | 1 75 | 0 40 | 1 75 | 0 34 | 1 50 |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | | | 0 42 | 1 86 | 0 42 | 1 86 | 0 36 | 1 60 |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 15 57 | 68 21 | 15 57 | 68 21 | 13 41 | 58 72 |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | | | 0 05 | 0 22 | 0 05 | 0 22 | 0 04 | 0 19 |
| 1,1-Dichloroethane | 753 3 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | | | 0 05 | 0 22 | 0 05 | 0 22 | 0 04 | 0 19 |
| 1,2-Dichloroethane | 107062 | HAP | | | | | | 0 05 | 0 22 | 0 05 | 0 22 | 0 04 | 0 19 |
| 1,2-Dichloropropane | 78875 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | | | 0 07 | 0 29 | 0 07 | 0 29 | 0 06 | 0 25 |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch oroacetophenone | 53227 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trophenol | 51286 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trotoluene | 1211 2 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| -Nitrophenol | 100027 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | | | 0 04 | 0 16 | 0 04 | 0 16 | 0 03 | 0 13 |
| Acetophenone | 98862 | HAP, TAP | | | | | | 1 02 | 4 47 | 1 02 | 4 47 | 0 88 | 3 84 |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | | | 0 02 | 0 10 | 0 02 | 0 10 | 0 02 | 0 08 |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| An line | 62533 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Antimony Compounds | | HAP, TAP | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 00 | 0 00 |
| Arsenic Compounds | | HAP, TAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 00 | 0 00 |
| Benzene | 71 32 | HAP, TAP | | | | | | 0 05 | 0 24 | 0 05 | 0 24 | 0 05 | 0 20 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Beryllium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biphenyl | 9252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromoform | 75252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromomethane | 7 839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cadmium Compounds | | HAP, TAP | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 00 | 0 00 |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | | | 0 60 | 2 61 | 0 60 | 2 61 | 0 51 | 2 24 |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | | | 0 05 | 0 20 | 0 05 | 0 20 | 0 04 | 0 18 |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Catechol | 120809 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | | | 0 83 | 3 65 | 0 83 | 3 65 | 0 01 | 0 06 |
| Chlorobenzene | 108907 | HAP, TAP | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 01 | 0 06 |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium Compounds | | HAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Chromium( 6) Compounds | | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Cobalt Compounds | | HAP, TAP | | | | | | 0 02 | 0 08 | 0 02 | 0 08 | 0 00 | 0 00 |
| Cresols | 1319773 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cumene | 98828 | HAP, TAP | | | | | | 1 28 | 5 58 | 1 28 | 5 58 | 1 10 | 4 80 |
| Cyanide Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Diethanolamine | 111 22 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl su fate | 77781 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylbenzene | 100 1 | HAP, TAP | | | | | | 1 11 | 4 84 | 1 11 | 4 84 | 0 95 | 4 16 |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | | | 0 41 | 1 79 | 0 41 | 1 79 | 0 35 | 1 55 |
| Glycol Ethers | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachloroethane | 67721 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | | | 4 68 | 20 48 | 4 68 | 20 48 | 4 02 | 17 59 |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | | | 0 09 | 0 41 | 0 09 | 0 41 | 0 00 | 0 01 |
| Iodomethane | 7 88 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isophorone | 78591 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead Compounds | | HAP, TAP | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 00 | 0 00 |
| Manganese Compounds | | HAP, TAP | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 01 | 0 02 |
| m-Cresol | 10839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Mercury Compounds | | HAP | | | | | | 0 02 | 0 10 | 0 02 | 0 10 | 0 00 | 0 00 |
| Methanol | 67561 | HAP, TAP | | | | | | 3 74 | 16 38 | 3 74 | 16 38 | 3 21 | 14 07 |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl methacrylate | 80626 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methylene chloride | 75092 | HAP, TAP | | | | | | 0 04 | 0 18 | 0 04 | 0 18 | 0 04 | 0 15 |
| m-Xylene | 108383 | HAP, TAP | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 01 | 0 06 |
| Naphthalene | 91203 | HAP, TAP | | | | | | 0 02 | 0 10 | 0 02 | 0 10 | 0 02 | 0 08 |
| n-Hexane | 1105 3 | HAP, TAP | | | | | | 0 67 | 2 92 | 0 67 | 2 92 | 0 02 | 0 09 |
| Nickel Compounds | | HAP, TAP | | | | | | 0 49 | 2 13 | 0 49 | 2 13 | 0 01 | 0 05 |
| o-Cresol | 95 87 | HAP, TAP | | | | | | 1 11 | 4 84 | 1 11 | 4 84 | 0 95 | 4 16 |
| o-Xylene | 95 76 | HAP, TAP | | | | | | 0 03 | 0 12 | 0 03 | 0 12 | 0 02 | 0 11 |
| p-Cresol | 106 5 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Pentachlorophenol | 87865 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Phenol | 108952 | HAP, TAP | | | | | | 0 94 | 4 10 | 0 94 | 4 10 | 0 80 | 3 52 |
| Phosphorus | 77231 0 | HAP, TAP | | | | | | 0 02 | 0 10 | 0 02 | 0 10 | 0 01 | 0 07 |
| Polycyclic organic matter | | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| Prop onaldehyde | 123386 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-Xylene | 106 23 | HAP, TAP | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 01 | 0 06 |
| Selenium Compounds | | HAP, TAP | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 00 | 0 00 |
| Styrene | 100 25 | HAP, TAP | | | | | | 0 05 | 0 21 | 0 05 | 0 21 | 0 04 | 0 18 |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | | | 0 04 | 0 18 | 0 04 | 0 18 | 0 04 | 0 15 |
| Toluene | 108883 | HAP, TAP | | | | | | 0 01 | 0 07 | 0 01 | 0 07 | 0 00 | 0 01 |
| Trichloroethy ene | 79016 | HAP, TAP | | | | | | 0 05 | 0 22 | 0 05 | 0 22 | 0 04 | 0 19 |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl ch oride | 7501 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Xy enes | 1330207 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

8. REFERENCES:

9. NOTES:

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 3 - Worst-Case Emissions | | | | | | | | |
| Detailed Process Unit Emissions en ered in o AEI | | | | | | | | |
| Ti le V Unit D = 07. Equipment ID = 5105 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| | | | | | | | | **0 29** | **1 27** | **0 29** | **1 27** | **0 25** | **1 09** |
| | | | | | | | | **0 13** | **0 56** | **0 13** | **0 56** | **0 11** | **0 48** |
| | | | | | | | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 08** |
| | | | | | | | | **0 06** | **0 25** | **0 06** | **0 25** | **0 05** | **0 22** |
| To al Other Air Pollutants | | | | | | | | **4 31** | **18 86** | **4 31** | **18 86** | **1 85** | **8 10** |
| 1,2-dibromoethene | 5 0 98 | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-dich oroethylene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-Ch orophenol | 95578 | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-din tro- 6-methylphenol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-hexanone | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methylnaptha ene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methyl propene | 115117 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methyl-2-propanol benzene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-nitrophenol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-propanol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2,5-dimethyl benzaldehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 3-carene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 3-methylch oranthrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 5-methyl chrysene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acenaphthene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acenaphthy ene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acetone | | | | | | | | **0 18** | **0 78** | **0 18** | **0 78** | **0 15** | **0 67** |
| alpha-pinene | | | | | | | | **0 13** | **0 56** | **0 13** | **0 56** | **0 11** | **0 48** |
| alpha-terpinene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| alpha-terpiniol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| ammonia | 766 17 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| anthracene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| barium | | | | | | | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 01** |
| benzaldehyde | | | | | | | | **0 30** | **1 30** | **0 30** | **1 30** | **0 26** | **1 12** |
| benzoic acid | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)anthracene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)pyrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(b)fluoranthene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(gh )perylene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(k)fluoranthene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzyl alcohol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| beta-pinene | | | | | | | | **0 08** | **0 36** | **0 08** | **0 36** | **0 07** | **0 31** |
| b s (2-Chloroisopropy ) ether | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| boron | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| bromine | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| bromodichloromethane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| butane | 106978 | (112r) | | | | | | **0 78** | **3 40** | **0 78** | **3 40** | **0 00** | **0 01** |
| butylbenzylphtha ate | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| camphene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| camphor | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| chrysene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| copper | | | | | | | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 01** |
| crotonaldehyde | 170303 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| cyc ohexanone | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| decach orobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibenzo(ah)anthracene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibromomethane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ch orobenzene | 25321226 | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ch orobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ethylphthala e | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| di-n-octyl phtha ate | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dysprosium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| ethane | 7 8 0 | (112r) | | | | | | **1 15** | **5 02** | **1 15** | **5 02** | **0 00** | **0 01** |
| ethanol | | | | | | | | **0 47** | **2 05** | **0 47** | **2 05** | **0 40** | **1 76** |
| fluoranthene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluorene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| gamma-Terpinene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| germanium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| heptane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| hexach orobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| hexa dehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| indeno(123-cd)pyrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| iodine | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| iron | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| isopropanol | | | | | | | | **0 60** | **2 61** | **0 60** | **2 61** | **0 51** | **2 24** |
| isovaleraldehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| limonene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| lithium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| methyl anthracene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl ethyl ketone | 78933 | TAP | | | | | | **0 08** | **0 35** | **0 08** | **0 35** | **0 07** | **0 30** |
| molybdenum | | | | | | | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| m-tolualdehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| myrcene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| n-buty aldehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| neodymium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| niobium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| nitric ox de | | | | | | | | **0 81** | **3 57** | **0 81** | **3 57** | **0 00** | **0 01** |
| nonane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-tolualdehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pah | | | | | | | | **0 02** | **0 08** | **0 02** | **0 08** | **0 00** | **0 00** |
| p-cymene | | | | | | | | **0 10** | **0 45** | **0 10** | **0 45** | **0 09** | **0 38** |
| pentachlorobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pentane | 109660 | (112r) | | | | | | **0 96** | **4 21** | **0 96** | **4 21** | **0 00** | **0 01** |
| phenanthrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polychlorinated dibenzo-p-dioxins | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polychlorinated dibenzo-p-furans | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| po assium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| praeseodymium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| propane | 7 986 | (112r) | | | | | | **0 59** | **2 59** | **0 59** | **2 59** | **0 00** | **0 01** |
| propy ene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-tolualdehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pyrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| rub dium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| samarium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| s lver | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| sodium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| solicy adehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| strontium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| terpenes | | | | | | | | **0 20** | **0 86** | **0 20** | **0 86** | **0 17** | **0 74** |
| tert-butyl methyl ether | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| tetrachlorobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thallium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thorium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| tin | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| ti anium | | | | | | 2.5 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| trich orobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| trich orofluoromethane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| tungsten | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| valeradehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| vanadium | | | | | | | | **0 08** | **0 33** | **0 08** | **0 33** | **0 00** | **0 01** |
| y trium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| zinc | | | | | | | | **0 16** | **0 71** | **0 16** | **0 71** | **0 01** | **0 03** |
| zirconium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 3 - B ack L quor So ids | 2.0 0 | Ton BLS/Day | 1,752 | Ton BLS/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit D = 6 | | | | | | | | |
| Ti le V Unit D = 07, Equipment ID = 5105 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 3.70E-01 | # T BLS | F | 1 | 99% | **3 145 00** | **13 775 10** | **31 45** | **137 75** | **27 02** | **118 33** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.83E-01 | # T BLS | F | 1 | 99% | **1 556 78** | **6 818 67** | **15 57** | **68 19** | **13 37** | **58 57** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 1.25E-01 | # T BLS | F | 1 | 99% | **1 063 01** | **4 655 98** | **10 63** | **46 56** | **9 13** | **39 99** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 8.00E-02 | # T BLS | F | 1 | | **6 80** | **29 78** | **6 80** | **29 78** | **5 84** | **25 58** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **1 563 58** | **6 848 46** | **22 37** | **97 97** | **19 21** | **84 16** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **1 069 81** | **4 685 77** | **17 43** | **76 34** | **14 97** | **65 58** |
| Su fur dioxide | 7 6095 | Cr teria | 7.00E-02 | # T BLS | F | 1 | | **5 95** | **26 06** | **5 95** | **26 06** | **5 11** | **22 39** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 9.00E-02 | # T BLS | F | 1 | | **7 65** | **33 51** | **7 65** | **33 51** | **6 57** | **28 78** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 1.76E-01 | # T BLS | G | 1 | | **14 99** | **65 66** | **14 99** | **65 66** | **12 88** | **56 40** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | J | 1 | | **12 89** | **56 45** | **12 89** | **56 45** | **11 07** | **48 49** |
| Carbon monox de | | Cr teria | 1.21E 00 | # T BLS | F | 1 | | **102 85** | **450 48** | **102 85** | **450 48** | **88 35** | **386 96** |
| Lead | | Cr teria | 1.20E-05 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | 1. E 00 | # T BLS | F | 1 | | **122 40** | **536 11** | **122 40** | **536 11** | **105 14** | **460 51** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | 9. E 01 | kg/MM Btu | H | 1 | | **424 550 26** | **1 859 530 16** | **424 550 26** | **1 859 530 16** | **364 681 48** | **1 597 304 88** |
| Methane | 7 828 | GHG, (112r) | 3.00E-02 | kg/MM Btu | H | 1 | | **134 92** | **590 95** | **134 92** | **590 95** | **115 89** | **507 62** |
| Nitrous ox de | 1002 972 | GHG | 5.00E-03 | kg/MM Btu | H | 1 | | **22 49** | **98 49** | **22 49** | **98 49** | **19 32** | **84 60** |
| Carbon dioxide equivalent | | GHG | | | I | 1 | | **434 624 34** | **1 903 654 60** | **434 624 34** | **1 903 654 60** | **373 334 94** | **1 635 207 03** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | 2.00E-02 | # T BLS | A | 1 | | **1 70** | **7 45** | **1 70** | **7 45** | **1 46** | **6 40** |
| Hydrogen Su fide | 778306 | NSPS, TAP | 3. E-03 | # T BLS | A | 1 | | **0 29** | **1 27** | **0 29** | **1 27** | **0 25** | **1 09** |
| To al Reduced Sulfur (as TRS) | | NSPS | 5.8E-03 | # T BLS | C | 1 | | **0 49** | **2 17** | **0 49** | **2 17** | **0 42** | **1 86** |
| To al Reduced Sulfur (as Su fur) | | NSPS | .7E-03 | # T BLS | A | 1 | | **0 40** | **1 75** | **0 40** | **1 75** | **0 34** | **1 50** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 5.0E-03 | # T BLS | D | 1 | | **0 42** | **1 86** | **0 42** | **1 86** | **0 36** | **1 60** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **15 57** | **68 21** | **15 57** | **68 21** | **13 38** | **58 59** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 6.00E-0 | # T BLS | A | 1 | | **0 05** | **0 22** | **0 05** | **0 22** | **0 04** | **0 19** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 6.00E-0 | # T BLS | A | 1 | | **0 05** | **0 22** | **0 05** | **0 22** | **0 04** | **0 19** |
| 1,2-Dichloroethane | 107062 | HAP | 6.00E-0 | # T BLS | A | 1 | | **0 05** | **0 22** | **0 05** | **0 22** | **0 04** | **0 19** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 7.70E-0 | # T BLS | A | 1 | | **0 07** | **0 29** | **0 07** | **0 29** | **0 06** | **0 25** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | tAP, TAP, (112 | .20E-0 | # T BLS | A | 1 | | **0 04** | **0 16** | **0 04** | **0 16** | **0 03** | **0 13** |
| Acetophenone | 98862 | HAP, TAP | 1.20E-02 | # T BLS | A | 1 | | **1 02** | **4 47** | **1 02** | **4 47** | **0 88** | **3 84** |
| Acrolein | 107028 | tAP, TAP, (112 | 2.60E-0 | # T BLS | A | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 08** |
| Acrylonitr le | 107131 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | 1.50E-06 | # T BLS | B | 1.20 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | 1.30E-08 | # T BLS | B | 1.32 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 6. 0E-0 | # T BLS | A | 1 | | **0 05** | **0 24** | **0 05** | **0 24** | **0 05** | **0 20** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 1.30E-08 | # T BLS | B | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | 7.10E-06 | # T BLS | B | 1.1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | tAP, TAP, (112 | 7.00E-03 | # T BLS | A | 1 | | **0 60** | **2 61** | **0 60** | **2 61** | **0 51** | **2 24** |
| Carbon tetrachloride | 56235 | HAP, TAP | 5.50E-0 | # T BLS | A | 1 | | **0 05** | **0 20** | **0 05** | **0 20** | **0 04** | **0 18** |
| Carbonyl sulf de | 63581 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 1.80E-0 | # T BLS | A | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 06** |
| Chloroform | 67663 | tAP, TAP, (112 | 2. 0E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Chloromethane | 7 873 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | 1.90E-05 | # T BLS | B | 1.31 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Chromium( 6) Compounds | | HAP, TAP | 1. 0E-05 | # T BLS | B | 1.31 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Cobalt Compounds | | HAP, TAP | 1.60E-06 | # T BLS | B | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | 1.50E-02 | # T BLS | A | 1 | | **1 28** | **5 58** | **1 28** | **5 58** | **1 10** | **4 80** |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | 1.30E-02 | # T BLS | A | 1 | | **1 11** | **4 84** | **1 11** | **4 84** | **0 95** | **4 16** |
| Ethyl ch oride | 75003 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | tAP, TAP, (112 | .80E-03 | # T BLS | A | 1 | | **0 41** | **1 79** | **0 41** | **1 79** | **0 35** | **1 54** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | tAP, TAP, (112 | 5.50E-02 | # T BLS | A | 1 | | **4 68** | **20 48** | **4 68** | **20 48** | **4 02** | **17 59** |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 1.20E-05 | # T BLS | B | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | 5.20E-05 | # T BLS | B | 1.29 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 02** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 1.80E-07 | # T BLS | B | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | 0E-02 | # T BLS | A | 1 | | **3 74** | **16 38** | **3 74** | **16 38** | **3 21** | **14 07** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 3.30E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Methyl hydrazine | 6033 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | .80E-0 | # T BLS | A | 1 | | **0 04** | **0 18** | **0 04** | **0 18** | **0 04** | **0 15** |
| m-Xylene | 108383 | HAP, TAP | 1.80E-0 | # T BLS | A | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 06** |
| Naphthalene | 91203 | HAP, TAP | 2.60E-0 | # T BLS | A | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 08** |
| n-Hexane | 1105 3 | HAP, TAP | 2.50E-0 | # T BLS | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 08** |
| Nickel Compounds | | HAP, TAP | 3.30E-05 | # T BLS | B | 1.27 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| o-Cresol | 95 87 | HAP, TAP | 1.30E-02 | # T BLS | A | 1 | | **1 11** | **4 84** | **1 11** | **4 84** | **0 95** | **4 16** |
| o-Xylene | 95 76 | HAP, TAP | 3.30E-0 | # T BLS | A | 1 | | **0 03** | **0 12** | **0 03** | **0 12** | **0 02** | **0 11** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 1.10E-02 | # T BLS | A | 1 | | **0 94** | **4 10** | **0 94** | **4 10** | **0 80** | **3 52** |
| Phosphorus | 77231 0 | HAP, TAP | 2.00E-0 | # T BLS | B | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 06** |
| Polycyclic organ c matter | | HAP, TAP | | | K | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 1.80E-0 | # T BLS | A | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 06** |
| Se enium Compounds | | HAP, TAP | 8.00E-07 | # T BLS | B | 1. 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | 5.60E-0 | # T BLS | A | 1 | | **0 05** | **0 21** | **0 05** | **0 21** | **0 04** | **0 18** |
| Tetrachloroethylene | 12718 | HAP, TAP | .80E-0 | # T BLS | A | 1 | | **0 04** | **0 18** | **0 04** | **0 18** | **0 04** | **0 15** |
| Toluene | 108883 | HAP, TAP | 3.30E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Trich oroethylene | 79016 | HAP, TAP | 6.00E-0 | # T BLS | A | 1 | | **0 05** | **0 22** | **0 05** | **0 22** | **0 04** | **0 19** |
| Vinyl acetate | 10805 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factors from NCASI Technical Bul etin 858, Tab e 1 A.
B) Emission factors from NCASI Technical Bul etin 858, Tab e 1 B.
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Emission factor from NCASI Technical Bulletin 88 , Table .12.
F) Emission factors from NCASI Techn cal Bu le in 1020, Table .12.
G) Em ssion factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC species.
H) Em ssion factor for north american softwood kra t pulping iquor in EPA MRR, Table AA-1, TBLS converted to MM Btu assuming 6,000 Btu/lb BLS.
I) Emission factor based on GWP in EPA MRR, Table A-1.
J) VOC emiss ons are sum of individual spec ated VOC.
K) Sum of spec ated POM and PAH.

9. NOTES:

Em ssion factor of zero (0.00E 00) indicates pollutant was tested for and not detected above quantitation limit.
Em ssion Factors for references G, H, I and J converted from #/ADTP to #/T BLS assuming 3500 # BLS/ADTP.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 3 - B ack L quor So ids | 2,0 0 | Ton BLS/Day | 1,752 | Ton BLS/Day | 2 | 7 | 365 | 365 |

AEI Group ID = 007, Process Unit D = 6
Ti le V Unit D = 07, Equipment ID = 5105

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 3. 0E-03 | # T BLS | A | 1 | | **0 29** | **1 27** | **0 29** | **1 27** | **0 25** | **1 09** |
| Methyl mercaptan | | | 1.50E-03 | # T BLS | A | 1 | | **0 13** | **0 56** | **0 13** | **0 56** | **0 11** | **0 48** |
| dimethyl d su fide | | | 2. 0E-0 | # T BLS | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 08** |
| dimethyl suff de | | | 6.80E-0 | # T BLS | A | 1 | | **0 06** | **0 25** | **0 06** | **0 25** | **0 05** | **0 22** |
| To al Other Air Pollutants | | | | | | 1 | | **2 14** | **9 35** | **2 14** | **9 35** | **1 83** | **8 03** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 2.10E-03 | # T BLS | A | 1 | | **0 18** | **0 78** | **0 18** | **0 78** | **0 15** | **0 67** |
| alpha-pinene | | | 1.50E-03 | # T BLS | A | 1 | | **0 13** | **0 56** | **0 13** | **0 56** | **0 11** | **0 48** |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | 1.70E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| benzaldehyde | | | 3.50E-03 | # T BLS | A | 1 | | **0 30** | **1 30** | **0 30** | **1 30** | **0 26** | **1 12** |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | 9.80E-0 | # T BLS | A | 1 | | **0 08** | **0 36** | **0 08** | **0 36** | **0 07** | **0 31** |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | 2.10E-05 | # T BLS | B | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 5.50E-03 | # T BLS | A | 1 | | **0 47** | **2 05** | **0 47** | **2 05** | **0 40** | **1 76** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | 7.00E-03 | # T BLS | A | 1 | | **0 60** | **2 61** | **0 60** | **2 61** | **0 51** | **2 24** |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 9. 0E-0 | # T BLS | A | 1 | | **0 08** | **0 35** | **0 08** | **0 35** | **0 07** | **0 30** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | 1.20E-03 | # T BLS | A | 1 | | **0 10** | **0 45** | **0 10** | **0 45** | **0 09** | **0 38** |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | .10E-06 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 2.30E-03 | # T BLS | B | 1 | | **0 20** | **0 86** | **0 20** | **0 86** | **0 17** | **0 74** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | .30E-07 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | 5.80E-05 | # T BLS | B | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 02** |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 3 - Natural Gas | 370 | MM Btu/hr | 1 | MM Btu/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit D = 7 | | | | | | | | |
| Ti le V Unit D = 07, Equipment ID = 5105 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 1.90E-03 | #/MM Btu | B | 1 | | **0 70** | **3 08** | **0 70** | **3 08** | **0 00** | **0 01** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.90E-03 | #/MM Btu | E | 1 | | **0 70** | **3 08** | **0 70** | **3 08** | **0 00** | **0 01** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 1.90E-03 | #/MM Btu | E | 1 | | **0 70** | **3 08** | **0 70** | **3 08** | **0 00** | **0 01** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 5.70E-03 | #/MM Btu | B | 1 | | **2 11** | **9 24** | **2 11** | **9 24** | **0 01** | **0 02** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **2 81** | **12 32** | **2 81** | **12 32** | **0 01** | **0 03** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **2 81** | **12 32** | **2 81** | **12 32** | **0 01** | **0 03** |
| Su fur dioxide | 7 6095 | Cr teria | 6.00E-0 | #/MM Btu | B | 1 | | **0 22** | **0 97** | **0 22** | **0 97** | **0 00** | **0 00** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 5.50E-03 | #/MM Btu | B | 1 | | **2 04** | **8 91** | **2 04** | **8 91** | **0 00** | **0 02** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 5.50E-03 | #/MM Btu | F | 2.5 | | **5 09** | **22 28** | **5 09** | **22 28** | **0 01** | **0 05** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | G | 1 | | **3 94** | **17 25** | **3 94** | **17 25** | **0 01** | **0 04** |
| Carbon monox de | | Cr teria | 8. 0E-02 | #/MM Btu | A | 1 | | **31 08** | **136 13** | **31 08** | **136 13** | **0 07** | **0 33** |
| Lead | | Cr teria | 5.00E-07 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | 2.80E-01 | #/MM Btu | A | 1 | | **103 60** | **453 77** | **103 60** | **453 77** | **0 25** | **1 09** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 5 30E 01 | kg/MM Btu | I | 1 | | **43 248 24** | **189 427 28** | **43 248 24** | **189 427 28** | **104 31** | **456 88** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methane | 7 828 | GHG, (112r) | 1.00E-03 | kg/MM Btu | I | 1 | | **0 82** | **3 57** | **0 82** | **3 57** | **0 00** | **0 01** |
| Nitrous ox de | 1002 972 | GHG | 1.00E-0 | kg/MM Btu | I | 1 | | **0 08** | **0 36** | **0 08** | **0 36** | **0 00** | **0 00** |
| Carbon dioxide equivalent | | GHG | | | J | 1 | | **43 292 94** | **189 623 06** | **43 292 94** | **189 623 06** | **104 42** | **457 35** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 80** | **3 48** | **0 80** | **3 48** | **0 00** | **0 01** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | 2.00E-07 | #/MM Btu | H | 1.32 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 8E-06 | #/MM Btu | D | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 1.20E-08 | #/MM Btu | H | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | 1.10E-06 | #/MM Btu | H | 1.1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | 1. 0E-06 | #/MM Btu | H | 1.31 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | 8. 0E-08 | #/MM Btu | H | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112 | 3.33E-0 | #/MM Btu | D | 1 | | **0 12** | **0 54** | **0 12** | **0 54** | **0 00** | **0 00** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 5.00E-07 | #/MM Btu | B | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | 3.80E-07 | #/MM Btu | H | 1.29 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 2.60E-07 | #/MM Btu | H | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | 6.10E-07 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| n-Hexane | 1105 3 | HAP, TAP | 1.80E-03 | #/MM Btu | C | 1 | | **0 67** | **2 92** | **0 67** | **2 92** | **0 00** | **0 01** |
| Nickel Compounds | | HAP, TAP | 2.10E-06 | #/MM Btu | H | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | K | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | 2. 0E-08 | #/MM Btu | H | 1. 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | 3. 0E-06 | #/MM Btu | C | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factors from AP- 2 or Uncontrol ed Ut lity/Large Industrial Natural Gas-fired Bo lers - Table 1. -1.
B) Emission factors from AP- 2 or Uncontrol ed Ut lity/Large Industrial Natural Gas-fired Bo lers - Table 1. -2.
C) Emission factors from AP- 2 for Uncontrolled Ut lity/Large Industr al Natural Gas-fired Bo lers - Table 1. -3.
D) Highest emiss on ac ors from NCASI Techn cal Bu le in No. 650 (Table c), Natural Gas-fired Ut lity Bo lers.
E) All particulte matter assumed to be less than 2.5, per AP- 2.
F) Primary VOC assumed to be formaldehyde.
G) VOC em ssions are sum of individual speciated VOC.
H) Emission factors from AP- 2 for Uncontrolled Natural Gas-fired Boi ers - Table 1. - .
I) Emission factor for natural gas combus ion in EPA MRR, Table C-1 and C-2.
J) Emiss on factor based on GWP in EPA MRR, Tab e A-1.
K) Sum of spec ated POM and PAH.

9. NOTES:
Natural gas heating value 1 000 Btu/cf.

Em ssion factors for reference D converted from #/MM Btu to #/T BLS assuming 6 000 Btu/# BLS.
Em ssion factors for references E, F, G and H converted from #/10^3 gal o l to #/T BLS assuming 150,000 Btu gal oil and 6 000 Btu/# BLS.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 3 - Natural Gas | 370 | MM Btu/hr | 1 | MM Btu/hr | 2 | 7 | 365 | 365 |

AEI Group ID = 007, Process Unit D = 7
Ti le V Unit D = 07, Equipment ID = 5105

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| hydrogen sulf de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl sulf de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | **4 31** | **18 86** | **4 31** | **18 86** | **0 01** | **0 05** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | 2 0E-08 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acenaphthy ene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | 1.57E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| barium | | | 0E-06 | #/MM Btu | H | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)pyrene (POM) | | | 1.65E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(b)fluoranthene (POM) | | | 1.59E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(gh )perylene (POM) | | | 1.53E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(k)fluoranthene (POM) | | | 1 9E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | 2.10E-03 | #/MM Btu | C | 1 | | **0 78** | **3 40** | **0 78** | **3 40** | **0 00** | **0 01** |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| copper | | | 8.50E-07 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | 1.20E-06 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | 3.10E-03 | #/MM Btu | C | 1 | | **1 15** | **5 02** | **1 15** | **5 02** | **0 00** | **0 01** |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | 3.00E-09 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluorene (POM) | | | 2.80E-09 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | 1 9E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | 1.10E-06 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | 2.20E-03 | #/MM Btu | B | 1 | | **0 81** | **3 57** | **0 81** | **3 57** | **0 00** | **0 01** |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | 8E-08 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | 2.60E-03 | #/MM Btu | C | 1 | | **0 96** | **4 21** | **0 96** | **4 21** | **0 00** | **0 01** |
| phenanthrene (POM) | | | 1.70E-08 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | 1.60E-03 | #/MM Btu | C | 1 | | **0 59** | **2 59** | **0 59** | **2 59** | **0 00** | **0 01** |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | 5.00E-09 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | 2.30E-06 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | 2.90E-05 | #/MM Btu | H | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 3 - Residual Oil | 360 | MM Btu/hr | 6 | MM Btu/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit D = 5 | | | | | | | | |
| Ti le V Unit D = 07, Equipment ID = 5105 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 1.22E-03 | #/MM Btu | G | 1 | 99% | **43 77** | **191 71** | **0 44** | **1 92** | **0 01** | **0 03** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 7.62E-0 | #/MM Btu | G | 1 | 99% | **27 44** | **120 18** | **0 27** | **1 20** | **0 00** | **0 02** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 5.08E-0 | #/MM Btu | G | 1 | 99% | **18 29** | **80 12** | **0 18** | **0 80** | **0 00** | **0 01** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 1.00E-02 | #/MM Btu | M | 1 | | **3 60** | **15 77** | **3 60** | **15 77** | **0 06** | **0 25** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | **31 04** | **135 95** | **3 87** | **16 97** | **0 06** | **0 27** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | **21 89** | **95 89** | **3 78** | **16 57** | **0 06** | **0 26** |
| Su fur dioxide | 7 6095 | Cr teria | 2 20E 00 | #/MM Btu | E | 1 | | **791 28** | **3 465 81** | **791 28** | **3 465 81** | **12 36** | **54 13** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 5.07E-03 | #/MM Btu | F | 1 | | **1 82** | **7 99** | **1 82** | **7 99** | **0 03** | **0 12** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 5.07E-03 | #/MM Btu | O | 2.5 | | **4 56** | **19 97** | **4 56** | **19 97** | **0 07** | **0 31** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | R | 1 | | **0 18** | **0 77** | **0 18** | **0 77** | **0 00** | **0 01** |
| Carbon monox de | | Cr teria | 3.33E-02 | #/MM Btu | E | 1 | | **12 00** | **52 56** | **12 00** | **52 56** | **0 19** | **0 82** |
| Lead | | Cr teria | 2.80E-05 | #/MM Btu | K | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | 3.13E-01 | #/MM Btu | E | 1 | | **112 80** | **494 06** | **112 80** | **494 06** | **1 76** | **7 72** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 7 51E 01 | kg/MM Btu | P | 1 | | **59 603 17** | **261 061 90** | **59 603 17** | **261 061 90** | **930 94** | **4 077 51** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | | | | | |
| Methane | 7 828 | GHG, (112r) | 3.00E-03 | kg/MM Btu | P | 1 | | **2 38** | **10 43** | **2 38** | **10 43** | **0 04** | **0 16** |
| Nitrous ox de | 1002 972 | GHG | 6.00E-0 | kg/MM Btu | P | 1 | | **0 48** | **2 09** | **0 48** | **2 09** | **0 01** | **0 03** |
| Carbon dioxide equivalent | | GHG | | | Q | 1 | | **59 804 60** | **261 944 16** | **59 804 60** | **261 944 16** | **934 08** | **4 091 29** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | 7.98E-02 | #/MM Btu | N | 1.23 | | **35 19** | **154 14** | **35 19** | **154 14** | **0 55** | **2 41** |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **1 72** | **7 53** | **1 72** | **7 53** | **0 03** | **0 12** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 1.57E-06 | #/MM Btu | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | 3.50E-05 | #/MM Btu | J | 1.20 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | 2.00E-05 | #/MM Btu | L | 1.32 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 3.00E-06 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 2.10E-07 | #/MM Btu | L | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | 3.0 E-05 | #/MM Btu | L | 1.1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112 | 2.31E-03 | #/MM Btu | J | 1 | | **0 83** | **3 65** | **0 83** | **3 65** | **0 01** | **0 06** |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | 5.63E-06 | #/MM Btu | J | 1.31 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | .0 E-06 | #/MM Btu | L | 1.31 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Cobalt Compounds | | HAP, TAP | .01E-05 | #/MM Btu | J | 1.27 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | .2 E-07 | #/MM Btu | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Ethyl ch oride | 75003 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112 | .07E-0 | #/MM Btu | H | 1 | | **0 15** | **0 64** | **0 15** | **0 64** | **0 00** | **0 01** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | 2. 9E-0 | #/MM Btu | J | 1.05 | | **0 09** | **0 41** | **0 09** | **0 41** | **0 00** | **0 01** |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 2.80E-05 | #/MM Btu | K | 1.08 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | 2.60E-05 | #/MM Btu | L | 1.29 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 6.15E-05 | #/MM Btu | L | 1.08 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | 1.21E-05 | #/MM Btu | L | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 00** |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | 1.06E-03 | #/MM Btu | L | 1.27 | | **0 49** | **2 13** | **0 49** | **2 13** | **0 01** | **0 03** |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 7.27E-07 | #/MM Btu | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | 6.31E-05 | #/MM Btu | J | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 00** | **0 00** |
| Polycyclic organ c matter | | HAP, TAP | 8.67E-06 | #/MM Btu | H | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | 1.1 E-05 | #/MM Btu | L | 1. 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | .13E-05 | #/MM Btu | I | 1 | | **0 01** | **0 07** | **0 01** | **0 07** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | MAP, TAP, (112 | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factors from AP- 2 or Uncontrol ed Ut lity/Large Industrial Natural Gas-fired Bo lers - Table 1. -1.
B) Emission factors from AP- 2 or Uncontrol ed Ut lity/Large Industrial Natural Gas-fired Bo lers - Table 1. -2.
C) Emission factors from AP- 2 for Uncontrolled Ut lity/Large Industr al Natural Gas-fired Bo lers - Table 1. -3.
D) Highest emiss on ac ors from NCASI Techn cal Bu le in No. 650 (Table c), Natural Gas-fired Ut lity Bo lers.
E) Maximum em ssion factors from AP- 2 for Uncontro led Residual Oil-fired Uti ity Bo lers Table 1.3-1; assumes 2.1% S.
F) Maximum em ssion factors from AP- 2 for Uncontrolled Residual O l-fired Ut lity Bo lers - Table 1.3-3.
G) Maximum emiss on ac ors from AP- 2 for Residual O l-fired Ut lity Boilers with ESP's Table 1.3- : assumes 2.1% Sulfur.
H) Maximum emiss on factors from AP- 2 for Uncontro led Res dual Oil-fired Uti ity Boi ers - Table 1.3-8.
I) Maximum em ssion factors from AP- 2 for Uncontrolled Residual O l-fired Ut lity Bo lers - Table 1.3-9 (PCDD is OCDD).
J) Maximum emission factors from AP- 2 or Uncontrol ed Residual Oil-fired U il ty Boilers - Tab e 1.3-11.
K) Emission factor from U.S. EPA document Estimating Air Toxic Emissions from Coal and Oil Combust on Sources [EPA- 50/2-89-001] or Uncontrol ed Residual Oil-fired U il ty Boilers (Tab e -1).
L) H ghest em ssion factors from NCASI Technical Bul etin No. 650 (Tab e b), Residual O l-fired Ut lity Boilers.
M) PM-10 and PM-2.5 rat o based on AP- 2, Table 1.3- .
N) Maximum SO3 em ssion factor from AP- 2 or Uncontrol ed Residual Oil-fired U il ty Boilers Tab e 1 3-1: assumes 2.1% S. Process var ab ity factor adjusts SO3 to H2SO .
O) Primary VOC assumed to be formaldehyde.
P) Emission factor for kerosene combustion in EPA MRR, Tab e C-1 and C-2.
Q) Em ssion factor based on GWP in EPA MRR, Table A-1.
R) VOC em ssions are sum of indiv dual specia ed VOC.

9. NOTES:
Residual oil heating value 150,000 Btu/gal.

Em ssion factors for reference D converted from #/MM Btu to #/T BLS assuming 6 000 Btu/# BLS.
Em ssion factors for references E, F, G and H converted from #/10^3 gal o l to #/T BLS assuming 150,000 Btu gal oil and 6 000 Btu/# BLS.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Recovery Furnace 3 - Residual Oil | 360 | MM Btu/hr | 6 | MM Btu/hr | 2 | 7 | 365 | 365 |

AEI Group ID = 007, Process Unit D = 5
Ti le V Unit D = 07, Equipment ID = 5105

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| hydrogen sulf de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl sulf de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | **0 27** | **1 19** | **0 27** | **1 19** | **0 00** | **0 02** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | 1. 1E-07 | #/MM Btu | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acenaphthy ene (POM) | | | 9.22E-09 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | 1. 3E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| barium | | | 1.71E-05 | #/MM Btu | J | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 00** |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | 1.02E-07 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)pyrene (POM) | | | 9.22E-09 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(b)fluoranthene (POM) | | | 3.65E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(gh )perylene (POM) | | | 6.95E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(k)fluoranthene (POM) | | | 3.65E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | 1.75E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| copper | | | 1.65E-05 | #/MM Btu | L | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | 2. 7E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | 3.23E-08 | #/MM Btu | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluorene (POM) | | | 3.15E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | 6.25E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | 5.25E-06 | #/MM Btu | J | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | 5.29E-05 | #/MM Btu | L | 1 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 00** | **0 00** |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | 1.08E-07 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polych orinated dibenzo-p-dioxins | | | 2.07E-11 | #/MM Btu | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | 3.17E-08 | #/MM Btu | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | 2.12E-0 | #/MM Btu | J | 1 | | **0 08** | **0 33** | **0 08** | **0 33** | **0 00** | **0 01** |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | .50E-0 | #/MM Btu | L | 1 | | **0 16** | **0 71** | **0 16** | **0 71** | **0 00** | **0 01** |
| zirconium | | | | | | 1 | | | | | | | |

**CONFIDENTIAL Alternate Form D 2943 Emission Data for Regulated Pollutants**

| 1. & 2. PROCESS EMISSION SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Smelt Tank 2 | 1,129 | Ton BLS/Day | 930 | Ton BLS/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit ID = 8 | | | | | | | | |
| Title V Unit ID = 07, Equipment ID = 2510 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 1.50E-01 | # T BLS | F | 1 | 98% | **352 81** | **1 545 32** | **7 06** | **30 91** | **5 81** | **25 47** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.50E-01 | # T BLS | F | 1 | 98% | **352 81** | **1 545 32** | **7 06** | **30 91** | **5 81** | **25 47** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 1.50E-01 | # T BLS | F | 1 | 98% | **352 81** | **1 545 32** | **7 06** | **30 91** | **5 81** | **25 47** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 1.20E-02 | # T BLS | F | 1 | | **0 56** | **2 47** | **0 56** | **2 47** | **0 47** | **2 04** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **353 38** | **1 547 79** | **7 62** | **33 38** | **6 28** | **27 50** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **353 38** | **1 547 79** | **7 62** | **33 38** | **6 28** | **27 50** |
| Su fur dioxide | 7 6095 | Cr teria | 6.00E-03 | # T BLS | F | 1 | | **0 28** | **1 24** | **0 28** | **1 24** | **0 23** | **1 02** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 1.00E-02 | # T BLS | F | 1 | | **0 47** | **2 06** | **0 47** | **2 06** | **0 39** | **1 70** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 2.51E-02 | # T BLS | G | 1 | | **1 18** | **5 18** | **1 18** | **5 18** | **0 97** | **4 26** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | H | 1 | | **1 55** | **6 80** | **1 55** | **6 80** | **1 28** | **5 60** |
| Carbon monox de | | Cr teria | 8.00E-03 | # T BLS | F | 1 | | **0 38** | **1 65** | **0 38** | **1 65** | **0 31** | **1 36** |
| Lead | | Cr teria | 3. 0E-06 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | 2.00E-02 | # T BLS | E | 1 | | **0 94** | **4 12** | **0 94** | **4 12** | **0 78** | **3 40** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 6.0E-03 | # T BLS | A | 1 | | **0 28** | **1 24** | **0 28** | **1 24** | **0 23** | **1 02** |
| To al Reduced Sulfur (as TRS) | | NSPS | 7.9E-03 | # T BLS | A | 1 | | **0 37** | **1 63** | **0 37** | **1 63** | **0 31** | **1 35** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 6.9E-03 | # T BLS | A | 1 | | **0 32** | **1 42** | **0 32** | **1 42** | **0 27** | **1 17** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 7.3E-03 | # T BLS | D | 1 | | **0 34** | **1 51** | **0 34** | **1 51** | **0 28** | **1 24** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 92** | **4 03** | **0 92** | **4 03** | **0 76** | **3 32** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 5.90E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 6.70E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | .10E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 2.60E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | 1.80E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-Ch oroace ophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrach orodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | 2.80E-0 | # T BLS | A | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 05** |
| Acetophenone | 98862 | HAP, TAP | 9.50E-0 | # T BLS | A | 1 | | **0 04** | **0 20** | **0 04** | **0 20** | **0 04** | **0 16** |
| Acrolein | 107028 | HAP, TAP, (112 | 7.50E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | 2.20E-07 | # T BLS | B | 1.20 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | 1. 0E-08 | # T BLS | B | 1.32 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 5.50E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 1.80E-07 | # T BLS | B | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | 1.00E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | 1.30E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cadmium Compounds | | HAP, TAP | 9.50E-07 | # T BLS | B | 1.1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | HAP, TAP, (112 | 2.50E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon tetrachloride | 56235 | HAP, TAP | 1.90E-0 | # T BLS | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Carbonyl sulf de | 63581 | HAP, TAP, (112 | 2. 0E-0 | # T BLS | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 2.00E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112 | 2.30E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | HAP, TAP, (112 | 1.10E-0 | # T BLS | A | 1 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 02** |
| Chromium Compounds | | HAP | 3.70E-06 | # T BLS | B | 1.31 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | 3. 0E-06 | # T BLS | B | 1.31 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cobalt Compounds | | HAP, TAP | 3.10E-07 | # T BLS | B | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | 2.90E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | 2.50E-0 | # T BLS | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| Ethylbenzene | 100 1 | HAP, TAP | 1.50E-08 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | 3.50E-03 | # T BLS | A | 1 | | **0 16** | **0 72** | **0 16** | **0 72** | **0 14** | **0 59** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | 1.10E-0 | # T BLS | A | 1 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 02** |
| Hexachloroethane | 67721 | HAP, TAP | 1.90E-03 | # T BLS | A | 1 | | **0 09** | **0 39** | **0 09** | **0 39** | **0 07** | **0 32** |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | .20E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 3. 0E-06 | # T BLS | B | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | 1.30E-05 | # T BLS | B | 1.29 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 9.00E-09 | # T BLS | B | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | 9.30E-03 | # T BLS | A | 1 | | **0 44** | **1 92** | **0 44** | **1 92** | **0 36** | **1 58** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 3.00E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 8.30E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Xylene | 108383 | HAP, TAP | .70E-08 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | 5.00E-0 | # T BLS | A | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 08** |
| n-Hexane | 1105 3 | HAP, TAP | 5.90E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | 2. 0E-06 | # T BLS | B | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-Cresol | 95 87 | HAP, TAP | 8.50E-0 | # T BLS | A | 1 | | **0 04** | **0 18** | **0 04** | **0 18** | **0 03** | **0 14** |
| o-Xylene | 95 76 | HAP, TAP | 1.90E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 7.50E-0 | # T BLS | A | 1 | | **0 04** | **0 15** | **0 04** | **0 15** | **0 03** | **0 13** |
| Phosphorus | 77231 0 | HAP, TAP | 1.70E-05 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Polycyclic organ c matter | | HAP, TAP | | | I | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 05** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | .70E-08 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | 2.90E-07 | # T BLS | B | 1. 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | 1.20E-0 | # T BLS | A | 1 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 02** |
| Tetrachloroethylene | 12718 | HAP, TAP | 3.70E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | 1.80E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 1.50E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | HAP, TAP, (112 | .0E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factors from NCASI Technical Bul etin 858, Tab e 17A.
B) Emission factors from NCASI Technical Bul etin 858, Tab e 17B.
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an emiss ons.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Emission factor from NCASI Technical Bulletin 88 , Table .15.
F) Emission factors from NCASI Techn cal Bu le in 1020, Table .15.
G) Em sion factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC species.
H) VOC em ssions are sum of indiv dual specia ed VOC.
I) Sum of speciated POM and PAH.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Smelt Tank 2 | 1,129 | Ton BLS/Day | 930 | Ton BLS/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit D = 8 | | | | | | | | |
| Ti le V Unit D = 07, Equipment ID = 2510 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 6.00E-03 | # T BLS | A | 1 | | **0 28** | **1 24** | **0 28** | **1 24** | **0 23** | **1 02** |
| Methyl mercaptan | | | 1. 0E-03 | # T BLS | A | 1 | | **0 07** | **0 29** | **0 07** | **0 29** | **0 05** | **0 24** |
| dimethyl d su fide | | | .70E-0 | # T BLS | A | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 08** |
| dimethyl suff de | | | 6.20E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| To al Other Air Pollutants | | | | | | 1 | | **6 35** | **27 81** | **6 35** | **27 81** | **5 23** | **22 92** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 1.80E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | 3.90E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | 1.50E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 3-carene | | | 7.70E-03 | # T BLS | A | 1 | | **0 36** | **1 59** | **0 36** | **1 59** | **0 30** | **1 31** |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | .80E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| alpha-pinene | | | .60E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | 2.90E-0 | # T BLS | A | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 05** |
| ammonia | 766 17 | (112r) | 1.20E-01 | # T BLS | A | 1 | | **5 65** | **24 73** | **5 65** | **24 73** | **4 65** | **20 37** |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | 5.80E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzaldehyde | | | 8.90E-05 | # T BLS | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 02** |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | 3.00E-03 | # T BLS | A | 1 | | **0 14** | **0 62** | **0 14** | **0 62** | **0 12** | **0 51** |
| beta-pinene | | | 1.10E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | .20E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | 1.20E-05 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | 1.30E-0 | # T BLS | A | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 01** | **0 02** |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 1.80E-0 | # T BLS | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | 2.00E-0 | # T BLS | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | 1.30E-03 | # T BLS | A | 1 | | **0 06** | **0 27** | **0 06** | **0 27** | **0 05** | **0 22** |
| isovaleraldehyde | | | 2.10E-0 | # T BLS | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 04** |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 1. 0E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | .60E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | .60E-0 | # T BLS | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 08** |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | .00E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | 1.00E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | .60E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | 2.10E-06 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 3.50E-0 | # T BLS | A | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 06** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | 3.00E-06 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | 3.70E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | 5.80E-0 | # T BLS | A | 1 | | **0 03** | **0 12** | **0 03** | **0 12** | **0 02** | **0 10** |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | 1.10E-0 | # T BLS | B | 1 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 02** |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Smelt Tank 3 | 2.0 0 | Ton BLS/Day | 1,752 | Ton BLS/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit D = 9 | | | | | | | | |
| Ti le V Unit D = 07, Equipment ID = 5110 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 1.50E-01 | # T BLS | F | 1 | 98% | **637 50** | **2 792 25** | **12 75** | **55 85** | **10 95** | **47 97** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.50E-01 | # T BLS | F | 1 | 98% | **637 50** | **2 792 25** | **12 75** | **55 85** | **10 95** | **47 97** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 1.50E-01 | # T BLS | F | 1 | 98% | **637 50** | **2 792 25** | **12 75** | **55 85** | **10 95** | **47 97** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 1.20E-02 | # T BLS | F | 1 | | **1 02** | **4 47** | **1 02** | **4 47** | **0 88** | **3 84** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **638 52** | **2 796 72** | **13 77** | **60 31** | **11 83** | **51 81** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **638 52** | **2 796 72** | **13 77** | **60 31** | **11 83** | **51 81** |
| Su fur dioxide | 7 6095 | Cr teria | 6.00E-03 | # T BLS | F | 1 | | **0 51** | **2 23** | **0 51** | **2 23** | **0 44** | **1 92** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 1.00E-02 | # T BLS | F | 1 | | **0 85** | **3 72** | **0 85** | **3 72** | **0 73** | **3 20** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 2.51E-02 | # T BLS | G | 1 | | **2 13** | **9 35** | **2 13** | **9 35** | **1 83** | **8 03** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | H | 1 | | **2 80** | **12 28** | **2 80** | **12 28** | **2 41** | **10 55** |
| Carbon monox de | | Cr teria | 8.00E-03 | # T BLS | F | 1 | | **0 68** | **2 98** | **0 68** | **2 98** | **0 58** | **2 56** |
| Lead | | Cr teria | 3. 0E-06 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | 2.00E-02 | # T BLS | E | 1 | | **1 70** | **7 45** | **1 70** | **7 45** | **1 46** | **6 40** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 6.0E-03 | # T BLS | A | 1 | | **0 51** | **2 23** | **0 51** | **2 23** | **0 44** | **1 92** |
| To al Reduced Sulfur (as TRS) | | NSPS | 7.9E-03 | # T BLS | A | 1 | | **0 67** | **2 95** | **0 67** | **2 95** | **0 58** | **2 54** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 6.9E-03 | # T BLS | A | 1 | | **0 59** | **2 57** | **0 59** | **2 57** | **0 50** | **2 21** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 7.3E-03 | # T BLS | D | 1 | | **0 62** | **2 73** | **0 62** | **2 73** | **0 54** | **2 34** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **1 66** | **7 29** | **1 66** | **7 29** | **1 43** | **6 26** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 5.90E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 6.70E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | .10E-05 | # T BLS | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 2.60E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | 1.80E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrach orodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | tAP, TAP, (112 | 2.80E-0 | # T BLS | A | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 09** |
| Acetophenone | 98862 | HAP, TAP | 9.50E-0 | # T BLS | A | 1 | | **0 08** | **0 35** | **0 08** | **0 35** | **0 07** | **0 30** |
| Acrolein | 107028 | tAP, TAP, (112 | 7.50E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | 2.20E-07 | # T BLS | B | 1.20 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | 1. 0E-08 | # T BLS | B | 1.32 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 5.50E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 1.80E-07 | # T BLS | B | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | 1.00E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | 1.30E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cadmium Compounds | | HAP, TAP | 9.50E-07 | # T BLS | B | 1.1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | tAP, TAP, (112 | 2.50E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon tetrachloride | 56235 | HAP, TAP | 1.90E-0 | # T BLS | A | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 06** |
| Carbonyl sulf de | 63581 | tAP, TAP, (112 | 2. 0E-0 | # T BLS | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 08** |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 2.00E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | tAP, TAP, (112 | 2.30E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | tAP, TAP, (112 | 1.10E-0 | # T BLS | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 04** |
| Chromium Compounds | | HAP | 3.70E-06 | # T BLS | B | 1.31 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | 3. 0E-06 | # T BLS | B | 1.31 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cobalt Compounds | | HAP, TAP | 3.10E-07 | # T BLS | B | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | 2.90E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | 2.50E-0 | # T BLS | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 08** |
| Ethylbenzene | 100 1 | HAP, TAP | 1.50E-08 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Ethyl ch oride | 75003 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | tAP, TAP, (112 | 3.50E-03 | # T BLS | A | 1 | | **0 30** | **1 30** | **0 30** | **1 30** | **0 26** | **1 12** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | 1.10E-0 | # T BLS | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 04** |
| Hexachloroethane | 67721 | HAP, TAP | 1.90E-03 | # T BLS | A | 1 | | **0 16** | **0 71** | **0 16** | **0 71** | **0 14** | **0 61** |
| Hydrochlor c ac d | 76 7010 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | .20E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 3. 0E-06 | # T BLS | B | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | 1.30E-05 | # T BLS | B | 1.29 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 9.00E-09 | # T BLS | B | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | 9.30E-03 | # T BLS | A | 1 | | **0 79** | **3 46** | **0 79** | **3 46** | **0 68** | **2 97** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 3.00E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 8.30E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Xylene | 108383 | HAP, TAP | .70E-08 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | 5.00E-0 | # T BLS | A | 1 | | **0 04** | **0 19** | **0 04** | **0 19** | **0 04** | **0 16** |
| n-Hexane | 1105 3 | HAP, TAP | 5.90E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | 2. 0E-06 | # T BLS | B | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-Cresol | 95 87 | HAP, TAP | 8.50E-0 | # T BLS | A | 1 | | **0 07** | **0 32** | **0 07** | **0 32** | **0 06** | **0 27** |
| o-Xylene | 95 76 | HAP, TAP | 1.90E-07 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 7.50E-0 | # T BLS | A | 1 | | **0 06** | **0 28** | **0 06** | **0 28** | **0 05** | **0 24** |
| Phosphorus | 77231 0 | HAP, TAP | 1.70E-05 | # T BLS | B | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Polycyclic organ c matter | | HAP, TAP | | | I | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 09** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | .70E-08 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | 2.90E-07 | # T BLS | B | 1. 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | 1.20E-0 | # T BLS | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 04** |
| Tetrachloroethylene | 12718 | HAP, TAP | 3.70E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | 1.80E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 1.50E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | tAP, TAP, (112 | .0E-05 | # T BLS | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factors from NCASI Technical Bul etin 858, Tab e 17A.
B) Emission factors from NCASI Technical Bul etin 858, Tab e 17B.
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an emiss ons.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Emission factor from NCASI Technical Bulletin 88 , Table .15.
F) Emission factors from NCASI Techn cal Bu le in 1020, Table .15.
G) Em ssion factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC species.
H) VOC em ssions are sum of indiv dual specia ed VOC.
I) Sum of speciated POM and PAH.

9. NOTES:

Maximum productio s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Smelt Tank 3 | 2,0 0 | Ton BLS/Day | 1,752 | Ton BLS/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit D = 9 | | | | | | | | |
| Ti le V Unit D = 07, Equipment ID = 5110 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 6.00E-03 | # T BLS | A | 1 | | **0 51** | **2 23** | **0 51** | **2 23** | **0 44** | **1 92** |
| Methyl mercaptan | | | 1. 0E-03 | # T BLS | A | 1 | | **0 12** | **0 52** | **0 12** | **0 52** | **0 10** | **0 45** |
| dimethyl d su fide | | | .70E-0 | # T BLS | A | 1 | | **0 04** | **0 17** | **0 04** | **0 17** | **0 03** | **0 15** |
| dimethyl suff de | | | 6.20E-05 | # T BLS | A | 1 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 02** |
| To al Other Air Pollutants | | | | | | 1 | | **11 47** | **50 25** | **11 47** | **50 25** | **9 86** | **43 17** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 1.80E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | 3.90E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | 1.50E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| 3-carene | | | 7.70E-03 | # T BLS | A | 1 | | **0 65** | **2 87** | **0 65** | **2 87** | **0 56** | **2 46** |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | .80E-05 | # T BLS | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 02** |
| alpha-pinene | | | .60E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| alpha-terpinene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | 2.90E-0 | # T BLS | A | 1 | | **0 02** | **0 11** | **0 02** | **0 11** | **0 02** | **0 09** |
| ammonia | 766 17 | (112r) | 1.20E-01 | # T BLS | A | 1 | | **10 20** | **44 68** | **10 20** | **44 68** | **8 76** | **38 38** |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | 5.80E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzaldehyde | | | 8.90E-05 | # T BLS | A | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 01** | **0 03** |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | 3.00E-03 | # T BLS | A | 1 | | **0 26** | **1 12** | **0 26** | **1 12** | **0 22** | **0 96** |
| beta-pinene | | | 1.10E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | .20E-05 | # T BLS | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | 1.20E-05 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | 1.30E-0 | # T BLS | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 1.80E-0 | # T BLS | A | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 06** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | 2.00E-0 | # T BLS | A | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 06** |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | 1.30E-03 | # T BLS | A | 1 | | **0 11** | **0 48** | **0 11** | **0 48** | **0 09** | **0 42** |
| isovaleraldehyde | | | 2.10E-0 | # T BLS | A | 1 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 02** | **0 07** |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 1. 0E-06 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | .60E-05 | # T BLS | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | .60E-0 | # T BLS | A | 1 | | **0 04** | **0 17** | **0 04** | **0 17** | **0 03** | **0 15** |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | .00E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | 1.00E-05 | # T BLS | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | .60E-05 | # T BLS | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | 2.10E-06 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 3.50E-0 | # T BLS | A | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 03** | **0 11** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | 3.00E-06 | # T BLS | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | 3.70E-05 | # T BLS | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | 5.80E-0 | # T BLS | A | 1 | | **0 05** | **0 22** | **0 05** | **0 22** | **0 04** | **0 19** |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | 1.10E-0 | # T BLS | B | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 04** |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Lime K ln 2 | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit ID = 10 | 1 1 | MM Btu/hr | 10 | MM Btu/hr | | | | |
| Ti le V Unit D = 07, Equipment ID = 2723 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | REFERENCE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | 9.00E-02 | #/T CaO | F | 1 | 99% | **174 38** | **763 76** | **1 74** | **7 64** | **1 29** | **5 64** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 2.85E-02 | #/T CaO | F | 1 | 99% | **55 28** | **242 11** | **0 55** | **2 42** | **0 41** | **1 79** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 9.18E-03 | #/T CaO | F | 1 | 99% | **17 79** | **77 90** | **0 18** | **0 78** | **0 13** | **0 58** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 8.70E-02 | #/T CaO | F | 1 | | **1 69** | **7 38** | **1 69** | **7 38** | **1 24** | **5 45** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **56 96** | **249 50** | **2 24** | **9 80** | **1 65** | **7 24** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **19 47** | **85 29** | **1 86** | **8 16** | **1 38** | **6 03** |
| Su fur dioxide | 7 6095 | Cr teria | 3.00E-02 | #/T CaO | F | 1 | | **0 58** | **2 55** | **0 58** | **2 55** | **0 43** | **1 88** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 2.30E-02 | #/T CaO | F | 1 | | **0 45** | **1 95** | **0 45** | **1 95** | **0 33** | **1 44** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 6.36E-02 | #/T CaO | I | 1 | | **1 23** | **5 40** | **1 23** | **5 40** | **0 91** | **3 99** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | G | 1 | | **2 37** | **10 40** | **2 37** | **10 40** | **1 75** | **7 68** |
| Carbon monox de | | Cr teria | 1.28E-01 | #/T CaO | L | 1 | | **2 48** | **10 86** | **2 48** | **10 86** | **1 83** | **8 02** |
| Lead | | Cr teria | 1.50E-05 | #/T CaO | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | 2.12E 00 | #/T CaO | K | 1 | | **41 08** | **179 91** | **41 08** | **179 91** | **30 33** | **132 86** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 5 30E 01 | kg/MM Btu | Q, S | 1 | | **16 481 08** | **72 187 15** | **16 481 08** | **72 187 15** | **12 171 20** | **53 309 86** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | | | | | |
| Methane | 7 828 | GHG, (112r) | 1.00E-03 | kg/MM Btu | Q, S | 1 | | **0 31** | **1 36** | **0 31** | **1 36** | **0 23** | **1 01** |
| Nitrous ox de | 1002 972 | GHG | 1.00E-0 | kg/MM Btu | Q, S | 1 | | **0 03** | **0 14** | **0 03** | **0 14** | **0 02** | **0 10** |
| Carbon dioxide equivalent | | | | | R | 1 | | **16 498 12** | **72 261 76** | **16 498 12** | **72 261 76** | **12 183 78** | **53 364 96** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | 6.80E-07 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Hydrogen Su fide | 778306 | NSPS, TAP | 5.0E-02 | #/T CaO | A | 1 | | **0 97** | **4 24** | **0 97** | **4 24** | **0 72** | **3 13** |
| To al Reduced Sulfur (as TRS) | | NSPS | 5.0E-02 | #/T CaO | C | 1 | | **0 97** | **4 25** | **0 97** | **4 25** | **0 72** | **3 14** |
| To al Reduced Sulfur (as Su fur) | | NSPS | .7E-02 | #/T CaO | A | 1 | | **0 91** | **3 99** | **0 91** | **3 99** | **0 67** | **2 95** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 5.0E-02 | #/T CaO | D | 1 | | **0 97** | **4 24** | **0 97** | **4 24** | **0 71** | **3 13** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lutants | | | | | | | | **1 65** | **7 21** | **1 65** | **7 21** | **1 22** | **5 32** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 8.00E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,1-D chloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-D chloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr ch oroethane | 79005 | HAP | 3.80E-0 | #/T CaO | A | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 01** | **0 02** |
| 1,2-D chloroethane | 107062 | HAP | 3.70E-0 | #/T CaO | A | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 01** | **0 02** |
| 1,2-D chloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr ch orobenzene | 120821 | HAP | 1.30E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1, -D chlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1,3-bu ad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroace ophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrach orodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Dinitrophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Dinitrotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr ch orophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Acetaldehyde | 75070 | HAP, TAP, (112 | 9.60E-0 | #/T CaO | A | 1 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 01** | **0 06** |
| Acetophenone | 98862 | HAP, TAP | 5.50E-03 | #/T CaO | A | 1 | | **0 11** | **0 47** | **0 11** | **0 47** | **0 08** | **0 34** |
| Acrolein | 107028 | HAP, TAP, (112 | 2.10E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | 1.50E-06 | #/T CaO | B | 1.20 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | 5. 0E-07 | #/T CaO | B | 1.32 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 3.30E-0 | #/T CaO | A | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 02** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 2.60E-06 | #/T CaO | B | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | 1.60E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Cadmium Compounds | | HAP, TAP | 1.10E-05 | #/T CaO | B | 1.1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | HAP, TAP, (112 | 2.90E-0 | #/T CaO | A | 1 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 02** |
| Carbon tetrachloride | 56235 | HAP, TAP | 1.50E-03 | #/T CaO | A | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 02** | **0 09** |
| Carbonyl sulf de | 63581 | HAP, TAP, (112 | 3.90E-03 | #/T CaO | A | 1 | | **0 08** | **0 33** | **0 08** | **0 33** | **0 06** | **0 24** |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 1.10E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112 | 3.60E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | HAP, TAP, (112 | 1.70E-03 | #/T CaO | A | 1 | | **0 03** | **0 14** | **0 03** | **0 14** | **0 02** | **0 11** |
| Chromium Compounds | | HAP | 3.30E-05 | #/T CaO | B | 1.31 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | 7.70E-06 | #/T CaO | B | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | 5.50E-03 | #/T CaO | A | 1 | | **0 11** | **0 47** | **0 11** | **0 47** | **0 08** | **0 34** |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | 3.00E-03 | #/T CaO | A | 1 | | **0 06** | **0 25** | **0 06** | **0 25** | **0 04** | **0 19** |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | 1.50E-03 | #/T CaO | A | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 02** | **0 09** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | 1.20E-02 | #/T CaO | A | 1 | | **0 23** | **1 02** | **0 23** | **1 02** | **0 17** | **0 75** |
| Hexachloroethane | 67721 | HAP, TAP | 1.00E-02 | #/T CaO | A | 1 | | **0 19** | **0 85** | **0 19** | **0 85** | **0 14** | **0 63** |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112 | 2.10E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 1.50E-05 | #/T CaO | B | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | 3.30E-05 | #/T CaO | B | 1.29 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Cresol | 10839 | HAP, TAP | 9.50E-03 | #/T CaO | A | 1 | | **0 18** | **0 81** | **0 18** | **0 81** | **0 14** | **0 60** |
| Mercury Compounds | | HAP | 3.00E-08 | #/T CaO | B | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | 8.00E-03 | #/T CaO | A | 1 | | **0 16** | **0 68** | **0 16** | **0 68** | **0 11** | **0 50** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 2.00E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | .20E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Xylene | 108383 | HAP, TAP | 6.80E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | 1.30E-02 | #/T CaO | A | 1 | | **0 25** | **1 10** | **0 25** | **1 10** | **0 19** | **0 81** |
| n-Hexane | 1105 3 | HAP, TAP | 2.10E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | 1.10E-05 | #/T CaO | B | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-Cresol | 95 87 | HAP, TAP | .70E-03 | #/T CaO | A | 1 | | **0 09** | **0 40** | **0 09** | **0 40** | **0 07** | **0 29** |
| o-Xylene | 95 76 | HAP, TAP | 2.10E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 2.70E-0 | #/T CaO | A | 1 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 02** |
| Phosphorus | 77231 0 | HAP, TAP | 5.00E-0 | #/T CaO | B | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Polycyclic organ c matter | | HAP, TAP | | | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 6.80E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | 2.80E-07 | #/T CaO | B | 1. 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | 5.70E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | 2.60E-0 | #/T CaO | A | 1 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 02** |
| Toluene | 108883 | HAP, TAP | 1.50E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 3.70E-0 | #/T CaO | A | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 01** | **0 02** |
| Vinyl acetate | 10805 | HAP, TAP, (112 | 8.00E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factors from NCASI Technical Bul etin 858, Tab e 16A.
B) Emission factors from NCASI Technical Bul etin 858, Tab e 16B.
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an emiss ons.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Emission factor from NCASI Technical Bulletin 88 , Table .13 - Oli- ired Lime K ln w th ESP.
F) Emission factors from NCASI Techn cal Bu le in 1020, Table .13 - Oil-fired Lime Kiln with ESP.
G) VOC em ssions are sum of individual speciated VOC.
H) Sum of spec ated POM and PAH.
I) Emission factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC spec es.
J) Em ssion limit from permit 2 0-0005-CI, Cond tion II A. converted from ppm into lb/hr and tpy (maximum em ssions only).
K) Emission factor calcula ed using Bowater stack testing on 3/30/2010 (159 ppm) and 9/13 2011 (162 ppm).
L) Emiss on ac or from 8/28 2008 Bowater stack est.

Q) Em ssion factor or natural gas combustion in EPA MRR, Table C-1 and C-2.
R) Em ssion factor based on GWP in EPA MRR, Table A-1.
S) Average heat input based on maximum heat input and ime production.

9. NOTES:

Em ssion Factors for reference K conver ed from #/ADTP to #/T CaO assuming 550 # CaO/ADTP.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Lime K ln 2 | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit ID = 10 | 1 1 | MM Btu/hr | 10 | MM Btu/hr | | | | |
| Ti le V Unit D = 07, Equipment ID = 2723 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | | | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | REFERENCE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| hydrogen sulf de | | | 5.00E-02 | #/T CaO | A | 1 | | **0 97** | **4 24** | **0 97** | **4 24** | **0 72** | **3 13** |
| Methyl mercaptan | | | 2. 0E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl d su fide | | | .50E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl sulf de | | | 1.60E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Other Air Pollutants | | | | | | 1 | | **0 77** | **3 36** | **0 77** | **3 36** | **0 57** | **2 48** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 1.90E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | 1.10E-02 | #/T CaO | A | 1 | | **0 21** | **0 93** | **0 21** | **0 93** | **0 16** | **0 69** |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 8.10E-0 | #/T CaO | A | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 05** |
| alpha-pinene | | | 2.20E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | 3.00E-03 | #/T CaO | A | 1 | | **0 06** | **0 25** | **0 06** | **0 25** | **0 04** | **0 19** |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | 5.50E-03 | #/T CaO | A | 1 | | **0 11** | **0 47** | **0 11** | **0 47** | **0 08** | **0 34** |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | 9.80E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | 8.70E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 1.10E-02 | #/T CaO | A | 1 | | **0 21** | **0 93** | **0 21** | **0 93** | **0 16** | **0 69** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | 8.70E-0 | #/T CaO | A | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 05** |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | .30E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | 3.30E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 7.10E-03 | #/T CaO | A | 1 | | **0 14** | **0 60** | **0 14** | **0 60** | **0 10** | **0 44** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | .20E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Caus ic zing Area | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

AEI Group ID = 007, Process Unit ID = 11

Title V Un t ID = 07, Equipment ID = 2700 o 2703

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | | | 174 63 | 764 86 | 1 75 | 7 65 | 0 97 | 4 27 |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | | | 134 50 | 589 10 | 1 34 | 5 89 | 0 77 | 3 39 |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | | | 64 15 | 280 98 | 0 64 | 2 81 | 0 42 | 1 82 |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | 134 50 | 589 10 | 1 34 | 5 89 | 0 77 | 3 39 |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | 64 15 | 280 98 | 0 64 | 2 81 | 0 42 | 1 82 |
| Su fur dioxide | 7 6095 | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | | | 7 74 | 33 90 | 7 74 | 33 90 | 6 97 | 30 52 |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | | | 18 83 | 82 46 | 18 83 | 82 46 | 17 08 | 74 80 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | | | 17 40 | 76 20 | 17 40 | 76 20 | 15 93 | 69 76 |
| Carbon monox de | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nitrogen oxides | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biogenic carbon dioxide | 12 389 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methane | 7 828 | GHG, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nitrous ox de | 1002 972 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon dioxide equivalent | | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Su furic acid m st | 766 939 | TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | | | 0 40 | 1 75 | 0 40 | 1 75 | 0 35 | 1 52 |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | | | 0 26 | 1 13 | 0 26 | 1 13 | 0 22 | 0 98 |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | | | 0 27 | 1 20 | 0 27 | 1 20 | 0 24 | 1 05 |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 16 21 | 71 00 | 16 21 | 71 00 | 14 93 | 65 41 |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 01 | 0 03 |
| 1,1-Dichloroethane | 753 3 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| 1,2-Dichloroethane | 107062 | HAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| 1,2-Dichloropropane | 78875 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch oroacetophenone | 53227 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trophenol | 51286 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trotoluene | 1211 2 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| -Nitrophenol | 100027 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | | | 0 25 | 1 11 | 0 25 | 1 11 | 0 21 | 0 93 |
| Acetophenone | 98862 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 01 |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| An line | 62533 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Antimony Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Arsenic Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Benzene | 71 32 | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Beryllium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biphenyl | 9252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromoform | 75252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromomethane | 7 839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cadmium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | | | 0 04 | 0 16 | 0 04 | 0 16 | 0 03 | 0 12 |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Catechol | 120809 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorobenzene | 108907 | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | | | 0 03 | 0 13 | 0 03 | 0 13 | 0 02 | 0 10 |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium Compounds | | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium( 6) Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cobalt Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cresols | 1319773 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cumene | 98828 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cyanide Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Diethanolamine | 111 22 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl su fate | 77781 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylbenzene | 100 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | | | 0 06 | 0 25 | 0 06 | 0 25 | 0 04 | 0 18 |
| Glycol Ethers | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachloroethane | 67721 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Iodomethane | 7 88 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isophorone | 78591 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Manganese Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-Cresol | 10839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Mercury Compounds | | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methanol | 67561 | HAP, TAP | | | | | | 15 56 | 68 14 | 15 56 | 68 14 | 14 39 | 63 04 |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | | | 0 01 | 0 02 | 0 01 | 0 02 | 0 00 | 0 02 |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl methacrylate | 80626 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methylene chloride | 75092 | HAP, TAP | | | | | | 0 02 | 0 08 | 0 02 | 0 08 | 0 01 | 0 06 |
| m-Xylene | 108383 | HAP, TAP | | | | | | 0 01 | 0 06 | 0 01 | 0 06 | 0 01 | 0 05 |
| Naphthalene | 91203 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-Hexane | 1105 3 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nickel Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-Cresol | 95 87 | HAP, TAP | | | | | | 0 08 | 0 34 | 0 08 | 0 34 | 0 08 | 0 34 |
| o-Xylene | 95 76 | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| p-Cresol | 106 5 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Pentachlorophenol | 87865 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Phenol | 108952 | HAP, TAP | | | | | | 0 06 | 0 26 | 0 06 | 0 26 | 0 06 | 0 26 |
| Phosphorus | 77231 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Polycyclic organic matter | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Prop onaldehyde | 123386 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-Xylene | 106 23 | HAP, TAP | | | | | | 0 01 | 0 06 | 0 01 | 0 06 | 0 01 | 0 05 |
| Selenium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Styrene | 100 25 | HAP, TAP | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 01 | 0 04 |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| Toluene | 108883 | HAP, TAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| Trichloroethy ene | 79016 | HAP, TAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl ch oride | 7501 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Xy enes | 1330207 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

8. REFERENCES:

9. NOTES:

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Caus ic zing Area | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |
| AEI Group ID = 007, Process Unit ID = 11 | | | | | | | | |
| Title V Un t ID = 07. Equipment ID = 2700 o 2703 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl mercaptan | | | | | | | | 0 10 | 0 43 | 0 10 | 0 43 | 0 08 | 0 37 |
| dimethyl d su fide | | | | | | | | 0 21 | 0 93 | 0 21 | 0 93 | 0 19 | 0 83 |
| dimethyl suff de | | | | | | | | 0 09 | 0 38 | 0 09 | 0 38 | 0 07 | 0 31 |
| To al Other Air Pollutants | | | | | | | | 10 33 | 45 24 | 10 33 | 45 24 | 7 79 | 34 10 |
| 1,2-dibromoethene | 5 0 98 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-dich oroethylene | | | | | | | | 0 01 | 0 06 | 0 01 | 0 06 | 0 01 | 0 04 |
| 1,2-Dimethoxyethane | 11071 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch oropheno l | 95578 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-din tro- 6-methylphenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-hexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methylnaptha ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl propene | 115117 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl-2-propanol benzene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-nitrophenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-propanol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,5-dimethyl benzaldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 3-carene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 3-methylch oranthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 5-methyl chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthy ene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acetone | | | | | | | | 0 59 | 2 60 | 0 59 | 2 60 | 0 53 | 2 33 |
| alpha-pinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-terpiniene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-terpiniol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ammonia | 766 17 | (112r) | | | | | | 8 91 | 39 04 | 8 91 | 39 04 | 6 58 | 28 83 |
| anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| barium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzaldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzoic acid | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(b)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(gh )perylene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(k)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzyl alcohol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| beta-pinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| b s (2-Chloroisopropy ) ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| boron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromodichloromethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| butane | 106978 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| butylbenzylphtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphor | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| copper | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| crobnaldehyde | 170303 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| cyc ohexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| decach orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibenzo(ah)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibromomethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobenzene | 25321226 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ethylphthala e | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-octyl phtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dysprosium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ethane | 7 8 0 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ethanol | | | | | | | | 0 07 | 0 30 | 0 07 | 0 30 | 0 07 | 0 30 |
| fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| fluorene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| gamma-Terpinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| germanium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| heptane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexa dehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| indeno(123-cd)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iodine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| isopropanol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| isovaleraldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| limonene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| lithium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| methyl anthracene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl ethyl ketone | 78933 | TAP | | | | | | 0 09 | 0 39 | 0 09 | 0 39 | 0 08 | 0 34 |
| molybdenum | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| myrcene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-buty aldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| neodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| niobium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| nitric ox de | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| nonane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pah | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-cymene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentane | 109660 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| phenanthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-dioxins | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-furans | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| po assium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| praeseodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| propane | 7 986 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| propy ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| rub dium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| samarium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| s lver | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| sodium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| solicy adehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| strontium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| terpenes | | | | | | | | 0 65 | 2 85 | 0 65 | 2 85 | 0 52 | 2 26 |
| tert-butyl methyl ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tetrachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thallium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thorium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tin | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ti anium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orofluoromethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tungsten | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| valeradehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| vanadium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| yttrium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| zinc | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| zirconium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Caust c zing Area - S aker and Caust cizers | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

El emiss ons reported under Caust c zing Summary

T tle V Unit ID = 07. Equipment ID = 2700, 2701

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 2.2E-02 | #/T CaO | E | 1 | 99% | **42 63** | **186 70** | **0 43** | **1 87** | **0 31** | **1 38** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 2.2E-02 | #/T CaO | G | 1 | 99% | **42 63** | **186 70** | **0 43** | **1 87** | **0 31** | **1 38** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 2.0E-02 | #/T CaO | G | 1 | 99% | **39 60** | **173 44** | **0 40** | **1 73** | **0 29** | **1 28** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **42 63** | **186 70** | **0 43** | **1 87** | **0 31** | **1 38** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **39 60** | **173 44** | **0 40** | **1 73** | **0 29** | **1 28** |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 5.7E-02 | #/T CaO | E | 1 | | **1 10** | **4 84** | **1 10** | **4 84** | **0 82** | **3 57** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 1.1E-01 | #/T CaO | F | 1 | | **2 18** | **9 56** | **2 18** | **9 56** | **1 61** | **7 06** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | H | 1 | | **1 46** | **6 41** | **1 46** | **6 41** | **1 08** | **4 73** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | 2.0E-03 | #/T CaO | C | 1 | | **0 04** | **0 17** | **0 04** | **0 17** | **0 03** | **0 12** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 1.2E-03 | #/T CaO | B | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 08** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 1.3E-03 | #/T CaO | D | 1 | | **0 03** | **0 11** | **0 03** | **0 11** | **0 02** | **0 08** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | HAP | | | | | | **1 24** | **5 44** | **1 24** | **5 44** | **0 92** | **4 02** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 1.3E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 1.3E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,2-Dichloroethane | 107062 | HAP | 1.2E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 3.9E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-bu ad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroace ophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrach orodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | 6.8E-03 | #/T CaO | A | 1 | | **0 13** | **0 58** | **0 13** | **0 58** | **0 10** | **0 43** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112 | .7E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 5.0E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | 5.8E-0 | #/T CaO | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 3.5E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112 | .5E-0 | #/T CaO | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | .7E-0 | #/T CaO | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 5. E-02 | #/T CaO | A | 1 | | **1 05** | **4 58** | **1 05** | **4 58** | **0 77** | **3 38** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | .9E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 2. E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 02** |
| m-Xylene | 108383 | HAP, TAP | .1E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | .3E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 3. E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | I | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | .1E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | .0E-0 | #/T CaO | A | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 01** | **0 03** |
| Tetrachloroethylene | 12718 | HAP, TAP | 9.6E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Toluene | 108883 | HAP, TAP | 1.7E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Trich oroethylene | 79016 | HAP, TAP | 1.2E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Emission factors from NCASI Technical Bul etin No. 701, Table 17.
B) Emission factor from NCASI Technical Bulletin No. 8 9, Tab e 2 .
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Emission factor from NCASI Technical Bulletin 88 , Table .1 .
F) Emission factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC spec es.
G) PM-10 and PM-2.5 rat o based on NCASI Technical Bulletin 88 , Table .13 (lime kiln w/scrubber).
H) VOC em ssions are sum of indiv dual specia ed VOC.
I) Sum of speciated POM and PAH.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Caust c zing Area - S aker and Caust cizers | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

El emiss ons reported under Caust c zing Summary

T tle V Unit ID = 07. Equipment ID = 2700, 2701

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | .3E-0 | #/T CaO | B | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| dimethyl d su fide | | | 9.6E-0 | #/T CaO | B | 1 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 01** | **0 06** |
| dimethyl suff de | | | 5.6E-0 | #/T CaO | B | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| To al Other Air Pollutants | | | | | | | | **9 26** | **40 56** | **9 26** | **40 56** | **6 84** | **29 96** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 3.8E-0 | #/T CaO | A | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 01** | **0 02** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 8.0E-03 | #/T CaO | A | 1 | | **0 16** | **0 68** | **0 16** | **0 68** | **0 11** | **0 50** |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | .6E-01 | #/T CaO | A | 1 | | **8 91** | **39 04** | **8 91** | **39 04** | **6 58** | **28 83** |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| lithium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 1.2E-03 | #/T CaO | A | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 08** |
| molybdenum | | | | | | 1 | | | | | | | |
| n- dualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 8. E-03 | #/T CaO | A | 1 | | **0 16** | **0 71** | **0 16** | **0 71** | **0 12** | **0 53** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Caust cizing Area - Precoat Fi ters | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

EI emiss ons reported under Caust c zing Summary

Ti le V Unit D = 07, Equipment ID = 2700

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | .1E-03 | #/T CaO | E | 1 | | **0 08** | **0 35** | **0 08** | **0 35** | **0 06** | **0 26** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 9.7E-03 | #/T CaO | F | 1 | | **0 19** | **0 82** | **0 19** | **0 82** | **0 14** | **0 60** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | G | 1 | | **0 39** | **1 72** | **0 39** | **1 72** | **0 29** | **1 27** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | 2.3E-03 | #/T CaO | C | 1 | | **0 04** | **0 20** | **0 04** | **0 20** | **0 03** | **0 14** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 1.5E-03 | #/T CaO | B | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 02** | **0 09** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 1.6E-03 | #/T CaO | D | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 02** | **0 10** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 30** | **1 31** | **0 30** | **1 31** | **0 22** | **0 97** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 8.5E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 9.9E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,2-Dichloroethane | 107062 | HAP | 9.8E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | .5E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | tAP, TAP, (112 | 1.1E-03 | #/T CaO | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 07** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | tAP, TAP, (112 | 5.3E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 1.9E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | .6E-0 | #/T CaO | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Carbonyl sulf de | 63581 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 6.2E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Chloroform | 67663 | tAP, TAP, (112 | 3.6E-0 | #/T CaO | A | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 01** | **0 02** |
| Chloromethane | 7 873 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | tAP, TAP, (112 | 2.1E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 1.2E-02 | #/T CaO | A | 1 | | **0 23** | **1 02** | **0 23** | **1 02** | **0 17** | **0 75** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 9.2E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Methyl hydrazine | 6033 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 1.9E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| m-Xylene | 108383 | HAP, TAP | 8.2E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 6.8E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | .5E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 8.2E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 3.7E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | 6.3E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | 1.9E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| Trich oroethylene | 79016 | HAP, TAP | 9.8E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Vinyl acetate | 10805 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Emission factor from NCASI Technical Bulletin No. 701, Tab e 17.
B) Emission factor from NCASI Technical Bulletin No. 701, Tab e 17, converted to sulfur based on molecular weight.
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Emission factor from NCASI Technical Bulletin 88 , Table .1 .
F) Emission factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC spec es.
G) VOC em ssions are sum of individual speciated VOC.
H) Sum of spec ated POM and PAH.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Caust cizing Area - Precoat Fi ters | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

El emiss ons reported under Caust c zing Summary

Ti le V Unit D = 07. Equipment ID = 2700

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | 6.0E-0 | #/T CaO | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| dimethyl d su fide | | | 1.2E-03 | #/T CaO | A | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 08** |
| dimethyl suff de | | | 5.0E-0 | #/T CaO | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| To al Other Air Pollutants | | | | | | | | **0 07** | **0 31** | **0 07** | **0 31** | **0 05** | **0 23** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 7.2E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 8.5E-0 | #/T CaO | A | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 05** |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crobnaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 1.5E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| molybdenum | | | | | | 1 | | | | | | | |
| n- dualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 2.6E-03 | #/T CaO | A | 1 | | **0 05** | **0 22** | **0 05** | **0 22** | **0 04** | **0 16** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Causticizing Area - Precoat Filter Vacuum Pumps | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

EI emiss ons reported under Caust c zing Summary

Ti le V Unit D = 07, Equipment ID = 2700

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 1.8E-02 | #/T CaO | E | 1 | | **0 35** | **1 53** | **0 35** | **1 53** | **0 26** | **1 13** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 3.9E-02 | #/T CaO | F | 1 | | **0 75** | **3 29** | **0 75** | **3 29** | **0 55** | **2 43** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | G | 1 | | **0 50** | **2 17** | **0 50** | **2 17** | **0 37** | **1 60** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | 1.1E-03 | #/T CaO | C | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 07** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 6.3E-0 | #/T CaO | B | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 6.7E-0 | #/T CaO | D | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 04** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 37** | **1 62** | **0 37** | **1 62** | **0 27** | **1 20** |
| 1,1-Tr chloroethane | 71556 | HAP | 2.0E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 2.0E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | 2.0E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 3.3E-0 | #/T CaO | A | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 02** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | tAP, TAP, (112 | 2.0E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | tAP, TAP, (112 | 8.7E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 9.2E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | 7. E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Carbonyl sulf de | 63581 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 1.3E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | tAP, TAP, (112 | 7.1E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Chloromethane | 7 873 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | tAP, TAP, (112 | 2.8E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 1.8E-02 | #/T CaO | A | 1 | | **0 35** | **1 53** | **0 35** | **1 53** | **0 26** | **1 13** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 7.6E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 5.6E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Xylene | 108383 | HAP, TAP | 1.5E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 2.3E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 1.5E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 2. E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | 9.7E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Toluene | 108883 | HAP, TAP | 8.1E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 2.2E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | tAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Emission factor from NCASI Technical Bulletin No. 701, Tab e 17.
B) Emission factor from NCASI Technical Bulletin No. 701, Tab e 17, converted to sulfur based on molecular weight.
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Emission factor from NCASI Technical Bulletin 88 , Table .1 .
F) Emission factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC spec es.
G) VOC em ssions are sum of individual speciated VOC.
H) Sum of spec ated POM and PAH.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Causticizing Area - Precoat Filter Vacuum Pumps | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |
| El emiss ons reported under Caust c zing Summary | | | | | | | | |
| Ti le V Unit D = 07. Equipment ID = 2700 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | 1.5E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| dimethyl d su fide | | | 2.1E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| dimethyl suff de | | | 7.5E-0 | #/T CaO | A | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 05** |
| To al Other Air Pollutants | | | | | | | | **0 13** | **0 56** | **0 13** | **0 56** | **0 09** | **0 41** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 2.8E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 1.1E-03 | #/T CaO | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 07** |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crobnaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | .9E-0 | #/T CaO | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| molybdenum | | | | | | 1 | | | | | | | |
| n- dualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-lolualdehyde | | | | | | 1 | | | | | | | |
| oah | | | | | | 1 | | | | | | | |
| o-cymene | | | | | | 1 | | | | | | | |
| ontach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-lolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 5.0E-03 | #/T CaO | A | 1 | | **0 10** | **0 42** | **0 10** | **0 42** | **0 07** | **0 31** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Causticizing Area - Green Liquor Clarif er | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

EI emiss ons reported under Caust c zing Summary

Ti le V Unit D = 07. Equipment ID = 2700

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 6.6E-02 | #/T CaO | E | 1 | | **1 28** | **5 60** | **1 28** | **5 60** | **0 94** | **4 14** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 1.7E-01 | #/T CaO | F | 1 | | **3 26** | **14 28** | **3 26** | **14 28** | **2 41** | **10 55** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | G | 1 | | **2 68** | **11 73** | **2 68** | **11 73** | **1 98** | **8 66** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | 7. E-0 | #/T CaO | C | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 05** |
| To al Reduced Sulfur (as Su fur) | | NSPS | .8E-0 | #/T CaO | B | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 5.1E-0 | #/T CaO | D | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **2 64** | **11 11** | **2 64** | **11 11** | **1 87** | **8 20** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 1.6E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 1.6E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | 1.6E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 7.2E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | 1.0E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 2.8E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | 7.3E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | . E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112 | 5.6E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 1.3E-01 | #/T CaO | A | 1 | | **2 82** | **11 03** | **2 82** | **11 03** | **1 86** | **8 15** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 1.1E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 3.0E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Xylene | 108383 | HAP, TAP | 1.9E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 1.0E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 1.9E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 1.1E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Tetrachloroethylene | 12718 | HAP, TAP | 2.0E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | 1.0E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 1.6E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Emission factor from NCASI Technical Bulletin No. 701, Tab e 17.
B) Emission factor from NCASI Technical Bulletin No. 701, Tab e 17, converted to sulfur based on molecular weight.
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Emission factor from NCASI Technical Bulletin 88 , Table .1 .
F) Emission factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC spec es.
G) VOC em ssions are sum of individual speciated VOC.
H) Sum of spec ated POM and PAH.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Causticizing Area - Green Liquor Clarif er | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

El emiss ons reported under Caust c zing Summary

Ti le V Unit D = 07. Equipment ID = 2700

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | .2E-0 | #/T CaO | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| dimethyl d su fide | | | 2.0E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| dimethyl suff de | | | 1.2E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| To al Other Air Pollutants | | | | | | | | **0 16** | **0 69** | **0 16** | **0 69** | **0 12** | **0 51** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 1.0E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 1.5E-03 | #/T CaO | A | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 02** | **0 09** |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| lithium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 2.0E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| molybdenum | | | | | | 1 | | | | | | | |
| n- dualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 6.3E-03 | #/T CaO | A | 1 | | **0 12** | **0 53** | **0 12** | **0 53** | **0 09** | **0 39** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Caust cizing Area - Green L quor Surge Tank | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

EI emiss ons reported under Caust c zing Summary

Ti le V Unit D = 07, Equipment ID = 2700

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 1. E-03 | #/T CaO | E | 1 | | **0 03** | **0 12** | **0 03** | **0 12** | **0 02** | **0 09** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 2.6E-03 | #/T CaO | F | 1 | | **0 05** | **0 22** | **0 05** | **0 22** | **0 04** | **0 16** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | G | 1 | | **0 05** | **0 21** | **0 05** | **0 21** | **0 04** | **0 16** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | 8.1E-05 | #/T CaO | C | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| To al Reduced Sulfur (as Su fur) | | NSPS | .7E-05 | #/T CaO | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 5.0E-05 | #/T CaO | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 02** | **0 11** | **0 02** | **0 11** | **0 02** | **0 08** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 8.9E-07 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 6.5E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | 1.2E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 1.6E-07 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | 5.8E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112 | 1.5E-07 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | .7E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | 1.6E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 1.9E-07 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112 | 2.0E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | 1.5E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 1.1E-03 | #/T CaO | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 07** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 2.9E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 6.7E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| m-Xylene | 108383 | HAP, TAP | 9.3E-08 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 1.1E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 3. E-07 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 9.3E-08 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 9.1E-08 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | 1. E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | 3.2E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 3. E-07 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Emission factor from NCASI Technical Bulletin No. 701, Tab e 17.
B) Emission factor from NCASI Technical Bulletin No. 701, Tab e 17, converted to sulfur based on molecular weight.
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Emission factor from NCASI Technical Bulletin 88 , Table .1 .
F) Emission factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC spec es.
G) VOC em ssions are sum of individual speciated VOC.
H) Sum of spec ated POM and PAH.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Caust cizing Area - Green L quor Surge Tank | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

El emiss ons reported under Caust c zing Summary

Ti le V Unit D = 07. Equipment ID = 2700

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | 2.1E-06 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dimethyl d su fide | | | 3.1E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Dimethyl suff de | | | .8E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Other Air Pollutants | | | | | | | | **0 02** | **0 11** | **0 02** | **0 11** | **0 02** | **0 08** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 2.5E-07 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 6.6E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| lithium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 2.0E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| molybdenum | | | | | | 1 | | | | | | | |
| n- dualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 1.2E-03 | #/T CaO | A | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 08** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONFIDENTIAL Alternate Form D 2943 Emission Data for Regulated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Green L quor Storage Tanks | 3 | tanks | 3 | tanks | 2 | 7 | 365 | 365 |

EI emissions reported under Ins gn ficant Summary

Ti le V Unit D = 07, Equipment ID = 2700

| 3. POLLUTANT | CAS # | 8. EM SSION FACTOR INFORMATION 5. TYPE | FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 1.6E 00 | lb/hr/tank | A | 1 | | **4 79** | **20 99** | **4 79** | **20 99** | **4 79** | **20 99** |
| Vo ati e organic compounds (as VOC) | | Cr teria | .0E 00 | lb/hr/tank | B | 1 | | **12 14** | **53 15** | **12 14** | **53 15** | **12 14** | **53 15** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | C | 1 | | **11 78** | **51 57** | **11 78** | **51 57** | **11 78** | **51 57** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as TRS) | | NSPS | 6.6E-02 | lb/hr/tank | A | 1 | | **0 20** | **0 87** | **0 20** | **0 87** | **0 20** | **0 87** |
| To al Reduced Sulfur (as Su fur) | | NSPS | . E-02 | lb/hr/tank | A | 1 | | **0 13** | **0 58** | **0 13** | **0 58** | **0 13** | **0 58** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | .7E-02 | lb/hr/tank | A | 1 | | **0 14** | **0 61** | **0 14** | **0 61** | **0 14** | **0 61** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **11 33** | **49 63** | **11 33** | **49 63** | **11 33** | **49 63** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112 | 3.1E-02 | lb/hr/tank | A | 1 | | **0 09** | **0 41** | **0 09** | **0 41** | **0 09** | **0 41** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 3.7E 00 | lb/hr/tank | A | 1 | | **11 10** | **48 62** | **11 10** | **48 62** | **11 10** | **48 62** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | 2.6E-02 | lb/hr/tank | A | 1 | | **0 08** | **0 34** | **0 08** | **0 34** | **0 08** | **0 34** |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 2.0E-02 | lb/hr/tank | A | 1 | | **0 06** | **0 26** | **0 06** | **0 26** | **0 06** | **0 26** |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1.. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Med an em ssion factors from NCASI Technical Bulletin 858, Table 10C.
B) Emission factor adjusted from VOC as carbon o total VOC based on molecu ar we ght of predominate VOC species.
C) VOC em ssions are sum of indiv dual specia ed VOC.
D) Sum of spec ated POM and PAH.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Green L quor Storage Tanks | 3 | tanks | 3 | tanks | 2 | 7 | 365 | 365 |

El emissions reported under Ins gn ficant Summary

Ti le V Unit D = 07, Equipment ID = 2700

| | | | 8. EM SSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| Hydrogen suff de | | | | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl mercaptan | | | 1.6E-02 | lb/hr/tank | A | 1 | | **0 05** | **0 21** | **0 05** | **0 21** | **0 05** | **0 21** |
| dimethyl d su fide | | | .2E-02 | lb/hr/tank | A | 1 | | **0 13** | **0 55** | **0 13** | **0 55** | **0 13** | **0 55** |
| dimethyl suff de | | | 8.0E-03 | lb/hr/tank | A | 1 | | **0 02** | **0 11** | **0 02** | **0 11** | **0 02** | **0 11** |
| To al Other Air Pollutants | | | | | | 1 | | **0 61** | **2 65** | **0 61** | **2 65** | **0 61** | **2 65** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 1.2E-01 | lb/hr/tank | A | 1 | | **0 36** | **1 58** | **0 36** | **1 58** | **0 36** | **1 58** |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 2.3E-02 | lb/hr/tank | A | 1 | | **0 07** | **0 30** | **0 07** | **0 30** | **0 07** | **0 30** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 1.5E-02 | lb/hr/tank | A | 1 | | **0 05** | **0 20** | **0 05** | **0 20** | **0 05** | **0 20** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | . E-02 | lb/hr/tank | A | 1 | | **0 13** | **0 58** | **0 13** | **0 58** | **0 13** | **0 58** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Causticizing Area - Wh te Liquor Pressure Fillers | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

EI emiss ons reported under Caust c zing Summary

Ti le V Unit D = 07, Equipment ID = 2700

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 5.6E-03 | #/T CaO | E | 1 | | **0 11** | **0 48** | **0 11** | **0 48** | **0 08** | **0 35** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 1.3E-02 | #/T CaO | F | 1 | | **0 26** | **1 14** | **0 26** | **1 14** | **0 19** | **0 84** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | G | 1 | | **0 54** | **2 38** | **0 54** | **2 38** | **0 40** | **1 76** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | .2E-03 | #/T CaO | C | 1 | | **0 08** | **0 35** | **0 08** | **0 35** | **0 06** | **0 26** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 2.6E-03 | #/T CaO | B | 1 | | **0 05** | **0 22** | **0 05** | **0 22** | **0 04** | **0 16** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 2.8E-03 | #/T CaO | D | 1 | | **0 05** | **0 24** | **0 05** | **0 24** | **0 04** | **0 17** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 41** | **1 78** | **0 41** | **1 78** | **0 30** | **1 32** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 1.6E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 1.6E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,2-Dichloroethane | 107062 | HAP | 1.6E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 7.3E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | 7.1E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112 | 6.8E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 2.9E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | 7. E-0 | #/T CaO | A | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 05** |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | .5E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112 | 5.8E-0 | #/T CaO | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | 2.2E-03 | #/T CaO | A | 1 | | **0 04** | **0 19** | **0 04** | **0 19** | **0 03** | **0 14** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 1.5E-02 | #/T CaO | A | 1 | | **0 29** | **1 27** | **0 29** | **1 27** | **0 21** | **0 94** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 3.6E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 3.1E-0 | #/T CaO | A | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 02** |
| m-Xylene | 108383 | HAP, TAP | .3E-0 | #/T CaO | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 6.2E-05 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | .3E-0 | #/T CaO | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | .9E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | 2.0E-0 | #/T CaO | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| Toluene | 108883 | HAP, TAP | 3.7E-05 | #/T CaO | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 1.6E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Emission factor from NCASI Technical Bulletin No. 701, Tab e 17.
B) Emission factor from NCASI Technical Bulletin No. 701, Tab e 17, converted to sulfur based on molecular weight.
C) Sum of dimethyl disul ide, dimethyl sulf de, hydrogen sul ide, and methyl mercap an em ssions.
D) Assumed TRS (as S) converted to H2S based on molecular weight.
E) Emission factor from NCASI Technical Bulletin 88 , Table .1 .
F) Emission factor adjusted from VOC as carbon to total VOC based on molecular weight of predominate VOC spec es.
G) VOC em ssions are sum of individual speciated VOC.
H) Sum of spec ated POM and PAH.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Causticizing Area - Wh te Liquor Pressure Filters | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

El emiss ons reported under Caust c zing Summary

Ti le V Unit D = 07. Equipment ID = 2700

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | 9.7E-0 | #/T CaO | A | 1 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 01** | **0 06** |
| dimethyl d su fide | | | 1.9E-03 | #/T CaO | A | 1 | | **0 04** | **0 16** | **0 04** | **0 16** | **0 03** | **0 12** |
| dimethyl suff de | | | 1.3E-03 | #/T CaO | A | 1 | | **0 03** | **0 11** | **0 03** | **0 11** | **0 02** | **0 08** |
| To al Other Air Pollutants | | | | | | | | **0 08** | **0 35** | **0 08** | **0 35** | **0 06** | **0 26** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 1.2E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 5.3E-0 | #/T CaO | A | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crobnaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 1.6E-0 | #/T CaO | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| molybdenum | | | | | | 1 | | | | | | | |
| n- dualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-lolualdehyde | | | | | | 1 | | | | | | | |
| oah | | | | | | 1 | | | | | | | |
| o-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-lolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 3.3E-03 | #/T CaO | A | 1 | | **0 06** | **0 28** | **0 06** | **0 28** | **0 05** | **0 21** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Causticizing Area - Reburn Lime Si o | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

EI emiss ons reported under Caust c zing Summary
Ti le V Unit D = 07, Equipment ID = 2703

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | A | 1 | 99% | **66 00** | **289 08** | **0 66** | **2 89** | **0 33** | **1 45** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | B | 0.696 | 99% | **45 94** | **201 20** | **0 46** | **2 01** | **0 23** | **1 01** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | B | 0.186 | 99% | **12 28** | **53 77** | **0 12** | **0 54** | **0 06** | **0 27** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **45 94** | **201 20** | **0 46** | **2 01** | **0 23** | **1 01** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **12 28** | **53 77** | **0 12** | **0 54** | **0 06** | **0 27** |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | 1 | | | | | | | |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | | 1 | | | | | | | |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Engineering estimate from ime silos.
B) PM-10 and PM-2.5 ratio based on NCASI Technical Bul etin 88 , Tab e .13 ( ime kiln w/ESP).

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Causticizing Area - Reburn Lime Si o | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

El emiss ons reported under Caust c zing Summary

Ti le V Unit D = 07. Equipment ID = 2703

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crobnaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| n- dualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-lolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Caustic zing Area - Fresh Lime Si o | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

EI emiss ons reported under Caust c zing Summary

Ti le V Unit D = 07, Equipment ID = 2702

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | A | 1 | 99% | **66 00** | **289 08** | **0 66** | **2 89** | **0 33** | **1 45** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | B | 0.696 | 99% | **45 94** | **201 20** | **0 46** | **2 01** | **0 23** | **1 01** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | B | 0.186 | 99% | **12 28** | **53 77** | **0 12** | **0 54** | **0 06** | **0 27** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **45 94** | **201 20** | **0 46** | **2 01** | **0 23** | **1 01** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **12 28** | **53 77** | **0 12** | **0 54** | **0 06** | **0 27** |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | 1 | | | | | | | |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | | 1 | | | | | | | |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Engineering estimate from ime silos.

B) PM-10 and PM-2.5 ratio based on NCASI Technical Bul etin 88 , Tab e .13 ( ime kiln w/ESP).

9. NOTES:

Maximum production s perm tted production ra e.

To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.

Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Causticizing Area - Fresh Lime Si o | 65 | Ton CaO/Day | 3 3 | Ton CaO/Day | 2 | 7 | 365 | 365 |

El emiss ons reported under Caust c zing Summary

Ti le V Unit D = 07. Equipment ID = 2702

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crobnaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| n- dualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-lolualdehyde | | | | | | 1 | | | | | | | |
| oah | | | | | | 1 | | | | | | | |
| o-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Bo ler 1 - Worst-Case Fuel TDF | | | | | | | | |
| Detailed Process Unit Emissions en ered in o AEI Ti le V Unit D = 08. Equipment ID = 2605 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | | | 6 820 81 | 29 875 15 | 68 21 | 298 75 | 44 24 | 193 79 |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | | | 5 056 81 | 22 148 83 | 50 57 | 221 49 | 32 80 | 143 68 |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | | | 4 390 41 | 19 230 00 | 43 90 | 192 30 | 28 48 | 124 75 |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | | | 6 66 | 29 19 | 6 66 | 29 19 | 4 41 | 19 32 |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | 5 063 47 | 22 178 02 | 57 23 | 250 68 | 37 22 | 163 00 |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | 4 397 07 | 19 259 19 | 50 57 | 221 49 | 32 89 | 144 07 |
| Su fur dioxide | 7 6095 | Cr teria | | | | | | 861 62 | 3 773 88 | 861 62 | 3 773 88 | 18 04 | 79 01 |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | | | 5 10 | 22 32 | 5 10 | 22 32 | 3 37 | 14 75 |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | | | 12 74 | 55 80 | 12 74 | 55 80 | 8 42 | 36 87 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | | | 4 32 | 18 94 | 4 32 | 18 94 | 2 82 | 12 35 |
| Carbon monox de | | Cr teria | | | | | | 235 20 | 1 030 19 | 235 20 | 1 030 19 | 153 23 | 671 14 |
| Lead | | Cr teria | | | | | | 1 61 | 7 06 | 1 61 | 7 06 | 0 48 | 2 10 |
| Nitrogen oxides | | Cr teria | | | | | | 122 83 | 538 00 | 122 83 | 538 00 | 89 42 | 260 26 |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | | | 65 185 53 | 285 512 61 | 65 185 53 | 285 512 61 | 1 731 97 | 7 586 04 |
| Biogenic carbon dioxide | 12 389 | GHG | | | | | | 81 061 73 | 355 050 37 | 81 061 73 | 355 050 37 | 52 558 78 | 230 207 45 |
| Methane | 7 828 | GHG, (112r) | | | | | | 27 76 | 121 59 | 27 76 | 121 59 | 18 01 | 78 89 |
| Nitrous ox de | 1002 972 | GHG | | | | | | 3 64 | 15 96 | 3 64 | 15 96 | 2 37 | 10 36 |
| Carbon dioxide equivalent | | GHG | | | | | | 83 125 79 | 364 090 97 | 83 125 79 | 364 090 97 | 55 446 11 | 242 853 97 |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Su furic acid m st | 766 939 | TAP | | | | | | 38 32 | 167 84 | 38 32 | 167 84 | 0 52 | 2 28 |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 2 63 | 11 54 | 2 63 | 11 54 | 1 33 | 5 81 |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 01 | 0 05 |
| 1,1-Dichloroethane | 753 3 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | | | 0 05 | 0 21 | 0 05 | 0 21 | 0 03 | 0 13 |
| 1,2-Dichloroethane | 107062 | HAP | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 01 | 0 03 |
| 1,2-Dichloropropane | 78875 | HAP | | | | | | 0 01 | 0 06 | 0 01 | 0 06 | 0 01 | 0 04 |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | | | 0 02 | 0 09 | 0 02 | 0 09 | 0 01 | 0 06 |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch oroacetophenone | 53227 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trophenol | 51286 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trotoluene | 1211 2 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| -Nitrophenol | 100027 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | | | 0 04 | 0 16 | 0 04 | 0 16 | 0 02 | 0 11 |
| Acetophenone | 98862 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | | | 0 03 | 0 13 | 0 03 | 0 13 | 0 02 | 0 09 |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| An line | 62533 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Antimony Compounds | | HAP, TAP | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 00 | 0 00 |
| Arsenic Compounds | | HAP, TAP | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 00 | 0 00 |
| Benzene | 71 32 | HAP, TAP | | | | | | 0 10 | 0 44 | 0 10 | 0 44 | 0 06 | 0 28 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Beryllium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biphenyl | 9252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromoform | 75252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromomethane | 7 839 | HAP, TAP | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 00 | 0 02 |
| Cadmium Compounds | | HAP, TAP | | | | | | 0 01 | 0 06 | 0 01 | 0 06 | 0 00 | 0 00 |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | | | 0 05 | 0 22 | 0 05 | 0 22 | 0 03 | 0 14 |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Catechol | 120809 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | | | 0 91 | 3 97 | 0 91 | 3 97 | 0 01 | 0 05 |
| Chlorobenzene | 108907 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 00 | 0 02 |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | | | 0 01 | 0 06 | 0 01 | 0 06 | 0 01 | 0 03 |
| Chromium Compounds | | HAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| Chromium( 6) Compounds | | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Cobalt Compounds | | HAP, TAP | | | | | | 0 02 | 0 09 | 0 02 | 0 09 | 0 00 | 0 00 |
| Cresols | 1319773 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cumene | 98828 | HAP, TAP | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 01 |
| Cyanide Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Diethanolamine | 111 22 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl su fate | 77781 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | | | 0 01 | 0 06 | 0 01 | 0 06 | 0 01 | 0 04 |
| Ethylbenzene | 100 1 | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | | | 0 33 | 1 44 | 0 33 | 1 44 | 0 22 | 0 95 |
| Glycol Ethers | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachloroethane | 67721 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | | | 0 88 | 3 86 | 0 88 | 3 86 | 0 31 | 1 36 |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | | | 0 10 | 0 45 | 0 10 | 0 45 | 0 00 | 0 01 |
| Iodomethane | 7 88 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isophorone | 78591 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead Compounds | | HAP, TAP | | | | | | 0 01 | 0 06 | 0 01 | 0 06 | 0 00 | 0 01 |
| Manganese Compounds | | HAP, TAP | | | | | | 0 05 | 0 20 | 0 05 | 0 20 | 0 03 | 0 12 |
| m-Cresol | 10839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Mercury Compounds | | HAP | | | | | | 0 03 | 0 11 | 0 03 | 0 11 | 0 00 | 0 00 |
| Methanol | 67561 | HAP, TAP | | | | | | 0 34 | 1 48 | 0 34 | 1 48 | 0 22 | 0 96 |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl methacrylate | 80626 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methylene chloride | 75092 | HAP, TAP | | | | | | 0 14 | 0 60 | 0 14 | 0 60 | 0 09 | 0 39 |
| m-Xylene | 108383 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Naphthalene | 91203 | HAP, TAP | | | | | | 0 03 | 0 13 | 0 03 | 0 13 | 0 02 | 0 08 |
| n-Hexane | 1105 3 | HAP, TAP | | | | | | 0 73 | 3 19 | 0 73 | 3 19 | 0 08 | 0 36 |
| Nickel Compounds | | HAP, TAP | | | | | | 0 53 | 2 32 | 0 53 | 2 32 | 0 01 | 0 04 |
| o-Cresol | 95 87 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-Xylene | 95 76 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-Cresol | 106 5 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Pentachlorophenol | 87865 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Phenol | 108952 | HAP, TAP | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 01 | 0 02 |
| Phosphorus | 77231 0 | HAP, TAP | | | | | | 0 04 | 0 17 | 0 04 | 0 17 | 0 03 | 0 11 |
| Polycyclic organic matter | | HAP, TAP | | | | | | 0 01 | 0 06 | 0 01 | 0 06 | 0 01 | 0 04 |
| Prop onaldehyde | 123386 | HAP, TAP | | | | | | 0 02 | 0 10 | 0 02 | 0 10 | 0 02 | 0 07 |
| p-Xylene | 106 23 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Selenium Compounds | | HAP, TAP | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 00 | 0 01 |
| Styrene | 100 25 | HAP, TAP | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 00 | 0 02 |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | | | 0 02 | 0 09 | 0 02 | 0 09 | 0 01 | 0 06 |
| Toluene | 108883 | HAP, TAP | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 00 | 0 00 |
| Trichloroethy ene | 79016 | HAP, TAP | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 00 | 0 02 |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl ch oride | 7501 | HAP, TAP | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 00 | 0 02 |
| Xy enes | 1330207 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

8. REFERENCES:

9. NOTES:

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Bo ler 1 - Worst-Case Fuel TDF | | | | | | | | |
| Detailed Process Unit Emissions en ered in o AEI | | | | | | | | |
| Ti le V Unit D = 08. Equipment ID = 2605 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 0 00E 00 | | | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl mercaptan | | | 0 00E 00 | | | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dimethyl d su fide | | | 0 00E 00 | | | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dimethyl sulf de | | | 0 00E 00 | | | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Other Air Pollutants | | | | | | | | 18 74 | 82 10 | 18 74 | 82 10 | 12 16 | 53 25 |
| 1,2-dibromoethene | 5 0 98 | | | | | | | 0 02 | 0 09 | 0 02 | 0 09 | 0 01 | 0 06 |
| 1,2-dich oroethylene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dimethoxyethane | 11071 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch orophenol | 95578 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-din tro- 6-methylphenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-hexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methylnaptha ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl propene | 115117 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl-2-propanol benzene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-nitrophenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-propanol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,5-dimethyl benzaldehyde | | | | | | | | 0 02 | 0 08 | 0 02 | 0 08 | 0 01 | 0 05 |
| 3-carene | | | | | | | | 0 47 | 2 06 | 0 47 | 2 06 | 0 30 | 1 34 |
| 3-methylch oranthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 5-methyl chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthy ene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acetone | | | | | | | | 0 03 | 0 13 | 0 03 | 0 13 | 0 02 | 0 09 |
| alpha-pinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-terpinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-terpiniol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ammonia | 766 17 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| barium | | | | | | | | 0 06 | 0 28 | 0 06 | 0 28 | 0 04 | 0 18 |
| benzaldehyde | | | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| benzoic acid | | | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| benzo(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(b)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(gh )perylene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(k)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzyl alcohol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| beta-pinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| b s (2-Chloroisopropy ) ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| boron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromodichloromethane | | | | | | | | 1 18 | 5 15 | 1 18 | 5 15 | 0 76 | 3 34 |
| butane | 106978 | (112r) | | | | | | 0 85 | 3 73 | 0 85 | 3 73 | 0 01 | 0 06 |
| butylbenzylphtha ate | | | | | | | | 0 01 | 0 02 | 0 01 | 0 02 | 0 00 | 0 01 |
| camphene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphor | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| copper | | | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 00 | 0 01 |
| crotonaldehyde | 170303 | (112r) | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 01 |
| cyc ohexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| decach orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibenzo(ah)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibromomethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobenzene | 25321226 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ethylphthala e | | | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 02 |
| di-n-octyl phtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dysprosium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ethane | 7 8 0 | (112r) | | | | | | 1 26 | 5 50 | 1 26 | 5 50 | 0 02 | 0 09 |
| ethanol | | | | | | | | 0 03 | 0 12 | 0 03 | 0 12 | 0 02 | 0 08 |
| fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| fluorene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| gamma-Terpinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| germanium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| heptane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexa dehyde | | | | | | | | 0 01 | 0 06 | 0 01 | 0 06 | 0 01 | 0 04 |
| indeno(123-cd)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iodine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| isopropanol | | | | | | | | 1 06 | 4 64 | 1 06 | 4 64 | 0 69 | 3 01 |
| isovaleraldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| limonene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| lithium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| methyl anthracene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl ethyl ketone | 78933 | TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| molybdenum | | | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| m-tolualdehyde | | | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 01 |
| myrcene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-buty aldehyde | | | | | | | | 0 02 | 0 10 | 0 02 | 0 10 | 0 02 | 0 07 |
| neodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| niobium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| nitric ox de | | | | | | | | 0 89 | 3 90 | 0 89 | 3 90 | 0 01 | 0 06 |
| nonane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-tolualdehyde | | | | | | | | 0 05 | 0 22 | 0 05 | 0 22 | 0 03 | 0 14 |
| pah | | | | | | | | 0 02 | 0 09 | 0 02 | 0 09 | 0 00 | 0 00 |
| p-cymene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentane | 109660 | (112r) | | | | | | 1 05 | 4 61 | 1 05 | 4 61 | 0 02 | 0 07 |
| phenanthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-dioxins | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-furans | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| po assium | | | | | | | | 15 29 | 66 96 | 15 29 | 66 96 | 9 91 | 43 42 |
| praeseodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| propane | 7 986 | (112r) | | | | | | 0 65 | 2 84 | 0 65 | 2 84 | 0 01 | 0 05 |
| propy ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-tolualdehyde | | | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 01 |
| pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| rub dium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| samarium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| s lver | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| sodium | | | | | | | | 0 14 | 0 62 | 0 14 | 0 62 | 0 09 | 0 40 |
| solicy adehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| strontium | | | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 01 |
| terpenes | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tert-butyl methyl ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tetrachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thallium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thorium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tin | | | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 01 | 0 04 |
| ti anium | | | | | | 2.5 | | 0 02 | 0 09 | 0 02 | 0 09 | 0 01 | 0 06 |
| trich orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orofluoromethane | | | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 01 | 0 05 |
| tungsten | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| valeradehyde | | | | | | | | 0 04 | 0 16 | 0 04 | 0 16 | 0 02 | 0 10 |
| vanadium | | | | | | | | 0 08 | 0 36 | 0 08 | 0 36 | 0 00 | 0 01 |
| yttrium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| zinc | | | | | | | | 0 39 | 1 69 | 0 39 | 1 69 | 0 08 | 0 33 |
| zirconium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Bo ler 1 - Wood Was e | 392 | MM Btu/hr | 25 | MM Btu/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 008, Process Unit D = 5 | | | | | | | | |
| Ti le V Unit D = 08, Equipment ID = 2605 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 1.7 E-01 | #/MM Btu | A | 1 | 99% | **6 820 80** | **29 875 10** | **68 21** | **298 75** | **44 22** | **193 70** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.29E-01 | #/MM Btu | A | 1 | 99% | **5 056 80** | **22 148 78** | **50 57** | **221 49** | **32 79** | **143 61** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 1.12E-01 | #/MM Btu | A | 1 | 99% | **4 390 40** | **19 229 95** | **43 90** | **192 30** | **28 47** | **124 68** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 1.70E-02 | #/MM Btu | A | 1 | | **6 66** | **29 19** | **6 66** | **29 19** | **4 32** | **18 93** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **5 063 46** | **22 177 97** | **57 23** | **250 68** | **37 11** | **162 53** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **4 397 06** | **19 259 14** | **50 57** | **221 49** | **32 79** | **143 61** |
| Su fur dioxide | 7 6095 | Cr teria | 2.50E-02 | #/MM Btu | B | 1 | | **9 80** | **42 92** | **9 80** | **42 92** | **6 35** | **27 83** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 1.30E-02 | #/MM Btu | F | 1 | | **3 10** | **22 32** | **3 10** | **22 32** | **3 30** | **14 47** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 1.30E-02 | #/MM Btu | K | 2.5 | | **12 74** | **55 80** | **12 74** | **55 80** | **8 26** | **36 18** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | N | 1 | | **4 23** | **18 54** | **4 23** | **18 54** | **2 74** | **12 02** |
| Carbon monox de | | Cr teria | 6.00E-01 | #/MM Btu | B | 1 | | **235 20** | **1 030 18** | **235 20** | **1 030 18** | **152 50** | **667 95** |
| Lead | | Cr teria | 7. 0E-06 | #/MM Btu | G | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Nitrogen oxides | | Cr teria | 2.20E-01 | #/MM Btu | B | 1 | | **86 24** | **377 73** | **86 24** | **377 73** | **55 92** | **244 91** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | 9 38E 01 | kg/MM Btu | L | 1 | | **81 061 73** | **355 050 37** | **81 061 73** | **355 050 37** | **52 558 78** | **230 207 45** |
| Methane | 7 828 | GHG, (112r) | 3.20E-02 | kg/MM Btu | L | 1 | | **27 65** | **121 13** | **27 65** | **121 13** | **17 93** | **78 54** |
| Nitrous ox de | 1002 972 | GHG | .20E-03 | kg/MM Btu | L | 1 | | **3 63** | **15 90** | **3 63** | **15 90** | **2 35** | **10 31** |
| Carbon dioxide equivalent | | GHG | | | M | 1 | | **82 834 72** | **362 816 06** | **82 834 72** | **362 816 06** | **53 708 35** | **235 242 87** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | 0.0E 00 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 0.0E 00 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 0.0E 00 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **1 63** | **7 16** | **1 63** | **7 16** | **1 06** | **4 64** |
| 1,1,1-Tr chloroethane | 71556 | HAP | .20E-05 | #/MM Btu | F | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 05** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 1.20E-0 | #/MM Btu | F | 1 | | **0 05** | **0 21** | **0 05** | **0 21** | **0 03** | **0 13** |
| 1,2-Dichloroethane | 107062 | HAP | 2.90E-05 | #/MM Btu | F | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 03** |
| 1,2-Dichloropropane | 78875 | HAP | 3.30E-05 | #/MM Btu | F | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 04** |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 5.50E-05 | #/MM Btu | F | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 01** | **0 06** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | 2.60E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2, -Din trotoluene | 1211 2 | HAP | 9. 0E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2, ,6-Tr chlorophenol | 88062 | HAP | 2. 0E-08 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| -Nitrophenol | 100027 | HAP | 1.20E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Aceta dehyde | 75070 | HAP, TAP, (112 | 9.50E-05 | #/MM Btu | F | 1 | | **0 04** | **0 16** | **0 04** | **0 16** | **0 02** | **0 11** |
| Acetophenone | 98862 | HAP, TAP | 2.60E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrolein | 107028 | HAP, TAP, (112 | 7.80E-05 | #/MM Btu | F | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 02** | **0 09** |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | .20E-07 | #/MM Btu | G | 1.20 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | .00E-07 | #/MM Btu | G | 1.32 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 2.50E-0 | #/MM Btu | F | 1 | | **0 10** | **0 43** | **0 10** | **0 43** | **0 06** | **0 28** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | .00E-07 | #/MM Btu | G | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | .70E-08 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | 1.50E-05 | #/MM Btu | F | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 02** |
| Cadmium Compounds | | HAP, TAP | 5.90E-07 | #/MM Btu | G | 1.1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | HAP, TAP, (112 | 1.30E-0 | #/MM Btu | F | 1 | | **0 05** | **0 22** | **0 05** | **0 22** | **0 03** | **0 14** |
| Carbon tetrachloride | 56235 | HAP, TAP | 8.90E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 5.50E-10 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112 | 1.90E-05 | #/MM Btu | F | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 02** |
| Chloromethane | 7 873 | HAP, TAP, (112 | 2.30E-05 | #/MM Btu | F | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Chromium Compounds | | HAP | 6.60E-07 | #/MM Btu | G | 1.31 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | 5.00E-06 | #/MM Btu | G | 1.31 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Cobalt Compounds | | HAP, TAP | 1.90E-07 | #/MM Btu | G | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | 8.90E-06 | #/MM Btu | F | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | 3.30E-05 | #/MM Btu | F | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 04** |
| Ethylbenzene | 100 1 | HAP, TAP | 6.80E-06 | #/MM Btu | F | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | 8. 0E-0 | #/MM Btu | F | 1 | | **0 33** | **1 44** | **0 33** | **1 44** | **0 21** | **0 94** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | 1.00E-06 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112 | 3.50E-0 | #/MM Btu | F | 1 | | **0 14** | **0 60** | **0 14** | **0 60** | **0 09** | **0 39** |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 7. 0E-06 | #/MM Btu | G | 1.08 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Manganese Compounds | | HAP, TAP | 7.90E-05 | #/MM Btu | G | 1.29 | | **0 04** | **0 18** | **0 04** | **0 18** | **0 03** | **0 11** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 6.20E-07 | #/MM Btu | G | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | 8.60E-0 | #/MM Btu | F | 1 | | **0 34** | **1 48** | **0 34** | **1 48** | **0 22** | **0 96** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 2.30E-05 | #/MM Btu | F | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 3.50E-0 | #/MM Btu | F | 1 | | **0 14** | **0 60** | **0 14** | **0 60** | **0 09** | **0 39** |
| m-Xylene | 108383 | HAP, TAP | 6.90E-10 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | 7. 0E-05 | #/MM Btu | F | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 02** | **0 08** |
| n-Hexane | 1105 3 | HAP, TAP | 2.80E-0 | #/MM Btu | F | 1 | | **0 11** | **0 48** | **0 11** | **0 48** | **0 07** | **0 31** |
| Nickel Compounds | | HAP, TAP | 3.50E-06 | #/MM Btu | G | 1.27 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 2.60E-06 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | .80E-08 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Phenol | 108952 | HAP, TAP | 2.00E-05 | #/MM Btu | F | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 01** | **0 02** |
| Phosphorus | 77231 0 | HAP, TAP | 9.90E-05 | #/MM Btu | G | 1 | | **0 04** | **0 17** | **0 04** | **0 17** | **0 03** | **0 11** |
| Polycyclic organ c matter | | HAP, TAP | | | O | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 04** |
| Propionaldehyde | 123386 | HAP, TAP | 6.10E-05 | #/MM Btu | F | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 07** |
| p-Xylene | 106 23 | HAP, TAP | 6.90E-10 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | 3.30E-06 | #/MM Btu | G | 1. 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Styrene | 100 25 | HAP, TAP | 1.50E-05 | #/MM Btu | F | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 02** |
| Tetrachloroethylene | 12718 | HAP, TAP | 5.20E-05 | #/MM Btu | F | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 01** | **0 06** |
| Toluene | 108883 | HAP, TAP | 2.50E-06 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 1.90E-05 | #/MM Btu | F | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 02** |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | 1.80E-05 | #/MM Btu | F | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 02** |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Emission factors from AP- 2 - Tab e 1.6-1, Bark/Wood-fired Boiler with ESP.
B) Emission factors from AP- 2 Tab e 1 6-2.
C) Emission factors from AP- 2 Table 1.6-3.
D) Emission factors from AP- 2 Table 1.6-
E) Med an em ssion factors from NCASI Technical Bul etin No. 701 - Table 19A, Wood-fired Bo lers.
F) Emiss on ac ors from NCASI Techn cal Bu le in 858, Table 20A.
G) Em ssion factors from NCASI Technical Bul etin 858, Table 20B - Fabric Fi ter/ESP (except Ag, P, and Th wet scrubber - no ESP factor).
H) Average emiss on ac ors from NCASI Techn cal Bu le in No. 6 6 - Table 1, Bark Wood Residue Bo lers. Emission factor converted from # TWWF o # MM Btu assuming 9 MM Btu/TWWF.
I) Average em ssion factors from NCASI Technical Bulletin No. 6 6 - Tab e 2, Bark/Wood Residue Boilers. Emiss on factor converted from #/TDF to #/MM Btu assuming 18 MM Btu/TDF.
J) Average emission factors from NCASI Technical Bul etin No. 6 6 - Table 3, Bark/Wood Res due Boi ers.
K) Primary VOC assumed to be forma dehyde.
L) Emiss on ac or for wood and wood residuals combustion in EPA MRR, Tab e C-1 and C-2.
M) Emiss on factor based on GWP in EPA MRR, Tab e A-1.
N) VOC em ssions are sum of indiv dual specia ed VOC.
O) Sum of speciated POM and PAH.
P) Emission Factor from Construction Permit Exemp ion 05 (May 201 ).

9. NOTES:

Biomass (bark/wood) heating value ,500 Btu lb.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Bo ler 1 - Wood Was e | 392 | MM Btu/hr | 25 | MM Btu/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 008, Process Unit D = 5 | | | | | | | | |
| Ti le V Unit D = 08. Equipment ID = 2605 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | **18 53** | **81 16** | **18 53** | **81 16** | **12 01** | **52 62** |
| 1,2-dibromoethene | 5 0 98 | | 5.50E-05 | #/MM Btu | F | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 01** | **0 06** |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | 3.00E-08 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-din tro- 6-methylphenol | | | 2.10E-06 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | .20E-08 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | .50E-05 | #/MM Btu | F | 1 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 01** | **0 05** |
| 3-carene | | | 1.20E-03 | #/MM Btu | F | 1 | | **0 47** | **2 06** | **0 47** | **2 06** | **0 30** | **1 34** |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 7.70E-05 | #/MM Btu | F | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 02** | **0 09** |
| alpha-pinene | | | 3. 0E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | 3.30E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | 1.60E-0 | #/MM Btu | G | 1 | | **0 06** | **0 27** | **0 06** | **0 27** | **0 04** | **0 18** |
| benzaldehyde | | | 3.00E-06 | #/MM Btu | F | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| benzoic acid | | | 2.30E-05 | #/MM Btu | F | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | 8. 0E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| b s (2-Chloroisopropy ) ether | | | 6.20E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | 3.00E-03 | #/MM Btu | F | 1 | | **1 18** | **5 15** | **1 18** | **5 15** | **0 76** | **3 34** |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | 1.30E-05 | #/MM Btu | F | 1 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 01** |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | .20E-06 | #/MM Btu | G | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | 1.10E-05 | #/MM Btu | F | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | 2.70E-10 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | 9.00E-10 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ethylphthala e | | | 2.20E-05 | #/MM Btu | F | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 02** |
| di-n-octyl phtha ate | | | 1.10E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 6.80E-05 | #/MM Btu | F | 1 | | **0 03** | **0 12** | **0 03** | **0 12** | **0 02** | **0 08** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | 8.00E-10 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| hexa dehyde | | | 3.30E-05 | # MM Btu | F | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 04** |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | 2.70E-03 | # MM Btu | F | 1 | | **1 06** | **4 64** | **1 06** | **4 64** | **0 69** | **3 01** |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 2. 0E-08 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| molybdenum | | | 1.10E-06 | #/MM Btu | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m- olualdehyde | | | 9.20E-06 | #/MM Btu | F | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | 6.10E-05 | #/MM Btu | F | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 07** |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | 1.30E-0 | #/MM Btu | F | 1 | | **0 05** | **0 22** | **0 05** | **0 22** | **0 03** | **0 14** |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | 1.30E-06 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pentach orobiphenyl | | | 1.80E-09 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | 3.90E-02 | #/MM Btu | G | 1 | | **15 29** | **66 96** | **15 29** | **66 96** | **9 91** | **43 42** |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | 9.20E-06 | #/MM Btu | F | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | 9.90E-07 | #/MM Btu | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| sodium | | | 3.60E-0 | #/MM Btu | G | 1 | | **0 14** | **0 62** | **0 14** | **0 62** | **0 09** | **0 40** |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | 1.00E-05 | #/MM Btu | G | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | 3. 0E-09 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thallium | | | 1.90E-06 | # MM Btu | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | 3.90E-05 | # MM Btu | G | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 04** |
| ti anium | | | 2.00E-05 | #/MM Btu | G | 2.5 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 01** | **0 06** |
| trich orobiphenyl | | | 5.50E-09 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| trich orofluoromethane | | | .10E-05 | #/MM Btu | F | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 05** |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | 9.30E-05 | #/MM Btu | F | 1 | | **0 04** | **0 16** | **0 04** | **0 16** | **0 02** | **0 10** |
| vanadium | | | 5.90E-07 | #/MM Btu | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| y trium | | | 3.00E-07 | #/MM Btu | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| zinc | | | .0E-05 | #/MM Btu | G | 1 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 01** | **0 05** |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Bo ler 1 - Natural Gas | 05 | MM Btu/hr | 7 | MM Btu/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 008, Process Unit D = | | | | | | | | |
| Ti le V Unit D = 08. Equipment ID = 2605 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 1.90E-03 | #/MM Btu | B | 1 | | **0 77** | **3 37** | **0 77** | **3 37** | **0 01** | **0 05** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.90E-03 | #/MM Btu | E | 1 | | **0 77** | **3 37** | **0 77** | **3 37** | **0 01** | **0 05** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 1.90E-03 | #/MM Btu | E | 1 | | **0 77** | **3 37** | **0 77** | **3 37** | **0 01** | **0 05** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 5.70E-03 | #/MM Btu | B | 1 | | **2 31** | **10 11** | **2 31** | **10 11** | **0 04** | **0 16** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **3 08** | **13 48** | **3 08** | **13 48** | **0 05** | **0 22** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **3 08** | **13 48** | **3 08** | **13 48** | **0 05** | **0 22** |
| Su fur dioxide | 7 6095 | Cr teria | 6.00E-0 | #/MM Btu | B | 1 | | **0 24** | **1 06** | **0 24** | **1 06** | **0 00** | **0 02** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 5.50E-03 | #/MM Btu | B | 1 | | **2 23** | **9 76** | **2 23** | **9 76** | **0 04** | **0 16** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 5.50E-03 | #/MM Btu | F | 2.5 | | **5 57** | **24 39** | **5 57** | **24 39** | **0 09** | **0 40** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | G | 1 | | **4 31** | **18 89** | **4 31** | **18 89** | **0 07** | **0 31** |
| Carbon monox de | | Cr teria | 8. 0E-02 | #/MM Btu | A | 1 | | **34 02** | **149 01** | **34 02** | **149 01** | **0 55** | **2 42** |
| Lead | | Cr teria | 5.00E-07 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | 2.80E-01 | #/MM Btu | A | 1 | | **113 40** | **496 69** | **113 40** | **496 69** | **1 84** | **8 05** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 5 30E 01 | kg/MM Btu | I | 1 | | **47 339 29** | **207 346 07** | **47 339 29** | **207 346 07** | **767 36** | **3 361 03** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | | | | | |
| Methane | 7 828 | GHG, (112r) | 1.00E-03 | kg/MM Btu | I | 1 | | **0 89** | **3 91** | **0 89** | **3 91** | **0 01** | **0 06** |
| Nitrous ox de | 1002 972 | GHG | 1.00E-0 | kg/MM Btu | I | 1 | | **0 09** | **0 39** | **0 09** | **0 39** | **0 00** | **0 01** |
| Carbon dioxide equivalent | | GHG | | | J | 1 | | **47 388 21** | **207 560 38** | **47 388 21** | **207 560 38** | **768 15** | **3 364 51** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 87** | **3 81** | **0 87** | **3 81** | **0 01** | **0 06** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | | 1 | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | 2.00E-07 | #/MM Btu | H | 1.32 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 8E-06 | #/MM Btu | D | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 1.20E-08 | #/MM Btu | H | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | 1.10E-06 | #/MM Btu | H | 1.1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | 1. 0E-06 | #/MM Btu | H | 1.31 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | 8. 0E-08 | #/MM Btu | H | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | | 1 | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | 3.33E-0 | #/MM Btu | D | 1 | | **0 13** | **0 59** | **0 13** | **0 59** | **0 00** | **0 01** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | | 1 | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 5.00E-07 | #/MM Btu | B | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | 3.80E-07 | #/MM Btu | H | 1.29 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 2.60E-07 | #/MM Btu | H | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | 6.10E-07 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| n-Hexane | 1105 3 | HAP, TAP | 1.80E-03 | #/MM Btu | C | 1 | | **0 73** | **3 19** | **0 73** | **3 19** | **0 01** | **0 05** |
| Nickel Compounds | | HAP, TAP | 2.10E-06 | #/MM Btu | H | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | K | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | 2. 0E-08 | #/MM Btu | H | 1. 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | 3. 0E-06 | #/MM Btu | C | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factors from AP- 2 or Uncontrol ed Ut lity/Large Industrial Natural Gas-fired Bo lers - Table 1. -1.
B) Emission factors from AP- 2 or Uncontrol ed Ut lity/Large Industrial Natural Gas-fired Bo lers - Table 1. -2.
C) Emission factors from AP- 2 for Uncontrolled Ut lity/Large Industr al Natural Gas-fired Bo lers - Table 1. -3.
D) Highest emiss on ac ors from NCASI Techn cal Bu le in No. 650 (Table c), Natural Gas-fired Ut lity Bo lers.
E) All particulte matter assumed to be less than 2.5, per AP- 2.
F) Primary VOC assumed to be formaldehyde.
G) VOC em ssions are sum of individual speciated VOC.
H) Emission factors from AP- 2 for Uncontrolled Natural Gas-fired Boi ers - Table 1. - .
I) Emission factor for natural gas combus ion in EPA MRR, Table C-1 and C-2.
J) Emiss on factor based on GWP in EPA MRR, Tab e A-1.
K) Sum of spec ated POM and PAH.

9. NOTES:
Natural gas heating value 1 000 Btu/cf.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Bo ler 1 - Natural Gas | 05 | MM Btu/hr | 7 | MM Btu/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 008, Process Unit D = | | | | | | | | |
| Ti le V Unit D = 08. Equipment ID = 2605 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | | | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | **4 71** | **20 65** | **4 71** | **20 65** | **0 08** | **0 33** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | 2. 0E-08 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | 1. 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acenaphthy ene (POM) | | | 1. 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | 1.57E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| barium | | | 0E-06 | #/MM Btu | H | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | 1. 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)pyrene (POM) | | | 1.65E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(b)fluoranthene (POM) | | | 1.59E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(gh )perylene (POM) | | | 1.53E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(k)fluoranthene (POM) | | | 1. 9E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | 2.10E-03 | #/MM Btu | C | 1 | | **0 85** | **3 73** | **0 85** | **3 73** | **0 01** | **0 06** |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | 1. 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| copper | | | 8.50E-07 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | 1. 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | 1.20E-06 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | 3.10E-03 | #/MM Btu | C | 1 | | **1 26** | **5 50** | **1 26** | **5 50** | **0 02** | **0 09** |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | 3.00E-09 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluorene (POM) | | | 2.80E-09 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | 1. 9E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | 1.10E-06 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | 2.20E-03 | #/MM Btu | B | 1 | | **0 89** | **3 90** | **0 89** | **3 90** | **0 01** | **0 06** |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | 8E-08 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | 2.60E-03 | #/MM Btu | C | 1 | | **1 05** | **4 61** | **1 05** | **4 61** | **0 02** | **0 07** |
| phenanthrene (POM) | | | 1.70E-08 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | 1.60E-03 | #/MM Btu | C | 1 | | **0 65** | **2 84** | **0 65** | **2 84** | **0 01** | **0 05** |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | 5.00E-09 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | 2.30E-06 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | 2.90E-05 | #/MM Btu | H | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Boiler 1 - No. 6 Fuel O l | 392 | MM Btu/hr | 5 | MM Btu/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 008, Process Unit D = 3 | | | | | | | | |
| Ti le V Unit D = 08, Equipment ID = 2605 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | 1.22E-03 | #/MM Btu | C | 1 | 99.2% | **59 04** | **258 60** | **0 48** | **2 09** | **0 01** | **0 03** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 7.62E-0 | #/MM Btu | C | 1 | 99.3% | **41 97** | **183 83** | **0 30** | **1 31** | **0 00** | **0 02** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 5.08E-0 | #/MM Btu | C | 1 | 99.3% | **30 59** | **133 98** | **0 20** | **0 87** | **0 00** | **0 01** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 1.00E-02 | #/MM Btu | C | 1 | | **3 92** | **17 17** | **3 92** | **17 17** | **0 05** | **0 23** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | **45 89** | **201 00** | **4 22** | **18 48** | **0 06** | **0 25** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | **34 51** | **151 15** | **4 12** | **18 04** | **0 06** | **0 24** |
| Su fur dioxide | 7 6095 | Cr teria | 2 20E 00 | #/MM Btu | A | 1 | | **861 62** | **3 773 88** | **861 62** | **3 773 88** | **11 68** | **51 16** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 5.07E-03 | #/MM Btu | B | 1 | | **1 99** | **8 70** | **1 99** | **8 70** | **0 03** | **0 12** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 5.07E-03 | #/MM Btu | M | 2.5 | | **4 97** | **21 75** | **4 97** | **21 75** | **0 07** | **0 29** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | N | 1 | | **0 19** | **0 84** | **0 19** | **0 84** | **0 00** | **0 01** |
| Carbon monox de | | Cr teria | 3.33E-02 | #/MM Btu | A | 1 | | **13 07** | **57 23** | **13 07** | **57 23** | **0 18** | **0 78** |
| Lead | | Cr teria | 2.80E-05 | #/MM Btu | G | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | 3.13E-01 | #/MM Btu | A | 1 | | **122 83** | **537 98** | **122 83** | **537 98** | **1 67** | **7 29** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 7 51E 01 | kg/MM Btu | I | 1 | | **64 901 23** | **284 267 41** | **64 901 23** | **284 267 41** | **879 84** | **3 853 70** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | | | | | |
| Methane | 7 828 | GHG, (112r) | 3.00E-03 | kg/MM Btu | I | 1 | | **2 59** | **11 36** | **2 59** | **11 36** | **0 04** | **0 15** |
| Nitrous ox de | 1002 972 | GHG | 6.00E-0 | kg/MM Btu | I | 1 | | **0 52** | **2 27** | **0 52** | **2 27** | **0 01** | **0 03** |
| Carbon dioxide equivalent | | GHG | | | J | | | **65 120 57** | **285 228 09** | **65 120 57** | **285 228 09** | **882 81** | **3 866 72** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | 7.98E-02 | #/MM Btu | L | 1.23 | | **38 32** | **167 84** | **38 32** | **167 84** | **0 52** | **2 28** |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **1 87** | **8 20** | **1 87** | **8 20** | **0 03** | **0 11** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 1.57E-06 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrach orodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | 3.50E-05 | #/MM Btu | F | 1.20 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | 2.00E-05 | #/MM Btu | H | 1.32 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 3.00E-06 | #/MM Btu | H | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 2.10E-07 | #/MM Btu | H | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | 3.0 E-05 | #/MM Btu | H | 1.1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112 | 2.31E-03 | #/MM Btu | F | 1 | | **0 91** | **3 97** | **0 91** | **3 97** | **0 01** | **0 05** |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | 5.63E-06 | #/MM Btu | F | 1.31 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | .0 E-06 | #/MM Btu | H | 1.31 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Cobalt Compounds | | HAP, TAP | .01E-05 | #/MM Btu | F | 1.27 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | .2 E-07 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Ethyl ch oride | 75003 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | .07E-0 | #/MM Btu | D | 1 | | **0 16** | **0 70** | **0 16** | **0 70** | **0 00** | **0 01** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | 2. 9E-0 | #/MM Btu | F | 1.05 | | **0 10** | **0 45** | **0 10** | **0 45** | **0 00** | **0 01** |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 2.80E-05 | #/MM Btu | G | 1.08 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | 2.60E-05 | #/MM Btu | H | 1.29 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 00** | **0 00** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 6.15E-05 | #/MM Btu | H | 1.08 | | **0 03** | **0 11** | **0 03** | **0 11** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | 1.21E-05 | #/MM Btu | H | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 00** |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | 1.06E-03 | #/MM Btu | H | 1.27 | | **0 53** | **2 32** | **0 53** | **2 32** | **0 01** | **0 03** |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 7.27E-07 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | 6.31E-05 | #/MM Btu | F | 1 | | **0 02** | **0 11** | **0 02** | **0 11** | **0 00** | **0 00** |
| Polycyclic organ c matter | | HAP, TAP | 8.67E-06 | #/MM Btu | D | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | 1.1 E-05 | #/MM Btu | H | 1. 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | .13E-05 | #/MM Btu | E | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:

A) Maximum em ssion factors from AP- 2 for Uncontro led Residual Oil-fired Uti ity Bo lers Table 1.3-1: assumes 2.1% S.
B) Maximum em ssion factors from AP- 2 for Uncontro led Residual Oil-fired Uti ity Bo lers - Table 1.3-3.
C) Maximum emiss on factors from AP- 2 for Residual Oil-fired U il ty Boilers w th ESPs Table 1.3- : assumes 2.1% Sulfur.
D) Maximum emiss on factors from AP- 2 for Uncontro led Res dual Oil-fired Uti ity Boi ers - Table 1.3-8.
E) Maximum em ssion factors from AP- 2 for Uncontro led Residual Oil-fired Uti ity Bo lers - Table 1.3-9 (PCDD is OCDD).
F) Maximum em ssion factors from AP- 2 for Uncontrolled Residual O l-fired Ut lity Bo lers - Table 1.3-11.
G) Em ssion factor from U.S. EPA document Estimating Air Toxic Em ssions from Coal and O l Combustion Sources [EPA- 50/2-89-001] for Uncontrolled Residual O l-fired Ut lity Bo lers (Table -1).
H) Highest emiss on ac ors from NCASI Techn cal Bu le in No. 650 (Table b), Res dual Oil-fired Uti ity Boi ers.
I) Emission factor for kerosene combustion in EPA MRR, Table C-1 and C-2.
J) Emiss on factor based on GWP in EPA MRR, Tab e A-1.
K) PM-10 and PM-2.5 ratio based on AP- 2, Tab e 1 3- .
L) Maximum SO3 emission factor from AP- 2 for Uncontro led Residual Oil-fired Uti ity Bo lers Table 1.3-1: assumes 2.1% S. Process variabl lty factor adjusts SO3 to H2SO .
M) Primary VOC assumed to be formaldehyde.
N) VOC em ssions are sum of indiv dual specia ed VOC.

9. NOTES:
Residual oil heating value 150,000 Btu/gal.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Boiler 1 - No. 6 Fuel O l | 392 | MM Btu/hr | 5 | MM Btu/hr | 2 | 7 | 365 | 365 |

AEI Group ID = 008, Process Unit D = 3
Ti le V Unit D = 08. Equipment ID = 2605

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | **0 30** | **1 30** | **0 30** | **1 30** | **0 00** | **0 02** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | 1. 1E-07 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acenaphthy ene (POM) | | | 9.22E-09 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | 1. 3E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| barium | | | 1.71E-05 | #/MM Btu | F | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 00** |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | 1.02E-07 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)pyrene (POM) | | | 9.22E-09 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(b)fluoranthene (POM) | | | 3.65E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(gh )perylene (POM) | | | 6.95E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(k)fluoranthene (POM) | | | 3.65E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | 1.75E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| copper | | | 1.65E-05 | #/MM Btu | H | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | 2. 7E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | 3.23E-08 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluorene (POM) | | | 3.15E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | 6.25E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | 5.25E-06 | #/MM Btu | F | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | 5.29E-05 | #/MM Btu | H | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 00** | **0 00** |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | 1.08E-07 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polych orinated dibenzo-p-dioxins | | | 2.07E-11 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | 3.17E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | 2.12E-0 | #/MM Btu | F | 1 | | **0 08** | **0 36** | **0 08** | **0 36** | **0 00** | **0 00** |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | .50E-0 | #/MM Btu | H | 1 | | **0 18** | **0 77** | **0 18** | **0 77** | **0 00** | **0 01** |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combinat on Boi er 1 - Tire Derived Fuel (TDF) | 1 50 | Ton TDF/hr | 0. 5 | Ton TDF/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 008, Process Unit D = 6 | | | | | | | | |
| Ti le V Unit D = 08. Equipment ID = 2605 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 2.20E-06 | #/MM Btu | D | 1 | 99% | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 2.20E-06 | #/MM Btu | D | 1 | 99% | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 2.20E-06 | #/MM Btu | D | 1 | 99% | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| Condensible part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| Su fur dioxide | 7 6095 | Cr teria | 1. 0E-05 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 01** |
| Carbon monox de | | Cr teria | 7.20E-05 | #/MM Btu | D | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Lead | | Cr teria | 3. E-02 | #/MM Btu | A | 1 | | **1 60** | **7 01** | **1 60** | **7 01** | **0 48** | **2 09** |
| Nitrogen oxides | | Cr teria | 9.80E-05 | #/MM Btu | D | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 8 60E 01 | kg/MM Btu | E | 1 | | **284 29** | **1 245 20** | **284 29** | **1 245 20** | **84 77** | **371 31** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | | | | | |
| Methane | 7 828 | GHG, (112r) | 3.20E-02 | kg/MM Btu | E | 1 | | **0 11** | **0 46** | **0 11** | **0 46** | **0 03** | **0 14** |
| Nitrous ox de | 1002 972 | GHG | .20E-03 | kg/MM Btu | E | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 00** | **0 02** |
| Carbon d oxide equivalent | | GHG | | | F | | | **291 08** | **1 274 92** | **291 08** | **1 274 92** | **86 80** | **380 17** |
| | | | | | | | | | | | | | |
| Chlorine diox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Sulfuric acid mist | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| Total Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| Total Reduced Sulfur (as Sulfur) | | NSPS | | | | 1 | | | | | | | |
| Total Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Total 112(b) Hazardous Air Po lutants | | | | | | | | **0 76** | **3 34** | **0 76** | **3 34** | **0 23** | **1 00** |
| 1,1,1-Tr ch oroethane | 71556 | HAP | 1.03E-06 | # MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-D chloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-D chloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr ch oroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-D chloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-D chloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr ch orobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -D chlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1,3-bu ad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroace ophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrach orodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Dinitrophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Dinitrotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr ch orophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Acetaldehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | 2E-06 | #/MM Btu | A | 1.20 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | 1. 9E-05 | #/MM Btu | A | 1.32 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 5.09E-05 | #/MM Btu | B | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 1.06E-07 | #/MM Btu | A | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | 2.8 E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cadmium Compounds | | HAP, TAP | 9.83E-07 | #/MM Btu | A | 1.1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | HAP, TAP, (112 | 2.19E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 5.35E-07 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112 | 1.20E-0 | #/MM Btu | B | 1 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 01** |
| Chromium Compounds | | HAP | 2.68E-06 | #/MM Btu | A | 1.31 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | 2.13E-06 | #/MM Btu | A | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | 1.15E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112 | 1.60E-02 | #/MM Btu | A | 1 | | **0 74** | **3 26** | **0 74** | **3 26** | **0 22** | **0 97** |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | 5. 7E-07 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 2.79E-05 | #/MM Btu | A | 1.08 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | 8.78E-05 | #/MM Btu | A | 1.29 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 01** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 1.28E-07 | #/MM Btu | A | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | .1 E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 5.70E-07 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | 2. 9E-06 | #/MM Btu | A | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 1.22E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | .1 E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | 7.21E-06 | #/MM Btu | A | 1. 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | 1.83E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | 3.00E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factor deve oped from Bowater stack test burning bark and TDF ( 21/200 ).
B) Emission factor from Air Emissions from Scrap Tire Combust on (EPA-600 R-97-115), Tab e 18 - Grea er of 7%, 15%, 17%, or 19% TDF.
C) Em ssion factor from Air Emissions from Scrap Tire Combustion (EPA-600/R-97-115), Table 19 - 100% TDF.
D) Em ssion factor from Air Emissions from Scrap Tire Combustion (EPA-600/R-97-115), Table 21 - 100% TDF.
E) Emission factor for ires combus ion in EPA MRR, Table C-1 and C-2.
F) Emission factor based on GWP in EPA MRR, Table A-1.
G) PM-10 and PM-2.5 emissions assumed equivalent to TPM.
H) Sum of spec ated POM and PAH.

9. NOTES:
TDF heating value 15,500 Btu/lb.

Maximum production s maximum expec ed product on rate.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combinat on Boi er 1 - Tire Derived Fuel (TDF) | 1.50 | Ton TDF/hr | 0. 5 | Ton TDF/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 008, Process Unit D = 6 | | | | | | | | |
| Ti le V Unit D = 08. Equipment ID = 2605 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | | | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | **0 21** | **0 93** | **0 21** | **0 93** | **0 06** | **0 28** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | 5.35E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methyl-2-propanol benzene | | | .21E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | 2.81E-05 | #/MM Btu | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | 2.12E-05 | #/MM Btu | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | 6.58E-07 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| Lithium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | 1.70E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | 9.30E-08 | #/MM Btu | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | 5.28E-07 | #/MM Btu | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | .52E-03 | #/MM Btu | A | 1 | | **0 21** | **0 92** | **0 21** | **0 92** | **0 06** | **0 27** |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Bo ler 2 - Worst-Case Fuel TDF | | | | | | | | |
| Detailed Process Unit Emissions en ered in o AEI Ti le V Unit D = 08. Equipment ID = 3705 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | | | 11 802 61 | 51 695 43 | 118 03 | 516 95 | 83 34 | 365 02 |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | | | 8 764 81 | 38 389 87 | 87 65 | 383 90 | 61 89 | 271 08 |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | | | 7 669 21 | 33 591 14 | 76 69 | 335 91 | 54 16 | 237 20 |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | | | 8 47 | 37 08 | 8 47 | 37 08 | 6 12 | 26 82 |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | 8 773 28 | 38 426 95 | 96 11 | 420 98 | 68 02 | 297 91 |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | 7 677 68 | 33 628 22 | 85 16 | 372 99 | 60 28 | 264 03 |
| Su fur dioxide | 7 6095 | Cr teria | | | | | | 1 538 60 | 6 739 07 | 1 538 60 | 6 739 07 | 28 65 | 125 49 |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | | | 6 47 | 28 36 | 6 47 | 28 36 | 4 67 | 20 46 |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | | | 16 19 | 70 89 | 16 19 | 70 89 | 11 68 | 51 15 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | | | 7 68 | 33 64 | 7 68 | 33 64 | 3 91 | 17 14 |
| Carbon monox de | | Cr teria | | | | | | 298 80 | 1 308 76 | 298 80 | 1 308 76 | 212 06 | 928 83 |
| Lead | | Cr teria | | | | | | 1 62 | 7 10 | 1 62 | 7 10 | 0 66 | 2 88 |
| Nitrogen oxides | | Cr teria | | | | | | 219 34 | 960 70 | 219 34 | 960 70 | 83 01 | 363 59 |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | | | 116 179 35 | 508 865 57 | 116 179 35 | 508 865 57 | 2 801 09 | 12 268 79 |
| Biogenic carbon dioxide | 12 389 | GHG | | | | | | 102 981 48 | 451 058 89 | 102 981 48 | 451 058 89 | 72 688 19 | 318 374 29 |
| Methane | 7 828 | GHG, (112r) | | | | | | 35 24 | 154 34 | 35 24 | 154 34 | 24 92 | 109 16 |
| Nitrous ox de | 1002 972 | GHG | | | | | | 4 63 | 20 26 | 4 63 | 20 26 | 3 27 | 14 34 |
| Carbon dioxide equivalent | | GHG | | | | | | 116 577 81 | 510 610 79 | 116 577 81 | 510 610 79 | 77 088 19 | 337 646 27 |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Su furic acid m st | 766 939 | TAP | | | | | | 68 43 | 299 72 | 68 43 | 299 72 | 0 88 | 3 87 |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 4 26 | 18 66 | 4 26 | 18 66 | 1 91 | 8 35 |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | | | 0 02 | 0 09 | 0 02 | 0 09 | 0 01 | 0 06 |
| 1,1-Dichloroethane | 753 3 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | | | 0 06 | 0 26 | 0 06 | 0 26 | 0 04 | 0 18 |
| 1,2-Dichloroethane | 107062 | HAP | | | | | | 0 01 | 0 06 | 0 01 | 0 06 | 0 01 | 0 04 |
| 1,2-Dichloropropane | 78875 | HAP | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 01 | 0 05 |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | | | 0 03 | 0 12 | 0 03 | 0 12 | 0 02 | 0 08 |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch oroacetophenone | 53227 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trophenol | 51286 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trotoluene | 1211 2 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| -Nitrophenol | 100027 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | | | 0 05 | 0 21 | 0 05 | 0 21 | 0 03 | 0 15 |
| Acetophenone | 98862 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | | | 0 04 | 0 17 | 0 04 | 0 17 | 0 03 | 0 12 |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| An line | 62533 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Antimony Compounds | | HAP, TAP | | | | | | 0 03 | 0 13 | 0 03 | 0 13 | 0 00 | 0 00 |
| Arsenic Compounds | | HAP, TAP | | | | | | 0 02 | 0 08 | 0 02 | 0 08 | 0 00 | 0 00 |
| Benzene | 71 32 | HAP, TAP | | | | | | 0 13 | 0 56 | 0 13 | 0 56 | 0 09 | 0 39 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Beryllium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biphenyl | 9252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromoform | 75252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromomethane | 7 839 | HAP, TAP | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 01 | 0 02 |
| Cadmium Compounds | | HAP, TAP | | | | | | 0 02 | 0 11 | 0 02 | 0 11 | 0 00 | 0 00 |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | | | 0 06 | 0 28 | 0 06 | 0 28 | 0 05 | 0 20 |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Catechol | 120809 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | | | 1 62 | 7 09 | 1 62 | 7 09 | 0 02 | 0 09 |
| Chlorobenzene | 108907 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 01 | 0 05 |
| Chromium Compounds | | HAP | | | | | | 0 01 | 0 02 | 0 01 | 0 02 | 0 00 | 0 00 |
| Chromium( 6) Compounds | | HAP, TAP | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 01 |
| Cobalt Compounds | | HAP, TAP | | | | | | 0 04 | 0 16 | 0 04 | 0 16 | 0 00 | 0 00 |
| Cresols | 1319773 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cumene | 98828 | HAP, TAP | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 01 |
| Cyanide Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Diethanolamine | 111 22 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl su fate | 77781 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 01 | 0 05 |
| Ethylbenzene | 100 1 | HAP, TAP | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 01 |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | | | 0 42 | 1 83 | 0 42 | 1 83 | 0 30 | 1 32 |
| Glycol Ethers | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachloroethane | 67721 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | | | 1 06 | 4 63 | 1 06 | 4 63 | 0 48 | 2 12 |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | | | 0 18 | 0 80 | 0 18 | 0 80 | 0 00 | 0 01 |
| Iodomethane | 7 88 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isophorone | 78591 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead Compounds | | HAP, TAP | | | | | | 0 02 | 0 10 | 0 02 | 0 10 | 0 00 | 0 02 |
| Manganese Compounds | | HAP, TAP | | | | | | 0 07 | 0 30 | 0 07 | 0 30 | 0 04 | 0 19 |
| m-Cresol | 10839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Mercury Compounds | | HAP | | | | | | 0 05 | 0 20 | 0 05 | 0 20 | 0 00 | 0 00 |
| Methanol | 67561 | HAP, TAP | | | | | | 0 43 | 1 88 | 0 43 | 1 88 | 0 30 | 1 32 |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 01 | 0 04 |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl methacrylate | 80626 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methylene chloride | 75092 | HAP, TAP | | | | | | 0 17 | 0 76 | 0 17 | 0 76 | 0 12 | 0 54 |
| m-Xylene | 108383 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Naphthalene | 91203 | HAP, TAP | | | | | | 0 04 | 0 16 | 0 04 | 0 16 | 0 03 | 0 11 |
| n-Hexane | 1105 3 | HAP, TAP | | | | | | 1 30 | 5 68 | 1 30 | 5 68 | 0 12 | 0 51 |
| Nickel Compounds | | HAP, TAP | | | | | | 0 95 | 4 15 | 0 95 | 4 15 | 0 01 | 0 07 |
| o-Cresol | 95 87 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-Xylene | 95 76 | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| p-Cresol | 106 5 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Pentachlorophenol | 87865 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Phenol | 108952 | HAP, TAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| Phosphorus | 77231 0 | HAP, TAP | | | | | | 0 05 | 0 22 | 0 05 | 0 22 | 0 04 | 0 15 |
| Polycyclic organic matter | | HAP, TAP | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 01 | 0 05 |
| Prop onaldehyde | 123386 | HAP, TAP | | | | | | 0 03 | 0 13 | 0 03 | 0 13 | 0 02 | 0 09 |
| p-Xylene | 106 23 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Selenium Compounds | | HAP, TAP | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 00 | 0 01 |
| Styrene | 100 25 | HAP, TAP | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 01 | 0 02 |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | | | 0 03 | 0 11 | 0 03 | 0 11 | 0 02 | 0 08 |
| Toluene | 108883 | HAP, TAP | | | | | | 0 03 | 0 13 | 0 03 | 0 13 | 0 00 | 0 01 |
| Trichloroethy ene | 79016 | HAP, TAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl ch oride | 7501 | HAP, TAP | | | | | | 0 01 | 0 04 | 0 01 | 0 04 | 0 01 | 0 03 |
| Xy enes | 1330207 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

8. REFERENCES:

9. NOTES:

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Bo ler 2 - Worst-Case Fuel TDF | | | | | | | | |
| Detailed Process Unit Emissions en ered in o AEI | | | | | | | | |
| Ti le V Unit D = 08. Equipment ID = 3705 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | | | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Other Air Pollutants | | | | | | | | 24 02 | 105 19 | 24 02 | 105 19 | 16 94 | 74 18 |
| 1,2-dibromoethene | 5 0 98 | | | | | | | 0 03 | 0 12 | 0 03 | 0 12 | 0 02 | 0 08 |
| 1,2-dich oroethylene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dimethoxyethane | 11071 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch orophenol | 95578 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-din tro- 6-methylphenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-hexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methylnaptha ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl propene | 115117 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl-2-propanol benzene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-nitrophenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-propanol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,5-dimethyl benzaldehyde | | | | | | | | 0 02 | 0 10 | 0 02 | 0 10 | 0 02 | 0 07 |
| 3-carene | | | | | | | | 0 60 | 2 62 | 0 60 | 2 62 | 0 42 | 1 85 |
| 3-methylch oranthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 5-methyl chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthy ene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acetone | | | | | | | | 0 04 | 0 17 | 0 04 | 0 17 | 0 03 | 0 12 |
| alpha-pinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-terpinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-terpiniol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ammonia | 766 17 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| barium | | | | | | | | 0 08 | 0 37 | 0 08 | 0 37 | 0 06 | 0 26 |
| benzaldehyde | | | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| benzoic acid | | | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 01 | 0 04 |
| benzo(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(b)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(gh )perylene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(k)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzyl alcohol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| beta-pinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| b s (2-Chloroisopropy ) ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| boron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromodichloromethane | | | | | | | | 1 49 | 6 54 | 1 49 | 6 54 | 1 05 | 4 62 |
| butane | 106978 | (112r) | | | | | | 1 51 | 6 62 | 1 51 | 6 62 | 0 02 | 0 09 |
| butylbenzylphtha ate | | | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 00 | 0 02 |
| camphene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphor | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| copper | | | | | | | | 0 01 | 0 06 | 0 01 | 0 06 | 0 00 | 0 01 |
| crotonaldehyde | 170303 | (112r) | | | | | | 0 01 | 0 02 | 0 01 | 0 02 | 0 00 | 0 02 |
| cyc ohexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| decach orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibenzo(ah)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibromomethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobenzene | 25321226 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ethylphthala e | | | | | | | | 0 01 | 0 05 | 0 01 | 0 05 | 0 01 | 0 03 |
| di-n-octyl phtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dysprosium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ethane | 7 8 0 | (112r) | | | | | | 2 23 | 9 78 | 2 23 | 9 78 | 0 03 | 0 14 |
| ethanol | | | | | | | | 0 03 | 0 15 | 0 03 | 0 15 | 0 02 | 0 10 |
| fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| fluorene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| gamma-Terpinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| germanium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| heptane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexach orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexa dehyde | | | | | | | | 0 02 | 0 07 | 0 02 | 0 07 | 0 01 | 0 05 |
| indeno(123-cd)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iodine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| isopropanol | | | | | | | | 1 34 | 5 89 | 1 34 | 5 89 | 0 95 | 4 16 |
| isovaleraldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| limonene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| lithium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| methyl anthracene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl ethyl ketone | 78933 | TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| molybdenum | | | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 00 |
| m-tolualdehyde | | | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 01 |
| myrcene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-buty aldehyde | | | | | | | | 0 03 | 0 13 | 0 03 | 0 13 | 0 02 | 0 09 |
| neodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| niobium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| nitric ox de | | | | | | | | 1 58 | 6 94 | 1 58 | 6 94 | 0 02 | 0 10 |
| nonane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-tolualdehyde | | | | | | | | 0 06 | 0 28 | 0 06 | 0 28 | 0 05 | 0 20 |
| pah | | | | | | | | 0 04 | 0 16 | 0 04 | 0 16 | 0 00 | 0 00 |
| p-cymene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentane | 109660 | (112r) | | | | | | 1 87 | 8 20 | 1 87 | 8 20 | 0 03 | 0 12 |
| phenanthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-dioxins | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-furans | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| po assium | | | | | | | | 19 42 | 85 07 | 19 42 | 85 07 | 13 71 | 60 04 |
| praeseodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| propane | 7 986 | (112r) | | | | | | 1 15 | 5 05 | 1 15 | 5 05 | 0 02 | 0 07 |
| propy ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-tolualdehyde | | | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 01 |
| pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| rub dium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| samarium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| s lver | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| sodium | | | | | | | | 0 18 | 0 79 | 0 18 | 0 79 | 0 13 | 0 55 |
| solicy adehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| strontium | | | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 02 |
| terpenes | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tert-butyl methyl ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tetrachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thallium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thorium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tin | | | | | | | | 0 02 | 0 09 | 0 02 | 0 09 | 0 01 | 0 06 |
| ti anium | | | | | | 2.5 | | 0 02 | 0 11 | 0 02 | 0 11 | 0 02 | 0 08 |
| trich orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orofluoromethane | | | | | | | | 0 02 | 0 09 | 0 02 | 0 09 | 0 01 | 0 06 |
| tungsten | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| valeradehyde | | | | | | | | 0 05 | 0 20 | 0 05 | 0 20 | 0 03 | 0 14 |
| vanadium | | | | | | | | 0 15 | 0 65 | 0 15 | 0 65 | 0 00 | 0 01 |
| y trium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| zinc | | | | | | | | 0 78 | 3 44 | 0 78 | 3 44 | 0 21 | 0 93 |
| zirconium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Bo ler 2 - Wood Was e | 98 | MM Btu/hr | 352 | MM Btu/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 008, Process Unit ID = 10 | | | | | | | | |
| Ti le V Unit D = 08. Equipment ID = 3705 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 2.37E-01 | #/MM Btu | A | 1 | 99% | **11 802 60** | **51 695 39** | **118 03** | **516 95** | **83 31** | **364 89** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.76E-01 | #/MM Btu | A | 1 | 99% | **8 764 80** | **38 389 82** | **87 65** | **383 90** | **61 87** | **270 97** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 1.5 E-01 | #/MM Btu | A | 1 | 99% | **7 669 20** | **33 591 10** | **76 69** | **335 91** | **54 13** | **237 10** |
| Condensible part cu ate matter < 2.5 m crons | | Cr teria | 1.70E-02 | #/MM Btu | A | 1 | | **8 47** | **37 08** | **8 47** | **37 08** | **5 98** | **26 17** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **8 773 27** | **38 426 91** | **96 11** | **420 98** | **67 84** | **297 14** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **7 677 67** | **33 628 18** | **85 16** | **372 99** | **60 11** | **263 27** |
| Su fur dioxide | 7 6095 | Cr teria | 2.50E-02 | #/MM Btu | B | 1 | | **12 45** | **54 53** | **12 45** | **54 53** | **8 79** | **38 49** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 1.30E-02 | #/MM Btu | F | 1 | | **6 47** | **28 36** | **6 47** | **28 36** | **4 57** | **20 01** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 1.30E-02 | #/MM Btu | K | 2.5 | | **16 19** | **70 89** | **16 19** | **70 89** | **11 42** | **50 04** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | N | 1 | | **5 38** | **23 55** | **5 38** | **23 55** | **3 80** | **16 62** |
| Carbon monox de | | Cr teria | 6.00E-01 | #/MM Btu | B | 1 | | **298 80** | **1 308 74** | **298 80** | **1 308 74** | **210 90** | **923 76** |
| Lead | | Cr teria | 7. 0E-06 | #/MM Btu | G | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| Nitrogen oxides | | Cr teria | 2.20E-01 | #/MM Btu | B | 1 | | **109 56** | **479 87** | **109 56** | **479 87** | **77 33** | **338 71** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | 9 38E 01 | kg/MM Btu | L | 1 | | **102 981 48** | **451 058 89** | **102 981 48** | **451 058 89** | **72 688 19** | **318 374 29** |
| Methane | 7 828 | GHG, (112r) | 3.20E-02 | kg/MM Btu | L | 1 | | **35 13** | **153 88** | **35 13** | **153 88** | **24 80** | **108 61** |
| Nitrous ox de | 1002 972 | GHG | .20E-03 | kg/MM Btu | L | 1 | | **4 61** | **20 20** | **4 61** | **20 20** | **3 25** | **14 26** |
| Carbon dioxide equivalent | | GHG | | | M | 1 | | **105 233 90** | **460 924 48** | **105 233 90** | **460 924 48** | **74 278 04** | **325 337 79** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | 0.0E 00 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 0.0E 00 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 0.0E 00 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **2 08** | **9 10** | **2 08** | **9 10** | **1 47** | **6 42** |
| 1,1,1-Tr chloroethane | 71556 | HAP | .20E-05 | #/MM Btu | F | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 01** | **0 06** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 1.20E-0 | #/MM Btu | F | 1 | | **0 06** | **0 26** | **0 06** | **0 26** | **0 04** | **0 18** |
| 1,2-Dichloroethane | 107062 | HAP | 2.90E-05 | #/MM Btu | F | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 04** |
| 1,2-Dichloropropane | 78875 | HAP | 3.30E-05 | #/MM Btu | F | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 05** |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 5.50E-05 | #/MM Btu | F | 1 | | **0 03** | **0 12** | **0 03** | **0 12** | **0 02** | **0 08** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | 2.60E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2, -Din trotoluene | 1211 2 | HAP | 9. 0E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2, ,6-Tr chlorophenol | 88062 | HAP | 2. 0E-08 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| -Nitrophenol | 100027 | HAP | 1.20E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Aceta dehyde | 75070 | MAP, TAP, (112 | 9.50E-05 | #/MM Btu | F | 1 | | **0 05** | **0 21** | **0 05** | **0 21** | **0 03** | **0 15** |
| Acetophenone | 98862 | HAP, TAP | 2.60E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrolein | 107028 | MAP, TAP, (112 | 7.80E-05 | #/MM Btu | F | 1 | | **0 04** | **0 17** | **0 04** | **0 17** | **0 03** | **0 12** |
| Acrylonitr le | 107131 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | .20E-07 | #/MM Btu | G | 1.20 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | .00E-07 | #/MM Btu | G | 1.32 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 2.50E-0 | #/MM Btu | F | 1 | | **0 12** | **0 55** | **0 12** | **0 55** | **0 09** | **0 38** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | .00E-07 | #/MM Btu | G | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | .70E-08 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | 1.50E-05 | #/MM Btu | F | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 01** | **0 02** |
| Cadmium Compounds | | HAP, TAP | 5.90E-07 | #/MM Btu | G | 1.1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | MAP, TAP, (112 | 1.30E-0 | #/MM Btu | F | 1 | | **0 06** | **0 28** | **0 06** | **0 28** | **0 05** | **0 20** |
| Carbon tetrachloride | 56235 | HAP, TAP | 8.90E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbonyl sulf de | 63581 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 5.50E-10 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | MAP, TAP, (112 | 1.90E-05 | #/MM Btu | F | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Chloromethane | 7 873 | MAP, TAP, (112 | 2.30E-05 | #/MM Btu | F | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| Chromium Compounds | | HAP | 6.60E-07 | #/MM Btu | G | 1.31 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | 5.00E-06 | #/MM Btu | G | 1.31 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Cobalt Compounds | | HAP, TAP | 1.90E-07 | #/MM Btu | G | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | 8.90E-06 | #/MM Btu | F | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | 3.30E-05 | #/MM Btu | F | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 05** |
| Ethylbenzene | 100 1 | HAP, TAP | 6.80E-06 | #/MM Btu | F | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Ethyl ch oride | 75003 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112 | 8. 0E-0 | #/MM Btu | F | 1 | | **0 42** | **1 83** | **0 42** | **1 83** | **0 30** | **1 29** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | 1.00E-06 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112 | 3.50E-0 | #/MM Btu | F | 1 | | **0 17** | **0 76** | **0 17** | **0 76** | **0 12** | **0 54** |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 7. 0E-06 | #/MM Btu | G | 1.08 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| Manganese Compounds | | HAP, TAP | 7.90E-05 | #/MM Btu | G | 1.29 | | **0 05** | **0 22** | **0 05** | **0 22** | **0 04** | **0 16** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 6.20E-07 | #/MM Btu | G | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | 8.60E-0 | #/MM Btu | F | 1 | | **0 43** | **1 88** | **0 43** | **1 88** | **0 30** | **1 32** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 2.30E-05 | #/MM Btu | F | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| Methyl hydrazine | 6033 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | 3.50E-0 | #/MM Btu | F | 1 | | **0 17** | **0 76** | **0 17** | **0 76** | **0 12** | **0 54** |
| m-Xylene | 108383 | HAP, TAP | 6.90E-10 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | 7. 0E-05 | #/MM Btu | F | 1 | | **0 04** | **0 16** | **0 04** | **0 16** | **0 03** | **0 11** |
| n-Hexane | 1105 3 | HAP, TAP | 2.80E-0 | #/MM Btu | F | 1 | | **0 14** | **0 61** | **0 14** | **0 61** | **0 10** | **0 43** |
| Nickel Compounds | | HAP, TAP | 3.50E-06 | #/MM Btu | G | 1.27 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 2.60E-06 | #/MM Btu | F | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | .80E-08 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Phenol | 108952 | HAP, TAP | 2.00E-05 | #/MM Btu | F | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Phosphorus | 77231 0 | HAP, TAP | 9.90E-05 | #/MM Btu | G | 1 | | **0 05** | **0 22** | **0 05** | **0 22** | **0 03** | **0 15** |
| Polycyclic organ c matter | | HAP, TAP | | | O | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 05** |
| Propionaldehyde | 123386 | HAP, TAP | 6.10E-05 | #/MM Btu | F | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 02** | **0 09** |
| p-Xylene | 106 23 | HAP, TAP | 6.90E-10 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | 3.30E-06 | #/MM Btu | G | 1. 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Styrene | 100 25 | HAP, TAP | 1.50E-05 | #/MM Btu | F | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 01** | **0 02** |
| Tetrachloroethylene | 12718 | HAP, TAP | 5.20E-05 | #/MM Btu | F | 1 | | **0 03** | **0 11** | **0 03** | **0 11** | **0 02** | **0 08** |
| Toluene | 108883 | HAP, TAP | 2.50E-06 | #/MM Btu | F | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 1.90E-05 | #/MM Btu | F | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Vinyl acetate | 10805 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | 1.80E-05 | #/MM Btu | F | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 01** | **0 03** |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factors from AP- 2 - Tab e 1.6-1, Bark/Wood-fired Boiler with ESP.
B) Emission factors from AP- 2 Tab e 1 6-2.
C) Emission factors from AP- 2 Table 1.6-3.
D) Emission factors from AP- 2 Table 1.6-
E) Med an em ssion factors from NCASI Technical Bul etin No. 701 - Table 19A, Wood-fired Bo lers.
F) Emiss on ac ors from NCASI Techn cal Bu le in 858, Table 20A.
G) Em ssion factors from NCASI Technical Bul etin 858, Table 20B - Fabric Fi ter/ESP (except Ag, P, and Th wet scrubber - no ESP factor).
H) Average emiss on ac ors from NCASI Techn cal Bu le in No. 6 6 - Table 1, Bark Wood Residue Bo lers. Emission factor converted from # TWWF o # MM Btu assuming 9 MM Btu/TWWF.
I) Average em ssion factors from NCASI Technical Bulletin No. 6 6 - Tab e 2, Bark/Wood Residue Boilers. Emiss on factor converted from #/TDF to #/MM Btu assuming 18 MM Btu/TDF.
J) Average emission factors from NCASI Technical Bul etin No. 6 6 - Table 3, Bark/Wood Res due Boi ers.
K) Primary VOC assumed to be forma dehyde.
L) Emiss on ac or for wood and wood residuals combustion in EPA MRR, Tab e C-1 and C-2.
M) Emiss on factor based on GWP in EPA MRR, Tab e A-1.
N) VOC em ssions are sum of indiv dual specia ed VOC.
O) Sum of speciated POM and PAH.
P) Emission Factor from Construction Permit Exemp ion 05 (May 201 ).

9. NOTES:
Biomass (bark/wood) heating value ,500 Btu lb.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Bo ler 2 - Wood Was e | 98 | MM Btu/hr | 352 | MM Btu/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 008, Process Unit ID = 10 | | | | | | | | |
| Ti le V Unit D = 08. Equipment ID = 3705 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | **23 54** | **103 11** | **23 54** | **103 11** | **16 62** | **72 78** |
| 1,2-dibromoethene | 5 0 98 | | 5.50E-05 | #/MM Btu | F | 1 | | **0 03** | **0 12** | **0 03** | **0 12** | **0 02** | **0 08** |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | 3.00E-08 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-din tro- 6-methylphenol | | | 2.10E-06 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | .20E-08 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | .50E-05 | #/MM Btu | F | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 07** |
| 3-carene | | | 1.20E-03 | #/MM Btu | F | 1 | | **0 60** | **2 62** | **0 60** | **2 62** | **0 42** | **1 85** |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 7.70E-05 | #/MM Btu | F | 1 | | **0 04** | **0 17** | **0 04** | **0 17** | **0 03** | **0 12** |
| alpha-pinene | | | 3. 0E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | 3.30E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | 1.60E-0 | #/MM Btu | G | 1 | | **0 08** | **0 35** | **0 08** | **0 35** | **0 06** | **0 25** |
| benzaldehyde | | | 3.00E-06 | #/MM Btu | F | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| benzoic acid | | | 2.30E-05 | #/MM Btu | F | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 04** |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | 8. 0E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| b s (2-Chloroisopropy ) ether | | | 6.20E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | 3.00E-03 | #/MM Btu | F | 1 | | **1 49** | **6 54** | **1 49** | **6 54** | **1 05** | **4 62** |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | 1.30E-05 | #/MM Btu | F | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 02** |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | .20E-06 | #/MM Btu | G | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| crotonaldehyde | 170303 | (112r) | 1.10E-05 | #/MM Btu | F | 1 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 02** |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | 2.70E-10 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | 9.00E-10 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ethylphthala e | | | 2.20E-05 | #/MM Btu | F | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 03** |
| di-n-octyl phtha ate | | | 1.10E-07 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 6.80E-05 | #/MM Btu | F | 1 | | **0 03** | **0 15** | **0 03** | **0 15** | **0 02** | **0 10** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | 8.00E-10 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| hexa dehyde | | | 3.30E-05 | # MM Btu | F | 1 | | **0 02** | **0 07** | **0 02** | **0 07** | **0 01** | **0 05** |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | 2.70E-03 | # MM Btu | F | 1 | | **1 34** | **5 89** | **1 34** | **5 89** | **0 95** | **4 16** |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 2. 0E-08 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| molybdenum | | | 1.10E-06 | #/MM Btu | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m- olualdehyde | | | 9.20E-06 | #/MM Btu | F | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | 6.10E-05 | #/MM Btu | F | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 02** | **0 09** |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | 1.30E-0 | #/MM Btu | F | 1 | | **0 06** | **0 28** | **0 06** | **0 28** | **0 05** | **0 20** |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | 1.30E-06 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pentach orobiphenyl | | | 1.80E-09 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | 3.90E-02 | #/MM Btu | G | 1 | | **19 42** | **85 07** | **19 42** | **85 07** | **13 71** | **60 04** |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | 9.20E-06 | #/MM Btu | F | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | 9.90E-07 | #/MM Btu | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| sodium | | | 3.60E-0 | #/MM Btu | G | 1 | | **0 18** | **0 79** | **0 18** | **0 79** | **0 13** | **0 55** |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | 1.00E-05 | #/MM Btu | G | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 02** |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | 3. 0E-09 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thallium | | | 1.90E-06 | # MM Btu | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | 3.90E-05 | # MM Btu | G | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 01** | **0 06** |
| ti anium | | | 2.00E-05 | #/MM Btu | G | 2.5 | | **0 02** | **0 11** | **0 02** | **0 11** | **0 02** | **0 08** |
| trich orobiphenyl | | | 5.50E-09 | #/MM Btu | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| trich orofluoromethane | | | .10E-05 | #/MM Btu | F | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 01** | **0 06** |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | 9.30E-05 | #/MM Btu | F | 1 | | **0 05** | **0 20** | **0 05** | **0 20** | **0 03** | **0 14** |
| vanadium | | | 5.90E-07 | #/MM Btu | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| y trium | | | 3.00E-07 | #/MM Btu | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| zinc | | | .0E-05 | #/MM Btu | G | 1 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 07** |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Bo ler 2 - Natural Gas | 720 | MM Btu/hr | 10 | MM Btu/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 008, Process Unit D = 9 | | | | | | | | |
| Ti le V Unit D = 08, Equipment ID = 3705 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 1.90E-03 | #/MM Btu | B | 1 | | 1 37 | 5 99 | 1 37 | 5 99 | 0 02 | 0 08 |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.90E-03 | #/MM Btu | E | 1 | | 1 37 | 5 99 | 1 37 | 5 99 | 0 02 | 0 08 |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 1.90E-03 | #/MM Btu | E | 1 | | 1 37 | 5 99 | 1 37 | 5 99 | 0 02 | 0 08 |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 5.70E-03 | #/MM Btu | B | 1 | | 4 10 | 17 98 | 4 10 | 17 98 | 0 06 | 0 25 |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | 5 47 | 23 97 | 5 47 | 23 97 | 0 08 | 0 34 |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | 5 47 | 23 97 | 5 47 | 23 97 | 0 08 | 0 34 |
| Su fur dioxide | 7 6095 | Cr teria | 6.00E-0 | #/MM Btu | B | 1 | | 0 43 | 1 89 | 0 43 | 1 89 | 0 01 | 0 03 |
| Vo ati e organic compounds (as carbon) | | Cr teria | 5.50E-03 | #/MM Btu | B | 1 | | 3 96 | 17 34 | 3 96 | 17 34 | 0 06 | 0 26 |
| Vo ati e organic compounds (as VOC) | | Cr teria | 5.50E-03 | #/MM Btu | F | 2.5 | | 9 90 | 43 36 | 9 90 | 43 36 | 0 14 | 0 61 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | G | 1 | | 7 67 | 33 58 | 7 67 | 33 58 | 0 11 | 0 47 |
| Carbon monox de | | Cr teria | 8. 0E-02 | #/MM Btu | A | 1 | | 60 48 | 264 90 | 60 48 | 264 90 | 0 85 | 3 74 |
| Lead | | Cr teria | 5.00E-07 | #/MM Btu | B | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nitrogen oxides | | Cr teria | 2.80E-01 | #/MM Btu | A | 1 | | 201 60 | 883 01 | 201 60 | 883 01 | 2 85 | 12 48 |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 5 30E 01 | kg/MM Btu | I | 1 | | 84 158 73 | 368 615 24 | 84 158 73 | 368 615 24 | 1 188 99 | 5 207 76 |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | 0 00 | | | | | |
| Methane | 7 828 | GHG, (112r) | 1.00E-03 | kg/MM Btu | I | 1 | | 1 59 | 6 95 | 1 59 | 6 95 | 0 02 | 0 10 |
| Nitrous ox de | 1002 972 | GHG | 1.00E-0 | kg/MM Btu | I | 1 | | 0 16 | 0 70 | 0 16 | 0 70 | 0 00 | 0 01 |
| Carbon dioxide equivalent | | GHG | | | J | 1 | | 84 245 71 | 368 996 23 | 84 245 71 | 368 996 23 | 1 190 22 | 5 213 15 |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 1 55 | 6 78 | 1 55 | 6 78 | 0 02 | 0 10 |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | | 1 | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | 2.00E-07 | #/MM Btu | H | 1.32 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Benzene | 71 32 | HAP, TAP | 8E-06 | #/MM Btu | D | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 1.20E-08 | #/MM Btu | H | 2.78 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | 1.10E-06 | #/MM Btu | H | 1.1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon disulf de | 75150 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | 1. 0E-06 | #/MM Btu | H | 1.31 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | 8. 0E-08 | #/MM Btu | H | 1.27 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | | 1 | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | 3.33E-0 | #/MM Btu | D | 1 | | 0 24 | 1 05 | 0 24 | 1 05 | 0 00 | 0 01 |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | | 1 | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 5.00E-07 | #/MM Btu | B | 1.08 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Manganese Compounds | | HAP, TAP | 3.80E-07 | #/MM Btu | H | 1.29 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 2.60E-07 | #/MM Btu | H | 1.08 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | 6.10E-07 | #/MM Btu | C | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-Hexane | 1105 3 | HAP, TAP | 1.80E-03 | #/MM Btu | C | 1 | | 1 30 | 5 68 | 1 30 | 5 68 | 0 02 | 0 08 |
| Nickel Compounds | | HAP, TAP | 2.10E-06 | #/MM Btu | H | 1.27 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | K | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | 2. 0E-08 | #/MM Btu | H | 1. 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | 3. 0E-06 | #/MM Btu | C | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factors from AP- 2 or Uncontrol ed Ut lity/Large Industrial Natural Gas-fired Bo lers - Table 1. -1.
B) Emission factors from AP- 2 or Uncontrol ed Ut lity/Large Industrial Natural Gas-fired Bo lers - Table 1. -2.
C) Emission factors from AP- 2 for Uncontrolled Ut lity/Large Industr al Natural Gas-fired Bo lers - Table 1. -3.
D) Highest emiss on ac ors from NCASI Techn cal Bu le in No. 650 (Table c), Natural Gas-fired Ut lity Bo lers.
E) All particulte matter assumed to be less than 2.5, per AP- 2.
F) Primary VOC assumed to be formaldehyde.
G) VOC em ssions are sum of individual speciated VOC.
H) Emission factors from AP- 2 for Uncontrolled Natural Gas-fired Boi ers - Table 1. - .
I) Emission factor for natural gas combus ion in EPA MRR, Table C-1 and C-2.
J) Emiss on factor based on GWP in EPA MRR, Tab e A-1.
K) Sum of spec ated POM and PAH.

9. NOTES:
Natural gas heating value 1 000 Btu/cf.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Bo ler 2 - Natural Gas | 720 | MM Btu/hr | 10 | MM Btu/hr | 2 | 7 | 365 | 365 |

AEI Group ID = 008, Process Unit D = 9
Ti le V Unit D = 08. Equipment ID = 3705

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | 8 38 | 36 70 | 8 38 | 36 70 | 0 12 | 0 52 |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | 2 0E-08 | #/MM Btu | C | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthy ene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | 1.57E-09 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| barium | | | 0E-06 | #/MM Btu | H | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)pyrene (POM) | | | 1.65E-09 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(b)fluoranthene (POM) | | | 1.59E-09 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(ghi )perylene (POM) | | | 1.53E-09 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(k)fluoranthene (POM) | | | 1 9E-09 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | 2.10E-03 | #/MM Btu | C | 1 | | 1 51 | 6 62 | 1 51 | 6 62 | 0 02 | 0 09 |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| copper | | | 8.50E-07 | #/MM Btu | H | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | 1.20E-06 | #/MM Btu | C | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | 3.10E-03 | #/MM Btu | C | 1 | | 2 23 | 9 78 | 2 23 | 9 78 | 0 03 | 0 14 |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | 3.00E-09 | #/MM Btu | C | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| fluorene (POM) | | | 2.80E-09 | #/MM Btu | C | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | 1 9E-09 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | 1.10E-06 | #/MM Btu | H | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | 2.20E-03 | #/MM Btu | B | 1 | | 1 58 | 6 94 | 1 58 | 6 94 | 0 02 | 0 10 |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | 8E-08 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | 2.60E-03 | #/MM Btu | C | 1 | | 1 87 | 8 20 | 1 87 | 8 20 | 0 03 | 0 12 |
| phenanthrene (POM) | | | 1.70E-08 | #/MM Btu | C | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | 1.60E-03 | #/MM Btu | C | 1 | | 1 15 | 5 05 | 1 15 | 5 05 | 0 02 | 0 07 |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | 5.00E-09 | #/MM Btu | C | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | 2.30E-06 | #/MM Btu | H | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 00 |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | 2.90E-05 | #/MM Btu | H | 1 | | 0 02 | 0 09 | 0 02 | 0 09 | 0 00 | 0 00 |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Boiler 2 - No. 6 Fuel O l | 700 | MM Btu/hr | 9 | MM Btu/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 008, Process Unit D = 8 | | | | | | | | |
| Ti le V Unit D = 08, Equipment ID = 3705 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | 1.22E-03 | #/MM Btu | C | 1 | 99.2% | **105 43** | **461 79** | **0 85** | **3 73** | **0 01** | **0 05** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 7.62E-0 | #/MM Btu | C | 1 | 99.3% | **74 95** | **328 26** | **0 53** | **2 34** | **0 01** | **0 03** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 5.08E-0 | #/MM Btu | C | 1 | 99.3% | **54 62** | **239 24** | **0 36** | **1 56** | **0 00** | **0 02** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 1.00E-02 | #/MM Btu | C | 1 | | **7 00** | **30 66** | **7 00** | **30 66** | **0 09** | **0 40** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | **81 95** | **358 92** | **7 53** | **33 00** | **0 10** | **0 43** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | **61 62** | **269 90** | **7 36** | **32 22** | **0 09** | **0 42** |
| Su fur dioxide | 7 6095 | Cr teria | 2 20E 00 | #/MM Btu | A | 1 | | **1 538 60** | **6 739 07** | **1 538 60** | **6 739 07** | **19 86** | **86 97** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 5.07E-03 | #/MM Btu | B | 1 | | **3 55** | **15 53** | **3 55** | **15 53** | **0 05** | **0 20** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 5.07E-03 | #/MM Btu | M | 2.5 | | **8 87** | **38 84** | **8 87** | **38 84** | **0 11** | **0 50** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | N | 1 | | **0 34** | **1 50** | **0 34** | **1 50** | **0 00** | **0 02** |
| Carbon monox de | | Cr teria | 3.33E-02 | #/MM Btu | A | 1 | | **23 33** | **102 20** | **23 33** | **102 20** | **0 30** | **1 32** |
| Lead | | Cr teria | 2.80E-05 | #/MM Btu | G | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | 3.13E-01 | #/MM Btu | A | 1 | | **219 33** | **960 68** | **219 33** | **960 68** | **2 83** | **12 40** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 7 51E 01 | kg/MM Btu | I | 1 | | **115 895 06** | **507 620 37** | **115 895 06** | **507 620 37** | **1 495 74** | **6 551 33** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | | | | | |
| Methane | 7 828 | GHG, (112r) | 3.00E-03 | kg/MM Btu | I | 1 | | **4 63** | **20 28** | **4 63** | **20 28** | **0 06** | **0 26** |
| Nitrous ox de | 1002 972 | GHG | 6.00E-0 | kg/MM Btu | I | 1 | | **0 93** | **4 06** | **0 93** | **4 06** | **0 01** | **0 05** |
| Carbon dioxide equivalent | | GHG | | | J | | | **116 286 73** | **509 335 87** | **116 286 73** | **509 335 87** | **1 500 79** | **6 573 47** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | 7.98E-02 | #/MM Btu | L | 1.23 | | **68 43** | **299 72** | **68 43** | **299 72** | **0 88** | **3 87** |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | HAP | | | | | | **3 34** | **14 64** | **3 34** | **14 64** | **0 04** | **0 19** |
| 1,1,1-Tr chloroethane | 71556 | HAP | 1.57E-06 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | 3.50E-05 | #/MM Btu | F | 1.20 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | 2.00E-05 | #/MM Btu | H | 1.32 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 3.00E-06 | #/MM Btu | H | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 2.10E-07 | #/MM Btu | H | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | 3.0 E-05 | #/MM Btu | H | 1.1 | | **0 02** | **0 11** | **0 02** | **0 11** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | tAP, TAP, (112 | 2.31E-03 | #/MM Btu | F | 1 | | **1 62** | **7 09** | **1 62** | **7 09** | **0 02** | **0 09** |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | 5.63E-06 | #/MM Btu | F | 1.31 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | .0 E-06 | #/MM Btu | H | 1.31 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 00** |
| Cobalt Compounds | | HAP, TAP | .01E-05 | #/MM Btu | F | 1.27 | | **0 04** | **0 16** | **0 04** | **0 16** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | .2 E-07 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Ethyl ch oride | 75003 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | tAP, TAP, (112 | .07E-0 | #/MM Btu | D | 1 | | **0 28** | **1 25** | **0 28** | **1 25** | **0 00** | **0 02** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | 2. 9E-0 | #/MM Btu | F | 1.05 | | **0 18** | **0 80** | **0 18** | **0 80** | **0 00** | **0 01** |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 2.80E-05 | #/MM Btu | G | 1.08 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | 2.60E-05 | #/MM Btu | H | 1.29 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 00** | **0 00** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 6.15E-05 | #/MM Btu | H | 1.08 | | **0 05** | **0 20** | **0 05** | **0 20** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | 1.21E-05 | #/MM Btu | H | 1 | | **0 01** | **0 04** | **0 01** | **0 04** | **0 00** | **0 00** |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | 1.06E-03 | #/MM Btu | H | 1.27 | | **0 94** | **4 14** | **0 94** | **4 14** | **0 01** | **0 05** |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 7.27E-07 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | 6.31E-05 | #/MM Btu | F | 1 | | **0 04** | **0 19** | **0 04** | **0 19** | **0 00** | **0 00** |
| Polycyclic organ c matter | | HAP, TAP | 8.67E-06 | #/MM Btu | D | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | 1.1 E-05 | #/MM Btu | H | 1. 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | .13E-05 | #/MM Btu | E | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | tAP, TAP, (112 | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Maximum em ssion factors from AP- 2 for Uncontro led Residual Oil-fired Uti ity Bo lers Table 1.3-1: assumes 2.1% S.
B) Maximum em ssion factors from AP- 2 for Uncontro led Residual Oil-fired Uti ity Bo lers - Table 1.3-3.
C) Maximum emiss on factors from AP- 2 for Residual Oil-fired U il ty Boilers w th ESPs Table 1.3- : assumes 2.1% Sulfur.
D) Maximum emiss on factors from AP- 2 for Uncontro led Res dual Oil-fired Uti ity Boi ers - Table 1.3-8.
E) Maximum em ssion factors from AP- 2 for Uncontro led Residual Oil-fired Uti ity Bo lers - Table 1.3-9 (PCDD is OCDD).
F) Maximum em ssion factors from AP- 2 for Uncontrolled Residual O l-fired Ut lity Bo lers - Table 1.3-11.
G) Em ssion factor from U.S. EPA document Estimating Air Toxic Em ssions from Coal and O l Combustion Sources [EPA- 50/2-89-001] for Uncontrolled Residual O l-fired Ut lity Bo lers (Table -1).
H) Highest emiss on ac ors from NCASI Techn cal Bu le in No. 650 (Table b), Res dual Oil-fired Uti ity Boi ers.
I) Emission factor for kerosene combustion in EPA MRR, Table C-1 and C-2.
J) Emiss on factor based on GWP in EPA MRR, Tab e A-1.
K) PM-10 and PM-2.5 ratio based on AP- 2, Tab e 1 3- .
L) Maximum SO3 emission factor from AP- 2 for Uncontro led Residual Oil-fired Uti ity Bo lers Table 1.3-1: assumes 2.1% S. Process variabl ity factor adjusts SO3 to H2SO .
M) Primary VOC assumed to be formaldehyde.
N) VOC em ssions are sum of indiv dual specia ed VOC.

9. NOTES:
Residual oil heating value 150,000 Btu/gal.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combination Boiler 2 - No. 6 Fuel O l | 700 | MM Btu/hr | 9 | MM Btu/hr | 2 | 7 | 365 | 365 |

AEI Group ID = 008, Process Unit D = 8

Ti le V Unit D = 08. Equipment ID = 3705

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| hydrogen sulf de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl sulf de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | **0 53** | **2 31** | **0 53** | **2 31** | **0 01** | **0 03** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | 1. 1E-07 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acenaphthy ene (POM) | | | 9.22E-09 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpinene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | 1. 3E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| barium | | | 1.71E-05 | #/MM Btu | F | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | 1.02E-07 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)pyrene (POM) | | | 9.22E-09 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(b)fluoranthene (POM) | | | 3.65E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(ghi )perylene (POM) | | | 6.95E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(k)fluoranthene (POM) | | | 3.65E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | 1.75E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| copper | | | 1.65E-05 | #/MM Btu | H | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | 2. 7E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | 3.23E-08 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluorene (POM) | | | 3.15E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | 6.25E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | 5.25E-06 | #/MM Btu | F | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 00** |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | 5.29E-05 | #/MM Btu | H | 1 | | **0 04** | **0 16** | **0 04** | **0 16** | **0 00** | **0 00** |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | 1.08E-07 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polych orinated dibenzo-p-dioxins | | | 2.07E-11 | #/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | 3.17E-08 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | 2.12E-0 | #/MM Btu | F | 1 | | **0 15** | **0 65** | **0 15** | **0 65** | **0 00** | **0 01** |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | .50E-0 | #/MM Btu | H | 1 | | **0 32** | **1 38** | **0 32** | **1 38** | **0 00** | **0 02** |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combinat on Boi er 2 - Tire Derived Fuel (TDF) | 1 50 | Ton TDF/hr | 0 61 | Ton TDF/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 008, Process Unit ID = 11 | | | | | | | | |
| Ti le V Unit D = 08. Equipment ID = 3705 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | 2.20E-06 | #/MM Btu | D | 1 | 99% | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 2.20E-06 | #/MM Btu | D | 1 | 99% | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 2.20E-06 | #/MM Btu | D | 1 | 99% | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | **0 01** | **0 04** | **0 00** | **0 00** | **0 00** | **0 00** |
| Su fur dioxide | 7 6095 | Cr teria | 1. 0E-05 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 02** |
| Carbon monox de | | Cr teria | 7.20E-05 | #/MM Btu | D | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Lead | | Cr teria | 3. E-02 | #/MM Btu | A | 1 | | **1 60** | **7 01** | **1 60** | **7 01** | **0 66** | **2 87** |
| Nitrogen oxides | | Cr teria | 9.80E-05 | #/MM Btu | D | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 8 60E 01 | kg/MM Btu | E | 1 | | **284 29** | **1 245 20** | **284 29** | **1 245 20** | **116 37** | **509 70** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | | | | | |
| Methane | 7 828 | GHG, (112r) | 3.20E-02 | kg/MM Btu | E | 1 | | **0 11** | **0 46** | **0 11** | **0 46** | **0 04** | **0 19** |
| Nitrous ox de | 1002 972 | GHG | .20E-03 | kg/MM Btu | E | 1 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 02** |
| Carbon d oxide equivalent | | GHG | | | F | | | **291 08** | **1 274 92** | **291 08** | **1 274 92** | **119 15** | **521 86** |
| | | | | | | | | | | | | | |
| Chlorine diox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Sulfuric acid mist | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| Total Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| Total Reduced Sulfur (as Sulfur) | | NSPS | | | | 1 | | | | | | | |
| Total Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Total 112(b) Hazardous Air Po lutants | | | | | | | | **0 92** | **4 02** | **0 92** | **4 02** | **0 38** | **1 64** |
| 1,1,1-Tr ch oroethane | 71556 | HAP | 1.03E-06 | # MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1-D chloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-D chloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr ch oroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-D chloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-D chloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr ch orobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -D chlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1,3-bu ad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroace ophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrach orodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Dinitrophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Dinitrotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr ch orophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Acetaldehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | 1.22E-05 | #/MM Btu | A | 1.20 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Arsenic Compounds | | HAP, TAP | 3.82E-06 | #/MM Btu | A | 1.32 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 5.09E-05 | #/MM Btu | B | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 1.16E-07 | #/MM Btu | A | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | 2.8 E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cadmium Compounds | | HAP, TAP | 2.89E-06 | #/MM Btu | A | 1.1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | HAP, TAP, (112 | 2.19E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 5.35E-07 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112 | 1.20E-0 | #/MM Btu | B | 1 | | **0 01** | **0 02** | **0 01** | **0 02** | **0 00** | **0 01** |
| Chromium Compounds | | HAP | 3.13E-06 | #/MM Btu | A | 1.31 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | 8. 0E-06 | #/MM Btu | A | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | 1.15E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112 | 1.90E-02 | #/MM Btu | A | 1 | | **0 88** | **3 87** | **0 88** | **3 87** | **0 36** | **1 58** |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | 5. 7E-07 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 5.66E-05 | #/MM Btu | A | 1.08 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Manganese Compounds | | HAP, TAP | 2.88E-0 | #/MM Btu | A | 1.29 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 01** | **0 03** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 2. 3E-07 | #/MM Btu | A | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | .1 E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 5.70E-07 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | 93E-05 | #/MM Btu | A | 1.27 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 1.22E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | .1 E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | 2.60E-06 | #/MM Btu | A | 1. 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | 1.83E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | 3.00E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factor deve oped from Bowater stack test burning bark and TDF ( 21/200 ).
B) Emission factor from Air Emissions from Scrap Tire Combust on (EPA-600 R-97-115), Tab e 18 - Grea er of 7%, 15%, 17%, or 19% TDF.
C) Em ssion factor from Air Emissions from Scrap Tire Combustion (EPA-600/R-97-115), Table 19 - 100% TDF.
D) Em ssion factor from Air Emissions from Scrap Tire Combustion (EPA-600/R-97-115), Table 21 - 100% TDF.
E) Emission factor for ires combus ion in EPA MRR, Table C-1 and C-2.
F) Emission factor based on GWP in EPA MRR, Table A-1.
G) PM-10 and PM-2.5 emissions assumed equivalent to TPM.
H) Sum of spec ated POM and PAH.

9. NOTES:
TDF heating value 15,500 Btu/lb.

Maximum production s maximum expec ed product on rate.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Combinat on Boi er 2 - Tire Derived Fuel (TDF) | 1.50 | Ton TDF/hr | 0 61 | Ton TDF/hr | 2 | 7 | 365 | 365 |
| AEI Group ID = 008, Process Unit ID = 11 | | | | | | | | |
| Ti le V Unit D = 08. Equipment ID = 3705 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | | | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | **0 48** | **2 08** | **0 48** | **2 08** | **0 19** | **0 85** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | 5.35E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methyl-2-propanol benzene | | | .21E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | 8.99E-05 | #/MM Btu | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 01** |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | 2. 8E-05 | #/MM Btu | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | 6.58E-07 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | 1.70E-06 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | 2.02E-07 | #/MM Btu | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | 5.79E-07 | #/MM Btu | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | 1.01E-02 | #/MM Btu | A | 1 | | **0 47** | **2 06** | **0 47** | **2 06** | **0 19** | **0 84** |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| er Machine Air Make-up Un ts - Worst Case Summary | | | | | | | | |
| Detailed Process Unit Emissions en ered in o AEI | | | | | | | | |
| Ti le V Unit D = 06. Equipment ID = 9900 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | | | 0 28 | 1 22 | 0 28 | 1 22 | 0 00 | 0 02 |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | | | 0 28 | 1 22 | 0 28 | 1 22 | 0 00 | 0 02 |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | | | 0 28 | 1 22 | 0 28 | 1 22 | 0 00 | 0 02 |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | | | 0 72 | 3 15 | 0 72 | 3 15 | 0 01 | 0 05 |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | 0 98 | 4 28 | 0 98 | 4 28 | 0 01 | 0 06 |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | 0 98 | 4 28 | 0 98 | 4 28 | 0 01 | 0 06 |
| Su fur dioxide | 7 6095 | Cr teria | | | | | | 0 08 | 0 33 | 0 08 | 0 33 | 0 00 | 0 00 |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | | | 1 40 | 6 11 | 1 40 | 6 11 | 0 01 | 0 05 |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | | | 1 74 | 7 61 | 1 74 | 7 61 | 0 03 | 0 11 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | | | 1 34 | 5 89 | 1 34 | 5 89 | 0 02 | 0 09 |
| Carbon monox de | | Cr teria | | | | | | 10 61 | 46 47 | 10 61 | 46 47 | 0 16 | 0 70 |
| Lead | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nitrogen oxides | | Cr teria | | | | | | 18 14 | 79 47 | 18 14 | 79 47 | 0 19 | 0 83 |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | | | 17 113 95 | 74 959 12 | 17 113 95 | 74 959 12 | 222 09 | 972 76 |
| Biogenic carbon dioxide | 12 389 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methane | 7 828 | GHG, (112r) | | | | | | 0 84 | 3 66 | 0 84 | 3 66 | 0 00 | 0 02 |
| Nitrous ox de | 1002 972 | GHG | | | | | | 0 17 | 0 73 | 0 17 | 0 73 | 0 00 | 0 00 |
| Carbon dioxide equivalent | | GHG | | | | | | 17 184 63 | 75 268 66 | 17 184 63 | 75 268 66 | 222 32 | 973 77 |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Su furic acid m st | 766 939 | TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 0 27 | 1 19 | 0 27 | 1 19 | 0 00 | 0 02 |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1-Dichloroethane | 753 3 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dichloroethane | 107062 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dichloropropane | 78875 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch oroacetophenone | 53227 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trophenol | 51286 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trotoluene | 1211 2 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| -Nitrophenol | 100027 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Aceta dehyde | 75070 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Acetophenone | 98862 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Acrolein | 107028 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Acrylonitr le | 107131 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| An line | 62533 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Antimony Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Arsenic Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Benzene | 71 32 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Beryllium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biphenyl | 9252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromoform | 75252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromomethane | 7 839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cadmium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon disulf de | 75150 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbonyl sulf de | 63581 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Catechol | 120809 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorine | 7782505 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorobenzene | 108907 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chloroform | 67663 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chloromethane | 7 873 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium Compounds | | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium( 6) Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cobalt Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cresols | 1319773 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cumene | 98828 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cyanide Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Diethanolamine | 111 22 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl su fate | 77781 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylbenzene | 100 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethyl ch oride | 75003 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Forma dehyde | 50000 | tAP, TAP, (112r) | | | | | | 0 04 | 0 18 | 0 04 | 0 18 | 0 00 | 0 00 |
| Glycol Ethers | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachloroethane | 67721 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrochlor c ac d | 76 7010 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Iodomethane | 7 88 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isophorone | 78591 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Manganese Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-Cresol | 10839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Mercury Compounds | | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methanol | 67561 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl hydrazine | 6033 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl methacrylate | 80626 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methylene chloride | 75092 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-Xylene | 108383 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Naphthalene | 91203 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-Hexane | 1105 3 | HAP, TAP | | | | | | 0 23 | 1 00 | 0 23 | 1 00 | 0 00 | 0 01 |
| Nickel Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-Cresol | 95 87 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-Xylene | 95 76 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-Cresol | 106 5 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Pentachlorophenol | 87865 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Phenol | 108952 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Phosphorus | 77231 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Polycyclic organic matter | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Prop onaldehyde | 123386 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-Xylene | 106 23 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Selenium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Styrene | 100 25 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Toluene | 108883 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Trichloroethy ene | 79016 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl acetate | 10805 | tAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl ch oride | 7501 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Xy enes | 1330207 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

8. REFERENCES:

9. NOTES:

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| er Machine Air Make-up Un ts - Worst Case Summary | | | | | | | | |
| Detailed Process Unit Emissions en ered in o AEI | | | | | | | | |
| Ti le V Unit D = 06. Equipment ID = 9900 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 0 00E 00 | | | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl mercaptan | | | 0 00E 00 | #/ADTFP | A | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dimethyl d su fide | | | 0 00E 00 | #/ADTFP | A | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dimethyl suff de | | | 0 00E 00 | #/ADTFP | A | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al Other Air Pollutants | | | | | | | | 1 47 | 6 44 | 1 47 | 6 44 | 0 02 | 0 10 |
| 1,2-dibromoethene | 5 0 98 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-dich oroethylene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dimethoxyethane | 11071 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch orophenol | 95578 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-din tro- 6-methylphenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-hexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methylnaptha ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl propene | 115117 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-methyl-2-propanol benzene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-nitrophenol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-propanol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,5-dimethyl benzaldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 3-carene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 3-methylch oranthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 5-methyl chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acenaphthy ene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| acetone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-pinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-terpiniene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| alpha-terpiniol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ammonia | 766 17 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| barium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzaldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzoic acid | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(b)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(gh )perylene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(k)fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzyl alcohol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| beta-pinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| b s (2-Chloroisopropy ) ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| boron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| bromodichloromethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| butane | 106978 | (112r) | | | | | | 0 27 | 1 16 | 0 27 | 1 16 | 0 00 | 0 02 |
| butylbenzylphtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| camphor | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| chrysene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| copper | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| crotonaldehyde | 170303 | (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| cyc ohexanone | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| decach orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibenzo(ah)anthracene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dibromomethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobenzene | 25321226 | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ch orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| d ethylphthala e | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-octyl phtha ate | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| dysprosium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ethane | 7 8 0 | (112r) | | | | | | 0 39 | 1 72 | 0 39 | 1 72 | 0 01 | 0 03 |
| ethanol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| fluoranthene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| fluorene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| gamma-Terpinene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| germanium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| heptane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| hexa dehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| indeno(123-cd)pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iodine | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| iron | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| isopropanol | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| isovaleraldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| limonene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| lithium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| methyl anthracene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl ethyl ketone | 78933 | TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| molybdenum | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| myrcene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-buty aldehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| neodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| niobium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| nitric ox de | | | | | | | | 0 28 | 1 22 | 0 28 | 1 22 | 0 00 | 0 02 |
| nonane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pah | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-cymene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pentane | 109660 | (112r) | | | | | | 0 33 | 1 44 | 0 33 | 1 44 | 0 00 | 0 02 |
| phenanthrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-dioxins | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polychlorinated dibenzo-p-furans | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| po assium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| praeseodymium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| propane | 7 986 | (112r) | | | | | | 0 20 | 0 89 | 0 20 | 0 89 | 0 00 | 0 01 |
| propy ene | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-tolualdehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| pyrene (POM) | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| rub dium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| samarium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| s lver | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| sodium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| solicy adehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| strontium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| terpenes | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tert-butyl methyl ether | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tetrachlorobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thallium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| thorium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tin | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| ti anium | | | | | | 2.5 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orobiphenyl | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| trich orofluoromethane | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| tungsten | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| valeradehyde | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| vanadium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| yttrium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| zinc | | | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 00 |
| zirconium | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Paper Mill Air Make-Up Units - Natural Gas Firing | 126 | MM Btu/hr | | MM Btu/hr | 2 | 7 | 365 | 180 |
| AEI Group ID = 006, Process Unit D = 5 | | | | | | | | |
| Ti le V Unit D = 06. Equipment ID = 9900 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | 1.90E-03 | #/MM Btu | B | 1 | | **0 24** | **1 05** | **0 24** | **1 05** | **0 00** | **0 02** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.90E-03 | #/MM Btu | E | 1 | | **0 24** | **1 05** | **0 24** | **1 05** | **0 00** | **0 02** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 1.90E-03 | #/MM Btu | E | 1 | | **0 24** | **1 05** | **0 24** | **1 05** | **0 00** | **0 02** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 5.70E-03 | #/MM Btu | B | 1 | | **0 72** | **3 15** | **0 72** | **3 15** | **0 01** | **0 05** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **0 96** | **4 20** | **0 96** | **4 20** | **0 01** | **0 06** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **0 96** | **4 20** | **0 96** | **4 20** | **0 01** | **0 06** |
| Su fur dioxide | 7 6095 | Cr teria | 6.00E-0 | #/MM Btu | B | 1 | | **0 08** | **0 33** | **0 08** | **0 33** | **0 00** | **0 00** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 5.50E-03 | #/MM Btu | B | 1 | | **0 69** | **3 04** | **0 69** | **3 04** | **0 01** | **0 05** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 5.50E-03 | #/MM Btu | F | 2.5 | | **1 74** | **7 61** | **1 74** | **7 61** | **0 03** | **0 11** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | K | 1 | | **1 34** | **5 89** | **1 34** | **5 89** | **0 02** | **0 09** |
| Carbon monox de | | Cr teria | 8. 0E-02 | #/MM Btu | A | 1 | | **10 61** | **46 47** | **10 61** | **46 47** | **0 16** | **0 70** |
| Lead | | Cr teria | 5.00E-07 | #/MM Btu | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | 1.00E-01 | #/MM Btu | A | 1 | | **12 63** | **55 32** | **12 63** | **55 32** | **0 19** | **0 83** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 5 30E 01 | kg/MM Btu | I | 1 | | **14 763 78** | **64 665 35** | **14 763 78** | **64 665 35** | **222 09** | **972 76** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methane | 7 828 | GHG, (112r) | 1.00E-03 | kg/MM Btu | I | 1 | | **0 28** | **1 22** | **0 28** | **1 22** | **0 00** | **0 02** |
| Nitrous ox de | 1002 972 | GHG | 1.00E-0 | kg/MM Btu | I | 1 | | **0 03** | **0 12** | **0 03** | **0 12** | **0 00** | **0 00** |
| Carbon d oxide equivalent | | GHG | | | J | 1 | | **14 779 04** | **64 732 19** | **14 779 04** | **64 732 19** | **222 32** | **973 77** |
| | | | | | | | | | | | | | |
| Chlorine diox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Sulfuric acid mist | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Sulfur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lutants | | | | | | | | **0 27** | **1 19** | **0 27** | **1 19** | **0 00** | **0 02** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrach orodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | 2.00E-07 | #/MM Btu | H | 1.32 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzene | 71 32 | HAP, TAP | 8E-06 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | 1.20E-08 | #/MM Btu | H | 2.78 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | 1.10E-06 | #/MM Btu | H | 1.1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon disulf de | 75150 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | 1. 0E-06 | #/MM Btu | H | 1.31 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | 8. 0E-08 | #/MM Btu | H | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | 3.33E-0 | #/MM Btu | D | 1 | | **0 04** | **0 18** | **0 04** | **0 18** | **0 00** | **0 00** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | 5.00E-07 | #/MM Btu | B | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Manganese Compounds | | HAP, TAP | 3.80E-07 | #/MM Btu | H | 1.29 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | 2.60E-07 | #/MM Btu | H | 1.08 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | 6.10E-07 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| n-Hexane | 1105 3 | HAP, TAP | 1.80E-03 | #/MM Btu | C | 1 | | **0 23** | **1 00** | **0 23** | **1 00** | **0 00** | **0 01** |
| Nickel Compounds | | HAP, TAP | 2.10E-06 | #/MM Btu | H | 1.27 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | L | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | 2. 0E-08 | #/MM Btu | H | 1. 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | 3. 0E-06 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factors from AP- 2 or Uncontrol ed Natural Gas- ired Small Boilers - Tab e 1. -1.
B) Emission factors from AP- 2 or Uncontrol ed Natural Gas- ired Boi ers - Table 1. -2.
C) Emission factors from AP- 2 for Uncontrolled Natural Gas-fired Boi ers - Table 1. -3.
D) Highest emiss on ac ors from NCASI Techn cal Bu le in No. 650 (Table c), Natural Gas-fired Boilers.
E) Emission im t from perm t 2 0-0005-CM, Cond tion II.A.
F) A l particul e matter assumed to be ess than 2.5, per AP- 2.
G) Primary VOC assumed to be formaldehyde.
H) Emission factors from AP- 2 for Uncontrolled Natural Gas-fired Boi ers - Table 1. - .
I) Emission factor for natural gas combus ion in EPA MRR, Table C-1 and C-2.
J) Emiss on factor based on GWP in EPA MRR, Tab e A-1.
K) VOC emissions are sum of indiv dual speciated VOC.
L) Sum of specia ed POM and PAH.

9. NOTES:
Natural gas heating value 1 000 Btu/cf.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Paper Mill Air Make-Up Units - Natural Gas Firing | 126 | MM Btu/hr | | MM Btu/hr | 2 | 7 | 365 | 180 |
| AEI Group ID = 006, Process Unit D = 5 | | | | | | | | |
| Ti le V Unit D = 06. Equipment ID = 9900 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | | | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| hydrogen sulf de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl sulf de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | **1 47** | **6 44** | **1 47** | **6 44** | **0 02** | **0 10** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | 2 0E-08 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acenaphthy ene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | 1.57E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| barium | | | 0E-06 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)pyrene (POM) | | | 1.65E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(b)fluoranthene (POM) | | | 1.59E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(gh )perylene (POM) | | | 1.53E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(k)fluoranthene (POM) | | | 1 9E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | 2.10E-03 | #/MM Btu | C | 1 | | **0 27** | **1 16** | **0 27** | **1 16** | **0 00** | **0 02** |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| copper | | | 8.50E-07 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | 1 1E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | 1.20E-06 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | 3.10E-03 | #/MM Btu | C | 1 | | **0 39** | **1 72** | **0 39** | **1 72** | **0 01** | **0 03** |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | 3.00E-09 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluorene (POM) | | | 2.80E-09 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | 1 9E-09 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | 1.10E-06 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | 2.20E-03 | #/MM Btu | B | 1 | | **0 28** | **1 22** | **0 28** | **1 22** | **0 00** | **0 02** |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | 8E-08 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | 2.60E-03 | #/MM Btu | C | 1 | | **0 33** | **1 44** | **0 33** | **1 44** | **0 00** | **0 02** |
| phenanthrene (POM) | | | 1.70E-08 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | 1.60E-03 | #/MM Btu | C | 1 | | **0 20** | **0 89** | **0 20** | **0 89** | **0 00** | **0 01** |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | 5.00E-09 | #/MM Btu | C | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | 2.30E-06 | #/MM Btu | H | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | 2.90E-05 | #/MM Btu | H | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 00** |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Paper Machine Air Make-Up Units - Propane Firing | 126 | MM Btu/hr | 0.0 | MM Btu/hr | 2 | 7 | 365.0 | 180.0 |
| AEI Group ID = 006, Process Unit D = 6 | | | | | | | | |
| Ti le V Unit D = 06. Equipment ID = 9900 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | 2.21E-03 | #/MM Btu | A | 1 | | **0 28** | **1 22** | **0 28** | **1 22** | **0 00** | **0 00** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 2.21E-03 | #/MM Btu | B | 1 | | **0 28** | **1 22** | **0 28** | **1 22** | **0 00** | **0 00** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 2.21E-03 | #/MM Btu | B | 1 | | **0 28** | **1 22** | **0 28** | **1 22** | **0 00** | **0 00** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | 5 52E-03 | #/MM Btu | B | 1 | | **0 70** | **3 06** | **0 70** | **3 06** | **0 00** | **0 00** |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **0 98** | **4 28** | **0 98** | **4 28** | **0 00** | **0 00** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **0 98** | **4 28** | **0 98** | **4 28** | **0 00** | **0 00** |
| Su fur dioxide | 7 6095 | Cr teria | 1.99E-0 | #/MM Btu | A | 1 | | **0 03** | **0 11** | **0 03** | **0 11** | **0 00** | **0 00** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 1.10E-02 | #/MM Btu | A | 1 | | **1 40** | **6 11** | **1 40** | **6 11** | **0 00** | **0 00** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 1.10E-02 | #/MM Btu | C | 1.22 | | **1 71** | **7 47** | **1 71** | **7 47** | **0 00** | **0 00** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | F | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon monox de | | Cr teria | 8.29E-02 | #/MM Btu | A | 1 | | **10 47** | **45 85** | **10 47** | **45 85** | **0 00** | **0 00** |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | 1. E-01 | #/MM Btu | A | 1 | | **18 14** | **79 47** | **18 14** | **79 47** | **0 00** | **0 00** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 6.15E 01 | kg/MM Btu | D | 1 | | **17 113 95** | **74 959 12** | **17 113 95** | **74 959 12** | **0 00** | **0 00** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methane | 7 828 | GHG, (112r) | 3.00E-03 | kg/MM Btu | D | 1 | | **0 84** | **3 66** | **0 84** | **3 66** | **0 00** | **0 00** |
| Nitrous ox de | 1002 972 | GHG | 6.00E-0 | kg/MM Btu | D | 1 | | **0 17** | **0 73** | **0 17** | **0 73** | **0 00** | **0 00** |
| Carbon d oxide equivalent | | GHG | | | E | 1 | | **17 184 63** | **75 268 66** | **17 184 63** | **75 268 66** | **0 00** | **0 00** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Sulfur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lutants | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1.. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112 | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emission factors from AP- 2 or Uncontrol ed Propane-fired Industr al Boilers - Tab e 1.5-1.
B) All particulate matter assumed tro be ess than 2.5, cons stent w th AP- 2..
C) Primary VOC assumed o be propane.
D) Em ssion factor for propane combustion in EPA MRR, Table C-1 and C-2.
E) Emission factor based on GWP in EPA MRR, Table A-1.
F) VOC emissions are sum of individual speciated VOC.
G) Sum of speciated POM and PAH.

9. NOTES:
Propane heating value 90,500 Btu/gal.

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Paper Machine Air Make-Up Units - Propane Firing | 126 | MM Btu/hr | 0.0 | MM Btu/hr | 2 | 7 | 365.0 | 180.0 |
| AEI Group ID = 006, Process Unit D = 6 | | | | | | | | |
| Ti le V Unit D = 06. Equipment ID = 9900 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | | | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | VALUE | UNITS | BASIS | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Roads | ,529 | ADTFP/day | ,529 | ADTFP/day | 2 | 7 | 365 | 365 |
| AEI Group ID = 009, Process Unit D = 1 | | | | | | | | |
| Ti le V Unit D = 11. Equipment ID = 1000 | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 8.26E-01 | lb/ADTFP | A | 1 | | **155 94** | **683 02** | **155 94** | **683 02** | **155 94** | **683 02** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 1.65E-01 | lb/ADTFP | A | 1 | | **31 19** | **136 60** | **31 19** | **136 60** | **31 19** | **136 60** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | .06E-02 | lb/ADTFP | A | 1 | | **7 66** | **33 53** | **7 66** | **33 53** | **7 66** | **33 53** |
| Condensible part cu ate matter < 2.5 m crons | | Cr teria | | | | | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | **31 19** | **136 60** | **31 19** | **136 60** | **31 19** | **136 60** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | **7 66** | **33 53** | **7 66** | **33 53** | **7 66** | **33 53** |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | 1 | | | | | | | |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | | 1 | | | | | | | |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) See at ached ca culat on ROADS EF for emission factor deve opment fo lowing AP- 2 Sect on 13.2.1.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Roads | ,529 | ADTFP/day | ,529 | ADTFP/day | 2 | 7 | 365 | 365 |

AEI Group ID = 009, Process Unit D = 1

Ti le V Unit D = 11, Equipment ID = 1000

| | | | 8. EMISSION FACTOR INFORMATION | | | | | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Landf ll | ,529 | ADTFP/day | ,529 | ADTFP/day | 2 | 7 | 365 | 365 |

AEI Group ID = 009, Process Unit D = 1
Ti le V Unit D = 11, Equipment ID = 2900

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 8.00E-02 | lb/ADTFP | A | 1 | | **15 09** | **66 10** | **15 09** | **66 10** | **15 09** | **66 10** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 2.28E-02 | lb/ADTFP | A | 1 | | **4 30** | **18 84** | **4 30** | **18 84** | **4 30** | **18 84** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 2.28E-03 | lb/ADTFP | A | 1 | | **0 43** | **1 88** | **0 43** | **1 88** | **0 43** | **1 88** |
| Condensible part cu ate matter < 2.5 m crons | | Cr teria | | | | | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | **4 30** | **18 84** | **4 30** | **18 84** | **4 30** | **18 84** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | **0 43** | **1 88** | **0 43** | **1 88** | **0 43** | **1 88** |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | 1 | | | | | | | |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | | 1 | | | | | | | |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) See at ached ca culat on LANDFILL EF for em ssion factor development fol owing AP- 2 Section 13.2.2.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Landf ll | ,529 | ADTFP/day | ,529 | ADTFP/day | 2 | 7 | 365 | 365 |

AEI Group ID = 009, Process Unit D = 1

Ti le V Unit D = 11, Equipment ID = 2900

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| hydrogen sulf de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl sulf de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| WWTP | 2,700 | tons/day | 2,700 | ons/day | 2 | 7 | 365 | 365 |
| AEI Group ID = 009, Process Unit D = 1 | | | | | | | | |
| Ti le V Unit D = 09. Equipment ID = 2901 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | .51E-01 | #/ADTP | F | 1 | | **50 74** | **222 25** | **50 74** | **222 25** | **50 74** | **222 25** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 1.20E 00 | #/ADTP | B | 1 | | **135 31** | **592 66** | **135 31** | **592 66** | **135 31** | **592 66** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | C | 1 | | **147 50** | **646 06** | **147 50** | **646 06** | **147 50** | **646 06** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 2.0E-02 | #/ADTP | B | 1 | | **2 27** | **9 96** | **2 27** | **9 96** | **2 27** | **9 96** |
| To al Reduced Sulfur (as TRS) | | NSPS | 2.6E-01 | #/ADTP | B | 1 | | **29 43** | **128 92** | **29 43** | **128 92** | **29 43** | **128 92** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 1.2E-01 | #/ADTP | E | 1 | | **13 18** | **57 72** | **13 18** | **57 72** | **13 18** | **57 72** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 1.2E-01 | #/ADTP | E | 1 | | **14 00** | **61 33** | **14 00** | **61 33** | **14 00** | **61 33** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **119 87** | **525 03** | **119 87** | **525 03** | **119 87** | **525 03** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | A | 1 | | **3 42** | **14 98** | **3 42** | **14 98** | **3 42** | **14 98** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | A | 1 | | **0 06** | **0 28** | **0 06** | **0 28** | **0 06** | **0 28** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | A | 1 | | **0 20** | **0 87** | **0 20** | **0 87** | **0 20** | **0 87** |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | A | 1 | | **0 01** | **0 05** | **0 01** | **0 05** | **0 01** | **0 05** |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112r) | | | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | A | 1 | | **0 02** | **0 11** | **0 02** | **0 11** | **0 02** | **0 11** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 1 03E 00 | #/ADTP | B | 1 | | **115 97** | **507 96** | **115 97** | **507 96** | **115 97** | **507 96** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | A | 1 | | **0 07** | **0 31** | **0 07** | **0 31** | **0 07** | **0 31** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | A | 1 | | **0 05** | **0 23** | **0 05** | **0 23** | **0 05** | **0 23** |
| Toluene | 108883 | HAP, TAP | | | A | 1 | | **0 05** | **0 23** | **0 05** | **0 23** | **0 05** | **0 23** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) WWTP emissions from 200 Form R
B) Emission factor from Project Columb a (cp-DF.R1), see tab J - WWTP Emiss on Fac ors .
C) VOC em ssions are sum of indiv dual specia ed VOC.
D) Sum of spec ated POM and PAH.
E) Emission factor adjusted by TRS spec at on from NCASI Techn cal Bu letin 8 9, page 81.
F) Emission factor adjusted from to al VOC to VOC as carbon based on molecular weight of predominate VOC spec es.

9. NOTES:

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| WWTP | 2,700 | tons/day | 2,700 | ons/day | 2 | 7 | 365 | 365 |
| AEI Group ID = 009, Process Unit D = 1 | | | | | | | | |
| Ti le V Unit D = 09, Equipment ID = 2901 | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 2.02E-02 | #/ADTP | E | 1 | | **2 27** | **9 96** | **2 27** | **9 96** | **2 27** | **9 96** |
| Methyl mercaptan | | | 1.88E-02 | #/ADTP | E | 1 | | **2 12** | **9 28** | **2 12** | **9 28** | **2 12** | **9 28** |
| dimethyl d su fide | | | 1.73E-01 | #/ADTP | E | 1 | | **19 48** | **85 34** | **19 48** | **85 34** | **19 48** | **85 34** |
| dimethyl suff de | | | 5.15E-02 | #/ADTP | E | 1 | | **5 80** | **25 40** | **5 80** | **25 40** | **5 80** | **25 40** |
| To al Other Air Pollutants | | | | | | 1 | | **0 29** | **1 29** | **0 29** | **1 29** | **0 29** | **1 29** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | A | 1 | | **0 29** | **1 29** | **0 29** | **1 29** | **0 29** | **1 29** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONFIDENTIAL Alternate Form D 2943 Emission Data for Regulated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Insignificant Activities Summary | | | | | | | | |
| ADD AEI Group ID = 010, Process Unit ID = 1 | | | | | | | | |
| Title V Unit ID = Attachment B Insignificant List | | | | | | | | |

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | | | 1 14 | 2 53 | 1 14 | 2 53 | 1 14 | 2 41 |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | | | 1 14 | 2 53 | 1 14 | 2 53 | 1 14 | 2 41 |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | | | 1 14 | 2 53 | 1 14 | 2 53 | 1 14 | 2 41 |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| To al part cu ate matter < 10 microns | | Cr teria | | | | | | 1 14 | 2 53 | 1 14 | 2 53 | 1 14 | 2 41 |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | | | 1 14 | 2 53 | 1 14 | 2 53 | 1 14 | 2 41 |
| Su fur dioxide | 7 6095 | Cr teria | | | | | | 1 07 | 2 36 | 1 07 | 2 36 | 1 07 | 2 25 |
| Vo ati e organic compounds (as carbon) | | Cr teria | | | | | | 11 03 | 45 45 | 11 03 | 45 45 | 11 03 | 45 31 |
| Vo ati e organic compounds (as VOC) | | Cr teria | | | | | | 23 51 | 95 78 | 23 51 | 95 78 | 23 51 | 95 43 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | | | | 23 99 | 105 09 | 23 99 | 105 09 | 23 99 | 105 09 |
| Carbon monox de | | Cr teria | | | | | | 3 50 | 7 74 | 3 50 | 7 74 | 3 50 | 7 37 |
| Lead | | Cr teria | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nitrogen oxides | | Cr teria | | | | | | 12 25 | 18 46 | 12 25 | 18 46 | 12 25 | 16 75 |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | | | 605 65 | 1 318 55 | 605 65 | 1 318 55 | 605 65 | 1 253 94 |
| Biogenic carbon dioxide | 12 389 | GHG | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methane | 7 828 | GHG, (112r) | | | | | | 0 02 | 0 05 | 0 02 | 0 05 | 0 02 | 0 05 |
| Nitrous ox de | 1002 972 | GHG | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Carbon dioxide equivalent | | GHG | | | | | | 607 75 | 1 323 12 | 607 75 | 1 323 12 | 607 75 | 1 258 29 |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Su furic acid m st | 766 939 | TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | | | 0 42 | 1 82 | 0 42 | 1 82 | 0 42 | 1 82 |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | | | 7 83 | 34 30 | 7 83 | 34 30 | 7 83 | 34 30 |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | | | 4 79 | 20 98 | 4 79 | 20 98 | 4 79 | 20 98 |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | | | 5 09 | 22 29 | 5 09 | 22 29 | 5 09 | 22 29 |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 3 76 | 16 44 | 3 76 | 16 44 | 3 76 | 16 45 |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| 1,1-Dichloroethane | 753 3 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dichloroethane | 107062 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dichloropropane | 78875 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2-Ch oroacetophenone | 53227 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trophenol | 51286 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, -Din trotoluene | 1211 2 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| -Nitrophenol | 100027 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | | | 0 13 | 0 56 | 0 13 | 0 56 | 0 13 | 0 56 |
| Acetophenone | 98862 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| An line | 62533 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Antimony Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Arsenic Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Benzene | 71 32 | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Beryllium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Biphenyl | 9252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromoform | 75252 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Bromomethane | 7 839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cadmium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Catechol | 120809 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chlorobenzene | 108907 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium Compounds | | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Chromium( 6) Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cobalt Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cresols | 1319773 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cumene | 98828 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Cyanide Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Diethanolamine | 111 22 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Dimethyl su fate | 77781 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylbenzene | 100 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | | | 0 01 | 0 02 | 0 01 | 0 02 | 0 01 | 0 02 |
| Glycol Ethers | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hexachloroethane | 67721 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Iodomethane | 7 88 | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Isophorone | 78591 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Lead Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Manganese Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-Cresol | 10839 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Mercury Compounds | | HAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methanol | 67561 | HAP, TAP | | | | | | 3 40 | 14 88 | 3 40 | 14 88 | 3 40 | 14 88 |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl methacrylate | 80626 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methylene chloride | 75092 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| m-Xylene | 108383 | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Naphthalene | 91203 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-Hexane | 1105 3 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nickel Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-Cresol | 95 87 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| o-Xylene | 95 76 | HAP, TAP | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 02 |
| p-Cresol | 106 5 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Pentachlorophenol | 87865 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Phenol | 108952 | HAP, TAP | | | | | | 0 20 | 0 86 | 0 20 | 0 86 | 0 20 | 0 86 |
| Phosphorus | 77231 0 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Polycyclic organic matter | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Prop onaldehyde | 123386 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-Xylene | 106 23 | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Selenium Compounds | | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Styrene | 100 25 | HAP, TAP | | | | | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 02 |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Toluene | 108883 | HAP, TAP | | | | | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Trichloroethy ene | 79016 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl ch oride | 7501 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Xy enes | 1330207 | HAP, TAP | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

8. REFERENCES:

9. NOTES:

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Insignificant Ac iv ties Summary | | | | | | | | |
| ADD AEI Group ID = 010, Process Unit ID = 1 | | | | | | | | |
| Tit e V Unit ID = Attachment B Insigificant L st | | | | | | | | |

| | | | 8. EMISSION FACTOR INFORMATION | | | | | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 0 00E 00 | | | 1 | | **0 42** | **1 82** | **0 42** | **1 82** | **0 42** | **1 82** |
| Methyl mercaptan | | | 0 00E 00 | #/ADTFP | A | 1 | | **1 62** | **7 11** | **1 62** | **7 11** | **1 62** | **7 11** |
| dimethyl d su fide | | | 0 00E 00 | #/ADTFP | A | 1 | | **5 00** | **21 90** | **5 00** | **21 90** | **5 00** | **21 90** |
| dimethyl suff de | | | 0 00E 00 | #/ADTFP | A | 1 | | **10 70** | **46 86** | **10 70** | **46 86** | **10 70** | **46 86** |
| To al Other Air Pollutants | | | | | | | | **3 28** | **14 34** | **3 28** | **14 34** | **3 28** | **14 34** |
| 1,2-dibromoethene | 5 0 98 | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-dich oroethylene | | | | | | | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,2-Dimethoxyethane | 11071 | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-Ch orophenol | 95578 | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-din tro- 6-methylphenol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-hexanone | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methylnaptha ene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methyl propene | 115117 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-methyl-2-propanol benzene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-nitrophenol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2-propanol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 2,5-dimethyl benzaldehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 3-carene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 3-methylch oranthrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 5-methyl chrysene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acenaphthene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acenaphthy ene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| acetone | | | | | | | | **0 34** | **1 50** | **0 34** | **1 50** | **0 34** | **1 50** |
| alpha-pinene | | | | | | | | **0 77** | **3 35** | **0 77** | **3 35** | **0 77** | **3 35** |
| alpha-terpiniene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| alpha-terpiniol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| ammonia | 766 17 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| anthracene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| barium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzaldehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzoic acid | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)anthracene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)pyrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(b)fluoranthene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(gh )perylene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(k)fluoranthene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzyl alcohol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| beta-pinene | | | | | | | | **0 77** | **3 35** | **0 77** | **3 35** | **0 77** | **3 35** |
| b s (2-Chloroisopropy ) ether | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| boron | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| bromine | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| bromodichloromethane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| butane | 106978 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| butylbenzylphtha ate | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| camphene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| camphor | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| chrysene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| copper | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| crotonaldehyde | 170303 | (112r) | | | | | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| cyc ohexanone | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| decach orobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibenzo(ah)anthracene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dibromomethane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ch orobenzene | 25321226 | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ch orobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| d ethylphthala e | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| di-n-octyl phtha ate | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| dysprosium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| ethane | 7 8 0 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| ethanol | | | | | | | | **0 13** | **0 58** | **0 13** | **0 58** | **0 13** | **0 58** |
| fluoranthene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluorene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| gamma-Terpinene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| germanium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| heptane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| hexachlorobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| hexa dehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| indeno(123-cd)pyrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| iodine | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| iron | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| isopropanol | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| isovaleraldehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| limonene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| lithium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| methyl anthracene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl ethyl ketone | 78933 | TAP | | | | | | **0 08** | **0 35** | **0 08** | **0 35** | **0 08** | **0 35** |
| molybdenum | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| m-tolualdehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| myrcene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| n-buty aldehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| neodymium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| niobium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| nitric ox de | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| nonane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| o-tolualdehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pah | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-cymene | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pentachlorobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pentane | 109660 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| phenanthrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polychlorinated dibenzo-p-dioxins | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polychlorinated dibenzo-p-furans | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| po assium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| praeseodymium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| propane | 7 986 | (112r) | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| propy ene | | | | | | | | **0 01** | **0 02** | **0 01** | **0 02** | **0 01** | **0 02** |
| p-tolualdehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| pyrene (POM) | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| rub dium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| samarium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| s lver | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| sodium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| solicy adehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| strontium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| terpenes | | | | | | | | **1 18** | **5 17** | **1 18** | **5 17** | **1 18** | **5 17** |
| tert-butyl methyl ether | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| tetrachlorobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thallium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| thorium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| tin | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| ti anium | | | | | | 2.5 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| trich orobiphenyl | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| trich orofluoromethane | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| tungsten | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| valeradehyde | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| vanadium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| yttrium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| zinc | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| zirconium | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Insignif cant - Weak Black Liquor Tanks | 8 | tanks | 8 | tanks | 2 | 7 | 365 | 365 |

EI emissions reported under Ins gn ficant Summary Tit e V Unit ID = Attachment B Insig ificant L st

| 3. POLLUTANT | CAS # | 8. EM SSION FACTOR INFORMATION 5. TYPE | FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 5. E-01 | lb/hr/tank | A | 1 | | 4 32 | 18 92 | 4 32 | 18 92 | 4 32 | 18 92 |
| Vo ati e organic compounds (as VOC) | | Cr teria | 7.3E-01 | lb/hr/tank | B | 1 | | 5 86 | 25 66 | 5 86 | 25 66 | 5 86 | 25 66 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | C | 1 | | 2 89 | 12 64 | 2 89 | 12 64 | 2 89 | 12 64 |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 1.9E-02 | lb/hr/tank | A | 1 | | 0 15 | 0 67 | 0 15 | 0 67 | 0 15 | 0 67 |
| To al Reduced Sulfur (as TRS) | | NSPS | 1.8E-01 | lb/hr/tank | A | 1 | | 1 41 | 6 17 | 1 41 | 6 17 | 1 41 | 6 17 |
| To al Reduced Sulfur (as Su fur) | | NSPS | 1.1E-01 | lb/hr/tank | A | 1 | | 0 88 | 3 85 | 0 88 | 3 85 | 0 88 | 3 85 |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 1.2E-01 | lb/hr/tank | A | 1 | | 0 94 | 4 10 | 0 94 | 4 10 | 0 94 | 4 10 |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 0 50 | 2 20 | 0 50 | 2 20 | 0 50 | 2 20 |
| 1,1,1-Tr chloroethane | 71556 | HAP | 2.0E-0 | lb/hr/tank | A | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | 6.8E-05 | lb/hr/tank | A | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 1.8E-05 | lb/hr/tank | A | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112 | 3.9E-0 | lb/hr/tank | A | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | MAP, TAP, (112 | 5.5E-05 | lb/hr/tank | A | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Acrylonitr le | 107131 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 2. E-05 | lb/hr/tank | A | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | 3.2E-0 | lb/hr/tank | A | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Carbonyl sulf de | 63581 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 6.0E-02 | lb/hr/tank | A | 1 | | 0 48 | 2 10 | 0 48 | 2 10 | 0 48 | 2 10 |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 2.9E-0 | lb/hr/tank | A | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Methyl hydrazine | 6033 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | 2.3E-0 | lb/hr/tank | A | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 7.2E-05 | lb/hr/tank | A | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | .5E-0 | lb/hr/tank | A | 1 | | 0 00 | 0 02 | 0 00 | 0 02 | 0 00 | 0 02 |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 2.3E-0 | lb/hr/tank | A | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 2. E-0 | lb/hr/tank | A | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Tetrachloroethylene | 12718 | HAP, TAP | 1.7E-05 | lb/hr/tank | A | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Toluene | 108883 | HAP, TAP | 1.6E-0 | lb/hr/tank | A | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Trich oroethylene | 79016 | HAP, TAP | 1.7E-05 | lb/hr/tank | A | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Vinyl acetate | 10805 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Med an em ssion factors from NCASI Technical Bulletin 858, Table 10A.
B) Emission factor adjusted from VOC as carbon o total VOC based on molecu ar we ght of predominate VOC species.
C) VOC em ssions are sum of indiv dual specia ed VOC.
D) Sum of spec ated POM and PAH.

9. NOTES:

To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Insignif cant - Weak Black Liquor Tanks | 8 | tanks | 8 | tanks | 2 | 7 | 365 | 365 |

El emissions reported under Ins gn ficant Summary

Tit e V Unit ID = Attachment B Insignificant L st

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EM SSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 1.9E-02 | lb/hr/tank | A | 1 | | **0 15** | **0 67** | **0 15** | **0 67** | **0 15** | **0 67** |
| Methyl mercaptan | | | 9.0E-03 | lb/hr/tank | A | 1 | | **0 07** | **0 32** | **0 07** | **0 32** | **0 07** | **0 32** |
| dimethyl d su fide | | | 5.5E-02 | lb/hr/tank | A | 1 | | **0 44** | **1 93** | **0 44** | **1 93** | **0 44** | **1 93** |
| dimethyl suff de | | | 9.3E-02 | lb/hr/tank | A | 1 | | **0 74** | **3 26** | **0 74** | **3 26** | **0 74** | **3 26** |
| To al Other Air Pollutants | | | | | | 1 | | **1 26** | **5 51** | **1 26** | **5 51** | **1 26** | **5 51** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 3.2E-0 | lb/hr/tank | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 1.6E-02 | lb/hr/tank | A | 1 | | **0 13** | **0 56** | **0 13** | **0 56** | **0 13** | **0 56** |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 7.9E-0 | lb/hr/tank | A | 1 | | **0 01** | **0 03** | **0 01** | **0 03** | **0 01** | **0 03** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 1. E-01 | lb/hr/tank | A | 1 | | **1 12** | **4 91** | **1 12** | **4 91** | **1 12** | **4 91** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONFIDENTIAL Alternate Form D 2943 Emission Data for Regulated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Ins gn ficant - Strong Black L quor Tanks | 5 | tanks | 5 | tanks | 2 | 7 | 365 | 365 |

EI emissions reported under Ins gn ficant Summary Title V Unit ID = Attachment B Insignificant L st

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EM SSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 1.1E-01 | lb/hr/tank | A | 1 | | **0 55** | **2 41** | **0 55** | **2 41** | **0 55** | **2 41** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 3.0E-01 | lb/hr/tank | B | 1 | | **1 49** | **6 54** | **1 49** | **6 54** | **1 49** | **6 54** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | C | 1 | | **2 09** | **9 17** | **2 09** | **9 17** | **2 09** | **9 17** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | .9E-02 | lb/hr/tank | A | 1 | | **0 25** | **1 07** | **0 25** | **1 07** | **0 25** | **1 07** |
| To al Reduced Sulfur (as TRS) | | NSPS | 2.7E-01 | lb/hr/tank | A | 1 | | **1 35** | **5 91** | **1 35** | **5 91** | **1 35** | **5 91** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 1.8E-01 | lb/hr/tank | A | 1 | | **0 90** | **3 94** | **0 90** | **3 94** | **0 90** | **3 94** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 1.9E-01 | lb/hr/tank | A | 1 | | **0 96** | **4 19** | **0 96** | **4 19** | **0 96** | **4 19** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 87** | **3 79** | **0 87** | **3 79** | **0 87** | **3 79** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | 2.2E-0 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112 | 2.0E-02 | lb/hr/tank | A | 1 | | **0 10** | **0 44** | **0 10** | **0 44** | **0 10** | **0 44** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112 | 1.9E-06 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 2.8E-06 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112 | 1. E-0 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112 | 5.0E-0 | lb/hr/tank | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 1.3E-01 | lb/hr/tank | A | 1 | | **0 65** | **2 85** | **0 65** | **2 85** | **0 65** | **2 85** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 2.2E-05 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | 8.3E-06 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 1.0E-05 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 2.1E-05 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 2.2E-02 | lb/hr/tank | A | 1 | | **0 11** | **0 48** | **0 11** | **0 48** | **0 11** | **0 48** |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 8.3E-06 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 1. E-0 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Tetrachloroethylene | 12718 | HAP, TAP | | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | 1.9E-0 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Med an em ssion factors from NCASI Technical Bulletin 858, Table 10B.
B) Emission factor adjusted from VOC as carbon o total VOC based on molecu ar we ght of predominate VOC species.
C) VOC em ssions are sum of indiv dual specia ed VOC.
D) Sum of spec ated POM and PAH.

9. NOTES:

To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Ins gn ficant - Strong Black L quor Tanks | 5 | tanks | 5 | tanks | 2 | 7 | 365 | 365 |

El emissions reported under Ins gn ficant Summary

Title V Unit ID = Attachment B Insignificant L st

| | | 8. EM SSION FACTOR INFORMATION | | | PROCESS | CONTROL | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | VARIABILITY FACTOR | EFF C ENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | .9E-02 | lb/hr/tank | A | 1 | | **0 25** | **1 07** | **0 25** | **1 07** | **0 25** | **1 07** |
| Methyl mercaptan | | | 6.5E-02 | lb/hr/tank | A | 1 | | **0 33** | **1 42** | **0 33** | **1 42** | **0 33** | **1 42** |
| dimethyl d su fide | | | 6.1E-02 | lb/hr/tank | A | 1 | | **0 31** | **1 34** | **0 31** | **1 34** | **0 31** | **1 34** |
| dimethyl suff de | | | 9.5E-02 | lb/hr/tank | A | 1 | | **0 48** | **2 08** | **0 48** | **2 08** | **0 48** | **2 08** |
| To al Other Air Pollutants | | | | | | 1 | | **0 26** | **1 15** | **0 26** | **1 15** | **0 26** | **1 15** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 1.9E-06 | lb/hr/tank | A | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 5-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 2.8E-02 | lb/hr/tank | A | 1 | | **0 14** | **0 61** | **0 14** | **0 61** | **0 14** | **0 61** |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | 2.8E-0 | lb/hr/tank | A | 1 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 7. E-03 | lb/hr/tank | A | 1 | | **0 04** | **0 16** | **0 04** | **0 16** | **0 04** | **0 16** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 1.1E-02 | lb/hr/tank | A | 1 | | **0 06** | **0 24** | **0 06** | **0 24** | **0 06** | **0 24** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 5.8E-03 | lb/hr/tank | A | 1 | | **0 03** | **0 13** | **0 03** | **0 13** | **0 03** | **0 13** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Insignificant - White Liquor Tanks | 2 | tanks | 2 | tanks | 2 | 7 | 365 | 365 |

EI emissions reported under Ins gn ficant Summary
Tit e V Unit ID = Attachment B Insignificant L st

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EM SSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 2.5E-01 | lb/hr/tank | A | 1 | | **0 50** | **2 17** | **0 50** | **2 17** | **0 50** | **2 17** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 9.2E-01 | lb/hr/tank | B | 1 | | **1 84** | **8 06** | **1 84** | **8 06** | **1 84** | **8 06** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | C | 1 | | **1 82** | **7 97** | **1 82** | **7 97** | **1 82** | **7 97** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 9.0E-03 | lb/hr/tank | A | 1 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 02** | **0 08** |
| To al Reduced Sulfur (as TRS) | | NSPS | 8.9E-01 | lb/hr/tank | A | 1 | | **1 77** | **7 76** | **1 77** | **7 76** | **1 77** | **7 76** |
| To al Reduced Sulfur (as Su fur) | | NSPS | 5.6E-01 | lb/hr/tank | A | 1 | | **1 12** | **4 91** | **1 12** | **4 91** | **1 12** | **4 91** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | 6.0E-01 | lb/hr/tank | A | 1 | | **1 19** | **5 21** | **1 19** | **5 21** | **1 19** | **5 21** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 06** | **0 27** | **0 06** | **0 27** | **0 06** | **0 27** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | 3.1E-02 | lb/hr/tank | A | 1 | | **0 06** | **0 27** | **0 06** | **0 27** | **0 06** | **0 27** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1.. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Med an em ssion factors from NCASI Technical Bulletin 858, Table 10C.
B) Emission factor adjusted from VOC as carbon o total VOC based on molecu ar we ght of predominate VOC species.
C) VOC em ssions are sum of indiv dual specia ed VOC.
D) Sum of spec ated POM and PAH.

9. NOTES:

To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Insignificant - White Liquor Tanks | 2 | tanks | 2 | tanks | 2 | 7 | 365 | 365 |

El emissions reported under Ins gn ficant Summary

Tit e V Unit ID = Attachment B Insig ificant L st

| | | 8. EM SSION FACTOR INFORMATION | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | 6. MAXIMUM UNCONTROLLED EMISSIONS (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | 7. MAXIMUM CONTROLLED EMISSIONS (tons/yr) | ACTUAL EMISSIONS (lb/hr) | ACTUAL EMISSIONS (tons/yr) |
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | 9.0E-03 | lb/hr/tank | A | 1 | | **0 02** | **0 08** | **0 02** | **0 08** | **0 02** | **0 08** |
| Methyl mercaptan | | | 5.8E-01 | lb/hr/tank | A | 1 | | **1 16** | **5 08** | **1 16** | **5 08** | **1 16** | **5 08** |
| dimethyl d su fide | | | 5.7E-02 | lb/hr/tank | A | 1 | | **0 11** | **0 50** | **0 11** | **0 50** | **0 11** | **0 50** |
| dimethyl suff de | | | 2. E-01 | lb/hr/tank | A | 1 | | **0 48** | **2 10** | **0 48** | **2 10** | **0 48** | **2 10** |
| To al Other Air Pollutants | | | | | | | | **0 02** | **0 11** | **0 02** | **0 11** | **0 02** | **0 11** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 1.0E-02 | lb/hr/tank | A | 1 | | **0 02** | **0 09** | **0 02** | **0 09** | **0 02** | **0 09** |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 2.0E-03 | lb/hr/tank | A | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 02** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONFIDENTIAL Alternate Form D 2943 Emission Data for Regulated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Insignif cant - Low Density Pulp Tanks | 18 | tanks | 18 | tanks | 2 | 7 | 365 | 365 |

EI emissions reported under Ins gn ficant Summary
Tit e V Unit ID = Attachment B Insignificant L st

| 3. POLLUTANT | CAS # | 8. EM SSION FACTOR INFORMATION 5. TYPE | FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 8.6E-01 | lb/hr/tank | C | 0.25 | | **3 87** | **16 95** | **3 87** | **16 95** | **3 87** | **16 95** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 2.3E 00 | lb/hr/tank | B | 0.25 | | **10 53** | **46 12** | **10 53** | **46 12** | **10 53** | **46 12** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | D | 0.25 | | **17 19** | **75 31** | **17 19** | **75 31** | **17 19** | **75 31** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | 0.0E 00 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| To al Reduced Sulfur (as TRS) | | NSPS | 7.3E-01 | lb/hr/tank | A | 0.25 | | **3 30** | **14 46** | **3 30** | **14 46** | **3 30** | **14 46** |
| To al Reduced Sulfur (as Su fur) | | NSPS | .2E-01 | lb/hr/tank | A | 0.25 | | **1 89** | **8 28** | **1 89** | **8 28** | **1 89** | **8 28** |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | .5E-01 | lb/hr/tank | A | 0.25 | | **2 01** | **8 80** | **2 01** | **8 80** | **2 01** | **8 80** |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **2 32** | **10 15** | **2 32** | **10 15** | **2 32** | **10 15** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | 6.0E-06 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112 | 5.2E-03 | lb/hr/tank | A | 0.25 | | **0 02** | **0 10** | **0 02** | **0 10** | **0 02** | **0 10** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | .3E-06 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | 1.2E-06 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloroform | 67663 | MAP, TAP, (112 | 1.3E-0 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Chloromethane | 7 873 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | .9E-01 | lb/hr/tank | A | 0.25 | | **2 21** | **9 66** | **2 21** | **9 66** | **2 21** | **9 66** |
| Methyl sobutyl ketone | 108101 | HAP, TAP | 1.1E-05 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl hydrazine | 6033 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | 6.5E-06 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | 2.0E-05 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | 1.8E-06 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | 1.9E-02 | lb/hr/tank | A | 0.25 | | **0 09** | **0 37** | **0 09** | **0 37** | **0 09** | **0 37** |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | 6.5E-06 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | 2.7E-0 | lb/hr/tank | A | 0.25 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| Tetrachloroethylene | 12718 | HAP, TAP | .7E-05 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Toluene | 108883 | HAP, TAP | 8.6E-06 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | 5.2E-06 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Vinyl acetate | 10805 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Med an em ssion factors from NCASI Technical Bulletin 858, Table 11. Low density bleached storage tank emissions assumed to be 25% of unbleached high density storage tanks based on cons stency of 10-12% for HD tanks and 2-3% for LD tanks.
B) Emission factor adjusted from VOC as carbon o total VOC based on molecu ar we ght of predominate VOC species.
C) Minimum emission factor from NCASI Technical Bulletin 858, Table 11 - Unb eached HD Storage Tank.
D) VOC em ssions are sum of indiv dual specia ed VOC.
E) Sum of spec ated POM and PAH.

9. NOTES:

To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.
Process variabl ty factor of 0.25 reflects cons stency ratio of HD and LD pulp storage tanks.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Insignif cant - Low Density Pulp Tanks | 18 | tanks | 18 | tanks | 2 | 7 | 365 | 365 |

El emissions reported under Ins gn fcant Summary

Tit e V Unit ID = Attachment B Insignificant L st

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EM SSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methyl mercaptan | | | 3.7E-03 | lb/hr/tank | A | 0.25 | | **0 07** | **0 29** | **0 07** | **0 29** | **0 07** | **0 29** |
| dimethyl d su fide | | | 2.3E-01 | lb/hr/tank | A | 0.25 | | **4 14** | **18 13** | **4 14** | **18 13** | **4 14** | **18 13** |
| dimethyl suff de | | | 5.0E-01 | lb/hr/tank | A | 0.25 | | **9 00** | **39 42** | **9 00** | **39 42** | **9 00** | **39 42** |
| To al Other Air Pollutants | | | | | | 1 | | **1 73** | **7 56** | **1 73** | **7 56** | **1 73** | **7 56** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | 6.0E-05 | lb/hr/tank | A | 0.25 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | 1.2E-02 | lb/hr/tank | A | 0.25 | | **0 05** | **0 24** | **0 05** | **0 24** | **0 05** | **0 24** |
| alpha-pinene | | | 1.7E-01 | lb/hr/tank | A | 0.25 | | **0 77** | **3 35** | **0 77** | **3 35** | **0 77** | **3 35** |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | 1.7E-01 | lb/hr/tank | A | 0.25 | | **0 77** | **3 35** | **0 77** | **3 35** | **0 77** | **3 35** |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | 2.8E-0 | lb/hr/tank | A | 0.25 | | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | 2.1E-02 | lb/hr/tank | A | 0.25 | | **0 09** | **0 41** | **0 09** | **0 41** | **0 09** | **0 41** |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | 3.1E-03 | lb/hr/tank | A | 0.25 | | **0 01** | **0 06** | **0 01** | **0 06** | **0 01** | **0 06** |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | 7.0E-03 | lb/hr/tank | A | 0.25 | | **0 03** | **0 14** | **0 03** | **0 14** | **0 03** | **0 14** |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONFIDENTIAL Alternate Form D 2943 Emission Data for Regulated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Insignif cant - Gaso ine Tanks | 2 | tanks | 2 | tanks | 2 | 7 | 365 | 365 |

EI emissions reported under Ins gn ficant Summary

Title V Unit ID = Attachment B Insignificant L st

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EM SSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 10 m crons | | Cr teria | | | | 1 | | | | | | | |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | | | | 1 | | | | | | | |
| Condensible part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | | | | | | |
| Su fur dioxide | 7 6095 | Cr teria | | | | 1 | | | | | | | |
| Vo ati e organic compounds (as carbon) | | Cr teria | 2,01 | lb/yr/ ank | A | 1 | | **0 46** | **2 01** | **0 46** | **2 01** | **0 46** | **2 01** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 2,01 | lb/yr/ ank | A | 1 | | **0 46** | **2 01** | **0 46** | **2 01** | **0 46** | **2 01** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon monox de | | Cr teria | | | | 1 | | | | | | | |
| Lead | | Cr teria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Cr teria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | | | | | | |
| Methane | 7 828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous ox de | 1002 972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | HAP | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | | | B | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emissions from EPA Tanks Program for 3,000 gallon gasoline storage tank.
B) Sum of spec ated POM and PAH.

9. NOTES:

To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Insignif cant - Gaso ine Tanks | 2 | tanks | 2 | tanks | 2 | 7 | 365 | 365 |

El emissions reported under Ins gn ficant Summary

Tit e V Unit ID = Attachment B Insig ificant L st

| 3. POLLUTANT | CAS # | 8. EM SSION FACTOR INFORMATION 5. TYPE | FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONFIDENTIAL Alternate Form D 2943 Emission Data for Regulated Pollutants**

| 1. & 2. PROCESS EMISSION SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAXIMUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Insignificant - Oil and Lube Tanks | 50 | tanks | 50 | tanks | 2 | 7 | 365 | 365 |

EI emissions reported under Insignificant Summary
Title V Unit ID = Attachment B Insignificant List

| 8. EMISSION FACTOR INFORMATION | | | | | | | | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFFICIENCY | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Filterable particulate matter | | | | | | 1 | | | | | | | |
| Filterable particulate matter < 10 microns | | Criteria | | | | 1 | | | | | | | |
| Filterable particulate matter < 2.5 microns | | Criteria | | | | 1 | | | | | | | |
| Condensable particulate matter < 2.5 microns | | Criteria | | | | 1 | | | | | | | |
| Total particulate matter < 10 microns | | Criteria | | | | 1 | | | | | | | |
| Total particulate matter < 2.5 microns | | Criteria | | | | 1 | | | | | | | |
| Sulfur dioxide | 7446095 | Criteria | | | | 1 | | | | | | | |
| Volatile organic compounds (as carbon) | | Criteria | 2.11 | lb/yr/tank | A | 1 | | **0.01** | **0.05** | **0.01** | **0.05** | **0.01** | **0.05** |
| Volatile organic compounds (as VOC) | | Criteria | 2.11 | lb/yr/tank | B | 1 | | **0.01** | **0.05** | **0.01** | **0.05** | **0.01** | **0.05** |
| Volatile organic compounds (sum of VOC) | | Criteria | | | B | 1 | | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| Carbon monoxide | | Criteria | | | | 1 | | | | | | | |
| Lead | | Criteria | | | | 1 | | | | | | | |
| Nitrogen oxides | | Criteria | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Carbon dioxide | 124389 | GHG | | | | 1 | | | | | | | |
| Biogenic carbon dioxide | 124389 | GHG | | | | 1 | | | | | | | |
| Methane | 74828 | GHG, (112r) | | | | 1 | | | | | | | |
| Nitrous oxide | 10024972 | GHG | | | | 1 | | | | | | | |
| Carbon dioxide equivalent | | GHG | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Chlorine dioxide | 10090 | 112r | | | | 1 | | | | | | | |
| Sulfuric acid mist | 7664939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Sulfide | 7783064 | NSPS, TAP | | | | 1 | | | | | | | |
| Total Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| Total Reduced Sulfur (as Sulfur) | | NSPS | | | | 1 | | | | | | | |
| Total Reduced Sulfur (as Hydrogen Sulfide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Total all 112(b) Hazardous Air Pollutants | | | | | | | | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| 1,1,1-Trichloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 75343 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Trichloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2,4-Trichlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1,4-Dichlorobenzene | 106467 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butadiene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Chloroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 1746016 | HAP | | | | 1 | | | | | | | |
| 2,4-Dinitrophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2,4-Dinitrotoluene | 12112 | HAP | | | | 1 | | | | | | | |
| 2,4,6-Trichlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| 4-Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Acetaldehyde | 75070 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitrile | 107131 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Aniline | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71432 | HAP, TAP | | | | 1 | | | | | | | |
| Benzyl chloride | 1007 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexyl)phthalate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulfide | 75150 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulfide | 63581 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7873 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium(+6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 13269 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 11122 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl sulfate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phthalate (POM) | 84742 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 1001 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl chloride | 75003 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibromide | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Formaldehyde | 50000 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyclopentadiene | 777 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochloric acid | 7647010 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluoride | 7664393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7488 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 540841 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl isobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 1634 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | | | | 1 | | | | | | | |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95487 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95476 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 1065 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organic matter | | HAP, TAP | | | B | 1 | | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106423 | HAP, TAP | | | | 1 | | | | | | | |
| Selenium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Styrene | 100425 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | | | | 1 | | | | | | | |
| Trichloroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | HAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl chloride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xylenes | 1330207 | HAP, TAP | | | | 1 | | | | | | | |

8. REFERENCES:
A) Emissions from EPA Tanks Program for 3,000 gallon fuel oil storage tank.
B) Sum of specated POM and PAH.

9. NOTES:

Total reduced sulfur emission are the sum of emissions of hydrogen sulfide, methyl mercaptan, dimethyl sulfide, and dimethyl disulfide.
Process variability factors for metal compounds assume conversion of elemental metal to lowest state metal oxide, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Insignificant - Oil and Lube Tanks | 50 | tanks | 50 | tanks | 2 | 7 | 365 | 365 |

El emissions reported under Ins gn ficant Summary

Title V Unit ID = Attachment B Insignificant L st

| 3. POLLUTANT | CAS # | 8. EM SSION FACTOR INFORMATION 5. TYPE | FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| Hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpinene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | | | | 1 | | | | | | | |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | | | | 1 | | | | | | | |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | | | | 1 | | | | | | | |
| fluorene (POM) | | | | | | 1 | | | | | | | |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | | | | 1 | | | | | | | |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | | | | 1 | | | | | | | |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| stronlium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER YEAR | | | ACTUAL HOURS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Emergency Fire Pump #2 (175 hp) | 1.2 | MM Btu/hr | 1.2 | MM Btu/hr | 500 | | | 100 |

EI emissions reported under Ins gn ficant Summary
Tit e V Unit ID = Attachment B Insig ificant L st

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 3.10E-01 | #/MM Btu | A | 1 | | **0 38** | **0 09** | **0 38** | **0 09** | **0 38** | **0 02** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 3.10E-01 | #/MM Btu | A | 1 | | **0 38** | **0 09** | **0 38** | **0 09** | **0 38** | **0 02** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 3.10E-01 | #/MM Btu | A | 1 | | **0 38** | **0 09** | **0 38** | **0 09** | **0 38** | **0 02** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **0 38** | **0 09** | **0 38** | **0 09** | **0 38** | **0 02** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **0 38** | **0 09** | **0 38** | **0 09** | **0 38** | **0 02** |
| Su fur dioxide | 7 6095 | Cr teria | 2.90E-01 | #/MM Btu | A | 1 | | **0 36** | **0 09** | **0 36** | **0 09** | **0 36** | **0 02** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 3.60E-01 | #/MM Btu | A | 1 | | **0 44** | **0 11** | **0 44** | **0 11** | **0 44** | **0 02** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 3.60E-01 | #/MM Btu | C | 2.5 | | **1 10** | **0 28** | **1 10** | **0 28** | **1 10** | **0 06** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon monox de | | Cr teria | 9.50E-01 | #/MM Btu | A | 1 | | **1 16** | **0 29** | **1 16** | **0 29** | **1 16** | **0 06** |
| Lead | | Cr teria | | | | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | . 1E 00 | #/MM Btu | A | 1 | | **5 40** | **1 35** | **5 40** | **1 35** | **5 40** | **0 27** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 7 33E 01 | kg/MM Btu | E | 1 | | **242 33** | **60 58** | **242 33** | **60 58** | **242 33** | **12 12** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methane | 7 828 | GHG, (112r) | 3.00E-03 | kg/MM Btu | E | 1 | | **0 01** | **0 00** | **0 01** | **0 00** | **0 01** | **0 00** |
| Nitrous ox de | 1002 972 | GHG | 6.00E-0 | kg/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon dioxide equivalent | | GHG | | | F | 1 | | **243 17** | **60 79** | **243 17** | **60 79** | **243 17** | **12 16** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 01** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112 | 7.67E-0 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 9.33E-0 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112 | 1.18E-03 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | 8. 8E-05 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | .87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | 1.68E-0 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | .09E-0 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | 2.85E-0 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |

8. REFERENCES:
A) Emission factors from AP- 2 for Diesel Industrial Engines - Table 3.3-1.
B) Reserved
C) Primary VOC assumed o be forma dehyde.
D) Em ssion factors from AP- 2 for Diesel Industr al Engines - Table 3.3-2. (POM = PAH)
E) Emission factor for distil ate #1 combust on in EPA MRR, Table C-1 and C-2.
F) Emission factor based on GWP in EPA MRR, Table A-1.
G) VOC em ssions are sum of individual speciated VOC.

9. NOTES:
Engine horsepower converted to Btu assuming 7,000 Btu/hp-hr (AP- 2, Table 3.3-1).
Actual production is assumed to be 100 hours per year consistent with RICE MACT requirements for emergency engines.
Maximum production s assumed to be 500 hours per year cons stent w th September 6, 1995 EPA guidance memo per aining to ca cu ating PTE from emergency generators.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER YEAR | | | ACTUAL HOURS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Emergency Fire Pump #2 (175 hp) | 1.2 | MM Btu/hr | 1.2 | MM Btu/hr | 500 | | | 100 |

El emissions reported under Ins gn ficant Summary

Tit e V Unit ID = Attachment B Insignificant L st

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| hydrogen sulf de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl sulf de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpinene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | 1.87E-06 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | 1.68E-06 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | 3.53E-07 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | 7.61E-06 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| fluorene (POM) | | | 2.92E-05 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | 2.9 E-05 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | 2.58E-03 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | .78E-06 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER YEAR | | | ACTUAL HOURS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Emergency Kiln Drive (101 hp) | 0.7 | MM Btu/hr | 0.7 | MM Btu/hr | 500 | | | 100 |

EI emissions reported under Ins gn ficant Summary
Tit e V Unit ID = Attachment B Insig ificant L st

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 3.10E-01 | #/MM Btu | A | 1 | | **0 22** | **0 05** | **0 22** | **0 05** | **0 22** | **0 01** |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 3.10E-01 | #/MM Btu | A | 1 | | **0 22** | **0 05** | **0 22** | **0 05** | **0 22** | **0 01** |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 3.10E-01 | #/MM Btu | A | 1 | | **0 22** | **0 05** | **0 22** | **0 05** | **0 22** | **0 01** |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | **0 22** | **0 05** | **0 22** | **0 05** | **0 22** | **0 01** |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | **0 22** | **0 05** | **0 22** | **0 05** | **0 22** | **0 01** |
| Su fur dioxide | 7 6095 | Cr teria | 2.90E-01 | #/MM Btu | A | 1 | | **0 21** | **0 05** | **0 21** | **0 05** | **0 21** | **0 01** |
| Vo ati e organic compounds (as carbon) | | Cr teria | 3.60E-01 | #/MM Btu | A | 1 | | **0 25** | **0 06** | **0 25** | **0 06** | **0 25** | **0 01** |
| Vo ati e organic compounds (as VOC) | | Cr teria | 3.60E-01 | #/MM Btu | C | 2.5 | | **0 64** | **0 16** | **0 64** | **0 16** | **0 64** | **0 03** |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | G | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon monox de | | Cr teria | 9.50E-01 | #/MM Btu | A | 1 | | **0 67** | **0 17** | **0 67** | **0 17** | **0 67** | **0 03** |
| Lead | | Cr teria | | | | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nitrogen oxides | | Cr teria | . 1E 00 | #/MM Btu | A | 1 | | **3 12** | **0 78** | **3 12** | **0 78** | **3 12** | **0 16** |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 7 33E 01 | kg/MM Btu | E | 1 | | **80 72** | **20 18** | **80 72** | **20 18** | **80 72** | **4 04** |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Methane | 7 828 | GHG, (112r) | 3.00E-03 | kg/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Nitrous ox de | 1002 972 | GHG | 6.00E-0 | kg/MM Btu | E | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Carbon dioxide equivalent | | GHG | | | F | 1 | | **81 00** | **20 25** | **81 00** | **20 25** | **81 00** | **4 05** |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112 | 7.67E-0 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 9.33E-0 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112 | 1.18E-03 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | 8. 8E-05 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | 1.68E-0 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | .09E-0 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | 2.85E-0 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |

8. REFERENCES:
A) Emission factors from AP- 2 for Diesel Industrial Engines - Table 3.3-1.
B) Reserved
C) Primary VOC assumed o be forma dehyde.
D) Em ssion factors from AP- 2 for Diesel Industr al Engines - Table 3.3-2. (POM = PAH)
E) Emission factor for distil ate #1 combust on in EPA MRR, Table C-1 and C-2.
F) Emission factor based on GWP in EPA MRR, Table A-1.
G) VOC em ssions are sum of individual speciated VOC.

9. NOTES:
Engine horsepower converted to Btu assuming 7,000 Btu/hp-hr (AP- 2, Table 3.3-1).
Actual production is assumed to be 100 hours per year consistent with RICE MACT requirements for emergency engines.
Maximum production s assumed to be 500 hours per year cons stent w th September 6, 1995 EPA guidance memo per aining to ca cu ating PTE from emergency generators.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER YEAR | | | ACTUAL HOURS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Emergency Kiln Drive (101.hp) | 0.7 | MM Btu/hr | 0.7 | MM Btu/hr | 500 | | | 100 |

El emissions reported under Ins gn ficant Summary

Tit.e V Unit ID = Attachment B Insig.ificant L st

| | | | 8. EMISSION FACTOR INFORMATION | | | PROCESS VARIABILITY | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS | | 7. MAXIMUM CONTROLLED EMISSIONS | | ACTUAL EMISSIONS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. POLLUTANT | CAS # | 5. TYPE | FACTOR | UNITS | NOTE | FACTOR | | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) | (lb/hr) | (tons/yr) |
| Speciated TRS Compounds | | | | | | 1 | | | | | | | |
| hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpiniene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | 1.87E-06 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | 1.68E-06 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | 3.53E-07 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | 7.61E-06 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| fluorene (POM) | | | 2.92E-05 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | 2.9 E-05 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | 2.58E-03 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | .78E-06 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

**CONF DEN IAL Alternate Form D 2943 Emission Data for Regu ated Pollutants**

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Contractor Owned Pumps (50 hp each) | 5.0 | Pumps | 5.0 | Pumps | 2 | 7 | 365 | 365 |

EI emissions reported under Ins gn ficant Summary
Tit e V Unit ID = Attachment B Insig ficant L st

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fi terable par icula e matter | | | 3.10E-01 | #/MM Btu | A | 1 | | 0 54 | 2 38 | 0 54 | 2 38 | 0 54 | 2 38 |
| Fi terable par icula e matter < 10 m crons | | Cr teria | 3.10E-01 | #/MM Btu | A | 1 | | 0 54 | 2 38 | 0 54 | 2 38 | 0 54 | 2 38 |
| Fi terable par icula e matter < 2 5 microns | | Cr teria | 3.10E-01 | #/MM Btu | A | 1 | | 0 54 | 2 38 | 0 54 | 2 38 | 0 54 | 2 38 |
| Condensible part cu ate matter < 2 5 m crons | | Cr teria | | | | 1 | | | | | | | |
| To al part cu ate matter < 10 microns | | Cr teria | | | | 1 | | 0 54 | 2 38 | 0 54 | 2 38 | 0 54 | 2 38 |
| To al part cu ate matter < 2.5 m crons | | Cr teria | | | | 1 | | 0 54 | 2 38 | 0 54 | 2 38 | 0 54 | 2 38 |
| Su fur dioxide | 7 6095 | Cr teria | 2.90E-01 | #/MM Btu | A | 1 | | 0 51 | 2 22 | 0 51 | 2 22 | 0 51 | 2 22 |
| Vo ati e organic compounds (as carbon) | | Cr teria | 3.60E-01 | #/MM Btu | A | 1 | | 0 63 | 2 76 | 0 63 | 2 76 | 0 63 | 2 76 |
| Vo ati e organic compounds (as VOC) | | Cr teria | 3.60E-01 | #/MM Btu | C | 2.5 | | 1 58 | 6 90 | 1 58 | 6 90 | 1 58 | 6 90 |
| Vo ati e organic compounds (sum of VOC) | | Cr teria | | | G | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Carbon monox de | | Cr teria | 9.50E-01 | #/MM Btu | A | 1 | | 1 66 | 7 28 | 1 66 | 7 28 | 1 66 | 7 28 |
| Lead | | Cr teria | | | | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Nitrogen oxides | | Cr teria | 2.13E 00 | #/MM Btu | B | 1 | | 3 73 | 16 33 | 3 73 | 16 33 | 3 73 | 16 33 |
| | | | | | | | | | | | | | |
| Carbon dioxide | 12 389 | GHG | 7 33E 01 | kg/MM Btu | E | 1 | | 282 60 | 1 237 79 | 282 60 | 1 237 79 | 282 60 | 1 237 79 |
| Biogenic carbon dioxide | 12 389 | GHG | | | | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Methane | 7 828 | GHG, (112r) | 3.00E-03 | kg/MM Btu | E | 1 | | 0 01 | 0 05 | 0 01 | 0 05 | 0 01 | 0 05 |
| Nitrous ox de | 1002 972 | GHG | 6.00E-0 | kg/MM Btu | E | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Carbon dioxide equivalent | | GHG | | | F | 1 | | 283 58 | 1 242 08 | 283 58 | 1 242 08 | 283 58 | 1 242 08 |
| | | | | | | | | | | | | | |
| Chlorine d ox de | 100 90 | 112r | | | | 1 | | | | | | | |
| Su furic acid m st | 766 939 | TAP | | | | 1 | | | | | | | |
| Hydrogen Su fide | 778306 | NSPS, TAP | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as TRS) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Su fur) | | NSPS | | | | 1 | | | | | | | |
| To al Reduced Sulfur (as Hydrogen Su fide) | | NSPS | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| To al 112(b) Hazardous Air Po lu ants | | | | | | | | 0 01 | 0 03 | 0 01 | 0 03 | 0 01 | 0 03 |
| 1,1,1-Tr chloroethane | 71556 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethane | 753 3 | HAP | | | | 1 | | | | | | | |
| 1,1-Dichloroethene | 7535 | HAP, (112r) | | | | 1 | | | | | | | |
| 1,1,2-Tr chloroethane | 79005 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloroethane | 107062 | HAP | | | | 1 | | | | | | | |
| 1,2-Dichloropropane | 78875 | HAP | | | | 1 | | | | | | | |
| 1,2, -Tr chlorobenzene | 120821 | HAP | | | | 1 | | | | | | | |
| 1, -Dichlorobenzene | 106 67 | HAP | | | | 1 | | | | | | | |
| 2-chloro-1 3-butad ene (POM) | 126998 | HAP, TAP | | | | 1 | | | | | | | |
| 2-Ch oroacetophenone | 53227 | HAP | | | | 1 | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 17 6016 | HAP | | | | 1 | | | | | | | |
| 2, -Din trophenol | 51286 | HAP | | | | 1 | | | | | | | |
| 2, -Din trotoluene | 1211 2 | HAP | | | | 1 | | | | | | | |
| 2, ,6-Tr chlorophenol | 88062 | HAP | | | | 1 | | | | | | | |
| -Nitrophenol | 100027 | HAP | | | | 1 | | | | | | | |
| Aceta dehyde | 75070 | MAP, TAP, (112 | 7.67E-0 | #/MM Btu | D | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Acetophenone | 98862 | HAP, TAP | | | | 1 | | | | | | | |
| Acrolein | 107028 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Acrylonitr le | 107131 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| An line | 62533 | HAP, TAP | | | | 1 | | | | | | | |
| Antimony Compounds | | HAP, TAP | | | | 1.20 | | | | | | | |
| Arsenic Compounds | | HAP, TAP | | | | 1.32 | | | | | | | |
| Benzene | 71 32 | HAP, TAP | 9.33E-0 | #/MM Btu | D | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Benzyl chloride | 100 7 | HAP, TAP | | | | 1 | | | | | | | |
| Beryllium Compounds | | HAP, TAP | | | | 2.78 | | | | | | | |
| Biphenyl | 9252 | HAP, TAP | | | | 1 | | | | | | | |
| Bis(2-ethylhexy )phtha ate | 117817 | HAP, TAP | | | | 1 | | | | | | | |
| Bromoform | 75252 | HAP, TAP | | | | 1 | | | | | | | |
| Bromomethane | 7 839 | HAP, TAP | | | | 1 | | | | | | | |
| Cadmium Compounds | | HAP, TAP | | | | 1.1 | | | | | | | |
| Carbon disulf de | 75150 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Carbon tetrachloride | 56235 | HAP, TAP | | | | 1 | | | | | | | |
| Carbonyl sulf de | 63581 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Catechol | 120809 | HAP, TAP | | | | 1 | | | | | | | |
| Chlorine | 7782505 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chlorobenzene | 108907 | HAP, TAP | | | | 1 | | | | | | | |
| Chloroform | 67663 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chloromethane | 7 873 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Chromium Compounds | | HAP | | | | 1.31 | | | | | | | |
| Chromium( 6) Compounds | | HAP, TAP | | | | 1.31 | | | | | | | |
| Cobalt Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| Cresols | 1319773 | HAP, TAP | | | | 1 | | | | | | | |
| Cumene | 98828 | HAP, TAP | | | | 1 | | | | | | | |
| Cyanide Compounds | | HAP, TAP | | | | 1 | | | | | | | |
| Dibenzofuran | 1326 9 | HAP, TAP | | | | 1 | | | | | | | |
| Diethanolamine | 111 22 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl phthalate | 131113 | HAP, TAP | | | | 1 | | | | | | | |
| Dimethyl su fate | 77781 | HAP, TAP | | | | 1 | | | | | | | |
| di-n-butyl phtha ate (POM) | 8 7 2 | HAP, TAP | | | | 1 | | | | | | | |
| Ethylbenzene | 100 1 | HAP, TAP | | | | 1 | | | | | | | |
| Ethyl ch oride | 75003 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Ethylene dibrom de | 10693 | HAP, TAP | | | | 1 | | | | | | | |
| Forma dehyde | 50000 | MAP, TAP, (112 | 1.18E-03 | #/MM Btu | D | 1 | | 0 00 | 0 01 | 0 00 | 0 01 | 0 00 | 0 01 |
| Glycol Ethers | | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorobenzene | 1187 1 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachlorocyc opentadiene | 77 7 | HAP, TAP | | | | 1 | | | | | | | |
| Hexachloroethane | 67721 | HAP, TAP | | | | 1 | | | | | | | |
| Hydrochlor c ac d | 76 7010 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Hydrogen fluor de | 766 393 | HAP, (112r) | | | | 1.05 | | | | | | | |
| Iodomethane | 7 88 | HAP | | | | 1 | | | | | | | |
| Isooctane (POM) | 5 08 1 | HAP, TAP | | | | 1 | | | | | | | |
| Isophorone | 78591 | HAP, TAP | | | | 1 | | | | | | | |
| Lead Compounds | | HAP, TAP | | | | 1.08 | | | | | | | |
| Manganese Compounds | | HAP, TAP | | | | 1.29 | | | | | | | |
| m-Cresol | 10839 | HAP, TAP | | | | 1 | | | | | | | |
| Mercury Compounds | | HAP | | | | 1.08 | | | | | | | |
| Methanol | 67561 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl sobutyl ketone | 108101 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl hydrazine | 6033 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Methyl methacrylate | 80626 | HAP, TAP | | | | 1 | | | | | | | |
| Methyl tert butyl ether | 163 0 | HAP, TAP | | | | 1 | | | | | | | |
| Methylene chloride | 75092 | HAP, TAP | | | | 1 | | | | | | | |
| m-Xylene | 108383 | HAP, TAP | | | | 1 | | | | | | | |
| Naphthalene | 91203 | HAP, TAP | 8. 8E-05 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| n-Hexane | 1105 3 | HAP, TAP | | | | 1 | | | | | | | |
| Nickel Compounds | | HAP, TAP | | | | 1.27 | | | | | | | |
| o-Cresol | 95 87 | HAP, TAP | | | | 1 | | | | | | | |
| o-Xylene | 95 76 | HAP, TAP | | | | 1 | | | | | | | |
| p-Cresol | 106 5 | HAP, TAP | | | | 1 | | | | | | | |
| Pentachlorophenol | 87865 | HAP, TAP | | | | 1 | | | | | | | |
| Phenol | 108952 | HAP, TAP | | | | 1 | | | | | | | |
| Phosphorus | 77231 0 | HAP, TAP | | | | 1 | | | | | | | |
| Polycyclic organ c matter | | HAP, TAP | 1.68E-0 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Propionaldehyde | 123386 | HAP, TAP | | | | 1 | | | | | | | |
| p-Xylene | 106 23 | HAP, TAP | | | | 1 | | | | | | | |
| Se enium Compounds | | HAP, TAP | | | | 1. 1 | | | | | | | |
| Styrene | 100 25 | HAP, TAP | | | | 1 | | | | | | | |
| Tetrachloroethylene | 12718 | HAP, TAP | | | | 1 | | | | | | | |
| Toluene | 108883 | HAP, TAP | .09E-0 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |
| Trich oroethylene | 79016 | HAP, TAP | | | | 1 | | | | | | | |
| Vinyl acetate | 10805 | MAP, TAP, (112r) | | | | 1 | | | | | | | |
| Vinyl ch oride | 7501 | HAP, TAP | | | | 1 | | | | | | | |
| Xy enes | 1330207 | HAP, TAP | 2.85E-0 | #/MM Btu | D | 1 | | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 | 0 00 |

8. REFERENCES:
A) Emission factors from AP- 2 for Diesel Industrial Engines - Table 3.3-1.
B) Emission factor from AP- 2 for D esel Industrial Engines - Table 3.3-1, T er I engine (0.015 lb/hp-hr).
C) Primary VOC assumed o be forma dehyde.
D) Em ssion factors from AP- 2 for Diesel Industr al Engines - Table 3.3-2. (POM = PAH)
E) Emission factor for distil ate #1 combust on in EPA MRR, Table C-1 and C-2.
F) Emission factor based on GWP in EPA MRR, Table A-1.
G) VOC em ssions are sum of individual speciated VOC.

9. NOTES:
Engine horsepower converted to Btu assuming 7,000 Btu/hp-hr (AP- 2, Table 3.3-1).

Maximum production s perm tted production ra e.
To al reduced sulfur em ssion are the sum of emissions of hydrogen sulf de, methyl mercaptan, dimethyl sulf de, and dimethyl d su fide.
Process variabl ty factors for metal compounds assume conversion of e emental metal to lowest state metal ox de, except HF.

| 1. & 2. PROCESS EMISS ON SOURCE | MAXIMUM PRODUCTION | PRODUCTION UNITS | ACTUAL PRODUCTION | PRODUCTION UNITS | MAXIMUM HOURS PER DAY | MAX MUM DAYS PER WEEK | MAXIMUM DAYS PER YEAR | ACTUAL DAYS PER YEAR |
|---|---|---|---|---|---|---|---|---|
| Contractor Owned Pumps (50 hp each) | 5.0 | Pumps | 5.0 | Pumps | 2 | 7 | 365 | 365 |

El emissions reported under Ins gn ficant Summary

Tit e V Unit ID = Attachment B Insignificant L st

| 3. POLLUTANT | CAS # | 5. TYPE | 8. EMISSION FACTOR INFORMATION FACTOR | UNITS | NOTE | PROCESS VARIABILITY FACTOR | CONTROL EFF C ENCY | 6. MAXIMUM UNCONTROLLED EMISSIONS (lb/hr) | (tons/yr) | 7. MAXIMUM CONTROLLED EMISSIONS (lb/hr) | (tons/yr) | ACTUAL EMISSIONS (lb/hr) | (tons/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Speciated TRS Compounds | | | | | | | | | | | | | |
| hydrogen suff de | | | | | | 1 | | | | | | | |
| Methyl mercaptan | | | | | | 1 | | | | | | | |
| dimethyl d su fide | | | | | | 1 | | | | | | | |
| dimethyl suff de | | | | | | 1 | | | | | | | |
| To al Other Air Pollutants | | | | | | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 02** |
| 1,2-dibromoethene | 5 0 98 | | | | | 1 | | | | | | | |
| 1,2-dich oroethylene | | | | | | 1 | | | | | | | |
| 1,2-Dimethoxyethane | 11071 | | | | | 1 | | | | | | | |
| 2-Ch orophenol | 95578 | | | | | 1 | | | | | | | |
| 2-din tro- 6-methylphenol | | | | | | 1 | | | | | | | |
| 2-hexanone | | | | | | 1 | | | | | | | |
| 2-methylnaptha ene | | | | | | 1 | | | | | | | |
| 2-methyl propene | 115117 | (112r) | | | | 1 | | | | | | | |
| 2-methyl-2-propanol benzene | | | | | | 1 | | | | | | | |
| 2-nitrophenol | | | | | | 1 | | | | | | | |
| 2-propanol | | | | | | 1 | | | | | | | |
| 2,5-dimethyl benzaldehyde | | | | | | 1 | | | | | | | |
| 3-carene | | | | | | 1 | | | | | | | |
| 3-methylch oranthrene (POM) | | | | | | 1 | | | | | | | |
| 3-methyl chrysene (POM) | | | | | | 1 | | | | | | | |
| 7-12,dimethylbenz(a)anthracene (POM) | | | | | | 1 | | | | | | | |
| acenaphthene (POM) | | | | | | 1 | | | | | | | |
| acenaphthy ene (POM) | | | | | | 1 | | | | | | | |
| acetone | | | | | | 1 | | | | | | | |
| alpha-pinene | | | | | | 1 | | | | | | | |
| alpha-terpinene | | | | | | 1 | | | | | | | |
| alpha-terpiniol | | | | | | 1 | | | | | | | |
| ammonia | 766 17 | (112r) | | | | 1 | | | | | | | |
| anthracene (POM) | | | 1.87E-06 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| barium | | | | | | 1 | | | | | | | |
| benzaldehyde | | | | | | 1 | | | | | | | |
| benzoic acid | | | | | | 1 | | | | | | | |
| benzo(a)anthracene (POM) | | | 1.68E-06 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| benzo(a)pyrene (POM) | | | | | | 1 | | | | | | | |
| benzo(b)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzo(gh )perylene (POM) | | | | | | 1 | | | | | | | |
| benzo(k)fluoranthene (POM) | | | | | | 1 | | | | | | | |
| benzyl alcohol | | | | | | 1 | | | | | | | |
| beta-pinene | | | | | | 1 | | | | | | | |
| b s (2-Chloroisopropy ) ether | | | | | | 1 | | | | | | | |
| boron | | | | | | 1 | | | | | | | |
| bromine | | | | | | 1 | | | | | | | |
| bromodichloromethane | | | | | | 1 | | | | | | | |
| butane | 106978 | (112r) | | | | 1 | | | | | | | |
| butylbenzylphtha ate | | | | | | 1 | | | | | | | |
| camphene | | | | | | 1 | | | | | | | |
| camphor | | | | | | 1 | | | | | | | |
| chrysene (POM) | | | 3.53E-07 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| copper | | | | | | 1 | | | | | | | |
| crotonaldehyde | 170303 | (112r) | | | | 1 | | | | | | | |
| cyc ohexanone | | | | | | 1 | | | | | | | |
| decach orobiphenyl | | | | | | 1 | | | | | | | |
| dibenzo(ah)anthracene (POM) | | | | | | 1 | | | | | | | |
| dibromomethane | | | | | | 1 | | | | | | | |
| d ch orobenzene | 25321226 | | | | | 1 | | | | | | | |
| d ch orobiphenyl | | | | | | 1 | | | | | | | |
| d ethylphthala e | | | | | | 1 | | | | | | | |
| di-n-octyl phtha ate | | | | | | 1 | | | | | | | |
| dysprosium | | | | | | 1 | | | | | | | |
| ethane | 7 8 0 | (112r) | | | | 1 | | | | | | | |
| ethanol | | | | | | 1 | | | | | | | |
| fluoranthene (POM) | | | 7.61E-06 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| fluorene (POM) | | | 2.92E-05 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| gamma-Terpinene | | | | | | 1 | | | | | | | |
| germanium | | | | | | 1 | | | | | | | |
| heptane | | | | | | 1 | | | | | | | |
| hexach orobiphenyl | | | | | | 1 | | | | | | | |
| hexa dehyde | | | | | | 1 | | | | | | | |
| indeno(123-cd)pyrene (POM) | | | | | | 1 | | | | | | | |
| iodine | | | | | | 1 | | | | | | | |
| iron | | | | | | 1 | | | | | | | |
| isopropanol | | | | | | 1 | | | | | | | |
| isovaleraldehyde | | | | | | 1 | | | | | | | |
| limonene | | | | | | 1 | | | | | | | |
| l thium | | | | | | 1 | | | | | | | |
| methyl anthracene | | | | | | 1 | | | | | | | |
| Methyl ethyl ketone | 78933 | TAP | | | | 1 | | | | | | | |
| molybdenum | | | | | | 1 | | | | | | | |
| m- olualdehyde | | | | | | 1 | | | | | | | |
| myrcene | | | | | | 1 | | | | | | | |
| n-butyla dehyde | | | | | | 1 | | | | | | | |
| neodymium | | | | | | 1 | | | | | | | |
| n obium | | | | | | 1 | | | | | | | |
| n tric oxide | | | | | | 1 | | | | | | | |
| nonane | | | | | | 1 | | | | | | | |
| o-tolualdehyde | | | | | | 1 | | | | | | | |
| pah | | | | | | 1 | | | | | | | |
| p-cymene | | | | | | 1 | | | | | | | |
| pentach orobiphenyl | | | | | | 1 | | | | | | | |
| pentane | 109660 | (112r) | | | | 1 | | | | | | | |
| phenanthrene (POM) | | | 2.9 E-05 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| polych orinated dibenzo-p-dioxins | | | | | | 1 | | | | | | | |
| polych orinated dibenzo-p-furans | | | | | | 1 | | | | | | | |
| potassium | | | | | | 1 | | | | | | | |
| praeseodymium | | | | | | 1 | | | | | | | |
| propane | 7 986 | (112r) | | | | 1 | | | | | | | |
| propy ene | | | 2.58E-03 | #/MM Btu | D | 1 | | **0 00** | **0 02** | **0 00** | **0 02** | **0 00** | **0 02** |
| p-tolualdehyde | | | | | | 1 | | | | | | | |
| pyrene (POM) | | | .78E-06 | #/MM Btu | D | 1 | | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** | **0 00** |
| rubidium | | | | | | 1 | | | | | | | |
| samarium | | | | | | 1 | | | | | | | |
| s lver | | | | | | 1 | | | | | | | |
| sodium | | | | | | 1 | | | | | | | |
| solicy adehyde | | | | | | 1 | | | | | | | |
| strontium | | | | | | 1 | | | | | | | |
| terpenes | | | | | | 1 | | | | | | | |
| tert-butyl methyl ether | | | | | | 1 | | | | | | | |
| tetrachlorobiphenyl | | | | | | 1 | | | | | | | |
| thallium | | | | | | 1 | | | | | | | |
| thorium | | | | | | 1 | | | | | | | |
| tin | | | | | | 1 | | | | | | | |
| ti anium | | | | | | 2.5 | | | | | | | |
| trich orobiphenyl | | | | | | 1 | | | | | | | |
| trich orofluoromethane | | | | | | 1 | | | | | | | |
| tungsten | | | | | | 1 | | | | | | | |
| valeradehyde | | | | | | 1 | | | | | | | |
| vanadium | | | | | | 1 | | | | | | | |
| y trium | | | | | | 1 | | | | | | | |
| zinc | | | | | | 1 | | | | | | | |
| zirconium | | | | | | 1 | | | | | | | |

CONFIDENTIAL

**Bleach Plant**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| chloroform | CHCl3 | 119.5 | 12 | 9.96 | 7.4E-02 | 36.3% | 5.00E-02 | 1.8E-01 |
| methano | CH3OH | 32 | 12 | 2.67 | 1.3E-01 | 63.7% | 5.00E-02 | 8.5E-02 |
| Total VOC's | | - | - | - | 2.0E-01 | 100.0% | | **2.7E-01** |

**Chl i Di i G ti g Pl i**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 677 Emission Factor | Percent of Total | TB 677 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| acetaldehyde | CH3CHO | 44 | 24 | 1.83 | 2.4E-03 | 5.3% | 1.69E-02 | 1.6E-03 |
| methano | CH3OH | 32 | 12 | 2.67 | 1.5E-02 | 33.2% | 1.69E-02 | 1.5E-02 |
| chloroform | CHCl3 | 119.5 | 12 | 9.96 | 8.9E-03 | 19.7% | 1.69E-02 | 3.3E-02 |
| alpha pinene | C10H16 | 136 | 120 | 1.13 | 7.3E-03 | 16.2% | 1.69E-02 | 3.1E-03 |
| beta pinene | C10H16 | 136 | 120 | 1.13 | 1.1E-03 | 2.4% | 1.69E-02 | 4.7E-04 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 6.2E-03 | 13.7% | 1.69E-02 | 2.6E-03 |
| formaldehyde | HCOH | 30 | 12 | 2.50 | 4.3E-03 | 9.5% | 1.69E-02 | 4.0E-03 |
| T t l VOC' | | - | - | - | 4.5E-02 | 00.0% | | **6.0E-02** |

**Thermo Mechanical Pulping**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 738 Mill RR Emission Factor | Percent of Total | Bowater VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| methano | CH3OH | 32 | 12 | 2.67 | 1.5E-01 | 5.7% | 1.67E+00 | 2.52E-01 |
| alpha pinene | C10H16 | 136 | 120 | 1.13 | 1.8E+00 | 67.9% | 1.67E+00 | 1.29E+00 |
| beta pinene | C10H16 | 136 | 120 | 1.13 | 7.0E-01 | 26.4% | 1.67E+00 | 5.00E-01 |
| T t l VOC' | | - | - | - | 2.7E-00 | 00.0% | | **2.04E-00** |

**Paper Machines No. 1 3**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 740 Mill RR Emission Factor | Percent of Total | TB 740 Mill RR VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| acetaldehyde | CH3CHO | 44 | 24 | 1.83 | 1.0E-02 | 7.4% | 1.70E-01 | 2.3E-02 |
| methano | CH3OH | 32 | 12 | 2.67 | 4.4E-02 | 32.7% | 1.70E-01 | 1.5E-01 |
| methylene chloride | CH2Cl2 | 85 | 12 | 7.08 | 2.1E-03 | 1.6% | 1.70E-01 | 1.0E-02 |
| alpha pinene | C10H16 | 136 | 120 | 1.13 | 4.7E-02 | 34.9% | 1.70E-01 | 6.7E-02 |
| beta pinene | C10H16 | 136 | 120 | 1.13 | 1.6E-02 | 11.9% | 1.70E-01 | 2.3E-02 |
| biph yl | C 2H 0 | 30 | 20 | 08 | 4 E-03 | 3.0% | 70E-0 | 5.6E-03 |
| b i lfi | CS2 | 76 | 2 | 6.33 | 2.4E-03 | 8% | 70E-0 | 0E-02 |
| propionaldehyde | C3H6O | 58 | 36 | 6 | 8.9E-03 | 6.6% | 70E-0 | 8E-02 |
| Total VOC's | | - | - | - | 3E-0 | 00.0% | | **3.2E-01** |

**Pulp Dryer**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 701 Emission Factor | Percent of Total | TB 701 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| t i hy | CH3CHO | 44 | 24 | 83 | 7E-02 | 9 % | 0E-0 | 7E-02 |
| th | CH3OH | 32 | 2 | 2.67 | 0E-0 | 53.5% | 0E-0 | 4E-0 |
| t | CH3COCH3 | 58 | 36 | 6 | 2E-02 | 6.4% | 0E-0 | 0E-02 |
| terpenes | C 0H 6 | 36 | 20 | 3 | 3.7E-02 | 9.8% | 0E-0 | 2.2E-02 |
| 2,4 trichlorobenzene | C6H3CL3 | 8 5 | 72 | 2.52 | 2 E-02 | 2% | 0E-0 | 2.8E-02 |
| Total VOC's | | - | - | - | 9E-0 | 00.0% | | **2.0E-01** |

**Kraft Mill (Oxygen Delignification)**

| Si ifi t VOC Ch i t | F l | Mo l W i ht | Ca bon W i ht | Ra io of T t l t C | TB 858 Emi sion F t | Pe cen of T t l | TB 884 VOC F t | Adju ted Emi ion F t |
|---|---|---|---|---|---|---|---|---|
| t l hy | CH3CHO | 44 | 24 | 83 | 3E-02 | % | 2.00E-0 | 4.2E-03 |
| methano | CH3OH | 32 | 2 | 2.67 | 9.8E-0 | 86.3% | 2.00E-0 | 4.6E-0 |
| acetone | CH3COCH3 | 58 | 36 | 6 | 2.4E-02 | 2. % | 2.00E-0 | 6.8E-03 |
| cumene | C9H 2 | 20 | 08 | | 0E-02 | 0.9% | 2.00E-0 | 2.0E-03 |
| o cresol | C7H8O | 08 | 84 | 29 | 7.9E-02 | 6.4% | 2.00E-0 | 7E-02 |
| terpenes | C 0H 6 | 36 | 20 | 3 | 2.4E-02 | 2. % | 2.00E-0 | 4.8E-03 |
| alpha pinene | C10H16 | 136 | 120 | 1.13 | 1.2E-02 | 1.1% | 2.00E-01 | 2.4E-03 |
| Total VOC's | | - | - | - | 1.1E+00 | 100.0% | | **4.8E-01** |

**Kraft Mill (screw presses / screen room washer)**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| acetaldehyde | CH3CHO | 44 | 24 | 1.83 | 2.3E-03 | 1.6E-02 | 7.70E-02 | 2.3E-03 |
| methano | CH3OH | 32 | 12 | 2.67 | 3.5E-02 | 2.5E-01 | 7.70E-02 | 5.1E-02 |
| acetone | CH3COCH3 | 58 | 36 | 1.61 | 8.1E-03 | 5.8E-02 | 7.70E-02 | 7.1E-03 |
| ethano | C2H6O | 46 | 24 | 1.92 | 5.4E-03 | 3.8E-02 | 7.70E-02 | 5.7E-03 |
| cumene | C9H12 | 120 | 108 | 1.11 | 3.2E-03 | 2.3E-02 | 7.70E-02 | 1.9E-03 |
| isopropano | C3H8O | 60 | 36 | 1.67 | 1.4E-03 | 1.0E-02 | 7.70E-02 | 1.3E-03 |
| 1,2,4-trichlorobenzene | C6H3CL3 | 181.5 | 72 | 2.52 | 1.1E-03 | 7.8E-03 | 7.70E-02 | 1.5E-03 |
| chloroform | CHCl3 | 119.5 | 12 | 9.96 | 2.2E-03 | 1.6E-02 | 7.70E-02 | 1.2E-02 |
| m-cresol | C7H8O | 108 | 84 | 1.29 | 1.2E-02 | 8.5E-02 | 7.70E-02 | 8.4E-03 |
| o-cresol | C7H8O | 108 | 84 | 1.29 | 1.0E-02 | 7.1E-02 | 7.70E-02 | 7.0E-03 |
| p-cresol | C7H8O | 108 | 84 | 1.29 | 1.2E-02 | 8.5E-02 | 7.70E-02 | 8.4E-03 |
| methyl ethyl keytone | C4H8O | 72 | 48 | 1.50 | 1.5E-03 | 1.1E-02 | 7.70E-02 | 1.2E-03 |
| propionaldehyde | C3H6O | 58 | 36 | 1.61 | 1.6E-03 | 1.1E-02 | 7.70E-02 | 1.4E-03 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 2.3E-02 | 1.6E-01 | 7.70E-02 | 1.4E-02 |
| alpha-pinene | C10H16 | 136 | 120 | 1.13 | 8.8E-03 | 6.3E-02 | 7.70E-02 | 5.5E-03 |
| beta-pinene | C10H16 | 136 | 120 | 1.13 | 1.3E-02 | 9.2E-02 | 7.70E-02 | 8.1E-03 |
| Total VOC's | | | | | 1.4E-01 | 100.0% | | **1.2E 01** |

**Kraft Mill (deshive refiners / screens)**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| methano | CH3OH | 32 | 12 | 2.67 | 2.3E-01 | 9.6E-01 | 4.00E-03 | 1.0E-02 |
| acetone | CH3COCH3 | 58 | 36 | 1.61 | 8.5E-03 | 3.6E-02 | 4.00E-03 | -2.3E-04 |
| Total VOC's | | | | | 2.4E-01 | 100.0% | | **1.0E 02** |

**Kraft Mill (deshive refiners / knotters)**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| methano | CH3OH | 32 | 12 | 2.67 | 2.5E-02 | 9.1E-01 | 5.00E-03 | 1.2E-02 |
| ethano | CH3COCH3 | 58 | 36 | 1.61 | 2.5E-03 | 9.1E-02 | 5.00E-03 | 7.3E-04 |
| Total VOC's | | | | | 2.8E-02 | 100.0% | | **1.3E 02** |

**Kraft Mill (pressure diffusion washer)**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| alpha-pinene | C10H16 | 136 | 120 | 1.13 | 1.3E+00 | 7.8E-01 | 1.30E-01 | 1.2E-01 |
| beta-pinene | C10H16 | 136 | 120 | 1.13 | 3.6E-01 | 2.2E-01 | 1.30E-01 | 3.2E-02 |
| Total VOC's | | | | | 1.7E+00 | 100.0% | | **1.5E 01** |

**Kraft Mill (turpentine system)**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| methano | CH3OH | 32 | 12 | 2.67 | 9.2E-04 | 1.0E+00 | 3.45E-04 | 9.2E-04 |
| Total VOC's | | | | | 9.2E-04 | 100.0% | | **9.2E 04** |

**Kraft Mill (digester blow tank)**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | TB 858 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| methano | CH3OH | 32 | 12 | 2.67 | 7.9E-03 | 3.3E-02 | 3.50E-01 | 3.1E-02 |
| limonene | C10H16 | 136 | 120 | 1.13 | 8.2E-03 | 3.5E-02 | 3.50E-01 | 1.4E-02 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 8.0E-02 | 3.4E-01 | 3.50E-01 | 1.3E-01 |
| camphor | C10H16 | 152 | 120 | 1.27 | 1.7E-03 | 7.2E-03 | 3.50E-01 | 3.2E-03 |
| alpha-terpinio | C10H16 | 136 | 120 | 1.13 | 1.3E-03 | 5.5E-03 | 3.50E-01 | 2.2E-03 |
| alpha-pinene | C10H16 | 136 | 120 | 1.13 | 9.7E-02 | 4.1E-01 | 3.50E-01 | 1.6E-01 |
| beta-pinene | C10H16 | 136 | 120 | 1.13 | 4.1E-02 | 1.7E-01 | 3.50E-01 | 6.9E-02 |
| Total VOC's | | | | | 2.4E-01 | 100.0% | | **4.1E 01** |

**Kraft Mill (digester relief gas)**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| methano | CH3OH | 32 | 12 | 2.67 | 1.4E-03 | 5.4E-01 | | 5.3E-04 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 1.2E-03 | 4.6E-01 | | 1.1E-03 |
| Total VOC's | | | | | 2.6E-03 | 100.0% | | **1.6E 03** |

**Kraft Mill (digester chip bin)**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| methano | CH3OH | 32 | 12 | 2.67 | 1.5E-02 | 4.2E-01 | 9.20E-01 | 1.0E+00 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 2.1E-02 | 5.8E-01 | 9.20E-01 | 6.1E-01 |
| Total VOC's | | | | | 3.6E-02 | 100.0% | | **1.6E+00** |

**Kraft Mill (evaporators)**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | Bowater Emission Factor | Percent of Total | VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| methano | CH3OH | 32 | 12 | 2.67 | 4.9E-01 | 1.0E+00 | 1.84E-01 | 4.9E-01 |
| Total VOC's | | | | | 4.9E-01 | 100.0% | | **4.9E 01** |

~~**Kraft Mill (condensate stripper)**~~

| ~~Significant VOC Chemicals~~ | ~~Formula~~ | ~~Molecular Weight~~ | ~~Carbon Weight~~ | ~~Ratio of Total to C~~ | ~~Bowater Emission Factor~~ | ~~Percent of Total~~ | ~~VOC Factor~~ | ~~Adjusted Emission Factor~~ |
|---|---|---|---|---|---|---|---|---|
| ~~methano~~ | ~~CH3OH~~ | ~~32~~ | ~~12~~ | ~~2.67~~ | ~~15 03~~ | ~~1~~ | ~~5 64E+00~~ | ~~1 5E+01~~ |
| ~~T t l VOC'~~ | | | | | ~~5E 0~~ | ~~00 0%~~ | | ~~15 03~~ |

**Lime Kiln**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| cumene | C9H12 | 120 | 108 | 1.11 | 5.5E-03 | 4.7% | 2.30E-02 | 1.2E-03 |
| m-cresol | C7H8O | 108 | 84 | 1.29 | 9.5E-03 | 8.1% | 2.30E-02 | 2.4E-03 |
| o-cresol | C7H8O | 108 | 84 | 1.29 | 4.7E-03 | 4.0% | 2.30E-02 | 1.2E-03 |
| ethyl benzene | C8H10 | 106 | 96 | 1.10 | 3.0E-03 | 2.6% | 2.30E-02 | 6.5E-04 |
| hexachlorocyclopentadien | C5Cl6 | 273 | 60 | 4.55 | 1.2E-02 | 10.2% | 2.30E-02 | 1.1E-02 |
| hexachloroethane | C2Cl6 | 237 | 24 | 9.88 | 1.0E-02 | 8.5% | 2.30E-02 | 1.9E-02 |
| acetophenone | C8H8O | 120 | 96 | 1.25 | 5.5E-03 | 4.7% | 2.30E-02 | 1.3E-03 |
| carbonyl sulfide | COS | 60 | 12 | 5.00 | 3.9E-03 | 3.3% | 2.30E-02 | 3.8E-03 |
| carbon tetrachloride | CCl4 | 154 | 12 | 12.83 | 1.5E-03 | 1.3% | 2.30E-02 | 3.8E-03 |
| 3-carene | C10H16 | 136 | 120 | 1.13 | 1.1E-02 | 9.4% | 2.30E-02 | 2.4E-03 |
| benzaldehyde | C7H6O | 106 | 84 | 1.26 | 5.5E-03 | 4.7% | 2.30E-02 | 1.4E-03 |
| alpha-terpinio | C10H16 | 136 | 120 | 1.13 | 3.0E-03 | 2.6% | 2.30E-02 | 6.7E-04 |
| chloromethane | CH3Cl | 50.5 | 12 | 4.21 | 1.7E-03 | 1.4% | 2.30E-02 | 1.4E-03 |
| ethano | C2H6O | 46 | 24 | 1.92 | 1.1E-02 | 9.4% | 2.30E-02 | 4.1E-03 |
| methano | CH3OH | 32 | 12 | 2.67 | 8.0E-03 | 6.8% | 2.30E-02 | 4.2E-03 |
| naphthalene | C10H8 | 128 | 120 | 1.07 | 1.3E-02 | 11.1% | 2.30E-02 | 2.7E-03 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 7.1E-03 | 6.0% | 2.30E-02 | 1.6E-03 |
| formaldehyde | HCOH | 30 | 12 | 2.50 | 1.5E-03 | 1.3% | 2.30E-02 | 7.3E-04 |
| Total VOC's | | | | | 1.2E-01 | 100.0% | | **6.4E 02** |

**Slakers + Causticizers**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 701 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| acetaldehyde | CH3CHO | 44 | 24 | 1.83 | 6.8E-03 | 8.7% | 5.70E-02 | 9.1E-03 |
| acetone | CH3COCH3 | 58 | 36 | 1.61 | 8.0E-03 | 10.2% | 5.70E-02 | -9.4E-03 |
| methano | CH3OH | 32 | 12 | 2.67 | 5.4E-02 | 68.9% | 5.70E-02 | 1.0E-01 |
| methyl ethyl ketone (MEK | C4H8O | 72 | 48 | 1.50 | 1.2E-03 | 1.5% | 5.70E-02 | 1.3E-03 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 8.4E-03 | 10.7% | 5.70E-02 | 6.9E-03 |
| Total VOC's | | | | | 7.8E-02 | 100.0% | | **1.1E 01** |

**Green liquor Clarifier**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 701 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| acetone | CH3COCH3 | 58 | 36 | 1.61 | 1.5E-03 | 1.1% | 6.60E-02 | -1.2E-03 |
| methano | CH3OH | 32 | 12 | 2.67 | 1.3E-01 | 94.3% | 6.60E-02 | 1.7E-01 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 6.3E-03 | 4.6% | 6.60E-02 | 3.4E-03 |
| Total VOC's | | | | | 1.4E-01 | 100.0% | | **1.7E 01** |

**Green Liquor Surge Tank**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 701 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| methano | CH3OH | 32 | 12 | 2.67 | 1.1E-03 | 47.8% | 1.40E-03 | 1.8E-03 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 1.2E-03 | 52.2% | 1.40E-03 | 8.3E-04 |
| Total VOC's | | | | | 2.3E-03 | 100.0% | | **2.6E 03** |

**White Liquor Presure Filter**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 701 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| formaldehyde | HCOH | 30 | 12 | 2.50 | 2.2E-03 | 10.7% | 5.60E-03 | 1.5E-03 |
| methano | CH3OH | 32 | 12 | 2.67 | 1.5E-02 | 73.2% | 5.60E-03 | 1.1E-02 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 3.3E-03 | 16.1% | 5.60E-03 | 1.0E-03 |
| Total VOC's | | | | | 2.1E-02 | 100.0% | | **1.3E 02** |

**Precoat Filters**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 701 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| acetaldehyde | CH3CHO | 44 | 24 | 1.83 | 1.1E-03 | 7.0% | 4.10E-03 | 5.3E-04 |
| methano | CH3OH | 32 | 12 | 2.67 | 1.2E-02 | 76.4% | 4.10E-03 | 8.4E-03 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 2.6E-03 | 16.6% | 4.10E-03 | 7.7E-04 |
| Total VOC's | | | | | 1.6E-02 | 100.0% | | **9.7E 03** |

**Precoat Filter Vacuum Pumps**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 701 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| acetone | CH3COCH3 | 58 | 36 | 1.61 | 1.1E-03 | 4.6% | 1.80E-02 | -1.3E-03 |
| methano | CH3OH | 32 | 12 | 2.67 | 1.8E-02 | 74.7% | 1.80E-02 | 3.6E-02 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 5.0E-03 | 20.7% | 1.80E-02 | 4.2E-03 |
| Total VOC's | | | | | 2.4E-02 | 100.0% | | **3.9E 02** |

**Salt Cake Mix Tanks**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 677 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| acetone | CH3COCH3 | 58 | 36 | 1.61 | 1.4E-04 | 2.1% | 1.3E-03 | -4.3E-05 |
| acetaldehyde | CH3CHO | 44 | 24 | 1.83 | 1.5E-04 | 2.2% | 1.3E-03 | 5.3E-05 |
| dimethyl disulfide | C2H6S2 | 62 | 24 | 2.58 | 1.2E-03 | 17.7% | 1.3E-03 | 5.9E-04 |
| dimethyl sulfide | C2H6S2 | 94 | 24 | 3.92 | 2.6E-03 | 38.3% | 1.3E-03 | 2.0E-03 |
| methyl mercaptar | CH4S | 48 | 12 | 4.00 | 9.8E-05 | 1.4% | 1.3E-03 | 7.5E-05 |
| methano | CH3OH | 32 | 12 | 2.67 | 2.5E-03 | 36.8% | 1.3E-03 | 1.3E-03 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 1.0E-04 | 1.5% | 1.3E-03 | 2.2E-05 |
| Total VOC's | | | | | 6.8E-03 | 100.0% | | **3.9E 03** |

**No. 3 Recovery Furnace**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| acetone | CH3COCH3 | 58 | 36 | 1.61 | 2.1E-03 | 1.5% | 9.00E-02 | -2.1E-03 |
| ethano | C2H6O | 46 | 24 | 1.92 | 5.5E-03 | 3.8% | 9.00E-02 | 6.6E-03 |
| cumene | C9H12 | 120 | 108 | 1.11 | 1.5E-02 | 10.5% | 9.00E-02 | 1.0E-02 |
| isopropano | C3H8O | 60 | 36 | 1.67 | 7.0E-03 | 4.9% | 9.00E-02 | 7.3E-03 |
| o-cresol | C7H8O | 108 | 84 | 1.29 | 1.3E-02 | 9.1% | 9.00E-02 | 1.1E-02 |
| p-cymene | C10H14 | 134 | 120 | 1.12 | 1.2E-03 | 0.8% | 9.00E-02 | 8.4E-04 |
| phenol | C6H6O | 94 | 72 | 1.31 | 1.1E-02 | 7.7% | 9.00E-02 | 9.0E-03 |
| acetophenone | C8H8O | 120 | 96 | 1.25 | 1.2E-02 | 8.4% | 9.00E-02 | 9.4E-03 |
| ethyl benzene | C10H16 | 136 | 120 | 1.13 | 1.3E-02 | 9.1% | 9.00E-02 | 9.3E-03 |
| carbon disulfide | CS2 | 76 | 12 | 6.33 | 7.0E-03 | 4.9% | 9.00E-02 | 2.8E-02 |
| benzaldehyde | C7H6O | 106 | 84 | 1.26 | 3.5E-03 | 2.4% | 9.00E-02 | 2.8E-03 |
| methano | CH3OH | 32 | 12 | 2.67 | 4.4E-02 | 30.8% | 9.00E-02 | 7.4E-02 |
| formaldehyde | HCOH | 30 | 12 | 2.50 | 4.8E-03 | 3.4% | 9.00E-02 | 7.6E-03 |
| alpha-pinene | C10H16 | 136 | 120 | 1.13 | 1.5E-03 | 1.0% | 9.00E-02 | 1.1E-03 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 2.3E-03 | 1.6% | 9.00E-02 | 1.6E-03 |
| Total VOC's | | | | | 1.4E-01 | 100.0% | | **1.8E 01** |

**No. 3 Smelt Tank**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | TB 884 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| methano | CH3OH | 32 | 12 | 2.67 | 9.3E-03 | 34.8% | 1.00E-02 | 9.3E-03 |
| formaldehyde | HCOH | 30 | 12 | 2.50 | 3.5E-03 | 13.1% | 1.00E-02 | 3.3E-03 |
| hexachloroethane | C2Cl6 | 237 | 24 | 9.88 | 1.9E-03 | 7.1% | 1.00E-02 | 7.0E-03 |
| benzyl alcoho | C7H8O | 108 | 84 | 1.29 | 3.0E-03 | 11.2% | 1.00E-02 | 1.4E-03 |
| isopropano | C3H8O | 60 | 36 | 1.67 | 1.3E-03 | 4.9% | 1.00E-02 | 8.1E-04 |
| 3-carene | C10H16 | 136 | 120 | 1.13 | 7.7E-03 | 28.8% | 1.00E-02 | 3.3E-03 |
| Total VOC's | | | | | 2.7E-02 | 100.0% | | **2.5E 02** |

~~**TMP Bleaching Sytem**~~

| ~~Significant VOC Chemicals~~ | ~~Formula~~ | ~~Molecular Weight~~ | ~~Carbon Weight~~ | ~~Ratio of Total to C~~ | ~~FPAC Emission Factor~~ | ~~Percent of Total~~ | | ~~VOC Emission Factor~~ |
|---|---|---|---|---|---|---|---|---|
| ~~methano~~ | ~~CH3OH~~ | ~~32~~ | ~~12~~ | ~~2.67~~ | ~~1.1E-01~~ | ~~82.2%~~ | | ~~4.1E-02~~ |
| ~~formaldehyde~~ | ~~HCOH~~ | ~~30~~ | ~~12~~ | ~~2.50~~ | ~~4.4E-03~~ | ~~3.7%~~ | | ~~1.8E-03~~ |
| ~~thyl hl i~~ | ~~CH2Cl2~~ | ~~85~~ | ~~2~~ | ~~7.08~~ | ~~5.4E-04~~ | ~~0.5%~~ | | ~~7.6E-05~~ |
| ~~3 C 0H 6~~ | | ~~36~~ | ~~20~~ | ~~3~~ | ~~4.4E-03~~ | ~~3.7%~~ | | ~~3.9E-03~~ |
| ~~Total VOC's~~ | | | | | ~~2E-0~~ | ~~00.0%~~ | | ~~**4.7E-02**~~ |

**Weak Black Liquor Tanks**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | TB 858 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| acetone | CH3COCH3 | 58 | 36 | 1.61 | 1.6E-02 | 7.4% | 5.40E-01 | -6.4E-02 |
| methano | CH3OH | 32 | 12 | 2.67 | 6.0E-02 | 27.8% | 5.40E-01 | 4.0E-01 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 1.4E-01 | 64.8% | 5.40E-01 | 4.0E-01 |
| Total VOC's | | | | | 2.2E-01 | 100.0% | | **7.3E 01** |

**Strong Black Liquor Tanks**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | TB 858 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| acetone | CH3COCH3 | 58 | 36 | 1.61 | 2.8E-02 | 6.5% | 1.10E-01 | -1.1E-02 |
| methano | CH3OH | 32 | 12 | 2.67 | 1.3E-01 | 30.1% | 1.10E-01 | 8.8E-02 |
| phenol | C6H6O | 94 | 72 | 1.31 | 2.2E-02 | 5.1% | 1.10E-01 | 7.3E-03 |
| dimethyl disulfide | C2H6S2 | 62 | 24 | 2.58 | 6.1E-02 | 14.1% | 1.10E-01 | 4.0E-02 |
| dimethyl sulfide | C2H6S2 | 94 | 24 | 3.92 | 9.5E-02 | 22.0% | 1.10E-01 | 9.5E-02 |
| methyl mercaptar | CH4S | 48 | 12 | 4.00 | 6.5E-02 | 15.0% | 1.10E-01 | 6.6E-02 |
| methyl ethyl ketone (MEK | C4H8O | 72 | 48 | 1.50 | 1.1E-02 | 2.5% | 1.10E-01 | 4.2E-03 |
| acetaldehyde | CH3CHO | 44 | 24 | 1.83 | 2.0E-02 | 4.6% | 1.10E-01 | 9.3E-03 |
| Total VOC's | | | | | 4.3E-01 | 100.0% | | **3.0E 01** |

**Green Liquor Tanks**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | VOC Emission Factor |
|---|---|---|---|---|---|---|---|
| methano | CH3OH | 32 | 12 | 2.67 | 3.7E+00 | 91.5% | 1.4E+00 |
| acetone | CH3COCH3 | 58 | 36 | 1.61 | 1.2E-01 | 3.0% | 7.4E-02 |
| dimethyl disulfide | C2H6S2 | 62 | 24 | 2.58 | 4.2E-02 | 1.0% | 1.6E-02 |
| dimethyl sulfide | C2H6S2 | 94 | 24 | 3.92 | 8.0E-03 | 0.2% | 2.0E-03 |
| methyl mercaptar | CH4S | 48 | 12 | 4.00 | 1.6E-02 | 0.4% | 4.0E-03 |
| methyl ethyl ketone (MEK | C4H8O | 72 | 48 | 1.50 | 1.5E-02 | 0.4% | 1.0E-02 |
| acetaldehyde | CH3CHO | 44 | 24 | 1.83 | 3.1E-02 | 0.8% | 1.7E-02 |
| terpenes | C10H16 | 136 | 120 | 1.13 | 4.4E-02 | 1.1% | 3.9E-02 |
| phenol | C6H6O | 94 | 72 | 1.31 | 2.0E-02 | 0.5% | 1.5E-02 |
| o-cresol | C7H8O | 108 | 84 | 1.29 | 2.6E-02 | 0.6% | 2.0E-02 |
| ethano | C2H6O | 46 | 24 | 1.92 | 2.3E-02 | 0.6% | 1.2E-02 |
| Total VOC's | | | | | 4.0E+00 | 100.0% | **1.6E+00** |

**White Liquor Tanks**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | VOC Emission Factor |
|---|---|---|---|---|---|---|---|
| methano | CH3OH | 32 | 12 | 2.67 | 3.1E-02 | 3.4% | 1.2E-02 |
| acetone | CH3COCH3 | 58 | 36 | 1.61 | 1.0E-02 | 1.1% | 6.2E-03 |
| dimethyl disulfide | C2H6S2 | 62 | 24 | 2.58 | 5.7E-02 | 6.2% | 2.2E-02 |
| dimethyl sulfide | C2H6S2 | 94 | 24 | 3.92 | 2.4E-01 | 26.1% | 6.1E-02 |
| methyl mercaptar | CH4S | 48 | 12 | 4.00 | 5.8E-01 | 63.0% | 1.5E-01 |
| methyl ethyl ketone (MEK | C4H8O | 72 | 48 | 1.50 | 2.0E-03 | 0.2% | 1.3E-03 |
| Total VOC's | | | | | 9.2E-01 | 100.0% | **2.5E 01** |

**High Density Pulp Storage Tanks**

| Significant VOC Chemicals | Formula | Molecular Weight | Carbon Weight | Ratio of Total to C | TB 858 Emission Factor | Percent of Total | TB 858 VOC Factor | Adjusted Emission Factor |
|---|---|---|---|---|---|---|---|---|
| methano | CH3OH | 32 | 12 | 2.67 | 4.9E-01 | 31.4% | 8.60E-01 | 7.2E-01 |
| dimethyl disulfide | C2H6S2 | 62 | 24 | 2.58 | 2.3E-01 | 14.7% | 8.60E-01 | 3.3E-01 |
| dimethyl sulfide | C2H6S2 | 94 | 24 | 3.92 | 5.0E-01 | 32.1% | 8.60E-01 | 1.1E+00 |
| hexachloroethane | C2Cl6 | 237 | 24 | 9.88 | 0.0E+00 | 0.0% | 8.60E-01 | 0.0E+00 |
| alpha-pinene | C10H16 | 136 | 120 | 1.13 | 1.7E-01 | 10.9% | 8.60E-01 | 1.1E-01 |
| beta-pinene | C10H16 | 136 | 120 | 1.13 | 1.7E-01 | 10.9% | 8.60E-01 | 1.1E-01 |
| Total VOC's | | | | | 1.6E+00 | 1.0E+00 | | 2.3E+00 |

**CONFIDENTIAL** Fugitive Emissions from Landfill (Unpaved Roads).

| Road Segment | Road Surface | Truck Weight (tons) | Number Of Trucks (annual) | Distance (miles) | VMT (miles/year) | PM-2.5 Emission Factor (lb/VMT) | PM-2.5 Emission Rate (lb/year) | PM-10 Emission Factor (lb/VMT) | PM-10 Emission Rate (lb/year) | TSP Emission Factor (lb/VMT) | TSP Emission Rate (lb/year) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Landfill - loaded | unpaved | 15.0 | 18,000 | 0.49 | 8,864 | 1.54E-01 | 1362.93 | 1 54E+00 | 13629.35 | 5 39E+00 | 47814.57 |
| Landfill - empty | unpaved | 5.0 | 18,000 | 0.49 | 8,864 | 9.38E-02 | 831.32 | 9.38E-01 | 8313.24 | 3 29E+00 | 29164.58 |
| PAPER PRODUCTION (air dry tons/year) | | | 962,505 | | | 0.25 | 2,194.26 | 2.48 | 21,942.59 | 8.68 | 76,979.15 |
| PAPER PRODUCTION (air dry tons/year) | | | | | | | **2.28E-03** | | **2.28E-02** | | **8.00E-02** |

Notes:

Unpaved road emission estimates based on AP-42 Section 13 2.2 - Unpaved Roads, Equation 1a and 2.
Unpaved road silt content for lumber sawmill (s = 8.4%) selected [Table 13.2.2-1].
Emission estimates adjusted for number of rainy days per year (115 days from Figures 13.2.1-2 and 13.2.2-1).
Loaded and empty trucks calculated seperately for consistency with past submittal, current AP-42 uses average truck weight.

**CONFIDENTIAL** Fugitive Emissions from Paved Roads.

| Material | Road Surface | Truck Weight (tons) | Number Of Trucks (annual) | Distance (miles) | VMT (miles/year) | PM-2.5 Emission Factor (lb/VMT) | PM-2.5 Emission Rate (lb/year) | PM-10 Emission Factor (lb/VMT) | PM-10 Emission Rate (lb/year) | TSP Emission Factor (lb/VMT) | TSP Emission Rate (lb/year) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Long Log - loaded | paved | 36.5 | 118,000 | 1.68 | 198,240 | 7.51E-02 | 14894.82 | 3.06E-01 | 60682.58 | 1 53E+00 | 303412.91 |
| Long Log - empty | paved | 15.0 | 118,000 | 1.68 | 198,240 | 3.03E-02 | 6013.25 | 1.24E-01 | 24498.44 | 6.18E-01 | 122492.20 |
| Short Log - loaded | paved | 19.8 | 5,900 | 1.68 | 9,912 | 4.03E-02 | 399.08 | 1.64E-01 | 1625.90 | 8.20E-01 | 8129.50 |
| Short Log - loaded | paved | 10.0 | 5,900 | 1.68 | 9,912 | 2.01E-02 | 198.82 | 8.17E-02 | 810.02 | 4.09E-01 | 4050.10 |
| Softwood Chip - loaded | paved | 45.0 | 45,000 | 1.79 | 80,550 | 9.30E-02 | 7492.86 | 3.79E-01 | 30526.45 | 1 89E+00 | 152632.27 |
| Softwood Chip - empty | paved | 15.0 | 45,000 | 1.79 | 80,550 | 3.03E-02 | 2443.34 | 1.24E-01 | 9954.34 | 6.18E-01 | 49771.72 |
| Biomass - loaded | paved | 42.7 | 22,700 | 1.94 | 44,038 | 8.82E-02 | 3883.02 | 3.59E-01 | 15819.69 | 1 80E+00 | 79098.47 |
| Biomass - empty | paved | 20.0 | 22,700 | 1.94 | 44,038 | 4.07E-02 | 1791.36 | 1.66E-01 | 7298.14 | 8.29E-01 | 36490.70 |
| Coated Paper - loaded | paved | 36.3 | 10,750 | 0.73 | 7,848 | 7.46E-02 | 585.51 | 3.04E-01 | 2385.39 | 1 52E+00 | 11926.95 |
| Coated Paper - empty | paved | 15.0 | 10,750 | 0.73 | 7,848 | 3.03E-02 | 238.04 | 1.24E-01 | 969.79 | 6.18E-01 | 4848.96 |
| Market Pulp - loaded | paved | 37.5 | 920 | 2.12 | 1,950 | 7.72E-02 | 150.64 | 3.15E-01 | 613.72 | 1 57E+00 | 3068.60 |
| Market Pulp - empty | paved | 15.0 | 920 | 2.12 | 1,950 | 3.03E-02 | 59.16 | 1.24E-01 | 241.03 | 6.18E-01 | 1205.15 |
| Chemical - loaded | paved | 37.5 | 3,600 | 2.24 | 8,064 | 7.72E-02 | 622.83 | 3.15E-01 | 2537.44 | 1 57E+00 | 12687.22 |
| Chemical - empty | paved | 15.0 | 3,600 | 2.24 | 8,064 | 3.03E-02 | 244.61 | 1.24E-01 | 996.55 | 6.18E-01 | 4982.73 |
| Turpentine - loaded | paved | 40.1 | 4 | 2.21 | 9 | 8.28E-02 | 0.73 | 3.37E-01 | 2.98 | 1 69E+00 | 14.90 |
| Turpentine - empty | paved | 15.0 | 4 | 2.21 | 9 | 3.03E-02 | 0.27 | 1.24E-01 | 1.09 | 6.18E-01 | 5.46 |
| Black Liquor - loaded | paved | 50.0 | 101 | 2.21 | 223 | 1.04E-01 | 23.12 | 4.22E-01 | 94.19 | 2.11E+00 | 470.94 |
| Black Liquor - empty | paved | 15.0 | 101 | 2.21 | 223 | 3.03E-02 | 6.77 | 1.24E-01 | 27.58 | 6.18E-01 | 137.92 |
| PAPER PRODUCTION (air dry tons/year) | | | 962,505 | | | 0.99 | 39,048.22 | 4.01 | 159,085.34 | 20.07 | 795,426.71 |
| **Overall Emission Factor (lb PM/ton Paper)** | | | | | | | **4.06E-02** | | **1.65E-01** | | **8.26E-01** |

Notes:

Paved road emission estimates based on AP-42 Section 13.2.1 - Paved Roads, Equation 2.
Paved road silt loading factor for worst-case low ADT wintertime public road (sL = 4.4 g/m2) selected [Table 13.2.1-2].
Emission estimates adjusted for number of rainy days per year (115 days from Figures 13.2.1-2 and 13.2.2-1).
Loaded and empty trucks calculated seperately for consistency with past submittal, current AP-42 uses average truck weight.

**CONFIDENTIAL** Woodyard Emission Unit (Equipment ID No. 1300; Exhaust Point No. 1300):

There are currently no published US EPA AP-42 VOC estimating methods for woodyard activities. The following discussion is from NCASI Technical Bulletin No. 700 (October 1995), page ii:

Factors with the potential to affect the release of volatile organic compounds (VOCs) from wood storage piles were identified from a literature review. The review indicated these factors are wood species, history of logs (tree age, harvest time, harvest location, and storage), age of material, temperatures and air convection within the pile, and ambient temperature and humidity. Wood species, history of logs, the time elapsed from wood harvest to chipping, and length of time in storage all influence the level of potentially volatile organic compounds present in the stored material, which in turn affects releases of these compounds. Within the storage pile, several complex biological, microbiological, chemical, and physical processes occur simultaneously which may affect the ultimate release rate of VOCs from the pile surface. Only one literature reference, by Swedish investigators, describing limited field measurements of VOC releases from wood storage piles was found. Exploratory measurements were made by NCASI on long-term storage piles of Douglas fir chips, and estimates of VOC releases from the surface and during chip retrieval were made from measured VOC concentrations. The estimated emissions were from 1.6 to 3.6 lb C/acre-day from the surface and on the order of 2.4 x 10-4 lb c/Tdw during chip retrieval. A-pinene was the dominant compound released.

It is felt that this estimate is not representative of the woodyard operations at Resolute's Catawba facility. For this reason, no estimate was included on the Title V application forms. However, using the information presented in TB700, the woodyard VOC emissions would be as follows:

= (5 acres) × (3.6 lb C/acre-day) × (365 days/yr) × (1 ton/2000 lb)
= 3.3 tons VOC as carbon per year

Chip Handling VOC = 3,445,000 tons/yr × (2.4E-04 lb C/ton) × (1 ton/2000 lb)
= 0.4 tons VOC as carbon per year

Total VOC (as carbon) = 3.3 tons + 0.4 tons = 3.7 tons VOC (as carbon) per year

Total VOC (as VOC)
α-Pinene = $C_{10}H_{16}$
C = 12
H = 1
α-Pinene = [12 × 10] + [1 × 16] = 136

3.7 tons carbon × 136 lb α-pinene/120 lb carbon = 4.2 tons VOC (as VOC) per year

CONFIDEN IAL **AB A New ndy Catawba Emission Factors for Incineration of Kraft Mill NCG Gases**

| Source | Emission Factor Reference | Bleached Pulp $H_2S$ lb/AD P) | Bleached Pulp RS as RS lb/AD P) | Bleached Pulp RS as S lb/AD P) | Bleached Pulp $SO_2$ ( lb/AD P) | NCASI Reduction Factor | Unb eached Pulp $H_2S$ ( lb/AD P) | Unb eached Pulp RS as RS ( lb/AD P) | Unb eached Pulp RS as S ( lb/AD P) | Unb eached Pulp $SO_2$ ( lb/AD P) | Emission Factor Re erence | B ached VOC ( lb/AD P) | NCASI Reduction Factor | Unbleached VOC ( lb/AD P) | Emission Factor Re erence | B ached NOX ( lb/AD P) | NCASI Reduction Factor | Unbleached NOX ( lb/AD P) | Emission Factor Re erence | B ached CO ( lb/AD P) | NCASI Reduction Factor | Unbleached CO ( lb/AD P) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SOG SYS EM** | | | | | | | | | | | | | | | | | | | | | | |
| Stripper-O f-Gases[8] [9] [10] | NCASI TB 858 - Table 9D | 9.20E 01 | .58E 00 | 3.10E 00 | 6.20E 00 | 100% | 0.00E 00 | 0.00E 00 | 0.00E 00 | 0.00E 00 | T ble V VOC as VOC | 1.50E 01 | 100% | 0.00E 00 | T t e V NOX | 7.18E-01 | 100% | 0.00E 00 | Tit e V CO | 7.28E-02 | 100% | 0.00E 00 |
| Combinat on Bo ler Control Eff c ency (%)[10] | | 99% | 99% | 99% | 20% | | 99% | 99% | 99% | 20% | | 98% | | 98% | | 0% | | 0% | | 0% | | 0% |
| **O AL SOG EMISSIONS (lb/AD P)** | | **9.20E 03** | **4.58E 02** | **3.10E 02** | **4.94E 00** | | **0.00E 00** | **0.00E 00** | **0.00E 00** | **0.00E 00** | | **3.01E 01** | | **0.00E 00** | | **7.18E 01** | | **0.00E 00** | | **7.28E 02** | | **0.00E 00** |
| **LVHC SYS EM** | | | | | | | | | | | | | | | | | | | | | | |
| Evaporators [7] | Source Test | 9.10E 01 | 2.13E 00 | 1.6 E 00 | 3.28E 00 | 16% | 7.6 E-01 | 1.79E 00 | 1.38E 00 | 2.76E 00 | T ble V VOC as VOC | 90E-01 | 68% | 1.55E-01 | | | | | | | | |
| Turpentine Decanter [8] | NCASI TB 858 - Tab e 9I | 2.50E 0 | .95E-03 | 3.00E-03 | 6.00E-03 | 16% | 2.10E-0 | 16E-03 | 2.52E-03 | 5.0 E-03 | T ble V VOC as VOC | 9.20E-0 | 68% | 2.91E-0 | | | | | | | | |
| LVHC Co lection System (lb/ADTP) | | 9.10E 01 | 2.13E 00 | 1.65E 00 | 3.29E 00 | | 7.65E-01 | 1.79E 00 | 1.38E 00 | 2.76E 00 | | 91E-01 | | 1.55E-01 | | | | | | | | |
| LVHC Sys em TRS Scrubber Control E fic ency (%)[2] | | 50% | 50% | 50% | 50% | | 50% | 50% | 50% | 50% | | 0% | | 0% | | | | | | | | |
| LVHC Co lection System (lb/ADTP) | | .55E 01 | 1.07E 00 | 8.2 E-01 | 1.6 E 00 | | 3.82E-01 | 8.97E-01 | 6.92E-01 | 1.38E 00 | | 91E-01 | | 1.55E-01 | | | | | | | | |
| Combinat on Bo ler Control Eff c ency (%)[2] | | 99% | 99% | 99% | 20% | | 99% | 99% | 99% | 20% | | 98% | | 98% | | | | | | | | |
| **O AL LVHC EMISSIONS (lb/AD P)** | | **4.55E 03** | **1.07E 02** | **8.24E 03** | **1.31E 00** | | **3.82E 03** | **8.97E 03** | **6.92E 03** | **1.10E 00** | | **9.82E 03** | | **3.10E 03** | | | | | | | | |
| **HVLC SYS EM** | | | | | | | | | | | | | | | | | | | | | | |
| Continuous Diges er Chip Bin [6] | NCASI TB 858 - Table 9H | ND | 2.73E-01 | 1.50E-01 | 3.00E-01 | 16% | ND | 2.29E-01 | 1.26E-01 | 2.52E-01 | T ble V VOC as VOC | 1.63E 00 | 68% | 5.15E-01 | | | | | | | | |
| Con inuous Diges er Re ief Gas [5] | NCASI TB 858 - Table 9A | 3.60E 03 | 6.88E-02 | 20E-02 | 8. 0E-02 | 16% | 3.02E-03 | 5.78E-02 | 3.53E-02 | 7.06E-02 | T ble V VOC as VOC | 2.60E-03 | 68% | 8.21E-0 | | | | | | | | |
| P essure Refiners [4] | sealed - no vent | new | new | new | new | 16% | no vent | no vent | no vent | no vent | sea ed - no vent | new | 68% | no vent | | | | | | | | |
| P essure Diffusion Washer [4] | NCASI TB 858 - Table 7 | 5.30E 05 | 6.50E-02 | 3.60E-02 | 7.20E-02 | 16% | 5E-05 | 5. 6E-02 | 3.02E-02 | 6.05E-02 | T ble V VOC as VOC | 1. 7E-01 | 68% | 65E-02 | | | | | | | | |
| B ow Tank [3] | NCASI TB 858 - Table 9B | 3.20E 0 | 3. 6E-02 | 1.90E-02 | 3.80E-02 | 16% | 2.69E-0 | 2.91E-02 | 1.60E-02 | 3.19E-02 | T ble V VOC as VOC | 15E-01 | 68% | 1.31E-01 | | | | | | | | |
| B ownstock Washers [7] [3] | NCASI TB 858 - Table 7 | new | new | new | new | 16% | .5E-05 | 5. 6E-02 | 3.02E-02 | 6.05E-02 | T ble V VOC as VOC | new | 68% | 65E-02 | | | | | | | | |
| HD Tank Unscreened Stock)[3] | NCASI TB 858 - Table A-8B | ND | 5.82E-02 | 3.20E-02 | 6. 0E-02 | 16% | ND | 89E-02 | 2.69E-02 | 5.38E-02 | T ble V VOC as VOC | 2.36E-01 | 0% | 2.36E-01 | | | | | | | | |
| D. Da ign f oat on System [3] | NCASI TB 858 - Table 3 | 2.70E 03 | 9.30E-03 | 5.80E-03 | 1.16E-02 | 16% | retired | retired | retired | reti ed | T ble V VOC as VOC | 83E-01 | 0% | reti ed | | | | | | | | |
| Knotter System [3] | NCASI TB 858 - Table | ND | 2.2 E-03 | 1.30E-03 | 2.60E-03 | 16% | retired | retired | retired | reti ed | T ble V VOC as VOC | 1.29E-02 | 0% | reti ed | | | | | | | | |
| Screening System [3] | NCASI TB 858 - Table 5 | ND | 1.75E-03 | 9.00E-0 | 1.80E-03 | 16% | retired | retired | retired | reti ed | T ble V VOC as VOC | 1.01E-02 | 0% | reti ed | | | | | | | | |
| Screen Room Washer (Decker) [3] | NCASI TB 858 - Table 8 | ND | 5.57E-02 | 3.50E-02 | 7.00E-02 | 16% | retired | retired | retired | reti ed | T ble V VOC as VOC | 1.23E-01 | 0% | reti ed | | | | | | | | |
| Deshive Refiners[3] [5] | NCASI TB 858 - Tab e 5 | new | new | new | new | 16% | ND | 3.38E-03 | 1.85E-03 | 3.70E-03 | T ble V VOC as VOC | new | 0% | 2.29E-02 | | | | | | | | |
| Screw Presses[7] [3] | NCASI TB 858 - Table 8 | new | new | new | new | 16% | ND | 68E-02 | 2.9 E-02 | 5.88E-02 | T ble V VOC as VOC | new | 0% | 1.23E-01 | | | | | | | | |
| HVLC Co lection System (lb/ADTP) | | 6.67E 03 | 5.69E-01 | 3.22E-01 | 6. E-01 | | 3.38E-03 | 5.25E-01 | 2.96E-01 | 5.92E-01 | | 3.06E 00 | | 1.12E 00 | | | | | | | | |
| Combinat on Bo ler Control Eff c ency (%)[2] | | 99% | 99% | 99% | 20% | | 99% | 99% | 99% | 20% | | 98% | | 98% | | | | | | | | |
| **O AL HVLC EMISSIONS (lb/AD P)** | | **6.67E 06** | **5.69E 03** | **3.22E 03** | **5.13E 01** | | **3.38E 06** | **5.25E 03** | **2.96E 03** | **4.73E 01** | | **6.12E 02** | | **2.24E 02** | | | | | | | | |
| **NCG SYS EM EMISSIONS** | | | | | | | | | | | | | | | | | | | | | | |
| **O AL NCG SYS EM EMISSIONS (lb/AD P)** | | **1.38E 02** | **6.22E 02** | **4.25E 02** | **6.76E 00** | | **3.86E 03** | **1.42E 02** | **9.88E 03** | **1.58E 00** | | **3.72E 01** | | **2.55E 02** | | **7.18E 01** | | **0.00E 00** | | **7.28E 02** | | **0.00E 00** |
| | | | | | | | **28%** | **23%** | **23%** | **23%** | | | | **7%** | | | | | | | | |

Notes:

1 - TRS as S conver ed o $SO_2$ assuming 100% convers on.

2 - TRS scrubber removes 50% of sulfur compounds pr or to combination bo lers.

3 - Combina ion boi er $SO_2$ app ied control ef iciency epresen s actual emissions measured during July 2012 comp iance test = 6.76 lb/ADTP.
- Actual combina ion boi er SO2 control e ficiency s unknown, 20% is used as a conv enience to ca culate the actual em ssions during the compliance est.

5 - Deshive re ine s take the place of kno ters and screens in the process.

6 - Screw p esses ake the p ace of the sc een room washer/decker in the process.

7 - Re-purposed drum d sp acement washers f om O2 deligni ication system, screen room and bleaching system. NCASI emission factors or non-vacuum drum washers.

8 - H2S/TRS emission actors or unb eached pulp m ll are 53% of bleached pulp mill fo lowing conversion based on H2S concentrat ons in untreated effluent to wastewa er treatment system per NCASI SARA 313 H2S Workbook, Table 2 ( ab G).

9 - VOC emission fac or for unbleached pulp mi l s 8% of bleached pulp mi l o lowing convers on based on methanol concentrat ons in untreated e fluent to wastewa er treatment sys em per NCASI SARA 313 Methanol Wo kbook, Tab e 3 tab F).

10 - VOC em ss on actor 68% lower from unbleached kraft mi l per NCASI Feb 20, 2019 memo ( ab H).

11 - TRS/H2S em ss on factors 16% ower from unb eached kra t m ll per NCASI Feb 20, 2019 memo (tab H).

12 - NOX em ss on actor or unb eached pulp m ll is 58% of b eached pulp m ll fol owing conversion based on NCASI TB802 ( ab I).

13 - TRS/H2S generat on s 72% lower f om unb eached k aft mi l per NCASI TB802, Table 3.1 (Tab K), appl ed NCASI LVHC educt on (16%) to HVLC sources.

1 - Condensate steam stripper retired from service and rep aced with biological treatment (hard pipe) for pulping process condensates fol owing conversion to unbleached pulp product on.

**CONFIDENTIAL TAB D - NCASI Linerboard Machine Emssion Factors**

NCASI emission factors for paper machines producing linerboard from unbleached southern softwood kraft pulp (southern pine)
Mill B and Mill G produce linerboard primarily from softwood kraft pulp (southern pine)

| Compound | lb/ADTFP | paper machine white water methanol < 50 ppm Reference |
|---|---|---|
| Acetaldehyde | 8.9E-03 | TB 976, Table 5.5 - Mill B (post-MACT) |
| Acetone | 5.3E-02 | TB 701 Table 18 - Mill G (MACT I) |
| Acrolein | 3.0E-03 | TB 976, Table 5.5 - Mill B (post-MACT) |
| Benzene | 4.0E-04 | TB 701 Table 18 - Mill G (MACT I) |
| Carbon Tetrachloride | *ND* | TB 701 Table 18 - Mill G (MACT I) |
| Chlorobenzene | 7.6E-04 | TB 701 Table 18 - Mill G (MACT I) |
| Chloroform | *ND* | TB 701 Table 18 - Mill G (MACT I) |
| 1,2-Dichloroethane | *ND* | TB 701 Table 18 - Mill G (MACT I) |
| 1,2-Dichloroethylene | 1.3E-02 | TB 701 Table 18 - Mill G (MACT I) |
| Dimethyl Disulfide | *ND* | TB 701 Table 18 - Mill G (MACT I) |
| Dimethyl Sulfide | 1.4E-02 | TB 701 Table 18 - Mill G (MACT I) |
| Formaldehyde | 1.70E-03 | TB 976, Table 5.6 - Mill B (post-MACT) |
| n-Hexane | 3.9E-04 | TB 701 Table 18 - Mill G (MACT I) |
| Methanol | 3.0E-01 | TB 976, Table 5.5 - Mill B (post-MACT) |
| Methyl Ethyl Ketone | 9.1E-03 | TB 701 Table 18 - Mill G (MACT I) |
| Methyl Mercaptan | 1.1E-02 | TB 701 Table 18 - Mill G (MACT I) |
| Methylene Chloride | 4.7E-03 | TB 701 Table 18 - Mill G (MACT I) |
| Methyl Isobutyl Ketone | 6.9E-04 | TB 701 Table 18 - Mill G (MACT I) |
| Propionaldehyde | 7.8E-04 | TB 976, Table 5.6 - Mill B (post-MACT) |
| Styrene | 1.9E-03 | TB 701 Table 18 - Mill G (MACT I) |
| Terpenes | 2.5E-01 | TB 701 Table 18 - Mill G (MACT I) |
| Tetrachloroethylene | 6.1E-03 | TB 701 Table 18 - Mill G (MACT I) |
| Toluene | 3.7E-04 | TB 701 Table 18 - Mill G (MACT I) |
| 1,2,4-Trichlorobenzene | 1.1E-02 | TB 701 Table 18 - Mill G (MACT I) |
| 1,1,1-Trichloroethane | 1.8E-03 | TB 701 Table 18 - Mill G (MACT I) |
| 1,1,2-Trichloroethane | 2.1E-03 | TB 701 Table 18 - Mill G (MACT I) |
| Trichloroethylene | *ND* | TB 701 Table 18 - Mill G (MACT I) |
| m,p-Xylene | 7.2E-04 | TB 701 Table 18 - Mill G (MACT I) |
| o-Xylene | 5.2E-04 | TB 701 Table 18 - Mill G (MACT I) |
| | | |
| Total TRS | 2.5E-02 | |
| Total VOC | 6.3E-01 | |
| VOCs as C | 6.0E-01 | TB 701 Table 18 - Mill G (MACT I) |

**CONFIDENTIAL TAB F - NCASI Condensate and WWTP Methanol Concentration**

| | ppb | percent | reduction |
|---|---|---|---|
| Bleached Condensates | 21.4 | | |
| Unbleached Condensates | 12.7 | 59% | 41% |
| | | | |
| Bleach Plant Effluent | 4.9 | | |
| Total Bleached Mill WW | 26.3 | | |
| Unbleached Mill WW | 12.7 | 48% | 52% |



**TABLE 2 NON-KRAFT WWTP INFLUENT CONCENTRATIONS FOR METHANOL**

| TYPE OF PULPING | REF. | NO. OF MILLS SAMPLED | METHANOL | |
|---|---|---|---|---|
| | | | RANGE | AVERAGE |
| Bleached Sulfite | NCASI 1994a | 2 | 15 to 79 | 47.4 |
| Semi-Chemical | NCASI 1994a | 1 | | 27.1 |
| Deinked Tissue | NCASI* | 1 | | 2.7 |
| Deinked Newsprint | NCASI* | 1 | | 7.8 |
| Wastepaper, Board | NCASI* | 1 | | 1.0 |
| Wastepaper, Corrugated | NCASI* | 1 | 0.8 to 2.1 | 1.5 |
| Groundwood, Newsprint | NCASI* | 1 | | 0.7 |

*NCASI WWTP Sampling Database – Unpublished

**TABLE 3 METHANOL CONTENT OF KRAFT MILL CONDENSATES AND BLEACH PLANT EFFLUENTS (SOFTWOOD AND HARDWOOD)**

| | NO. OF MILLS SAMPLED | METHANOL, lb/ADTUBP | | |
|---|---|---|---|---|
| | | RANGE | MEAN | MEDIAN |
| Unbleached Kraft Mill Condensates[1] | 3 | 11.3 to 16.2 | 13.4 | 12.7 |
| Bleached Kraft Mill Condensates[1] (including mills with $O_2$ delignification) | 15 | 16.5 to 27.0 | 21.1 | 21.4 |
| Bleach Plant Effluents[2] | lab study | 4.0 to 6.5 | 5.0 | 4.9 |

[1] includes all pulp mill and evaporator area condensates (NCASI 1995)
[2] includes methanol that entered the bleach plant with pulp or the $ClO_2$ liquor and methanol generated during bleaching (NCASI 1994b)

**3.3 Otherwise use the toxic chemical**

This would be the sum of all the methanol used at the manufacturing site. A 10,000 lb/yr reporting threshold applies for this category. Ancillary or other uses of methanol could include methanol used in printing inks, solvents, antifreeze, and methanol-based $ClO_2$ generation processes.

**SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR**

**4.1 ____ (Enter two-digit code from instruction package.)**

At any given time, methanol may be present at the mill-site in various stored liquid streams which include purchased mixtures containing methanol, black liquors stored in tanks, and pulp storage vats. Methanol may also be present in trace quantities in wastewater treatment plants. For a kraft mill, in the absence of mill-specific information, the estimates given in Table 4 for methanol concentration in liquids may be used. The wastewater treatment plant (WWTP) influent methanol concentrations at several non-kraft pulp and paper producing facilities were summarized in Table 2. The WWTP

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**CONFIDENTIAL TAB G - NCASI WWTP H2S Concentration**

| | ppb | percent | reduction |
|---|---|---|---|
| Bleached | 4520 | | |
| Unbleached | 2402 | 53% | 47% |



**TABLE 2 KRAFT WWTP INFLUENT CONCENTRATIONS OF HYDROGEN SULFIDE (NCASI WWTP Sampling Database - Unpublished)**

| TYPE OF PULPING | NO. OF MILLS SAMPLED | CONCENTRATION, ppb | |
|---|---|---|---|
| | | Range | Average |
| Bleached Kraft | 12 | 71 – 15,700 | 4520 |
| Unbleached Kraft | 7 | 617 - 4306 | 2402 |
| Sulfite + Recycle | 2 | 238 - 1287 | 763 |
| TMP + Recycle | 2 | 5039 - 5320 | 5180 |
| Hard-piped Condensates | 8 | 12,100 – 102,825 | 69,000 |

***Sample Calculation for Threshold Determination:***

*A kraft mill produces 1100 ADTUBP/day. At this mill, brown stock washer vent gases are collected and treated in an incineration device. The pulping process generates 3300 lb BLS/ADTUBP which is fired in DCE furnaces and 0.275 ton CaO is regenerated in the lime kiln per ADTUBP. The mill operates a 500 x $10^6$ Btu/hr wood-fired boiler and a 50 tpd tall oil plant. The final product is 1000 tons of bleached paper per day. The mill operates all 365 days/yr and discharges 20 x $10^6$ gpd from the pulp mill.*

*Consider two cases of condensate collection and handling. In Case 1, the mill operates a steam stripper. In Case 2, the mill "hard-pipes" a 1 MGD of its condensates to the AST system. Assume this mill does not have its own condensate hydrogen sulfide data and uses the mean value of 69.0 mg/L of hydrogen sulfide shown in Table 3 as being present in all condensates at the mill. For Case 1, the mill with a steam stripper, the condensate hydrogen sulfide is divided between the amount in the stripper off-gases and the amount sewered to the WWTP. For Cases 2 and 3, all of the condensate will be sewered to the WWTP.*

*Table 4 shows the amounts of hydrogen sulfide emitted from several major operations at this example mill as estimated using factors given in Table 1. Table 3 also shows the amount of hydrogen sulfide manufactured and present in (1) in uncontrolled NCGs and (2) in WWTP untreated effluents. For this example mill, based on the total amount of hydrogen sulfide manufactured and either emitted, present in strong liquor or released to the WWTP, a SARA 313 report does have to be filed as the amount exceeds 25,000 lb/yr.*

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CONFIDEN IAL AB H NCASI Methanol and RS n LVHC GASES

| | MEOH median lb/ton | percent | reduction | RS median lb/ton | percent | reduction |
|---|---|---|---|---|---|---|
| Bleached | 0.19 | | | 1.0 | | |
| Unbleached | 0.06 | 32% | 68% | 0.8 | 84% | 16% |

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February 20, 2019

TO: Bob Tourville, New Indy Containerboard

FROM: Zach Emerson, NCASI

SUBJECT: Methanol and TRS Content of LVHCs at Bleached and Unbleached Chemical Pulp Mills

At your request, NCASI staff evaluated the underlying emissions data in the NCASI Pulp and Paper Air Toxics Database (2018 release version). The goal was to determine if the factors for methanol and total reduced sulfur (TRS) in Kraft Mill low volume high concentration gases (LVHCs, i.e. digester + evaporator noncondensible gases (NCGs)) differed significantly between bleached and unbleached pulp mills.

**Background**

Methanol and TRS are lignin degradation compounds generated in the digester during Kraft pulping. The extent of formation varies and depends upon several process factors, including cooking time, chemical use and temperature. It is expected that a black liquor and pulp mixture cooked to a higher Kappa number (i.e., more residual lignin and cooked less aggressively) will contain lower amounts of methanol and TRS compounds. As bleaching-grade pulps are typically cooked to a lower Kappa number, the resulting digester gases, black liquor and pulp would be expected to have higher amounts of methanol and TRS compounds than for unbleached pulp manufacturing.

Given TRS and methanol masses in LVHCs are attributable to their presence in digester off-gases and in weak liquor, it is reasonable to expect that the LVHC content of these chemicals would be higher at bleached pulp mills than at unbleached pulp mills. Below are the results of an analysis of NCASI information that examines this hypothesis.

**Analysis**

The Master Summary Table of the NCASI Air Toxics Database (2015 release version) presents various NCG loading factors for methanol and for TRS; however, it combines the LVHC measurements at bleached and unbleached mills into a single dataset to calculate an average. Individual test event data are available in the Detailed Sheets of the database. This database compiles emissions information for many compounds at many process units and is made available to NCASI members on the NCASI Website. Information from the following file was used in this analysis:

- Table A6a and A6b – Kraft Pulp Mill NCGs (September 2018).xls

The underlying reports for each facility were reviewed to determine if the facility manufactured bleached or unbleached pulp. The data was then segregated into the following four sets:

- LVHCs at Bleached Pulp Mills – Methanol
- LVHCs at Unbleached Pulp Mills – Methanol
- LVHCs at Bleached Pulp Mills – TRS
- LVHCs at Unbleached Pulp Mills - TRS

Note there were five LVHC data points for which there is no hydrogen sulfide data; these facilities were excluded from the analysis, as TRS could not be estimated. There was one TRS outlier measurement for both unbleached and bleached LVHCs, as well.

Table 1 presents calculated **methanol** factors for LVHCs at bleached and unbleached facilities. A total of 14 LVHCs at bleached mills and 5 LVHCs at unbleached mills are included.

**Table 1: Comparison of Methanol LVHC Factors at Bleached and Unbleached Facilities**

| Methanol | Mass Load Factor (lb of Methanol/ADTUBP) | |
|---|---|---|
| | At Bleached Facilities | At Unbleached Facilities |
| Mean | 0.68 | 0.05 |
| Median | 0.19 | 0.06 |
| Standard Deviation | 1.1 | 0.04 |
| Count | 14 | 5 |
| Range | <0.01 to 3.5 | <0.01 to 0.11 |

The mean and median methanol emission factors for LVHCs at bleached and unbleached facilities are quite different, with the mean bleached methanol factor being higher than the mean unbleached factor.

Table 2 presents calculated **TRS** factors for LVHCs at bleached and unbleached facilities. A total of 7 LVHCs at bleached mills and 4 LVHCs at unbleached mills are included.

**Table 2: Comparison of TRS LVHC Factors at Bleached and Unbleached Facilities**

| Total Reduced Sulfur | Mass Load Factor (lb of S/ADTUBP) | |
|---|---|---|
| | At Bleached Facilities | At Unbleached Facilities |
| Mean | 1.2 | 0.91 |
| Median | 1.0 | 0.84 |
| Standard Deviation | 1.1 | 0.68 |
| Count | 7 | 4 |
| Range | 0.09 to 3.3 | 0.28 to 1.7 |

The mean and median TRS factors for bleached and unbleached LVHCs are also different, with the mean bleached LVHC TRS mass load factor being higher than the mean unbleached LVHC factor.

***The results of this analysis support the hypothesis that the mass loads of methanol and TRS in low volume high concentration gases are lower at unbleached pulp mills than at bleached pulp mills.*** NCASI will evaluate making this change in the NCASI Air Toxics Database.

If you have any questions concerning this analysis, please feel free to contact me.

**CONFIDENTIAL TAB I - NCASI Condensate Nitrogen Concentration - NCASI TB 802 - Souhern Kraft Mill Condensates - mixed Pine/Hardwood**

| Bleached Mills | | |
|---|---|---|
| **Mill Code** | **NH3** | **TKN** |
| | mg/L | mg/L |
| D | 401 | 492 |
| E | 222 | 229 |
| Average | 311 | 361 |

| Unbleached Mills | | | | |
|---|---|---|---|---|
| C | 171 | 228 | | |
| G | 193 | 185 | Overall | |
| Average | 182 | 206 | Average | |
| Percent | 59% | 57% | 58% | Percent |
| Reduction | 41% | 43% | 42% | Reduction |

| Mill Code | NH3 | TKN |
|---|---|---|
| D | 381 | 464 |
| | 418 | 510 |
| | 404 | 503 |
| E | 254 | 254 |
| | 222 | 237 |
| | 191 | 207 |
| | 219 | 217 |
| C | 198 | 231 |
| | 166 | 223 |
| | 161 | 210 |
| | 159 | 222 |
| | 173 | 252 |
| G | 202 | 210 |
| | 212 | 182 |
| | 222 | 224 |
| | 175 | 145 |
| | 174 | 166 |
| | 173 | 182 |

TKN = total kjeldahl nitrogen
NH3 = ammonia

**CONFIDENTIAL TAB J - NCASI WWTP Emission Factors**

| | Bleached | UOM | NCASI Reduction Factor | Source | Unbleached lb/ADTP | Hard Pipe lb/ADTP | TOTAL Unbleached lb/ADTP |
|---|---|---|---|---|---|---|---|
| Title V VOC as VOC = | 624.51 | tons/yr | | | | | |
| Title V Production = | 666,125 | ADTP/yr | | | | | |
| VOC Emission Factor = | 1.88 | lb/ADTP | 52% | Tab F | 0.91 | 0.29 | 1.20 |
| Title V H2S = | 0.021 | lb/ADTP | 47% | Tab G | 0.011 | 0.009 | 0.020 |
| Title V TRS as TRS = | 0.46 | lb/ADTP | 72% | Tab K | 0.13 | 0.13 | 0.26 |

| Hard Pipe | lb/hr | Source | ADTP/day | lb/ADTP |
|---|---|---|---|---|
| Methanol | 32.94 | WATER9 | 2,700 | 0.29 |
| $H_2S$ | 1.04 | H2SSIM | 2,700 | 0.009 |
| TRS ($H_2S$ is 7.0%) | 14.81 | Title V (TB 849 | 2,700 | 0.13 |

| WATER9 - Methanol | g/s | lb/hr |
|---|---|---|
| Mill Sewer | 1.04 | 8.25 |
| Mill Sewer + Hard Pipe | 5.19 | 41.19 |
| Hard Pipe (difference) | | 32.94 |

| H2SSIM - $H_2S$ | lb/yr | lb/hr |
|---|---|---|
| Mill Sewer | 11,838 | 1.35 |
| Mill Sewer + Hard Pipe | 20,918 | 2.39 |
| Hard Pipe (difference) | | 1.04 |

**CONFIDENTIAL TAB K - NCASI TRS Generation Bleached .vs. Unbleached Kraft Pulping - NCASI TB804, Table 3.1.**

| Species | | Linerboard Douglas fir | Bleachable Douglas fir | percent | reduction |
|---|---|---|---|---|---|
| Total Percent Yield | | 56.6% | 47.2% | 119.9% | -19.9% |
| Kappa | | 96 | 28 | | |
| MM | lb/ODTP | 0.69 | 2.65 | 26.0% | 74.0% |
| DMS | lb/ODTP | 0.32 | 1.15 | 27.8% | 72.2% |
| DMDS | lb/ODTP | 0.05 | 0.17 | 29.4% | 70.6% |
| Average | | | | 27.8% | 72.2% |
| Percent Black Liquor Solids | | 12.7% | 15.1% | 84.1% | 15.9% |

TB 804 - Laboratory batch digester.

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**Table 3.1.** Kraft Pulping Results

| | Linerboard | | Bleachable | |
|---|---|---|---|---|
| Species | Douglas fir | | Douglas fir | |
| W.L. Active Alkali | 16.8% | | 18.7% | |
| W.L. Sulfidity | 30% | | 30% | |
| H Factor | 400[a] | | 1850[b] | |
| Total Yield | 56.6% | | 47.3% | |
| Rejects | 6.4% | | 1.2% | |
| Kappa | 96 | | 28 | |
| Black Liquor | | | | |
| Residual AA | 2.9 g/L | | 3.1 g/L | |
| $Na_2S$ ($HS^-$) | 0.136 mol/L[c] | 10.6 lb/ODTP | 0.153 mol/L[c] | 11.9 lb/ODTP |
| MM | 0.0018 mol/L | 0.69 lb/ODTP | 0.0069 mol/L | 2.65 lb/ODTP |
| DMS | 0.00065 mol/L | 0.32 lb/ODTP | 0.0023 mol/L | 1.15 lb/ODTP |
| DMDS | 0.000066 mol/L | 0.05 lb/ODTP | 0.00023 mol/L | 0.17 lb/ODTP |
| $Na_2S_2O_3$ | 0.0015 mol/L | 0.24 lb/ODTP | 0.0017 mol/L | 0.27 lb/ODTP |
| $Na_2SO_4$ | 0.0007 mol/L | 0.1 lb/ODTP | 0.0009 mol/L | 0.13 lb/ODTP |
| Black Liquor Solids | 12.7% | | 15.1% | |
| Black Liquor Heating Value | 6630 Btu/lb | | 6650 Btu/lb | |

[a] One hour heatup, 30 min. at 170°C.
[b] One hour heatup, 108 min. at 170°C.
[c] Values shown in table were determined by titrimetric method. Corresponding values measured by headspace sampling and gas chromatography were 0.147 and 0.163 mol/L for linerboard and bleachable grades, respectively.