

RESPONSE TO COMMENTS

GREAT LAKES CHEMICAL CORPORATION - SOUTH PLANT PERMIT #0873-AOP-R8 AFIN: 70-00037

On May 28, 2015, and June 28, 2015, the Director of the Arkansas Department of Environmental Quality gave notice of a draft permitting decision for the above referenced facility. During the comment period, written comments on the draft permitting decision were submitted George Garten, Environmental Manager, on behalf of the facility. The Department's response to these issues follows.

Note: The following page numbers and condition numbers refer to the draft permit. These references may have changed in the final permit based on changes made during the comment period.

Additions are italicized and underlined. Deletions/removals have been stricken through. (Page and Specific condition numbers have been updated to correspond to the changes requested/made.)

Comment #1:

Section IV: EMISSION UNIT INFORMATION (Specific Condition #3 & 4; page 30)

It is requested that compliance with Specific Condition #3 be demonstrated by only burning the specified fuel (Specific Conditions #5) and operating the boilers within the design limitations (Plantwide Condition #5) as indicated within the R8 Statement of Basis for SN-03, 04 and similar to the permit language provided in Specific Conditions #94, 100, and 116 . We propose the following revision to Condition #3 and removal of Condition #4.

3. Visible emissions may not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9. Compliance with this condition will be shown by compliance with Specific Condition 5 and Plantwide Condition 5.

SN	Limit	Regulation Citation
03, 04	5%	§18.501 of Regulation 18

4. ~~Weekly observations of the opacity from SN-03 and SN-04 shall be conducted by a person trained but not necessarily certified in EPA Reference Method 9. If visible emissions in excess of the permitted levels are detected, the permittee shall immediately take action to identify the cause of the visible emissions in excess of the permit limit, implement corrective action, and document that visible emissions did not appear to be in excess of the permitted opacity following the corrective action. The permittee shall maintain records which contain the following items in order to demonstrate compliance with this specific condition. These records shall~~

~~be updated weekly, kept on site, and made available to Department personnel upon request.~~

- ~~a. The date and time of the observation.~~
- ~~b. If visible emissions which appeared to be above the permitted limit were detected.~~
- ~~c. If visible emissions which appeared to be above the permitted limit were detected, the cause of the exceedance of the opacity limit, the corrective action taken, and if the visible emissions appeared to be below the permitted limit after the corrective action was taken.~~
- ~~d. The name of the person conducting the opacity observations.~~

Response to Comment #1:

The above requested changes have been made as requested.

Comment #2:

Section IV: EMISSION UNIT INFORMATION (Specific Condition #12; page 33)

Within the renewal application, chlorine was listed as a pollutant for SN-199 (see application page Bromine – 23). The Facility proposes the following revision to Condition #12 to add this pollutant to the list.

12. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 23 and 24. [Regulation 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
SN-199	Fugitive Emissions from Equipment Leaks	Br ₂	0.65	2.82
		<u>Chlorine</u>	<u>0.54</u>	<u>2.33</u>
		HBr	0.04	0.15
		H ₂ S	0.67	2.90

Response to Comment #2:

The above requested changes have been made as requested.

Comment #3:

Section IV: EMISSION UNIT INFORMATION (Specific Conditions #16, 28, 44, 58, &108; various pages)

It is requested that a frequency of opacity observations within Specific Conditions #16, 28, 44, 58, &108 for SN-138, 419, 420, 427, 428, 430, 436, 440, 504, 505, 507, 509, 510, 608, 610, 611, 1104, and 1106 be reduced from weekly. These monitoring requirements are overly burdensome to the facility with no benefit in maintaining air quality. The facility's compliance history with visible

emissions from these sources is an indication of no issue of opacity exceedances. It is proposed that the monitoring frequency be updated to once per permit compliance certification period.

Response to Comment #3:

The above requested changes have been made (for sources with a compliance mechanism, i.e: scrubbers with flowrate monitoring, baghouses with pressure drop monitoring, and natural gas fired equipment) as requested.

Comment #4:

Section IV: EMISSION UNIT INFORMATION (Specific Condition #19; page 36)

It is requested that a typographical error within Specific Condition #19 for the TDS value from the two Cooling Towers (SN-180 and SN-181) be corrected to 330,000 ppm (TDS) (see application page Bromine – 6). The value within the current draft permit is 33,000 ppm (TDS). The facility proposes the following revision to Condition #19.

21. The permittee shall not exceed the rates for Total Dissolved Solids (TDS) nor conductivity in the following table:

[§19.705 of Regulation 19 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6]

SN	Description	Parameter
180	Cooling Tower	~~33,000~~ 330,000 ppm (TDS)
181	Cooling Tower	~~33,000~~ 330,000 ppm (TDS)
182	Cooling Tower	5000 µS (Conductivity)
183	Cooling Tower	5000 µS (Conductivity)
184	Cooling Tower	5000 µS (Conductivity)
185	Rental Cooling Tower	5000 µS (Conductivity)

Response to Comment #4:

The above requested changes have been made as requested.

Comment #5:**Section IV: EMISSION UNIT INFORMATION (Specific Condition #24; pages 40 - 41)**

It is requested that a typographical error within Specific Condition #24 for PC-1 Scrubber (SN-413) be corrected. The current draft permit reflects alkyl chloride, it should be allyl chloride. The facility proposes the following revision to Condition #24.

SN	Description	Pollutant	lb/hr	tpy
413	PC-1 Scrubber	HBr	0.01	0.05
		Bromine	0.01	0.05
		Acetaldehyde	0.01	0.05
		Acetophenone	0.01	0.05
		Phenol	0.01	0.05
		Hydrazine	0.01	0.05
		Chlorine	0.01	0.05
		Bromoform	0.01	0.05
		Chloroform	0.01	0.05
		Methyl Bromide	0.01	0.05
		~~Alkyl~~ Allyl Chloride	0.57	2.50
		HCl	0.01	0.05

Response to Comment #5:

The above requested changes have been made as requested.

Comment #6:**Section IV: EMISSION UNIT INFORMATION (Specific Condition #25; page 41)**

It is requested that the opacity table within Specific Condition #25 be corrected to include SN-440.

Response to Comment #6:

The above requested changes have been made as requested.

Comment #7:**Section IV: EMISSION UNIT INFORMATION (Specific Condition #29; page 42)**

It is requested that the ability to produce CN 3370 be removed from the permit. The facility has not produced CN 3370 at the FF-680 unit since 2012 and has no plans to produce it in the future. The facility proposes the following revision to Condition #32.

32. The permittee may produce FF-680, TBP, CN-1753, ~~CN-3370~~, and BE-51 at the FF-680 Plant. Other products may be produced without a permit modification if: [Regulation No. 19 §19.705, Regulation No. 18 §18.1104, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and CFR Part 52, Subpart E]

Response to Comment #7:

The above requested changes have been made as requested.

Comment #8:

Section IV: EMISSION UNIT INFORMATION (Specific Condition #34; page 44)

It is requested that an error within Specific Condition #34 for the number of BE-51 lots allowed be corrected to 1,095 lots during any twelve consecutive month (see application pages FF680 – 4, 37-42, 45, 46, 51-53).

Additionally, in order to properly show compliance with the emission limitations in Specific Conditions #25 and #26, it is requested that Specific Condition #37 be updated with the unit's production rates within the renewal application (see application pages FF680 – 37-42, 45, 46, 51-53) as well as the Interim Condition #3 to the minor modification approved on November 23, 2010. We propose the following revision to Condition #37.

BE-51-FF-680 Unit Production

34. ~~BE-51~~ Production at the FF-680 Unit shall not exceed ~~1,000 lots~~ the limits in the following table during any twelve consecutive months: [Regulation No. 19 §19.705, Regulation No. 18 §18.1004, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and CFR Part 52, Subpart E]

<u>Product</u>	<u>Lot per Rolling 12-month basis</u>	<u>Units</u>
<u>FF680</u>	<u>4,380</u>	<u>FF-680-Lots</u>
<u>TBP</u>	<u>8,760</u>	<u>FF-680-Lots</u>
<u>CN1753</u>	<u>5,475</u>	<u>CN-Lots</u>
<u>BE51</u>	<u>1,095</u>	<u>BE51-Lots</u>

Response to Comment #8:

The above requested changes have been made as requested.

Comment #9:

Section IV: EMISSION UNIT INFORMATION (CD-75 Unit Source Description; page 46)

It is requested that a typographical error within the CD-75 Unit source description for the Chilsonator (not Chilsinator) be corrected. We propose the following revision to the process description.

Chilsonator

The ~~Chilsinator~~ Chilsonator process compresses powder products into granules. Powder is pneumatically lifted into the ~~chilsinator~~ chilsonator feed silo. Vent from the pneumatic transport system is vented to a baghouse type dust collector that vents as SN-505. Collected dust is blended back into the product.

Blending operations are carried out to blend the final product with stabilizer. Powder is pneumatically lifted into the blender feed silo. Vent from the pneumatic transport system is vented to a baghouse type dust collector. The cleaned air is exhausted to the atmosphere (SN-509). Collected dust is blended back into product. Packaging operations vent through a dust collector to atmosphere (SN-510).

Response to Comment #9:

The above requested changes have been made as requested.

Comment #10:

Section IV: EMISSION UNIT INFORMATION (Specific Condition #38; page 47)

ADEQ instructions indicate that criteria pollutant permit rates should be rounded up to the nearest tenth. Within the draft permit, the VOC emission limits were rounded down for SN-507 (see application page CD-75 – 31) and the VOC limits were excluded for SN-504 (see application page CD-75 – 29). The facility proposes the following revision to Condition #38.

38. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 47, 48, 49, and 50. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
504	Packaging Baghouse Vent	PM ₁₀ <u>VOC</u>	0.1 <u>3.6</u>	0.5 <u>15.8</u>
507	Storage Baghouse Vent	PM ₁₀ VOC	0.1 0.6	0.5 <u>2.6</u> <u>2.7</u>

Response to Comment #10:

The above requested changes have been made as requested.

Comment #11:

Section IV: EMISSION UNIT INFORMATION (Specific Conditions #45 #49; page 50,51)

The renewal application control equipment operating parameters form for the Vent Header Thermal Oxidizer/Scrubber (SN-503) incorrectly identified the scrubber liquor as NaOH solution concentration of 20%. The scrubber used for SN-503 is used as part of the control system for 40 CFR Part 63 Subpart FFFF (MON MACT) compliance. The facility monitored the pH concentration and flow rate of the scrubber during the MON MACT initial performance test. Within the notification of compliance status for the MON MACT the facility indicated that those two scrubber parameters would be continuously monitor to ensure compliance with the MON MACT. The facility proposes clarifying language for the data averaging allowed within the MON MACT in an effort to clarify compliance requirements. The facility proposes the following revisions to Specific Condition #45 and #49.

45. All scrubbers associated with CD-75 production shall be kept in good working condition at all times and shall meet the conditions shown in the following table. [Regulation No.19 §19.303, Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

- a. The scrubber shall have a flow meter to measure the flow rate of the scrubbing liquor. The scrubber liquor flow rates shall be measured once per day. The result shall be kept onsite and be available to Department personnel upon request.
- b. The caustic concentration shall be measured once per day. The result shall be kept onsite and be available to Department personnel upon request.
- c. Should the scrubber liquor flow rate or caustic concentration drop below the minimum rate, as specified in the following table, action shall be taken within 12 hours to remedy the situation. The permittee shall document the duration of every such situation in a logbook. The logbook shall be kept onsite and be available to Department personnel upon request.

SN	Control Equipment	Parameter	Units	Minimum Operating Limits
501	Scrubber	liquor flow rate	gal/min	5
		caustic concentration in scrubbing liquor	% by wt.	2.5
503	Scrubber	liquor flow rate	gal/min	49
		NaOH solution concentration in scrubbing liquor	% by wt.	20

49. The permittee shall continuously monitor the thermal oxidizer combustion zone temperature, scrubber pH, and scrubber liquor flow rate, SN-503 and shall meet the conditions shown in the following table ~~combustion zone temperature to ensure that it is at least 1,650 °F.~~ [Regulation 19, §19.703, A.C.A. §8-4- 203 as referenced by §8-4-304 and §8-4-311, & 40 CFR Part 52, Subpart E]

<u>SN</u>	<u>Control Equipment</u>	<u>Parameter</u>	<u>Units</u>	<u>Minimum Operating</u>
<u>503</u>	<u>Scrubber</u>	<u>liquor flow rate</u>	<u>gal/min</u>	<u>49</u>
		<u>pH</u>	<u>pH</u>	<u>6.5</u>
	<u>Thermal Oxidizer</u>	<u>temperature</u>	<u>°F</u>	<u>1,650</u>

*15 minute block averages allowed within 40 CFR63.152(f).

Response to Comment #11:

The above requested changes have been made as requested.

Comment #12:**Section IV: EMISSION UNIT INFORMATION (Specific Condition #55; page 53)**

It is requested that a typographical error within Specific Condition #55 for the Fugitive Emissions from Equipment Leaks (SN-699) be corrected. Within the draft permit, the VOC emission limits were higher than requested values for SN-699 (see application page PHT4 – 23). The facility proposes the following revision to Condition #55.

55. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 59, 60, 74, 75, 76 and 77. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
699	Fugitive Emissions From Equipment Leaks	VOC	~~0.5~~ <u>0.1</u>	~~2.0~~ <u>0.2</u>

Response to Comment #12:

The above requested change was not made, volatile HAPs must at least equal VOCs..

Comment #13**Section IV: EMISSION UNIT INFORMATION (Specific Condition #66; page 56)**

It is requested that an error within Specific Condition #66 for the phthalic anhydride storage tank (SN-604) throughput be corrected to 12,775,000 gallons of throughput per twelve consecutive months (see application pages PHT4 – 12-14). The facility proposes the following revision to Specific Condition #66.

66. The permittee shall not exceed ~~2,000,000~~ 12,775,000 gallons of throughput per twelve consecutive months for the phthalic anhydride storage tank (SN-604). The permittee shall maintain both monthly and a twelve month rolling total to verify compliance with this limit. The records shall be updated on a monthly basis. These records shall be kept onsite, provided to Department personnel upon request, and may be used by the Department for enforcement purposes. [Regulation 19, §19.705, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Response to Comment #13:

The above requested changes have been made as requested.

Comment #14:**Section IV: EMISSION UNIT INFORMATION (Specific Condition #76; page 65 & 66)**

Within the draft permit, the Dryer Condenser (SN-610) recirculation rate limit is stated as such to maintain a recirculation rate of 5 gallons per minute. Since the intent of the condition is to maintain a minimum recirculation rate of 5 gallons per minute, the Facility proposes the following revision to Condition #76.

76. The permittee shall maintain a minimum recirculation rate of 5 gallons per minute to the Condenser (SN-610). The recirculation rate shall be monitored and recorded at a minimum of once per week. Records of recirculation rate shall be maintained onsite and provided to Department personnel upon request. [Regulation No. 19 §19.303, Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Response to Comment #14:

The above requested changes have been made as requested.

Comment #15:**Section IV: EMISSION UNIT INFORMATION (Specific Condition #84 & #85; page 70)**

ADEQ instructions indicate that criteria pollutant permit rates should be rounded up to the nearest tenth. Within the draft permit, the VOC emission limits were rounded down for SN-999. ADEQ instructions indicate that criteria pollutant permit rates should be rounded up to the nearest tenth. In addition, HBr and Br₂ were listed as pollutants within the renewal application for SN-999 (see application page DBS – 22). The description within Specific Condition #80 is different than that used throughout the rest of the permit for SN-901 and SN-902. The facility proposes the following revisions to Conditions #79 and #80.

79. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 88 and 90. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
999	Fugitive Emissions From Equipment Leaks	VOC	~~2.0~~ <u>2.1</u>	~~8.8~~ <u>8.9</u>

80. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 88 and 90. [Regulation 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
901	<u>DBS Vent Header</u> Scrubber Vent	HBr HCl	0.38 0.04	1.67 0.18
999	Fugitive Emissions From Equipment Leaks	HCl Hydrazine Styrene <u>HBr</u> <u>Br₂</u>	0.09 0.01 2.02 <u>1.3</u> <u>0.18</u>	0.36 0.05 8.83 <u>5.67</u> <u>0.79</u>

Response to Comment #15:

The above requested changes have been made as requested.

Comment #16:

Section IV: EMISSION UNIT INFORMATION (Specific Condition #81 & #82; pages 70-71)

Within the renewal application the facility indicated that BCP and PBr₃ production no longer occurs at DBS (see application page General – 2). To clarify the products allowed to be produced at the DBS plan, the facility proposes the following revisions to Specific Conditions #81 & #82:

81. The permittee is allowed to make dibromostyrene (DBS) ~~three~~ at the DBS Plant: ~~dibromostyrene (DBS), phosphorus tribromide (PBr₃), and 1-bromo-3-chloropropane (BCP).~~ Other products may be produced without a permit modification if: [Regulation No. 19 §19.705, 40 CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
 - a. No new equipment with air contaminant emissions will be installed, other than insignificant sources (insignificant sources may be permitted via the administrative amendment process);
 - b. The worst-case emissions limits contained in this permit will not be exceeded. In addition, no new pollutants will be emitted. The permittee shall produce written emissions calculations and submit them to the Department pursuant to paragraph (d) below;
 - c. No new air pollution control requirements are triggered, such as provisions of 40 CFR Part 52, Part 60, Part 61, or Part 63;
 - d. The permittee submits to the Department information concerning items in paragraph (a) thru (c) above at least 30-days prior to the production of the new product and the Department does not object during this 30-day period.
82. The permittee shall measure the emissions from SN-901 during the production of Dibromostyrene (DBS) ~~the following products~~ for the pollutants specified in Specific Conditions 84 and 85: ~~Dibromostyrene (DBS), Phosphorus Tribromide (PBr₃), 1-~~

~~Bromo-3-chloropropane (BCP) B during heavy removals, and PBr₃ and BCP simultaneous production.~~ The permittee will test for VOC using Method 25A or other approved methodology, and DBS, ~~PBr₃, and BCP~~ using the approved method. [Regulation No. 19 §19.702, 40 CFR Part 52, Subpart E, Regulation No. 18 §18.1002 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

- a. At least once every five years, the permittee shall test the emissions during the production of each product manufactured associated with the emission point. Upon written request from the permittee, the ADEQ may grant a waiver (in writing) of this requirement in the event that a production run of a product will be of short duration and not amenable to the scheduling of emissions testing. The testing shall be in accordance with Plantwide Condition 3 and a test procedure which has been specifically approved by the Department prior to the testing.
- b. During the testing, the plant shall be operated within 10 percent of the rated throughput. Failure to test at the rated throughput shall limit the production to 10 percent above the tested throughput.
- c. The permittee will test for VOC using Method 25A or other approved methodology, and DBS, ~~PBr₃, and BCP~~ using the approved method.

Response to Comment #16:

The above requested changes have been made as requested.

Comment #17:

Section IV: EMISSION UNIT INFORMATION (Specific Condition #92; page 76)

We propose clarifying language for the data averaging for this unit. The performance testing required to establish the monitoring parameter consisted of three one-hour runs. The facility proposes the following revision to Condition #97.

92. During the compliance testing required by Specific Condition 96 and at all times the BRU-II is operated thereafter, the permittee shall continuously monitor and record the venturi scrubber differential pressure and thermal oxidizer temperature. The venturi scrubber differential pressure shall not fall below 40" of water except when exclusively processing MeBr for Bromine recovery (the venturi scrubber is not required to be operated during this scenario). The thermal oxidizer temperature shall not fall below 1600° F. Compliance is determined based on 3-hour averages of monitored parameters. [Regulation No. 19 §19.303 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Response to Comment #17:

The above requested changes have been made as requested.

Comment #18:

Section IV: EMISSION UNIT INFORMATION (Specific Condition #98; page 77)

We propose clarifying language for the data averaging for this unit. The performance testing required to establish the monitoring parameter consisted of three one-hour runs. The facility proposes the following revision to Condition #103.

103. During the compliance testing required by Specific Condition 102 and at all times the BRU-III is operated thereafter, the permittee shall continuously monitor and record the venturi scrubber differential pressure. The venturi scrubber differential pressure shall not fall below 40" of water. Compliance is determined based on 3-hour averages of the monitored parameter. [Regulation No. 19 §19.303, Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Response to Comment #18:

The above requested changes have been made as requested.

Comment #19:

Section IV: EMISSION UNIT INFORMATION (Specific Condition #99; page 78)

Within the draft permit, the BRU-III thermal oxidizer temperature limit is stated as such to maintain a temperature of 1600° F. Since the intent of the condition is to maintain a minimum temperature of 1600°F, the facility proposes the following revision to Condition #104. Additionally, the performance testing required to establish the temperature limit consisted of three one-hour runs. The facility proposes to clarify compliance requirements with temperature determined by a 3-hour average.

99. The permittee will continuously monitor and record the temperature of the BRU-III. The permittee will maintain a minimum temperature of 1600°F at all times the BRU-III is operating. Compliance is determined based on 3-hour average of temperature. The permittee may test BRU III at a lower temperature to establish a lower operating temperature. The permittee will notify the Department in writing of the time and duration of any test. The permittee may submit a permit modification to incorporate the lower temperature into the permit. [Regulation 19, §19.705, A.C.A. §8-4-203 as referenced by §8-4-301 and §8-4-311]

Response to Comment #19:

The above requested changes have been made as requested.

Comment #20:**Section IV: EMISSION UNIT INFORMATION (Specific Condition #100; page 79)**

ADEQ instructions indicate that criteria pollutant permit rates should be rounded up to the nearest tenth. Within the draft permit, the VOC emission limits were rounded down for SN-1199 (see application page PDBS – 12). The facility proposes the following revision to Condition #105.

100. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 110 and 111. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
1199	Fugitive Emissions From Equipment Leaks	VOC	~~1.0~~ <u>1.1</u>	4.4

Response to Comment #20:

The above requested change was not made, total volatile must at least equal VOC.

Comment #21:**Section IV: EMISSION UNIT INFORMATION (Specific Condition #106.a; page 81)**

Within the draft permit, the Fabric Filter pressure drop limit is stated as such to maintain a pressure drop of 0.1 inches of water. Since the intent of the condition is to maintain a minimum of 0.1 inches of water as stated in the table in Specific Condition 111, the facility proposes the following revision to Condition #112.a.

106. SN-1104 is subject to and shall comply with all applicable provisions of §19.304 of Regulation 19, 40 CFR Part 52, Subpart E, and Section §64.9 for Compliance Assurance Monitoring. [40 CFR §64.6(c)(1)]
- a. The permittee shall maintain a minimum pressure drop of 0.1 inches of water.

Response to Comment #21:

The above requested changes have been made as requested.

Comment #22:**Section IV: EMISSION UNIT INFORMATION (Process Water Treatment Plant Source Description; page 87)**

It is requested that a typographical error within the process water treatment plant source description be corrected. It appears that the process description within the permit application was not correctly included within the draft permit (see application pages PWTP – 1). The facility proposes the following revision to the process description.

~~Wastewater Treatment Plant~~ Process Water Treatment Plant

SN-201, SN-202 and SN-209

Source Description

Great Lakes Chemical Corporation operates a Process Water Treatment Plant (PWTP) at the South Plant to treat process water prior to deep well injection. The major steps in the water treatment at the PWTP are described below:

- Process water from other South Plant process units/areas is brought to the area.
- The process water undergoes pH neutralization and treatment with anhydrous ammonia and hydrochloric acid.
- The treated water is filtered and sent for deep well injection.
- Sludge is transported off-site.

An HCl storage tank, SN-201, is present at the PWTP. HCl emissions from the tank are minimized by utilizing a water scrubber. Most storage vessels in the PWTP are open to the atmosphere. Some VOC's may be emitted since the process water contains organics in solution; SN-202 accounts for emissions from PWTP area, including wastewater storage tanks and sumps located within the various process units at the South Plant. Fugitive equipment leaks are accounted for as SN-299.

Response to Comment #22:

The above requested changes have been made as requested.

Comment #23:

Section IV: EMISSION UNIT INFORMATION (Specific Condition #124; page 87)

ADEQ instructions indicate that criteria pollutant permit rates should be rounded up to the nearest tenth. Within the draft permit, the VOC emission limits were rounded down for SN-202 (see application page PWTP – 8). The facility proposes the following revision to Condition #124.

124. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by permitting emissions for this source at maximum potential. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
202	Process Water Treatment Plant (Fugitive Emissions)	VOC	~~9.3~~ <u>9.4</u>	40.8

Response to Comment #23:

The above requested changes have been made as requested.

Comment #24:**Section IV: EMISSION UNIT INFORMATION (Proposed Specific Conditions #127 through #138)**

When original Title V renewal application was submitted in 2010 the two fire water pumps were not subject to any federal applicable regulations and were originally proposed to be added as group A-1 insignificant activities. However, as a result of revisions to 40 CFR Part 63 Subpart ZZZZ, the two engines are now subject to applicable requirement of that regulation and cannot be permitted as insignificant activities. Per a request by ADEQ, Derrick Brown, all required documentation to permit the two engines were provided via email on April 16, 2015. For the two Emergency Generators and Engines (proposed SN-203 and SN-204), Great Lakes Chemical Corporation (GLCC) proposes the following proposed specific conditions for ADEQ's consideration.

127. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by compliance with Specific Conditions #0 and #130. [Regulation 19, §19.501 et seq., effective July 18, 2009 and 40 CFR Part 52, Subpart E]

<u>SN</u>	<u>Description</u>	<u>Pollutant</u>	<u>lb/hr</u>	<u>tpy</u>
<u>203</u>	<u>Fire Water Pump (300 hp)</u> <u>Emergency Engine No. 1</u>	<u>PM₁₀</u>	<u>0.7</u>	<u>0.2</u>
		<u>SO₂</u>	<u>0.7</u>	<u>0.2</u>
		<u>VOC</u>	<u>0.8</u>	<u>0.2</u>
		<u>CO</u>	<u>2.1</u>	<u>0.6</u>
		<u>NO_x</u>	<u>9.3</u>	<u>2.4</u>
<u>204</u>	<u>Fire Water Pump (245 hp)</u> <u>Emergency Engine No. 2</u>	<u>PM₁₀</u>	<u>0.6</u>	<u>0.2</u>
		<u>SO₂</u>	<u>0.6</u>	<u>0.2</u>
		<u>VOC</u>	<u>0.7</u>	<u>0.2</u>
		<u>CO</u>	<u>1.7</u>	<u>0.5</u>
		<u>NO_x</u>	<u>7.6</u>	<u>1.9</u>

128. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by compliance with Specific Conditions #0 and #130. [Regulation 18, §18.801, effective January 25, 2009, and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

<u>SN</u>	<u>Description</u>	<u>Pollutant</u>	<u>lb/hr</u>	<u>TPY</u>
<u>203</u>	<u>Fire Water Pump (300 hp)</u> <u>Emergency Engine No. 1</u>	<u>PM</u>	<u>0.7</u>	<u>0.2</u>
<u>204</u>	<u>Fire Water Pump (245 hp)</u> <u>Emergency Engine No. 2</u>	<u>PM</u>	<u>0.6</u>	<u>0.2</u>

129. Visible emissions may not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9. [§19.503 of Regulation 19 and 40 CFR Part 52 Subpart E]

<u>SN</u>	<u>Limit</u>	<u>Regulatory Citation</u>
<u>203, 204</u>	<u>20%</u>	<u>§19.501</u>

130. Engines SN-203 and 204 are subject to 40 CFR Part 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. Compliance with this subpart shall be demonstrated through compliance with Specific Conditions SC#131 through #137. [§63.6605(a), §63.6605(b), §63.6595(a)(1)]
131. Diesel shall be the only fuel combusted at SN-203 and 204. The diesel combusted in these sources shall not exceed sulfur content of 0.0015% by weight unless a previous fuel exists on site with a sulfur content of 0.5% or less, which may be used until the supply is depleted. The facility shall maintain records which demonstrate compliance with the sulfur content limits of this condition. These records shall be maintained on-site and shall be made available to Department personnel upon request. [§19.705 of Regulation 19 and 40 CFR Part 52 Subpart E, §63.6604(b)]
132. Records of performance testing, maintenance, and process malfunction for SN-203 and 204 must be maintained on site. [§63.6645(a)(5), §63.6655(a), §63.6655(e)]
133. Records of hours of operation of SN-203 and 204 must be kept through non-resettable hour meter. Documentation must be maintained recording the number of hours spent for emergency operation, including what classified the operation as emergency, and the number of hours spent for non-emergency operation. [§63.6625(f), §63.6655(f)]
134. Records required by 40 CFR Subpart ZZZZ for SN-203 and 204 must be maintained for 5 years in a form suitable and readily available for review. [§63.6660]
135. The engines SN-203 and 204 must be operated and maintained according to manufacturer's emission-related operation and maintenance instructions and maintained according to the schedule in the maintenance plan. [§63.6625(d),(e), §63.6640, and Table 6(9)(a)(i),(ii)]
136. Minimize the engines' SN-203 and 204 time spent at idle during startup by following correct startup procedures. [§63.6625(h)]
137. Compliance with emission limitations of 40 CFR Subpart ZZZZ shall be demonstrated through compliance with the following conditions. [§63.6602]
- a. Change oil and filter every 500 hours of operation or annually, whichever comes first. [Table 2c(1)(a) to Subpart ZZZZ of Part 63]
 - b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary. [Table 2c(1)(b) to Subpart ZZZZ of Part 63]
 - c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary. [Table 2c(1)(c) to Subpart ZZZZ of Part 63]

Response to Comment #24:

Emergency Engines: SN-203 and SN-204 have been included in the permit with Specific Conditions 121 through 145 as follows:

SN-203, SN-204

Source Description

Great Lakes Chemical Corporation has two emergency engines, SN-203, a 300 Hp Fire Water Pump Engine and SN-204, a 245 Hp Fire Water Pump Engine.

Specific Conditions

121. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 123 and 0. [Reg.19.501 *et seq.* and 40 C.F.R. § 52 Subpart E]

SN	Description	Pollutant	lb/hr	tpy
203	Fire Water Pump Engine (300 Hp) Emergency Engine No. 1	PM ₁₀	0.7	0.2
		SO ₂	0.7	0.2
		VOC	0.8	0.2
		CO	2.1	0.6
		NO _x	9.3	2.4
204	Fire Water Pump Engine (245 Hp) Emergency Engine No. 2	PM ₁₀	0.6	0.2
		SO ₂	0.6	0.2
		VOC	0.7	0.2
		CO	1.7	0.5
		NO _x	7.6	1.9

122. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 123 and 0. [Reg.18.801 and Ark. Code Ann. § 8-4-203 as referenced by Ark. Code Ann. §§ 8-4-304 and 8-4-311]

SN	Description	Pollutant	lb/hr	tpy
203	Fire Water Pump Engine (300 Hp) Emergency Engine No. 1	PM	0.7	0.2
		Acetaldehyde	0.01	0.01
		Benzene	0.01	0.01
		Formaldehyde	0.01	0.01
		Naphthalene	0.01	0.01
		Toluene	0.01	0.01
		Xylenes	0.01	0.01
		POM	0.01	0.01

SN	Description	Pollutant	lb/hr	tpy
204	Fire Water Pump Engine (245 Hp) Emergency Engine No. 2	PM	0.6	0.2
		Acetaldehyde	0.01	0.01
		Benzene	0.01	0.01
		Formaldehyde	0.01	0.01
		Naphthalene	0.01	0.01
		Toluene	0.01	0.01
		Xylenes	0.01	0.01
		POM	0.01	0.01

123. Visible emissions may not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9.

SN	Limit	Regulation Citation
203, 204	20%	§19.501

124. Annual observations of the opacity from SN-203 and SN-204 shall be conducted by a person trained but not necessarily certified in EPA Reference Method 9. If visible emissions in excess of the permittee levels are detected, the permittee shall immediately take action to identify the cause of the visible emissions in excess of the permit limit, implement corrective action, and perform an EPA Reference Method 9 test to verify emissions are not in excess of the permitted level. The permittee shall maintain records which contain the following items in order to demonstrate compliance with this specific condition. These records shall be updated monthly kept on site, and made available to Department personnel upon request.
- The date and time of the observation.
 - If visible emissions which appeared to be above the permitted limit were detected.
 - If visible emissions which appeared to be above the permitted limit were detected, the cause of the exceedance of the opacity limit, the corrective action taken, and if the visible emissions appeared to be below the permitted limit after the corrective action was taken.
 - The name of the person conducting the opacity observations.

[§19.705 of Regulation 19 and 40 CFR Part 52, Subpart E]

125. The permittee shall not operate the emergency generators SN-203 or SN-204 in excess of 100 total hours each (emergency and non-emergency) per calendar year in order to demonstrate compliance with the annual emission rate limits. Emergency operation in excess of these hours may be allowable but shall be reported and will be evaluated in accordance with Reg.19.602 and other applicable regulations. [Reg.19.705, Ark. Code Ann. § 8-4-203 as referenced by Ark. Code Ann. §§ 8-4-304 and 8-4-311, and 40 C.F.R. § 70.6]
126. The permittee shall maintain monthly records to demonstrate compliance with Specific Condition 125. The permittee shall update these records by the fifteenth day of the

month following the month to which the records pertain. The calendar year totals and each individual month's data shall be maintained on-site, made available to Department personnel upon request, and submitted in accordance with General Provision #7. [Reg.19.705 and 40 C.F.R. § 52 Subpart E]

127. If you have an existing stationary RICE, excluding existing non-emergency CI stationary RICE, with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the applicable emission limitations, operating limitations and other requirements no later than June 15, 2007. If you have an existing non-emergency CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary CI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than May 3, 2013. If you have an existing stationary SI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than October 19, 2013. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6595(a)(1)]

128. The permittee must for SN-203 and SN-204:

- a. Change oil and filter every 500 hours of operation or annually, whichever comes first.
- b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary;
- c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

[Regulation 19, §19.304 and 40 CFR Part 63, §63.6602, Table 2c]

129. Diesel shall be the only fuel combusted at SN-203 and 204. The diesel combusted in these sources shall not exceed sulfur content of 0.0015% by weight unless a previous fuel exists on site with a sulfur content of 0.5% or less, which may be used until the supply is depleted. The facility shall maintain records which demonstrate compliance with the sulfur content limits of this condition. These records shall be maintained on-site and shall be made available to Department personnel upon request. [Regulation 19, §19.705 and 40 CFR Part 52 Subpart E, §63.6604(b)]
130. The permittee must be in compliance with the emission limitations, operating limitations, and other requirements in this subpart that apply to you at all times. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6605(a)]
131. The permittee At all times you 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 you to make any further efforts to reduce emissions if levels required by this standard have been achieved. 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. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6605(b)]

132. The permittee must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6625(e)]
133. The permittee must install a non-resettable hour meter if one is not already installed. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6625(f)]
134. The permittee must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6625(h)]
135. If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of Table 2c to this subpart or in items 1 or 4 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 business days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6625(i)]

136. The permittee must demonstrate continuous compliance with each emission limitation, operating limitation, and other requirements in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you according to methods specified in Table 6 to this subpart. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6640(a)]
137. The permittee must report each instance in which you did not meet each emission limitation or operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you. These instances are deviations from the emission and operating limitations in this subpart. These deviations must be reported according to the requirements in §63.6650. If you change your catalyst, you must reestablish the values of the operating parameters measured during the initial performance test. When you reestablish the values of your operating parameters, you must also conduct a performance test to demonstrate that you are meeting the required emission limitation applicable to your stationary RICE. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6640(b)]
138. The permittee must also report each instance in which you did not meet the requirements in Table 8 to this subpart that apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing emergency stationary RICE, an existing limited use stationary RICE, or an existing stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart, except for the initial notification requirements: a new or reconstructed stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new or reconstructed emergency stationary RICE, or a new or reconstructed limited use stationary RICE. [Regulation 19, §19.304 and 40 CFR Part 63, §63.66409(e)]
139. The permittee must operate the emergency stationary RICE according to the requirements in paragraphs (a) through (d) of this section. In order for the engine to be considered an emergency stationary RICE 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 (a) through (d) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (a) through (d) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

- a. There is no time limit on the use of emergency stationary RICE in emergency situations.
- b. You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (c) and (d) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (b).
 - i. Emergency stationary RICE 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 RICE beyond 100 hours per calendar year.
 - ii. Emergency stationary RICE 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 §63.14), 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.
 - iii. Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
- c. Emergency stationary RICE located at major sources of HAP 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 (f)(2) of this section. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.
- d. Emergency stationary RICE located at area sources of HAP 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 (f)(2) of this section. Except as provided in paragraphs (f)(4)(i) and (ii) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency 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.

[Regulation 19, §19.304 and 40 CFR Part 63, §63.6640(f)]

140. The permittee must, during periods of startup, minimize the engines time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time non-start-up emission limitations apply. [Regulation 19, §19.304 and 40 CFR Part 63, Subpart ZZZZ, Table 2(c)(1)]
141. The permittee must operate and maintain the stationary RICE according to the manufacturer's emission related operation and maintenance instructions; or develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [Regulation 19, §19.304 and 40 CFR Part 63, Subpart ZZZZ, Table 6(9)]
142. The permittee must comply with the emission and operating limitations, you must keep the records described in paragraphs (a)(1) through (a)(5).
 - a. 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 that you submitted, according to the requirement in §63.10(b)(2)(xiv).
 - b. Records of the occurrence and duration of each malfunction of operation (*i.e.*, process equipment) or the air pollution control and monitoring equipment.
 - c. Records of performance tests and performance evaluations as required in §63.10(b)(2)(viii).
 - d. Records of all required maintenance performed on the air pollution control and monitoring equipment.
 - e. Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

[Regulation 19, §19.304 and 40 CFR Part 63, §63.6655(a)]

143. The permittee must keep the records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applies to you. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6655(d)]
144. The permittee must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan if you own or operate any of the following stationary RICE. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6655(e)(2)]

145. The permittee must, for SN-203 and SN-204, keep records of hours of operation through a non-resettable hour meter. Documentation must be maintained recording the number of hours spent for emergency operation, including what classified the operation as emergency, and the number of hours spent for non-emergency operation. [Regulation 19, §19.304, 40 CFR Part 63, §63.6625(f) and §63.6655(f)]
146. The permittee must maintain records required by 40 CFR Part 63, Subpart ZZZZ, for SN-203 and SN-204 for 5 years in suitable form and readily available for review. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6660]

Comment #25:

Section VI: PLANTWIDE CONDITIONS (Plantwide Condition #8; pages 91 - 94)

The MON MACT (40 CFR Part 63, Subpart FFFF) allows facilities to make some process changes to subject miscellaneous organic chemical manufacturing process units (MCPU). Any time an allowed process change occurs, the facility is required to give a notification of process change as outlined within §63.2520(e)(10). These process changes include, but are not limited to, changes in Group determinations under the MON MACT and do not necessarily require a permit modification. To retain the flexibility allowed under the MON MACT, the facility proposes to remove the group designation from Plantwide Condition #8.

Additionally, we request that the table to Plantwide Condition #8 be updated to include the MON MACT applicability of the storage tanks, wastewater, transfer racks, and heat exchangers as presented within the original November 9, 2007 MON MACT significant modification application.

8. This facility is subject to and shall comply with all applicable provisions of 40 CFR Part 63 Subpart FFFF – National Emissions Standards for Hazardous Air Pollutants for Miscellaneous Organic Chemical Manufacturing. The requirements of Subpart FFFF as they apply to this facility are summarized below. The process units affected by FFFF are in the tables below. [§19.304 of Regulation 19 and 40 CFR §63.2435]

CD-75P Unit		
Batch Process Vent Group Determinations		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
RX-65-101	Brominator Reactor	Group 1 <u>Subject</u>
RX-65-102	Bromination Reactor	
TT-65-101	EDC/EtOH Storage	
TT-65-201	EDC/EtOH Storage	
TT-65-301	EDC/EtOH Storage	
TK-65-501	CD-75P Slurry Tank	
TT-65-501	Solvent Storage	
TT-65-502	Solvent Storage	
CF-65-800	V-501 Centrifuge	
SH-100	Centrifuge Cake Hopper	

DR-65-028	Dryer	
TT-65-100	Mother Liquor Receiver	
TT-65-517	EDC/EtOH Tank	Exempt – total HAP <200 lb/yr
TK-65-901	Bromine Shot Tank	Exempt – total HAP <200 lb/yr
Continuous Process Vent Group Determinations		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
TT-65-506	EDC Storage	Group 2-Subject
TT-65-510	Wet Ethanol Storage	Exempt - <50 ppmv HAP
VS-65-611	Water Scrubber Vent	Group 1 Subject
<u>Storage Tanks</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>TT-65-902</u>	<u>Ethylene Dichloride Storage Tank</u>	<u>Subject</u>
<u>TT-65-901</u>	<u>Bromine Storage; Storage Tank</u>	<u>Subject</u>
<u>TT-65-905</u>	<u>CDDT Storage; Storage Tank</u>	<u>Subject</u>
<u>TT-65-904</u>	<u>Ethanol Storage Tank</u>	<u>Subject</u>
<u>TT-65-900</u>	<u>TBE Storage; Storage Tank</u>	<u>Subject</u>
<u>TT-65-502</u>	<u>Collector Tank Still Pot; Surge Control Vessel</u>	<u>Subject</u>
<u>TT-65-201</u>	<u>Still Pot Holding Pot; Bottoms Receiver</u>	<u>Subject</u>
<u>TT-65-402</u>	<u>Solvent Collection Tank; Bottoms Receiver</u>	<u>Subject</u>
<u>TT-65-403</u>	<u>Solvent Collection Tank; Bottoms Receiver</u>	<u>Subject</u>
<u>TT-65-500</u>	<u>EDC Stripper Feed Tank (EDC Stripper operating); Surge Control Vessel</u>	<u>Subject</u>
<u>TT-65-516</u>	<u>EDC Stripper Feed Tank (EDC Stripper operating); Surge Control Vessel</u>	<u>Subject</u>
<u>TT-65-518</u>	<u>EDC Stripper Feed Tank (EDC Stripper operating); Surge Control Vessel</u>	<u>Subject</u>
<u>Wastewater</u>		
<u>CL-65-510</u>	<u>Ethanol Column Effluent</u>	<u>Subject</u>
<u>TT-65-906</u>	<u>Bromine Shot Tank Scrubber Effluent</u>	<u>Subject</u>
<u>--</u>	<u>CD75P Process Sump</u>	<u>Subject</u>
<u>TT-65-500</u>	<u>EDC Stripper Feed Tank</u>	<u>Subject</u>
<u>TT-65-516</u>	<u>EDC Stripper Feed Tank</u>	<u>Subject</u>
<u>TT-65-518</u>	<u>EDC Stripper Feed Tank</u>	<u>Subject</u>
<u>Heat exchangers</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>CT-65-026</u>	<u>CD75P Water Cooling Tower System</u>	<u>Subject</u>

<u>CT-65-027</u>	<u>CD75P Water Cooling Tower System</u>	<u>Subject</u>
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FF680 Unit		
Batch Process Vent Group Determinations		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination</u> <u>(Subject/Exempt)</u>
RX-62-001	R1 Bromination Reactor	Group 1 <u>Subject</u>
RX-62-002	R2 Bromination Reactor	
RX-62-003	R3 Bromination Reactor	
RX-62-004	R4 Bromination Reactor	
TT-62-010	TPB Weigh Tank	N/A <u>Exempt</u> – Total HAP <200 lb/yr
TT-62-029	Dirty HBr Tank	N/A <u>Exempt</u> – Total HAP <200 lb/yr
TT-62-102	48% HBr Tank	N/A <u>Exempt</u> – Total HAP <200 lb/yr
TK-62-055	TPB Steam Strip Tank	N/A <u>Exempt</u> – Total HAP <200 lb/yr
--	Overflow Box	N/A <u>Exempt</u> – Total HAP <200 lb/yr
TK-62-058	TBP Water Wash Tank	N/A <u>Exempt</u> – Total HAP <200 lb/yr
TK-62-059	TBP Water Wash Tank	N/A <u>Exempt</u> – Total HAP <200 lb/yr
TK-62-052	TBP Flaker Feed Tank	N/A <u>Exempt</u> – Total HAP <200 lb/yr
DF-62-001	TBP Flaker	N/A <u>Exempt</u> – Total HAP <200 lb/yr
PH-62-001	Agitated Feed Hopper	N/A <u>Exempt</u> – Total HAP <200 lb/yr
TT-61-017	PG Blend Tank	N/A <u>Exempt</u> – Total HAP <200 lb/yr
TT-61-012	Bromine Measure Pot	N/A <u>Exempt</u> – Total HAP <200 lb/yr
TT-61-009	EDB Weigh Tank	Group 1 <u>Subject</u>
RX-61-005	Condensation Reactor	
RX-61-006	Condensation Reactor	
RX-61-007	Condensation Reactor	
TK-61-014	T-42 Feed Tank	
TK-61-015	T-42 Feed Tank	
TK-62-055	TPB Steam Strip Tank	
-	Overflow Box	
TK-62-052	TBP Flaker Feed Tank	
DF-62-001	TBP Flaker	
PH-62-010	Agitated Feed Hopper	
Continuous Process Vent Group Determinations		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination</u> <u>(Subject/Exempt)</u>
WP-61-001	E1 Still System	Group 2 <u>Subject</u>
CL-61-009	PC9 IPA Still System	
TT-61-040	M/L Filtrate Tank	
TT-61-041	IPA Filtrate Tank	
TT-61-046	Vent Recovery Tank	
TT-61-038	Product Water Wash Tank	
CF-61-001	Primary Centrifuge	
BH-62-002	Packaging Baghouse	N/A <u>Exempt</u> – Total HAP <50 ppmv

FF680 Unit		
Batch Process Vent Group Determinations		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination</u> <u>(Subject/Exempt)</u>
FT-61-001	Filter Belt	N/A <u>Exempt</u> – Total HAP <50 ppmv
DR-61-001	FF680 Dryer	N/A <u>Exempt</u> – Total HAP <50 ppmv
TT-61-045	PG Separator Tank	N/A <u>Exempt</u> – Total HAP <50 ppmv
TT-61-034	IPA Still Feed Tank	<u>Group 2-Subject</u>
TT-61-016	PG ML Tank	<u>Group 2-Subject</u>
WP-61-002	E2 PG/Water Still System	<u>Group 2-Subject</u>
<u>Storage Tanks</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination</u> <u>(Subject/Exempt)</u>
<u>TT-62-003</u>	<u>Phenol Storage Tank</u>	<u>Subject</u>
<u>TT-62-037</u>	<u>Phenol Storage Tank</u>	<u>Subject</u>
<u>TT-60-054</u>	<u>Hydrazine Storage Tank</u>	<u>Subject</u>
<u>TT-60-TOT</u>	<u>Hydrazine Tote Bin; Storage Tank</u>	<u>Subject</u>
<u>TT-61-035</u>	<u>EDB Storage Tank</u>	<u>Subject</u>
<u>TT-61-031</u>	<u>PB Storage Tank</u>	<u>Subject</u>
<u>TT-61-322</u>	<u>Vacuum Receiver; Surge Control</u>	<u>Subject</u>
<u>TT-61-022</u>	<u>Vacuum Receiver; Surge Control</u>	<u>Subject</u>
<u>TT-61-023</u>	<u>PC-8 Surge Tank; Surge Control</u>	<u>Subject</u>
<u>TT-61-030</u>	<u>IPA/PG Filtrate Tank; Surge Control</u>	<u>Subject</u>
<u>TT-61-033</u>	<u>IPA Feed Tank; Surge Control</u>	<u>Subject</u>
<u>TT-61-042</u>	<u>Centrifuge Charge Tank; Surge Control</u>	<u>Subject</u>
<u>TT-61-047</u>	<u>E-1 Bottoms Receiver</u>	<u>Subject</u>
<u>TT-61-048</u>	<u>E-1 Bottoms Receiver</u>	<u>Subject</u>
<u>TT-61-049</u>	<u>E-2 Feed Tank; Surge Control</u>	<u>Subject</u>
<u>TT-61-051</u>	<u>E-2 Bottoms Receiver</u>	<u>Subject</u>
<u>TT-62-006</u>	<u>PC-3 Surge Tank; Surge Control</u>	<u>Subject</u>
<u>TT-62-004</u>	<u>PC-2 Surge Tank; Surge Control</u>	<u>Subject</u>
<u>TT-62-056</u>	<u>PC-5 Surge Tank; Surge Control</u>	<u>Subject</u>
<u>TT-61-021</u>	<u>TBE Neutralizer Tank; Surge Control</u>	<u>Subject</u>
<u>TT-61-024</u>	<u>TBE Recirculation Tank; Surge Control</u>	<u>Subject</u>
<u>TT-61-036</u>	<u>Seal Flush Tank; Surge Control</u>	<u>Subject</u>
<u>TT-62-053</u>	<u>PC-1 Surge Tank; Surge Control</u>	<u>Subject</u>
<u>TT-62-025</u>	<u>PC-11 Surge Tank; Surge Control</u>	<u>Subject</u>
<u>Wastewater</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination</u> <u>(Subject/Exempt)</u>
<u>LIQ 1</u>	<u>TT-62-006 PC-3 Surge Tank wastewater</u>	<u>Subject</u>
<u>LIQ 2</u>	<u>TT-62-004 PC-2 Surge Tank wastewater</u>	<u>Subject</u>
<u>LIQ 3</u>	<u>TT-62-053 PC-1 Surge Tank wastewater</u>	<u>Subject</u>
<u>LIQ 4</u>	<u>FP-62-001 filter bag waste</u>	<u>Subject</u>
<u>LIQ 5A</u>	<u>TK-62-058 wastewater</u>	<u>Subject</u>

FF680 Unit		
Batch Process Vent Group Determinations		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>LIQ 5B</u>	<u>TK-62-059 wastewater</u>	<u>Subject</u>
<u>LIQ 9</u>	<u>FB-62-101, 102, 103 carbon waste</u>	<u>Subject</u>
<u>LIQ 10</u>	<u>FP-62-003 filter bag waste</u>	<u>Subject</u>
<u>LIQ 11</u>	<u>FB-62-104 carbon waste</u>	<u>Subject</u>
<u>LIQ 12</u>	<u>TT-61-004 PC-4 Surge Tank wastewater</u>	<u>Subject</u>
<u>LIQ 13</u>	<u>Wastewater from TT-61-028 to sump</u>	<u>Subject</u>
<u>LIQ 14</u>	<u>TT-61-021 TBE Neutralization Tank wastewater</u>	<u>Subject</u>
<u>LIQ 24</u>	<u>Waste from TT-61-045 PG Storage Separator Tank</u>	<u>Subject</u>
<u>LIQ 25</u>	<u>CL-61-010 PC-10 bottoms waste</u>	<u>Subject</u>
<u>LIQ 26</u>	<u>Liquid condensed in CD-61-023</u>	<u>Subject</u>
<u>LIQ 28</u>	<u>CL-61-009 PC-9 wastewater</u>	<u>Subject</u>
<u>LIQ 30</u>	<u>TT-61-038 floor drain</u>	<u>Subject</u>
<u>Transfer Racks</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>N/A</u>	<u>FF680 Loadout to Truck/Railcar</u>	<u>Subject</u>
<u>Heat Exchangers</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>Various</u>	<u>FF680 Cooling Towers</u>	<u>Subject</u>

DBS Unit		
Batch Process Vent Determinations		
Equipment ID	Description	Group Determination (Group 1/Group 2 Subject/Exempt)
TT-66-001	Bromine Weigh Tank	N/A <u>Exempt</u> – <u>Total HAP <200</u>
HE-66-043	HBr Heat Exchanger	N/A <u>Exempt</u> – <u><50 ppmv HAP</u>
TT-66-007	BEB Wash Tank	N/A <u>Exempt</u> – <u>Total HAP <200</u>
RX-66-103	Step II reactor	N/A <u>Exempt</u> – <u>Total HAP <200</u>
RX-66-104	Step II Quench Reactor	<u>Group 2-Subject</u>
RX-66-036	NaOH Wash Reactor	<u>Group 2-Subject</u>
TK-66-041	Aqueous Raffinate Surge Tank	<u>Group 2-Subject</u>
TT-66-051	Step III Caustic Receiver	N/A <u>Exempt</u> – <u>Total HAP <200</u>
Continuous Process Vents		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>RX-66-101</u>	<u>Step 1 Reactor</u>	<u>Group 2-Subject</u>
<u>RX-66-102</u>	<u>Iron Mix Tank</u>	<u>Group 2-Subject</u>

DBS Unit		
<i>Batch Process Vent Determinations</i>		
Equipment ID	Description	Group Determination (Group 1/Group 2 Subject/Exempt)
<u>CL-66-112</u>	<u>Step I Distillation</u>	<u>Group 2 Subject</u>
RX-66-105	Step III Quench Reactor	<u>Group 2 Subject</u>
RX-66-106	Step III Stage II Reactor	<u>Group 2 Subject</u>
RX-66-107	Step III Neutralizer	<u>Group 2 Subject</u>
DC-66-001	Step III Stage I Separator	<u>Group 2 Subject</u>
DC-66-002	RX-106 Product Separator	<u>Group 2 Subject</u>
DC-66-003	Product Separator	<u>Group 2 Subject</u>
EV-66-010	Falling Film Separator	<u>Group 2 Subject</u>
<i>Storage Tanks</i>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>TT-66-024</u>	<u>Styrene Storage Tank</u>	<u>Subject</u>
<u>TK-66-062</u>	<u>Liquid HBr Tank</u>	<u>Subject</u>
<u>TT-66-004</u>	<u>Refined BEB Storage Tank</u>	<u>Subject</u>
<u>TT-66-010</u>	<u>BEB Storage</u>	<u>Subject</u>
<u>TT-66-011</u>	<u>BEB Storage</u>	<u>Subject</u>
<u>TT-66-027</u>	<u>Bromine Storage</u>	<u>Subject</u>
<u>TT-66-002</u>	<u>BEB Storage</u>	<u>Subject</u>
<u>TT-66-090</u>	<u>BCP Storage Tank</u>	<u>Subject</u>
<u>TT-66-006</u>	<u>C-112 Feed Storage Tank</u>	<u>Subject</u>
<u>TT-66-003</u>	<u>Step 1 Low Assay Tank</u>	<u>Subject</u>
<u>TT-66-037</u>	<u>HBr Tank</u>	<u>Subject</u>
<u>TT-66-039</u>	<u>Step 1 Low Assay Tank</u>	<u>Subject</u>
<u>TK-66-012</u>	<u>Column Bottoms Tank</u>	<u>Subject</u>
<u>TT-66-028</u>	<u>50% NaOH Storage</u>	<u>Subject</u>
<u>TT-66-030</u>	<u>PEG Storage Tank</u>	<u>Subject</u>
<u>TT-66-201</u>	<u>36% HCl Storage Tank</u>	<u>Subject</u>
<u>TT-66-1010</u>	<u>Final Product Storage</u>	<u>Subject</u>
<u>TT-66-1019</u>	<u>Final Product Storage</u>	<u>Subject</u>
<u>TT-66-2010</u>	<u>Final Product Intermediate</u>	<u>Subject</u>
<u>TT-66-2019</u>	<u>Final Product Storage</u>	<u>Subject</u>
<u>TT-66-016</u>	<u>Intermediate Tank</u>	<u>Subject</u>
<u>TT-66-014</u>	<u>Feed Tank</u>	<u>Subject</u>
<u>TT-66-040</u>	<u>Intermediate Tank</u>	<u>Subject</u>
<u>TT-66-053</u>	<u>PEG Day Tank</u>	<u>Subject</u>
<i>Wastewater</i>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>SP-66-010</u>	<u>BEB/H₂O Decanter</u>	<u>Subject</u>

DBS Unit		
<u>Batch Process Vent Determinations</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Group 1/Group 2 Subject/Exempt)</u>
<u>TT-66-007</u>	<u>BEB Wash Tank</u>	<u>Subject</u>
<u>HE-66-031</u>	<u>Condensers</u>	<u>Subject</u>
<u>HE-66-032</u>	<u>Condensers</u>	<u>Subject</u>
<u>HE-66-011</u>	<u>Condensers</u>	<u>Subject</u>
<u>HE-66-012</u>	<u>Condensers</u>	<u>Subject</u>
<u>TK-66-041</u>	<u>Aqueous Raffinate Surge Tank</u>	<u>Subject</u>
<u>RX-66-036</u>	<u>NaOH Wash Reactor</u>	<u>Subject</u>
<u>HE-66-021</u>	<u>Condensers</u>	<u>Subject</u>
<u>HE-66-022</u>	<u>Condensers</u>	<u>Subject</u>
<u>TT-66-035</u>	<u>HBr/NaOH Scrubber Tank</u>	<u>Subject</u>
<u>Transfer Racks</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>DBS</u>	<u>DBS Tank Truck and Railcar Loading</u>	<u>Subject</u>
<u>Heat Exchangers</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>Various</u>	<u>BEB Process Area Cooling Towers</u>	<u>Subject</u>
<u>Various</u>	<u>DBS Process Area Cooling Towers</u>	<u>Subject</u>

PDBS Unit		
<u>PDBS Unit Batch Process Vent Determinations</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>TT-67-103</u>	<u>VAZO/Toluene</u>	<u>Subject</u>
<u>VR-67-001</u>	<u>Recovery Tank</u>	<u>N/A Exempt – Total HAP <200 lb/yr</u>
<u>SN-67-405</u>	<u>De-Watering</u>	<u>N/A Exempt – <50 ppmv HAP</u>
<u>Continuous Process Vent Determinations</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>FA-67-307</u>	<u>SN-1101 Vent</u>	<u>Group 2 Subject</u>
<u>--</u>	<u>SN-1107 Carbon</u>	<u>Group 2 Subject</u>
<u>Storage Tanks</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>TT-67-510</u>	<u>n-DDM Tank</u>	<u>Subject</u>
<u>TT-67-509</u>	<u>GMA Tank</u>	<u>Subject</u>
<u>TT-67-101</u>	<u>DBS Tank</u>	<u>Subject</u>

<u>TT-67-202</u>	<u>CHP Tank</u>	<u>Subject</u>
<u>TT-67-104</u>	<u>VAZO/Toluene Feed Tank</u>	<u>Subject</u>
<u>TT-67-105</u>	<u>Condensate Tank</u>	<u>Subject</u>
<u>Wastewater</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>TT-67-404</u>	<u>Wastewater stream from Gala Water</u>	<u>Subject</u>
<u>TT-67-404</u>	<u>Gala Water Surge Tank</u>	<u>Subject</u>
<u>Heat Exchangers</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>CT-66-001</u>	<u>DBS Cooling Tower System</u>	<u>Subject</u>

<u>PHT -4 Unit Diol Batch Process Vent Determinations</u>		
<u>Batch Process Vent Determinations</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>RX-63-204</u>	<u>PHT – Diol Reactor</u>	<u>Group 2 Subject</u>
<u>CD-63-300</u>	<u>Process Condenser</u>	<u>Group 2 Subject</u>
<u>BH-63-204</u>	<u>PHT -4 Hopper</u>	<u>N/A Exempt: Not a batch process</u>
<u>Storage Tanks</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>TK-63-920</u>	<u>Propylene Oxide</u>	<u>Subject</u>
<u>TT-63-915</u>	<u>Diethylene Glycol</u>	<u>Subject</u>
<u>TT-63-910</u>	<u>Toluene Storage Tank</u>	<u>Subject</u>
<u>TT-63-002</u>	<u>Diol R/C Storage</u>	<u>Subject</u>
<u>TT-63-003</u>	<u>Diol R/C Storage</u>	<u>Subject</u>
<u>TT-63-004</u>	<u>Diol R/C Storage</u>	<u>Subject</u>
<u>Transfer Racks</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>--</u>	<u>Diol T/T</u>	<u>Subject</u>
<u>Wastewater</u>		
<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>CD-63-208</u>	<u>Vacuum Jet Condenser</u>	<u>Subject</u>
<u>CD-63-209</u>	<u>Vacuum Jet Condenser</u>	<u>Subject</u>
<u>TK-63-300</u>	<u>Water/Toluene Decanter</u>	<u>Subject</u>
<u>FP-63-377/378</u>	<u>PHT4 Diol Filters</u>	<u>Subject</u>
<u>FP-63-380</u>	<u>Filter Pot</u>	<u>Subject</u>
<u>Heat Exchangers</u>		

<u>Equipment ID</u>	<u>Description</u>	<u>Group Determination (Subject/Exempt)</u>
<u>Various</u>	<u>PHT4 Diol Cooling Towers</u>	<u>Subject</u>

Response to Comment #25:

The above requested changes have been made as requested.

Comment #26:

Section VI: PLANTWIDE CONDITIONS (Plantwide Condition #13 Description; page 107)

The facility requests that the description for Plantwide Condition #13 be updated to include the CD-75 Unit. The minor modification approved on September 24, 2008, includes vapor balancing for degassing railcars or trucks used at storage tank TK-63-920 at the CD-75 Unit which is subject to Plantwide Condition #13.

13. Storage Tank Requirements for PHT-4 and CD-75 Units

a. The permittee must meet each emission limit in table for the storage tanks, and the permittee must meet each applicable requirement specified in paragraphs (b) through (e) of 40 CFR §63.2470. [40 CFR §63.2470(a)]

Response to Comment #26:

The above requested changes have been made as requested.



ARKANSAS
Department of Environmental Quality

December 11, 2015

George Garten
Environmental Manager
Great Lakes Chemical Corporation - South Plant
P.O. Box 7020
El Dorado, AR 71731-7020

Dear Mr. Garten:

The enclosed Permit No. 0873-AOP-R8 is your authority to construct, operate, and maintain the equipment and/or control apparatus as set forth in your application initially received on 4/2/2010.

After considering the facts and requirements of A.C.A. §8-4-101 et seq. as referenced by §8-4-304, and implementing regulations, I have determined that Permit No. 0873-AOP-R8 for the construction and operation of equipment at Great Lakes Chemical Corporation - South Plant shall be issued and effective on the date specified in the permit, unless a Commission review has been properly requested under Arkansas Department of Pollution Control & Ecology Commission's Administrative Procedures, Regulation 8, within thirty (30) days after service of this decision.

The applicant or permittee and any other person submitting public comments on the record may request an adjudicatory hearing and Commission review of the final permitting decisions as provided under Chapter Six of Regulation No. 8, Administrative Procedures, Arkansas Pollution Control and Ecology Commission. Such a request shall be in the form and manner required by Regulation 8.603, including filing a written Request for Hearing with the APC&E Commission Secretary at 101 E. Capitol Ave., Suite 205, Little Rock, Arkansas 72201. If you have any questions about filing the request, please call the Commission at 501-682-7890.

Sincerely,

A handwritten signature in black ink, appearing to be "Stuart Spencer", written over a horizontal line.

Stuart Spencer
Associate Director, Office of Air Quality

Enclosure: Final Permit

ADEQ OPERATING AIR PERMIT

Pursuant to the Regulations of the Arkansas Operating Air Permit Program, Regulation 26:

Permit No. : 0873-AOP-R8

IS ISSUED TO:

Great Lakes Chemical Corporation - South Plant
324 Southfield Cutoff
El Dorado, AR 71730
Union County
AFIN: 70-00037

THIS PERMIT AUTHORIZES THE ABOVE REFERENCED PERMITTEE TO INSTALL, OPERATE, AND MAINTAIN THE EQUIPMENT AND EMISSION UNITS DESCRIBED IN THE PERMIT APPLICATION AND ON THE FOLLOWING PAGES. THIS PERMIT IS VALID BETWEEN:

December 11, 2015

AND

December 10, 2020

THE PERMITTEE IS SUBJECT TO ALL LIMITS AND CONDITIONS CONTAINED HEREIN.

Signed:



Stuart Spencer
Associate Director, Office of Air Quality

December 11, 2015

Date

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Great Lakes Chemical Corporation - South Plant
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List of Acronyms and Abbreviations

A.C.A.	Arkansas Code Annotated
AFIN	ADEQ Facility Identification Number
CFR	Code of Federal Regulations
CO	Carbon Monoxide
HAP	Hazardous Air Pollutant
lb/hr	Pound Per Hour
MVAC	Motor Vehicle Air Conditioner
No.	Number
NO _x	Nitrogen Oxide
PM	Particulate Matter
PM ₁₀	Particulate Matter Smaller Than Ten Microns
SNAP	Significant New Alternatives Program (SNAP)
SO ₂	Sulfur Dioxide
SSM	Startup, Shutdown, and Malfunction Plan
Tpy	Tons Per Year
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compound

Great Lakes Chemical Corporation - South Plant
Permit #: 0873-AOP-R8
AFIN: 70-00037

SECTION I: FACILITY INFORMATION

PERMITTEE: Great Lakes Chemical Corporation - South Plant

AFIN: 70-00037

PERMIT NUMBER: 0873-AOP-R8

FACILITY ADDRESS: 324 Southfield Cutoff
El Dorado, AR 71730

MAILING ADDRESS: P.O. Box 7020
El Dorado, AR 71731-7020

COUNTY: Union County

CONTACT NAME: George Garten

CONTACT POSITION: Environmental Manager

TELEPHONE NUMBER: (870) 864-1557

REVIEWING ENGINEER: Derrick Brown

UTM North South (Y): Zone 15: 3663563.50 m

UTM East West (X): Zone 15: 530513.84 m

SECTION II: INTRODUCTION

Summary of Permit Activity

Great Lakes Chemical Corporation-South Plant (AFIN: 70-00037) operates a chemical manufacturing facility south of El-Dorado. This permit action is a result of the facility's renewal permit application. This action includes the following:

1. The Fluorinated Chemicals Unit (FCU), Pharmaceutical Production Unit (PCU), and testing area have been removed from the permit. Sources removed are: SN-02, SN-403, SN-427, SN-429, SN-435, SN-437, SN-438, SN-508, SN-511, SN-512, SN-515, SN-516, SN-605, SN-612, SN-613, SN-614, SN-702, SN-704, SN-706, SN-709, SN-711, SN-712, SN-751, SN-799, SN-802, SN-803, SN-807, SN-808, SN-809, SN-818, SN-819, SN-904, SN-908, SN-916, SN-2099, SN-1201, SN-1202, SN-1204, SN-1299, SN-1303, SN-1501. A single emission source formerly associated with the FCU (former SN-706) remains part of the GLCC facility and is has been re-designated as SN-920. This source has also been included in the DBS Unit Section of the permit.
2. A number of cooling towers not previously identified as sources within the permit have been included as sources.
3. The Process Water Treatment System, which had not been previously identified as a source of emissions, has been included in the permit.
4. This action permits the inclusion of a thermal oxidizer and caustic scrubber installed at the CD-75 Unit in order to comply with requirements of the Miscellaneous Organic Chemicals (MON) MACT. BCP and PBr₃ production no longer occur at the DBS Unit. Emission points and pollutants associated with the production of these compounds have been removed from the permit.
5. Addition of two (SN-203, 300 Hp; SN-204, 245 Hp) Emergency Fire Water Pump Engines

Permitted emission increases are 137.4 tons of PM, 132.0 tons of PM₁₀. Due to the retiring of units permitted emission decreases are 1.8 tons of SO₂, 106.1 tons of VOC, 48.3 tons of CO, and 72.5 tons of NO_x. Overall Hazardous Air Pollutant Emissions decreased as well.

Process Description

Utilities

Great Lakes Chemical Corporation operates two boilers at the South Plant for the purposes of steam generation. These boilers are designated as Boiler #6 (SN-03, 95.0 MMBtu/hr) and Boiler #1 (SN-04, 96.7 MMBtu/hr). Both boilers burn only pipeline-quality natural gas as fuel. Boiler #6 was installed in 1985 and thus is not subject to regulation under NSPS Subpart Dc.

Bromine Production

Bromine occurs naturally in brines found throughout south Arkansas. The feed brine is collected at Supply Wells throughout the area serving the Great Lakes Chemical Corporation South Plant. Most equipment at the various well heads is considered insignificant activities. For this permit

renewal, an evaluation of these well heads identified two produced oil tanks at one well site (BSW-4S) which have been incorporated into this application as insignificant activities.

In addition to bromine, the brine also contains sour gas. Sour gas is separated as explained below for the Sour Gas Flare. The streams of remaining brine are transported to the South Plant. At the South Plant, the process for producing bromine consists of chlorinating the natural brine and steam stripping the liberated bromine.

FF-680 Production

FF-680 is produced in three reaction steps. First, two reactants are reacted to form an intermediate. This intermediate is reacted with a reactant to form a second intermediate. The second intermediate is then reacted with a reactant to produce FF-680.

The crude FF-680 is washed and centrifuged. Emissions are controlled with condensers and a scrubber (SN-418). The wet product is initially dried. The dryer discharge is sent to a scrubber (SN-421). The product is next conveyed to another dryer and then to storage bins. The exhaust air from the dryer/storage bins is vented to a baghouse (SN-420). Dust emissions generated by the product handling and bagging system are also controlled by a baghouse (SN-419). The off gases from each reaction go to a scrubber (SN-413, SN-416, and SN-417).

TBP Production

Tribromophenol (TBP), an intermediate product when FF-680 is produced, can be sold as a product itself. This is done by running the first reaction described in the FF-680 section above. Instead of going to the next step, the liquid TBP is then sent to a flaker where it is solidified into flakes and bagged.

The flaker belt operation vent is vented to a packed scrubber (SN-427). The bagging operation is vented to a baghouse (SN-436). These sources are unique to TBP production; all other sources associated with the production of TBP (SN-413 and some storage tanks) will have the same allowable emission rates and be subject to the same conditions when producing TBP as when they are producing FF-680.

CN-1753 Production

The reactants produce a slurry of CN-1753. The CN-1753 slurry is transferred to a spray dryer. Dry powder is discharged from the spray dryer chamber. The dryer emissions pass through a baghouse (SN-428).

Dry CN-1753 product is then packaged at a loadout station prior to being transferred to the warehouse for shipment. The loadout process is controlled by a baghouse (SN-430).

BE-51 Production

In this process, the reactants are mixed and reacted to form BE-51. The BE-51 is separated from the slurry by centrifugation. The centrifuge cakes are washed with water and the wet cake is stored in tote bins or supersacks prior to drying. The wet cake is dried in a vacuum dryer. The BE-51 product is then bagged prior to shipment.

VOC emissions from the reactor are controlled with a scrubber (SN-416). VOC emissions from the belt filter are controlled with a scrubber (SN-421). VOC emissions from the solvent recovery operations are controlled with a scrubber (SN-418). Particulate matter emissions from the vacuum dryer are controlled with a baghouse (SN-420). Particulate emissions from the product bagging operations are controlled with a baghouse (SN-419).

CD-75 Process

The CD-75 process is based on the bromination of cyclododecatriene. The reaction phase is operated in a solvent system. At the end of the reaction cycle, solids are separated from the mother liquor. The cake is washed, dried, and packaged.

The mother liquor is distilled for recovery of the solvent. Residues from distillation are piped to the adjacent Bromine Recovery Unit (BRU) for recovery of bromine. Reactors, centrifuge, dryer, solvent separation, intermediate tanks, and auxiliary tanks vent through a common manifold to an ethanol recovery column. Exhaust gases from the ethanol recovery column are routed through a water scrubber followed by a thermal oxidizer that has been installed to reduce total organic hazardous air pollutant (OHAP) emissions of subject equipment by $\geq 98\%$ by weight. Following the thermal oxidizer, the vent gases are routed through a caustic scrubber for acid gas control before being vented to the atmosphere as SN-503.

Solid product is transferred pneumatically from the dryer system to a hammer mill. Milled product is transferred to intermediate storage which also has a dust collector vented to the atmosphere (SN-507). Final packaging operations vent to the atmosphere through a final dust collector (SN-504).

There are several storage tanks that vent to the atmosphere: a bromine storage tank equipped with a scrubber (SN-501), an ethylene dichloride storage tank (SN-502), a recycle ethanol tank (SN-511, Insignificant), a recycle ethylene dichloride tank (SN-512, Insignificant), an ethanol storage tank (SN-523), and a cyclododecatriene storage tank (SN-514, Insignificant).

PHT -4 Production

The PHT -4 production process contains two similar production lines or trains: PHT -4-I and PHT -4-II (Train 1 and Train 2). Both trains share a reactant storage tank (SN-604). Since two PHT -4 trains are nearly identical, the following description applies to both Train 1 and Train 2.

PHT -4 (tetrabromophthalic anhydride) is produced by the bromination of a reactant in an oleum system. During the reaction, vapors are vented off. One of the by-products is recovered and either sold as product or converted to another by-product; the other by-products are recycled back to the reaction. The PHT -4 is formed as it is separated from the mother liquor by filtration. The cake is washed, dried, and packaged for sale.

The reaction, the by-product acid storage tanks, bulk-bromine storage tank, and all process vessels are vented to a water scrubber and caustic scrubber for control (SN-611 for both trains).

A shell and tube vent condenser (SN-610) is used to control particulate emissions from the process.

PHT -4 Diol Production

In this process, PHT -4 is reacted with two raw materials to form PHT -4 Diol. The reactant PHT4 is transferred to a hopper by a mechanical vacuum pump which vents to the atmosphere as SN-608. The reaction solvent tank is vented to the atmosphere as SN-609. Vapors generated during the reaction are controlled by a primary and secondary condensation system. Non-condensables are vented to the atmosphere through the vacuum system (SN-606).

DBS Production

The dibromostyrene (DBS) process chemistry is based on three independent reactions. The process has been segmented into eight functional steps. The following is a listing and brief description of each step.

Step I Reaction: The Step I Reaction is conducted in a continuous pipe reactor. The feedstock is continuously fed to the Step I reactor, R-101, through a feed/recycle sparger. The vapor feed is introduced to the reactor in the gas section of the feed/recycle sparger. R-101 is vented to emission point SN-901.

Step I Distillation: The non-condensibles are routed from C-111 through two overhead condensers, a vapor/liquid separator (T-33), and emission point SN-901. The column bottoms are routed to an intermediate storage tank, T-06. T-06 is vented to emission point SN-901.

Pre-Bromination: Pre-bromination takes place in a reticulation loop on T-06. Bromine is added to the crude intermediate product. T-06 is vented to emission point SN-901.

Crude Intermediate Distillation: Crude intermediate product, stored in T-06, is continuously fed to C-112, a distillation column. Refined intermediate product is taken overhead as a distillate. C-112 vents through two overhead condensers and are then scrubbed. The scrubbed vapors are vented through emission point SN-910. Crude intermediate residue is removed as a bottom stream. The refined intermediate product is collected in the feed storage tanks, T-02, 04, 10, and 11, while the intermediate residue is stored in the C-112 bottoms storage tank, T-12, prior to disposal in the bromine recovery unit. The refined intermediate storage tanks vent to emission point SN-904. T-12 is vented to emission point SN-901.

Step II Reaction, Quench, and NaOH Wash: Refined intermediate is brominated batch wise in the Step II reactor, R-103, to form Step II intermediate product. After complete conversion, the reaction mass is pumped to the Step II quench reactor, R-104.

The Step II intermediate product is quenched by washing residual bromine from the reaction mass in R-104. R-104 is vented to emission point SN-901. Water is added, and the mixture is agitated and recirculated. Agitation is stopped and the phases are allowed to separate. The organic layer is directed to the caustic wash receiver, T-36, for caustic wash. T-36 is vented to emission point SN-901. The aqueous layer from R-104 is transferred to extraction. Water and a

caustic are added to T-36 prior to transfer of the organic layer from R-104. The mixture is agitated and recirculated. Agitation is stopped and the phases are allowed to separate. The organic layer is directed to the C-113 feed stock tank, T-14. T-14 vents to emission point SN-905. The aqueous layer from T-36 is transferred to extraction.

Step II Distillation: Step II intermediate product is collected as the bottoms from the column and fed to the falling film evaporator, H-10. Step II intermediate material is removed as a vapor from the falling film evaporator and is condensed in two heat exchangers prior to storage tank, T-16. T-16 vents to emission point SN-905. The residue from the falling film evaporator is stored in T-12 prior to disposal in the bromine recovery unit. T-12 is vented to emission point SN-901. The C-113 overhead vapors vent through a heat exchanger and are then scrubbed. The scrubbed vapors are vented through emission point SN-910.

Step III Reaction: Step II intermediate product is converted to Step III in a two stage continuous reaction system. Step II intermediate product is continuously added to the Step III reactor, R-105. R-105 vents to emission point SN-906. The two-phase reaction mass is transferred to D-01, a phase separator, where water is added to enhance the separation of the partially converted Step II intermediate product and the aqueous layer. D-01 vents to emission point SN-906. The organic layer underflows to R-106, the second stage reactor. R-106 vents to emission point SN-906. The aqueous phase from D-01 is directed to the T-35R scrubber, via T-51. T-35R vents to emission point SN-901. T-51 vents to emission point SN-906.

The level controlled discharge of R-106 is directed to D-02, a phase separator. D-02 vents to emission point SN-906. In D-02, water is added and the phases are allowed to separate. DBS underflows the phase separator and is routed to the Step III neutralizer, R-107. R-107 vents to emission point SN-906. The aqueous phase from D-02 is directed to T-35R, via D-04 and T-51.

Step III Reaction - Neutralization: The residual alkalinity in the DBS is neutralized in R-107. The level is maintained by discharging to D-03, a phase separator. D-03 vents to emission point SN-906. Water is added to D-03 and the phases are allowed to separate. The organic phase underflows to intermediate product storage tanks for inhibitor addition. These intermediate product storage tanks vent to emission points SN-907 and SN-908. The aqueous phase overflows to D-05, a phase separator. D-05 vents to emission point SN-901.

Bromine Recovery Unit

The Bromine Recovery Unit consists of equipment to recover bromine and chlorine from feed streams. The Bromine Recovery Unit consists of two units: BRU-II and BRU-III. During the operation of each BRU, natural gas, combustion air, and the feed streams are fed to the oxidation system. Here, the halogenated organic feed streams are converted to carbon monoxide, carbon dioxide, hydrogen bromide, hydrogen chloride, and water vapor.

Next, the off-gases go to the halogen recovery system. In this system, HBr and HCl are absorbed from the gases into an aqueous system which is then sent to the bromine plant for further processing. The gases leave the halogen recovery system and are routed through a thermal oxidizer where any remaining organics and excess CO are destroyed. The hot exhaust gasses

then pass through a waste heat boiler for heat recovery steam generation and are vented to the atmosphere through SN-1001 for BRU-II and SN-2001 for BRU-III.

With recycle streams containing an appreciable amount of ash (more than 0.1% non-organics or ash), a venture scrubber is used at a particulate differential pressure set point to reduce the solids (ash) entrained in the gas stream.

PDBS Plant

The PDBS process contains two production lines. Each line has its own polymerizer and extruder. Other equipment is shared between the two lines. Raw materials are fed into the reactor where the polymerization of PDBS occurs.

In Line 1, the polymerizer vents toluene vapors, which are routed through condensers and a vacuum pump. The residual vapors from these streams are combined and emitted through vent SN-1101.

Line 2 operates in the same fashion as Line 1, except the residual vapors are routed through an additional final carbon filter before being emitted through vent SN-1107.

The raw PDBS material exiting the extruders is fed to an underwater pelletizer, where solidified strings of product are cut into pellets. The dust emissions from the dryer are vented to a baghouse duct collector, SN-1104. Other miscellaneous dust emission sources are routed to SN-1104, such as the supersack unloader, the Loss in Weight (LIW) feeder, and the mixer. The dried PDBS pellet product is conveyed to a product hopper and packaging operations. Dust emissions from the product hopper are controlled with a baghouse, SN-1106.

Sour Gas Flare

Sour gas is separated from feed brine extracted from production wells at each of the well locations and each of the processing plants. The Great Lakes Chemical Company's South Plants' sour gas is transported from the well locations and processing plant via pipeline to Great Lakes' Central Plant. From the Central Plant, the combined sour gas streams are routed via pipeline to Lion Oil Company, a neighboring petroleum refinery. When Lion Oil's amine unit is not operating, the combined sour gas streams are routed to the Great Lakes' Central Plant's sodium hydrosulfide (NaHS) unit. NaHS gas is used as fuel in the Central Plant's Boiler #2. In the event of a planned or unplanned outage of Lion Oil's amine unit, the Central Plant's NaHS unit, and /or other equipment related to the off-site transfer or processing of sour gas, the South Plant is equipped with a flare (SN-102) to burn the sour gas. The flare is equipped with a 0.125 MMBtu/hr natural gas pilot.

Process Water Treatment Plant

Great Lakes Chemical Corporation operates a Process Water Treatment Plant (PWTP) at the South Plant to treat process water prior to deep well injection. The major steps in the water treatment at the PWTP are described below.

- Process water from other South Plant process units/areas is brought to the area.

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- The process water undergoes pH neutralization and treatment with anhydrous ammonia and hydrochloric acid.
- The treated water is filtered and sent for deep well injection.
- Sludge is transported off-site.

An HCl storage tank, SN-201, is present at the PWTP. HCl emissions from the tank are minimized by utilizing a water scrubber. Most storage vessels in the PWTP are open to the atmosphere. Some VOC's may be emitted since the process water contains organics in solution; SN-202 accounts for emissions from PWTP area, including wastewater storage tanks and sumps located within the various process units at the South Plant. Fugitive equipment leaks are accounted for as SN-299.

Great Lakes Chemical Corporation has two emergency engines, SN-203, a 300 Hp Fire Water Pump Engine and SN-204, a 245 Hp Fire Water Pump Engine.

Regulations

The following table contains the regulations applicable to this permit.

Regulations
Arkansas Air Pollution Control Code, Regulation 18, effective June 18, 2010
Regulations of the Arkansas Plan of Implementation for Air Pollution Control, Regulation 19, effective September 13, 2014
Regulations of the Arkansas Operating Air Permit Program, Regulation 26, effective November 18, 2012
40 CFR Part 60, Subpart Dc, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.
40 CFR Part 61, Subpart FF, National Emission Standards for Benzene Waste Operations
40 CFR Part 61, Subpart M, National Emission Standards for Asbestos.
40 CFR Part 63, Subpart F, National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry
40 CFR Part 63, Subpart G, National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry Process Vents, Storage Vessels, Transfer Operations, and Wastewater
40 CFR Part 63, Subpart H, Nation Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks
40 CFR Part 63, Subpart FFFF, National Emission Standard for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing
40 CFR Part 64, Compliance Assurance Monitoring
40 CFR Part 68, Chemical Accident Prevention Provisions
40 CFR Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Emission Summary

The following table is a summary of emissions from the facility. This table, in itself, is not an enforceable condition of the permit.

EMISSION SUMMARY				
Source Number	Description	Pollutant	Emission Rates	
			lb/hr	tpy
Total Allowable Emissions		PM	55.5	226.7
		PM ₁₀	51.4	221.3
		SO ₂	5.0	21.2
		VOC	32.5	138.5
		CO	31.8	139.0
		NO _x	26.5	115.9
HAPs		Acetaldehyde*	0.12	0.54
		Acetophenone*	0.17	0.76
		Allyl Chloride*	0.57	2.50
		Bromoform*	0.85	3.71
		Chlorine	1.11	4.85
		Chloroform*	11.31	2.05
		Dibromoethane	0.05	0.19
		Ethyl Chloride*	0.10	0.44
		Ethylene Dibromide*	2.84	12.41
		Ethylene Dichloride*	3.22	14.04
		Hexane*	0.35	1.54
		HCl	4.66	19.01
		Hexane*	0.35	1.54
		Hydrazine*	0.16	0.70
		Methyl Bromide*	0.15	0.64
		Phenol*	0.21	2.21
		Phthalic Anhydride*	1.03	4.51
		Styrene*	2.72	11.86
		Toluene*	2.62	11.06
		Vinyl Bromide*	0.11	0.49
		Propylene Oxide*	0.91	3.98
		Other HAPs	0.07	0.07
Air Contaminants **		HBr**	12.32	53.9
		Bromine**	0.82	2.38
		Hydrogen Sulfide**	0.67	2.9

EMISSION SUMMARY				
Source Number	Description	Pollutant	Emission Rates	
			lb/hr	tpy
03	Boiler #6	PM	0.8	3.6
		PM ₁₀	0.8	3.6
		SO ₂	0.1	0.5
		VOC	0.6	2.7
		CO	7.9	78.5
		NO _x	9.4	31.6
		Hexane	0.17	0.75
04	Boiler #4	PM	0.8	3.6
		PM ₁₀	0.8	3.6
		SO ₂	0.1	0.5
		VOC	0.6	2.7
		CO	17.9	78.5
		NO _x	7.2	31.6
		Hexane	0.18	0.79
05	AC Cooling Tower (CT-76-301)	PM	0.4	1.5
		PM ₁₀	0.4	1.5
101	Feed Brine Receiving Tank	Emergency venting of H ₂ S.		
102	Flare Sour Gas Combustion	PM	0.1	0.1
		PM ₁₀	0.1	0.1
		SO ₂	0.1	0.1
		VOC	0.1	0.1
		CO	0.1	0.1
		NO _x	0.1	0.1
138	Bromine Production Vent Scrubber	Bromine	0.06	0.27
180	Tail Brine Cooling Tower CT-60-301	PM	12.7	55.3
		PM ₁₀	12.7	55.3
181	Tail Brine Cooling Tower CT-60-302	PM	12.7	55.3
		PM ₁₀	12.7	55.3
182	Cooling Tower (CT-60-920; 3 cells)	PM	1.1	4.7
		PM ₁₀	1.1	4.7
183	Cooling Tower (CT-60-910a)	PM	0.7	2.9
		PM ₁₀	0.7	2.9
184	Cooling Tower (CT-60-910b)	PM	0.7	2.9
		PM ₁₀	0.7	2.9
185	Rental Cooling Tower	PM	0.5	1.9
		PM ₁₀	0.5	1.9
199	Fugitive Emissions from Equipment Leaks	Bromine**	0.65	2.82
		Cl	0.54	2.33

EMISSION SUMMARY				
Source Number	Description	Pollutant	Emission Rates	
			lb/hr	tpy
		HBr**	0.04	0.15
		H ₂ S**	0.67	2.90
201	HCl Storage Tank Scrubber	HCl	0.47	2.04
202	Process Water Treatment Plant (Fugitive Emissions)	VOC	9.3	40.8
		HCl	0.06	0.23
203	Fire Water Pump Engine (300 Hp) Emergency Engine No. 1	PM ₁₀	0.7	0.2
		SO ₂	0.7	0.2
		VOC	0.8	0.2
		CO	2.1	0.6
		NO _x	9.3	2.4
		Other HAPs	0.07	0.07
204	Fire Water Pump Engine (245 Hp) Emergency Engine No. 2	PM ₁₀	0.6	0.2
		SO ₂	0.6	0.2
		VOC	0.7	0.2
		CO	1.7	0.5
		NO _x	7.6	1.9
		Other HAPs	0.07	0.07
401	T-3 and T-37 Phenol Tanks Scrubber	VOC	0.1	0.1
		Phenol	0.01	0.03
404	IPA Storage Tank	VOC	0.5	1.9
406	EDB Storage Tank (T-035)	VOC	0.3	1.0
		Ethylene Dibromide	0.22	0.93
412	T-34 Feed Tank for PC-9	VOC	0.2	0.6
413	PC-1 Scrubber	VOC	0.7	0.05
		HBr**	0.01	0.05
		Bromine**	0.01	0.05
		Acetaldehyde*	0.01	0.05
		Acetophenone*	0.01	0.05
		Phenol*	0.01	0.05
		Hydrazine*	0.01	0.05
		Chlorine	0.01	0.05
		Bromoform*	0.01	0.05
		Chloroform*	0.01	0.05
		Methyl Bromide*	0.01	0.05
		Allyl Chloride*	0.57	2.50
		HCl	0.01	0.05

EMISSION SUMMARY				
Source Number	Description	Pollutant	Emission Rates	
			lb/hr	tpy
416	PC-4 Scrubber	VOC	1.0	4.4
		Bromine**	0.10	0.44
		Acetaldehyde*	0.10	0.44
		Acetophenone*	0.10	0.44
		Phenol*	0.10	0.44
		Hydrazine*	0.10	0.44
		Chlorine	0.10	0.44
		Ethylene Dibromide*	0.10	0.44
		Vinyl Bromide*	0.10	0.44
		HCl	0.10	0.44
417	PC-6 Scrubber	VOC	0.1	0.5
		Bromine**	0.10	0.44
		Acetaldehyde*	0.10	0.44
		Acetophenone*	0.10	0.44
		Phenol*	0.10	0.44
		Hydrazine*	0.10	0.44
		Chlorine	0.10	0.44
		Ethylene Dibromide*	0.10	0.44
		Vinyl Bromide*	0.10	0.44
		HCl	0.10	0.44
418	PC-10 Scrubber	VOC	0.2	0.9
419	Baghouse-Bagging	PM	0.5	1.9
		PM ₁₀	0.5	1.9
420	Baghouse-Drying	PM	0.7	3.0
		PM ₁₀	0.7	3.0
421	PC-8 Scrubber	VOC	0.3	1.4
		MeCl ₂	0.5	2.2
428	Spray Dryer Baghouse	PM	2.4	10.4
		PM ₁₀	2.4	10.4
		SO ₂	0.1	0.1
		VOC	0.1	0.2
		CO	1.5	6.6
		NO _x	2.3	10.1
430	SN-1753 Loadout Baghouse	PM	0.4	1.5
		PM ₁₀	0.4	1.5
436	Baghouse-Bagging	PM	0.9	4.0
		PM ₁₀	0.9	4.0
439	IPA Feed Tank (T-033)	VOC	0.2	0.6

EMISSION SUMMARY				
Source Number	Description	Pollutant	Emission Rates	
			lb/hr	tpy
440	Bromine Measure Pot Scrubber	Bromine**	0.34	0.62
480	Cooling Tower (CT-61-001)	PM	0.7	3.1
		PM ₁₀	0.7	3.1
481	Cooling Tower (CT-61-002)	PM	0.7	3.1
		PM ₁₀	0.7	3.1
499	Fugitive Emissions from Equipment Leaks	VOC	0.8	4.4
		HBr**	0.20	0.60
		Bromine**	0.10	1.70
		Hydrazine*	0.13	0.55
		Phenol*	0.09	1.69
		Dibromoethane*	0.05	0.19
501	Bromine Storage Tank Scrubber	Bromine**	0.14	0.26
502	EDC Storage Tank (T-902)	VOC	0.4	1.5
		Ethylene Dichloride*	0.33	1.42
503	Vent Header Thermal Oxidizer/Scrubber	PM	0.2	0.9
		PM ₁₀	0.2	0.9
		SO ₂	0.1	0.1
		VOC	1.1	4.6
		CO	2.0	8.5
		NO _x	2.3	10.1
		Ethylene Dichloride*	0.10	0.44
		Ethyl Chloride*	0.10	0.44
		Propylene Oxide*	0.10	0.44
		Bromoform*	0.10	0.44
		HCl	0.10	0.44
		Chlorine	0.10	0.44
		Methyl Bromide*	0.10	0.44
504	Packaging Baghouse Vent	PM	0.1	0.1
		PM ₁₀	0.1	0.5
		Ethylene Dichloride*	2.52	11.04
505	Dust Collector Blower	PM	0.2	0.8
		PM ₁₀	0.2	0.8
507	Storage Baghouse Vent	PM	0.1	0.5
		PM ₁₀	0.1	0.5
		VOC	0.6	2.6
		Ethylene Dichloride*	0.41	1.80
509	Rotary Dryer Baghouse Vent	PM	0.2	0.8
		PM ₁₀	0.2	0.8

EMISSION SUMMARY				
Source Number	Description	Pollutant	Emission Rates	
			lb/hr	tpy
510	Packaging Bagger Vent	PM PM ₁₀	0.2 0.2	0.8 0.8
513	Ethanol Storage Tank (T-904)	VOC	0.1	0.4
517	EDC Stripper Feed Tank (T-518)	VOC Ethylene Dichloride*	0.6 0.54	2.4 2.33
518	EDC/EtOH Storage Tank (T-517)	VOC	0.1	0.3
580	Cooling Tower (CT-65-027)	PM PM ₁₀	1.3 1.3	5.6 5.6
599	Fugitive Emissions From Equipment Leaks	VOC Ethylene Dichloride* Propylene Oxide**	3.0 2.17 0.12	13.0 9.47 0.53
604	Phthalic Anhydride Storage Tank	VOC Phthalic Anhydride*	1.0 1.0	4.4 4.4
606	Vacuum System	VOC Toluene* Propylene Oxide**	0.7 0.10 0.55	2.9 0.44 2.41
608	Mechanical Vacuum Pump	PM PM ₁₀	0.1 0.1	0.2 0.2
609	Toluene Storage Tank	VOC Toluene*	0.2 0.2	0.5 0.5
610	Dryer Condenser	PM PM ₁₀	0.8 0.8	3.3 3.3
611	PHT – 4 Caustic Vent Scrubber	PM PM ₁₀ SO ₂ Bromine**	0.1 0.1 4.3 0.10	0.3 0.3 18.9 0.44
680	PHT Cooling Tower CT-64-001	PM PM ₁₀	0.8 0.8	3.4 3.4
681	PHT Cooling Tower CT-64-002	PM PM ₁₀	0.8 0.8	3.4 3.4
682	PHT Cooling Tower CT-64-003	PM PM ₁₀	0.8 0.8	3.4 3.4
699	Fugitive Emissions From Equipment Leaks	VOC Bromine** Propylene Oxide** Toluene* Phthalic Anhydride*	0.1 0.18 0.14 0.29 0.03	0.2 0.79 0.60 1.26 0.11

EMISSION SUMMARY				
Source Number	Description	Pollutant	Emission Rates	
			lb/hr	tpy
901	DBS Vent Header Scrubber Vent	VOC	1.2	5.3
		HBr**	0.38	1.67
		HCl	0.04	0.18
902	Styrene Storage Tank (T-24)	VOC	0.1	0.4
		Styrene*	0.09	0.38
914	HCl Storage Tank	HCl	0.12	0.51
917	Cooling Tower (CT-66-001)	PM	1.3	5.4
		PM ₁₀	1.3	5.4
918	Cooling Tower (CT-66-002)	PM	0.8	3.5
		PM ₁₀	0.8	3.5
920	HCl Tank Scrubber	HCl	0.47	2.04
999	Fugitive Emissions from Equipment Leaks	VOC	0.1	8.8
		HCl	0.09	0.36
		Hydrazine*	0.01	0.05
		Styrene*	2.02	8.83
1001	Bromine Recover Unit (BRU-II)	PM	2.0	8.8
		PM ₁₀	2.0	8.8
		SO ₂	0.1	0.5
		VOC	0.1	0.5
		CO	0.3	1.4
		NO _x	2.6	11.4
		HCl	1.30	5.70
		HBr**	5.50	24.10
1101	Line One Polymerizer and Vacuum Pump Vent	VOC	1.6	6.7
		Toluene*	1.33	5.79
1104	Process Dust Collector	PM	0.6	2.7
		PM ₁₀	0.6	2.7
1106	Vacuum Pellet Transport System	PM	0.1	0.5
		PM ₁₀	0.1	0.5
1107	Line Two Polymerizer and Vacuum Pump Vent	VOC	0.3	1.4
		Toluene*	0.30	1.32
1199	Fugitive Emissions From Equipment Leaks	VOC	1.0	4.4
		Toluene*	0.40	1.75
		Styrene*	0.61	2.65
2001	Bromine Recovery Unit (BRU-III)	PM	3.4	14.6
		PM ₁₀	3.4	14.6
		SO ₂	0.1	0.5
		VOC	0.2	0.6

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EMISSION SUMMARY				
Source Number	Description	Pollutant	Emission Rates	
			lb/hr	tpy
		CO	2.1	9.2
		NO _x	2.6	11.4
		HCl	1.60	5.70
		HBr**	6.70	29.30

*HAPs included in the VOC totals. Other HAPs are not included in any other totals unless specifically stated.

**Air Contaminants such as ammonia, acetone, and certain halogenated solvents are not VOCs or HAPs.

SECTION III: PERMIT HISTORY

This facility was a joint venture between Michigan Chemical Corporation and Murphy Oil. Operations started in March of 1957. Over the years, ownership changed several times. The last change was in 1981 when Great Lakes Chemical Corporation (GLCC) purchased the plant.

On January 16, 1976, Permit #319-A issued to Michigan Chemical Corporation. The permit facility was for controls for reducing H₂S emissions, controls for reducing Br₂ emissions, controls for reducing emissions from existing brominated products area, expansion to produce brominated aromatic ethers, and bromine expansion.

On September 24, 1976, Permit #319-AR-1 was issued to permit Michigan Chemical Corporation to install and operate a sour gas collection and flaring system.

On July 22, 1977, Permit #412-A was issued to Velsicol Chemical Corporation. This permit allowed the facility to install and operate the semi-works plant.

On March 24, 1978, Permit #458-A was issued to permit Velsicol Chemical Corporation to install and operate a facility for the manufacturing of tetrabromophthalic anhydride.

On August 3, 1979, Permit #458-AR-1 was issued to permit Velsicol Chemical Corporation to manufacture PHT-4 Diol.

On May 22, 1981, by Permit #319-AR-2, Great Lakes Chemical Corporation was permitted to take ownership of Velsicol Chemical Corporation.

On November 20, 1981, Permit #319-AR-3 was issued to allow GLCC to install equipment to flake TBP.

On January 28, 1983, Permit #701-A was issued to allow GLCC to install a plant which will manufacture Halon 1301 and Halon 1211.

On November 19, 1984, Permit #746-A was issued to permit GLCC to install an H₂S stripper.

On September 10, 1985, Permit #767-A was issued to allow GLCC to produce sodium bromate.

On January 20, 1988, by Permit #873-A, GLCC was permitted to consolidate all previous permits under one plant wide permit, install a chilsonator, add a halon plant, and construct and operate a TFP facility.

On December 21, 1988, by Permit #873-AR-1, GLCC was permitted to install and operate the DBS unit.

On March 2, 1989, by Permit #873-AR-2, GLCC was permitted to install and operate a bromine recovery unit.

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On November 21, 1989, Permit #873-AR-3 was issued to allow GLCC to install and operate a fluorosulfonic acid (FSA) facility.

On March 8, 1990, Permit #873-AR-4 was issued to allow GLCC to produce DE-79 at the semi-works plant.

On July 19, 1991, Permit #873-AR-5 was issued to allow GLCC to produce DBP, to modify the PHT-4 Plant, and to produce FM-100, FM-200, and BFE.

On June 29, 1992, by Permit #873-AR-6, GLCC was permitted to modify the BRU-II, to produce Geo-Brom at the semi-works plant, to produce PBr₃ and PDBS at the DBS plant, to construct and operate the PDBS plant, and to construct and operate a plant to recover Halon 1301, Halon 1211, and FM-100.

On September 15, 1993, by Permit #873-AR-7, GLCC was permitted to produce FM-200 and Freon 115, to modify the DBS process, and to remove processes no longer in operation.

On December 2, 1993, by Permit #873-AR-8, GLCC was permitted to allow for BCP production at the DBS plant and to allow for the use of PE68 in the chilsonator at the semi-works plant.

On October 12, 1994, Permit #873-AR-9 was issued to allow GLCC to modify the BCP process at the DBS plant.

On December 5, 1994, Permit #873-AR-10 was issued to allow GLCC to modify the production of PDBS and to construct and operate a plant to produce isoflurane.

On June 27, 1995, Permit #873-AR-11 was issued to allow GLCC to produce Freon 32 at the TFP plant.

On August 11, 1995, by Permit #873-AR-12, GLCC was permitted to produce Freon 13 at the Halon 1301 plant.

On November 27, 1995, by Permit #873-AR-13, GLCC was permitted to install a second BRU unit (BRU-III).

On December 20, 1995, Permit #873-AR-14, GLCC was permitted to add a second PHT-4 train (Train II).

On January 29, 1996, Permit #873-AR-15 was issued to allow GLCC to pelletize ANOX PP18 and ANOX PP20 at the PDBS plant.

On March 12, 1996, Permit #873-AR-16 was issued to allow GLCC to use a reducing agent as an auxiliary fuel in BRU.

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On July 11, 1996, Permit #873-AR-17 was issued to allow GLCC to install and operate a new boiler (SN-04).

On February 3, 1997, Permit #873-AR-18, GLCC was permitted to modify the FF-680 plant, the FCU North plant, and the FCU South plant.

On February 24, 2000, Permit #873-AOP-R0 was issued as the initial Title V permit for GLCC under Regulation #26. The following modifications were involved in this permitting action:

PHT-4 Plant (submitted as a part of the Title V application in January of 1997): GLCC proposed to install an additional scrubber on the PHT-4 II process line. In addition, GLCC proposed to increase the permitted production rates of PHT-4 and PHT-4 Diol.

FCU-North Plant (submitted as a part of the Title V application in January of 1997): GLCC proposed to increase the permitted emissions rates for SN-704.

Utilities (submitted as a part of the Title V application in January of 1997): GLCC proposed to increase the permitted emissions rates for Boiler #5 (SN-02).

FCU-South Plant (submitted as a part of the Title V application in January of 1997): First, GLCC proposed to increase the annual permitted emissions rates for SN 715 and SN-808 to the annual theoretical maximum for each source. Second, GLCC proposed to slightly increase the annual VOC emission rate from SN-802. Third, GLCC pointed out that a previously permitted source had been accidentally removed from the last permit. GLCC requested that the C-301T Vent Condenser (SN-809) be added to the Title V permit.

Archive Section (submitted as a part of the Title V application in January of 1997): GLCC proposed to delete the archive section contained in Permit #873 AR 18.

FF-680 Plant Minor Modification (submitted May of 1997): GLCC proposed to produce CN 1753 at the FF-680 Plant. New significant emission source will include a baghouse (SN 428) and a silo (SN-429). In addition, SN-418 was inadvertently left out of the last permit and needs to be added.

FF-680 Plant Minor Modification (submitted November of 1997): Another baghouse (SN 430) will be included in the production of CN-1753. In addition, the dilute hydrazine tank will be the only new insignificant emission source.

FF-680 Plant Minor Modification (submitted July of 1998): GLCC proposed to produce BE 51 at the FF-680 Plant. The process will use equipment already existing at the FF-680 Plant.

PHT-4 Plant Minor Modification (submitted May of 1997): GLCC proposed to install a new source, known as the Train II Process SO₂ Scrubber Vent, to control emissions from the PHT-4 Plant. This source will not result in any increase in permitted emissions. The

new scrubber (SN-611) will simply share the emissions control load that the present scrubber (SN-601) is now permitted for.

TFP Plant Minor Modification (submitted October of 1997): GLCC proposed to produce TFP at the new TFP plant. Significant emission sources that will result from the production of TFP include the following: combined process vent (SN-1301), HCl scrubber vent (SN 1302), pressure control valve from distillation column (SN-1303), and fugitive emissions from equipment leaks (SN 1399).

CN-1985 Plant Minor Modification (submitted December of 1997): GLCC proposed to construct a new unit which will manufacture CN-1985. Significant emission sources that will be present in the new CN-1985 plant include the following: scrubber vent (SN-1401), BPA conveying baghouse (SN-1402), BPA dryer baghouse (SN-1403), phenol storage tank scrubber (SN-1404), hot oil heater (SN-1405), and fugitive emissions from equipment leaks (SN-1499).

FCU South Plant Minor Modification (submitted October of 1998): GLCC proposed to use a new method of production for FM 200. The process will use equipment that already exists.

PHT-4 Plant De Minimis Change (submitted April of 1999): GLCC proposed to add a new a 4 MMBtu/hr natural gas fired hot oil unit as an insignificant activity, to increase the annual PHT-4 production for Train II, and to reduce the bromine emissions from SN-601 and SN 611.

FF-680 Plant De Minimis Change (submitted May of 1999): GLCC proposed to produce PE 68 at the FF-680 Plant, to add a new caustic scrubber tank as an insignificant activity, to modify an existing source B SN-429, and to add a new source B SN-435.

TFP Plant De Minimis Change (submitted May of 1999): GLCC proposed to produce FM 200 at the TFP Plant. The emissions from the reactor shall be vented to the TFP Scrubber at the FCU Plant (SN-702). There will be no increase in the emission rate of SN 702.

PDBS Plant De Minimis Change (submitted September of 1999): GLCC proposed to replace the existing 2,000 cfm blower on the dust collection system (SN-1104) with a 3,500 cfm blower. The proposed PM/PM₁₀ increase was 0.83 tons per year. The total PM/PM₁₀ emissions from this source are 2.63 tons per year.

Bromine Production (submitted September of 1999): GLCC proposed to replace the two existing bromine towers with a new bromine tower and to replace the existing brine heat exchanger with a new heat exchanger. Neither change affects permitted emissions.
FCU-North Plant De Minimis Change (submitted December of 1999): GLCC proposed to add additional process equipment which will result in two production lines instead of one. No new emissions points will be added. There will be no increase in permitted

emissions. Two separate products may be produced simultaneously, or a single product may be produced in both trains simultaneously.

On November 2, 2000, Permit #873-AOP-R1 was issued as the initial Title V permit for GLCC under Regulation #26. The following modifications were involved in this permitting action:

FCU-South Plant (Minor Modification submitted in February of 2000): GLCC proposed to introduce the production of a new product, HFC245fa, to the FCU-South Plant. A small thermal oxidizer with a scrubber (SN-818) will be installed to control organics generated in the process.

SN	Description	Pollutant	change (ton/yr)
818	Thermal Oxidizer with Scrubber	PM/PM ₁₀	0.5
		SO ₂	0.5
		VOC	6.6
		CO	0.5
		NO _x	1.0
		HCl	1.8

FCU-North Plant (Administrative Amendment submitted in March of 2000): GLCC submitted information concerning some typographical errors in permit 873-AOP-R0.

PHT-4 Plant (Minor Modification submitted in April of 2000): GLCC proposed that the vent scrubber for Train I (SN-601) will be removed and the Train I vent stream will be routed to the Train II vent header. The Train II vent header will be routed through a water scrubber and the caustic vent scrubber (SN-611). There are no emissions increases associated with this modification.

Bromine Recovery Unit (Modification submitted in April of 2000): Modification to reflect stack test results for BRU-II (SN-1001). The permitted PM/PM₁₀ emissions rate of 1.0 lb/hr was exceeded so emissions from SN-1001 and SN-2001 were increased to reflect the results.

Source Number	Description	Pollutant	change (ton/yr)
1001 and 2001	Bromine Recovery Unit (BRU-II)	PM/PM ₁₀	8.9

Pharmaceutical Chemicals Unit (PCU) (Minor Modification submitted in May of 2000): GLCC proposed this modification to reflect the production of a new product, Pharma 227ea, at the PCU. The Pharma 227ea manufacturing process is a closed process and no emissions are vented to the atmosphere.

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On June 21, 2001, Permit #873-AOP-R2 was issued as the initial Title V permit for GLCC under Regulation #26. The following modifications were involved in this permitting action:

FF-680 Plant Minor Modification: installed a new baghouse (SN-436) to control bagging operation emissions during TPB production.

Permit #873-AOP-R3 was issued as the initial Title V permit for GLCC under Regulation #26. The following modifications were involved in this permitting action:

Proposed to install a flare (SN-102), equipped with a natural gas pilot flame that will only be used to flare sour gas during upset conditions.

On March 10, 2005, Permit #873-AOP-R4 was issued to GLCC. The following modification were included in this permitting action:

Added the production of FM-300. Permitted methanol emissions increased by 0.2 . The increased methanol emissions are exhausted from the oxidizer (SN-818).

Added an outdoor testing area (a burning pan with approximate dimensions of 10 ft x 10 ft). Emissions from the operation included products of combustion of the fuels, vaporized fire extinguishing agent, and fire extinguishing agent decomposition products (hydrogen fluoride and carbonyl fluoride). The source involved with this process is designated SN 1501. Plant production capacity did not increase.

Removed the requirement that a 40" pressure differential across the venturi scrubber be maintained at the BRU-II during periods when the unit is processing exclusively methyl bromide for bromine recovery. Plant capacity did not increase. This project did not change permitted emissions.

Added a new product and process (PHT -4 Diol Blend) to the PHT -4 Plant with two 3,000 gallon stainless steel storage tanks (SN-612 and SN-613) with an annual throughput of 225 Lots (The actual units for Lots is confidential per GLCC.) each and a 3,000 gallon blend tank (SN-614) with an annual throughput of 450 Lots. Each tank vented to the atmosphere.

Modified the vacuum and extruder system to allow increased production of PDBS. The permitted VOCs emissions from the Pre-Polymerizer and Vacuum Pump Vent (SN-1101) increased by 2.0 ton per year.

Added emission point SN-712 and permitted the production of HFC-143a in the FCU-North Unit using the FM-200 production equipment.

Removed Specific Condition #5 that required monthly records stating that only sweet natural gas was used for fuel in the boilers. Similarly, removed the previous Specific

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Condition #81 that required monthly records stating that only natural gas was used for fuel in the thermal oxidizer. The oxidizer can physically only utilize natural gas.

On October 7, 2005 Permit #873-AOP-R5 was issued to GLCC. The following modifications were included in this permitting action:

Allowed the use of ammonia to neutralize bromine, chlorine and hydrobromic acid during releases to the atmosphere.

Permitted the manufacture of HFC236fa. The emission rates increased by 0.8 tpy for CO, 3.6 tpy for NO_x, 0.1 tpy SO₂, 0.1 tpy PM/PM₁₀, 10.6 tpy HFC-236fa and 3.1 tpy CFC-12.

Installed new equipment for the production of BDFE. The BDFE production process has three emission points consisting of the existing thermal oxidizer (SN-818) with scrubber, wastewater storage tank (TT-715) and the CD-103 Vent Condenser (SN-819). VOC emissions increased by 0.9 tpy.

Renewed the Title V permit and deleted the sources for the CN-1985 plant. This plant was never constructed.

Added CAM plan for VOC for SN-416, PC-4 Scrubber, in the FF-680 Plant. Added CAM plans for SO₂ for the SN-611, PHT-4 Caustic Vent Scrubber, in the PHT-4 Plant. Added CAM Plan for PM₁₀ for SN-1104, Fabric Filter, in the PDBS Plant. Added CAM plan for VOC for SN-1301, Thermal Oxidizer, and SN-1301, Combined Process Vent, for the FCU Plant.

Added a new PDBS line. The VOC increase by 18 tpy and the toluene increased by 1.32 tpy.

Increased production at the DBS plant. The modification added an additional carbon filter for control of VOC.

Updated the operating conditions for the Sour Gas Flare to reflect actual operating conditions. The permitted emissions reflect only what the pilot for the flare.

The submittal updated the insignificant activities list. The changes added sources SN-403, SN-404, SN-406, SN-437, SN-439, SN-502, SN-511, SN-512, SN-513, SN-515, SN-516, SN-517 and SN-914. The VOC emissions increased by 7.7 tpy, ethanol by 0.6 tpy, Ethylene Dichloride by 3.19 tpy, HCl by 0.64 tpy, and isopropyl alcohol by 2.70 tpy.

On February 13, 2006 Permit #873-AOP-R6 was issued to GLCC. The following modifications were permitted:

The modifications included replacing the gas burner tips at the Bromine Recovery Unit (BRU-III, SN-2001) thermal oxidizer.

On December 18, 2007 Permit #873-AOP-R7 was issued to GLCC. The following:

The modification included construction and operation of an additional refined intermediate product tank (T-11) at the DBS Unit. Emissions from the unit will be routed to the existing Carbon Bed Adsorber for BED Tanks (SN-904).

This permit also included changes from a second modification application. Most changes requested are administrative type corrections or clarifications. The following changes are permit modifications included with this permit action:

- The FCU plant section was re-written to include changes that include modern nomenclature, removal of the BFE process (never built), removal of SN-715 (does not vent to the atmosphere, vents to SN-702), and the removal of conditions dealing specifically with SN-703 (no longer in service).
- Certain similar test conditions are written with different language styles. The conditions are written with a more unified approach (former Specific Conditions 78, 109, 137).
- SN-1302 is a process absorber of which the exit is routed to another emission source (scrubber formerly SN-715 then through SN-702). The source is removed.
- Former Specific Condition 107 is removed because no DBS Unit tanks are subject to NSPS Subpart Kb.
- Former Specific Conditions 118 and 119 are removed because the required testing has been completed successfully.
- Plantwide Condition 7 is written to clarify that it only applies to 40 CFR Part 63 affected sources.
- Plantwide Condition 13 was added to allow ammonia as an emergency response to accidental releases of bromine, chlorine, or hydrobromic acid.
- Plantwide Condition 14 (Permit Shield) was updated. The only DBS tank subject to NSPS Subpart Kb is T-24 (SN-902).
- Increased the production of DBS (dibromostyrene) at the DBS Plant. Process efficiency improvements increased the hourly DBS production capacity. GLCC utilized one new hydrazine storage tote. Additionally, the two existing DBS cooling towers were replaced with two new cooling towers with increased cooling capacity.
- The facility's flare language was revised.
- Modifications were made to the tank loading system that services the phthalic anhydride tank (SN-604) at the PHT-4 Plant, the result of which increased emissions from that source.
- Centrifuge Maintenance, Specific Conditions #37-40 were added to the permit.

SECTION IV: SPECIFIC CONDITIONS

Boilers

SN-03 (Boiler #6), SN-04 (Boiler #1), SN-05 (AC Cooling Tower)

Source Description

Great Lakes Chemical Corporation operates two boilers at the South Plant for the purposes of steam generation. These boilers are designated as Boiler #6 (SN-03, 95.0 MMBtu/hr) and Boiler #1 (SN-04, 96.7 MMBtu/hr). Both boilers burn only pipeline-quality natural gas as fuel. Boiler #6 was installed in 1985 and thus is not subject to regulation under NSPS Subpart Dc. Boiler #1 was installed in 1996 and is subject to the applicable requirements of Subpart Dc. One cooling tower (CT-76-301) is operated in the boiler area and has been designated as SN-05.

Specific Conditions

- The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Condition 4. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
03	Boiler #6	PM ₁₀	0.8	3.6
		SO ₂	0.1	0.5
		VOC	0.6	2.7
		CO	7.9	34.7
		NO _x	9.4	41.2
04	Boiler #1	PM ₁₀	0.8	3.6
		SO ₂	0.1	0.5
		VOC	0.6	2.7
		CO	17.9	78.5
		NO _x	7.2	31.6
05	AC Cooling Tower (CT-76-301)	PM ₁₀	0.4	1.5

- The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Condition 4. [Regulation 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
03	Boiler #6	PM	0.8	3.6
		Hexane	0.17	0.75

SN	Description	Pollutant	lb/hr	tpy
04	Boiler #1	PM Hexane	0.8 0.18	3.6 0.79
05	AC Cooling Tower (CT-76-301)	PM	0.4	1.5

3. Visible emissions may not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9. Compliance with this condition will be shown by compliance with Specific Condition 4 and Plantwide Condition 5.

SN	Limit	Regulatory Citation
03, 04	5%	§18.501 of Regulation 18

4. Sweet natural gas shall be the only fuel used for Boiler #6, and Boiler #1. [Regulation No. 19 §19.705, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6]
5. The water flow rate in the following table should not be exceeded. The permittee shall maintain onsite, documentation that the physical flow capacities of SN-05 meet the values in the table. [§19.705 of Regulation 19 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6]

SN	Description	Maximum Water Flow Rate Through Tower (gallons per minute)
05	Cooling Tower	500

6. The total dissolved solids concentration for SN-05 shall not exceed 6385 ppm. The permittee will demonstrate compliance with this condition by compliance with Specific Condition 7. [Regulation 19, §19.705, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6]
7. The permittee shall monitor and maintain records of the Total Dissolved (TDS) or correlated conductivity monthly and maintain these records on a continuous, rolling 12-month average. These records shall be kept on-site and made available to Department personnel upon request. [Regulation 19, §19.705 and 40 CFR Part 52, Subpart E]

Testing

8. The exhaust from the two boilers, SN-03 and SN-04, shall be tested for CO emissions using EPA Reference Method 10. Each test shall consist of at least 3 sampling periods at a minimum of 1 hour each. Compliance testing shall be conducted while the equipment being tested is operated within 90% of its permitted capacity. If equipment does not

attain 90% of its permitted capacity during testing, the operating rate during testing will be 90% of the maximum operating rate until the next test is complete. This testing is to be completed once in the first year of every 5 year permit period. This test data shall be used for determination of compliance with the conditions set forth in this permits.

[Regulation 19 §19.702 and 40 CFR Part 52 Subpart E]

9. The exhaust from the two boilers, SN-03 and SN-04, shall be tested for NO_x emissions using EPA reference Method 7E. Each test shall consist of at least 3 sampling periods at a minimum of 1 hour each. Compliance testing shall be conducted while the equipment being tested is operated within 90% of its permitted capacity. If equipment does not attain 90% of its permitted capacity during testing, the operating rate during testing will be 90% of the maximum operating rate until the next test is complete. This testing is to be completed once in the first year of every 5 year permit period. This test data shall be used for determination of compliance with the conditions set forth in this permits.
[Regulation 19 §19.702 and 40 CFR Part 52 Subpart E]

Bromine Production

SN-101 Bromine Receiving Tank; SN-138 Bromine Production Vent Scrubber; SN-180 Tail Brine Cooling Tower; SN-181 Tail Brine Cooling Tower; SN-182 Cooling Tower CT-60-920 (3 cells); SN-183 Cooling Tower CT-60-910a; SN-184 Cooling Tower CT-60-910b; SN-185 Rental Cooling Tower; SN-199 Fugitive Emissions from Equipment Leaks

Source Description

Bromine occurs naturally in brines found throughout south Arkansas. The feed brine is collected at Supply Wells throughout the area serving the Great Lakes Chemical Corporation South Plant. Most equipment at the various well heads is considered insignificant activities. For this permit renewal, an evaluation of these well heads identified two produced oil tanks at one well site (BSW-4S) which have been incorporated into this application as insignificant activities.

In addition to bromine, the brine also contains sour gas. Sour gas is separated as explained below for the Sour Gas Flare.

The streams of remaining brine are transported to the South Plant. At the South Plant, the process for producing bromine consists of chlorinating the natural brine and steam stripping the liberated bromine.

First, the degassed brine is pumped to the bromine tower. Each bromine tower vents to its own scrubber. The bromine is condensed and purified through the purification section. Next, the bromine product is dried and sent to storage. The tower scrubbers, purification section, dryer, storage tanks and shipping all vent through the final vent scrubber which discharges to the atmosphere (SN-138). Heat exchangers and various cooling towers are utilized to cool the scrubber brine and capture emissions.

The spent brine leaves the bottom of the bromine tower and travels to the tail brine system for deep well injection.

Specific Conditions

10. Except as provided in Specific Condition 16 shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 21 and 22. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
101	Bromine Recovery Tank	See Specific Condition 13.		
SN-180	Tail Brine Cooling Tower CT-60-301	PM ₁₀	12.7	55.3
SN-181	Tail Brine Cooling Tower CT-60-302	PM ₁₀	12.7	55.3
SN-182	Cooling Tower CT-60-920 (3 cells)	PM ₁₀	1.1	4.7
SN-183	Cooling Tower CT-60-910a	PM ₁₀	0.7	2.9
SN-184	Cooling Tower CT-60-910b	PM ₁₀	0.7	2.9
SN-185	Rental Cooling Tower	PM ₁₀	0.5	1.9

11. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 21 and 22. [Regulation 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
SN-138	Bromine Production Vent Scrubber	Br ₂	0.06	0.27
SN-180	Tail Brine Cooling Tower CT-60-301	PM	12.7	55.3
SN-181	Tail Brine Cooling Tower CT-60-302	PM	12.7	55.3
SN-182	Cooling Tower CT-60-920 (3 cells)	PM	1.1	4.7
SN-183	Cooling Tower CT-60-910a	PM	0.7	2.9
SN-184	Cooling Tower CT-60-910b	PM	0.7	2.9
SN-185	Rental Cooling Tower	PM	0.5	1.9
SN-199	Fugitive Emissions from Equipment Leaks	Br ₂	0.65	2.82
		Cl ₂	0.54	2.33
		HBr	0.04	0.15
		H ₂ S	0.67	2.90

12. The release of H₂S from the brine receiving tank (SN-101) shall be considered an upset condition and shall be documented and reported to the Department in accordance with General Provision #8. [Regulation 19, §19.601 and 40 CFR Part 52, Subpart E]
13. The fact that contingency plans have been established to deal with periods when the vacuum stripper is down shall in no way be construed as relieving the permittee from meeting the requirements of §19.601 of Regulation #19 or General Provision #8. [Regulation No. 19 §19.601 and 40 CFR Part 52, Subpart E]
14. Visible emissions may not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9. Compliance with opacity limits shall be demonstrated by compliance with Specific Condition 21.

SN	Limit	Regulatory Citation
138	5%	Regulation 18 §18.501

15. When the vacuum stripper is down, the brine will be air stripped if the outage is a short-term one (less than 48 hours). If the vacuum stripper is down for more than 48 hours, either the operation of the brine wells is discontinued or stripping will cease and the brine is sent to the bromine towers. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
16. During periods when one or both bromine towers are in the start-up mode, the allowable bromine emission rate for SN-138 shall be 5.0 pounds of bromine per hour. Compliance shall be demonstrated by compliance with Specific Condition 17. [Regulation No. 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
17. To demonstrate compliance with Specific Condition 16, the permittee shall fully document each start-up detailing the number, duration, and time of each start-up and the estimated amount of bromine released. This documentation shall be retained onsite and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
18. The water flow rates in the following table shall not be exceeded. The permittee shall maintain, on-site, documentation that the physical flow capacities of SN-180, SN-181, SN-182, SN-183, SN-184, and SN-185 meet the values in the table. [§19.705 of Regulation 19 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6]

SN	Description	Maximum Water Flow Rate through Tower (gallons per minute)
180	Cooling Tower	2,500
181	Cooling Tower	2,500

SN	Description	Maximum Water Flow Rate through Tower (gallons per minute)
182	Cooling Tower	2,500
183	Cooling Tower	1,500
184	Cooling Tower	1,500
185	Rental Cooling Tower	1,000

19. The permittee shall not exceed the rates for Total Dissolved Solids (TDS) nor conductivity in the following table:

[§19.705 of Regulation 19 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6]

SN	Description	Parameter
180	Cooling Tower	330,000 ppm (TDS)
181	Cooling Tower	330,000 ppm (TDS)
182	Cooling Tower	5000 µS (Conductivity)
183	Cooling Tower	5000 µS (Conductivity)
184	Cooling Tower	5000 µS (Conductivity)
185	Rental Cooling Tower	5000 µS (Conductivity)

20. The permittee shall monitor monthly and maintain monthly records of the Total Dissolved Solids (TDS) for SN-180 and SN-181 and conductivity for SN-182, SN-183, SN-184, and SN-185. These records shall be kept on-site and made available to Department personnel upon request. [Regulation 19, §19.705 and 40 CFR Part 52, Subpart E]

Control Equipment Operating Parameters

21. The bromine tower scrubber (SN-138) shall be kept in good working condition at all times and shall meet the following conditions: [Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
- The permittee will use a flow meter to measure the flow rate of the scrubbing liquor in the scrubber. The permittee will measure the scrubber liquor flow rate once per day. The permittee will maintain records of the liquid flow rate onsite and make the records available to Department personnel upon request.
 - The permittee will test the caustic concentration once per day. The permittee will maintain records of the liquid flow rate onsite and make the records available to Department personnel upon request.
 - Should the flow rate or caustic concentration drop below the minimum rate, as specified in the following table, action shall be taken within 12 hours to remedy the situation. Such actions shall be noted in the logbook. The logbook shall be kept onsite and be available to Department personnel upon request.

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SN	Control Equipment	Parameter	Units	Minimum Operating Limits
138	Scrubber	Liquor flow rate	gal/min	24
		Caustic concentration in scrubbing liquor	%	2.5

Testing

22. The permittee shall test SN-138 for Bromine emissions using EPA Reference Method 26A. Each test shall consist of at least 3 sampling periods at a minimum of 1 hour each. Compliance testing shall be conducted while Great Lakes operates the plant within 90% of its permitted capacity. If the plant does not attain 90% of its permitted capacity during testing, the operating rate during testing will be 90% of the maximum operating rate until the next test is complete. This testing is to be completed once in the first year of every 5 year permit period. This test data shall be used for determination of compliance with the conditions set forth in this permits. [Regulation 19 §19.702 and 40 CFR Part 52 Subpart E]

FF-680 Unit

SN-401 T-3 and T-37 Phenol Tanks Scrubber; SN-404 IPA Storage Tank; SN-406 EDB Storage Tank (T-035); SN-412 T-34 Feed Tank for PC-9; SN-413 PC-1 Scrubber; SN-416 PC-4 Scrubber; SN-417 PC-6 Scrubber; SN-418 PC-10 Scrubber; SN-419 Baghouse-Bagging; SN-420 Baghouse-Drying; SN-421 PC-8 Scrubber; SN-427 Flaker Scrubber Vent; SN-428 Spray Dryer Baghouse; SN-430 SN-1753 Loadout Baghouse; SN-436 Baghouse-Bagging; SN-439 IPA Feed Tank (T-033); SN-440 Bromine Measure Pot Scrubber; SN-480 Cooling Tower CT-61-001; SN-481 Cooling Tower CT-61-002; SN-499 Fugitive Emissions from Equipment Leaks

Source Description

FF-680 Production

FF-680 is produced in three reaction steps. First, two reactants are reacted to form an intermediate. This intermediate is reacted with a reactant to form a second intermediate. The second intermediate is then reacted with a reactant to produce FF-680.

The crude FF-680 is washed and centrifuged. Emissions are controlled with condensers and a scrubber (SN-418). The wet product is initially dried. The dryer discharge is sent to a scrubber (SN-421). The product is next conveyed to another dryer and then to storage bins. The exhaust air from the dryer/storage bins is vented to a baghouse (SN-420). Dust emissions generated by the product handling and bagging system are also controlled by a baghouse (SN-419). The off gases from each reaction go to a scrubber (SN-413, SN-416, and SN-417).

TBP Production

Tribromophenol (TBP), an intermediate product when FF-680 is produced, can be sold as a product itself. This is done by running the first reaction described in the FF-680 section above. Instead of going to the next step, the liquid TBP is then sent to a flaker where it is solidified into flakes and bagged.

The flaker belt operation vent is vented to a packed scrubber (SN-427). The bagging operation is vented to a baghouse (SN-436). These sources are unique to TBP production; all other sources associated with the production of TBP (SN-413 and some storage tanks) will have the same allowable emission rates and be subject to the same conditions when producing TBP as when they are producing FF-680.

CN-1753 Production

The reactants produce a slurry of CN-1753. The CN-1753 slurry is transferred to a spray dryer. Dry powder is discharged from the spray dryer chamber. The dryer emissions pass through a baghouse (SN-428).

Dry CN-1753 product is then packaged at a loadout station prior to being transferred to the warehouse for shipment. The loadout process is controlled by a baghouse (SN-430).

BE-51 Production

In this process, the reactants are mixed and reacted to form BE-51. The BE-51 is separated from the slurry by centrifugation. The centrifuge cakes are washed with water and the wet cake is stored in tote bins or supersacks prior to drying. The wet cake is dried in a vacuum dryer. The BE-51 product is then bagged prior to shipment.

VOC emissions from the reactor are controlled with a scrubber (SN-416). VOC emissions from the belt filter are controlled with a scrubber (SN-421). VOC emissions from the solvent recovery operations are controlled with a scrubber (SN-418). Particulate matter emissions from the vacuum dryer are controlled with a baghouse (SN-420). Particulate emissions from the product bagging operations are controlled with a baghouse (SN-419).

Specific Conditions

23. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 30, 31 and 34. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
401	T-3 and T-37 Phenol Tanks Scrubber	VOC	0.1	0.1
404	IPA Storage Tank	VOC	0.5	1.9
406	EDB Storage Tank (T-035)	VOC	0.3	1.0
412	T-34 Feed Tank for PC-9	VOC	0.2	0.6
413	PC-1 Scrubber	VOC	0.7	3.2
416	PC-4 Scrubber	VOC	1.0	4.4
417	PC-6 Scrubber	VOC	0.1	0.5
418	PC-10 Scrubber	VOC	0.2	0.9
419	Baghouse-Bagging	PM ₁₀	0.5	1.9
420	Baghouse-Drying	PM ₁₀	0.7	3.0
421	PC-8 Scrubber	VOC	0.3	1.4
427	Flaker Scrubber Vent	PM ₁₀	0.7	3.1
428	Spray Dryer Baghouse	PM ₁₀ SO ₂	2.4 0.1	10.4 0.1

SN	Description	Pollutant	lb/hr	tpy
		VOC	0.1	0.2
		CO	1.5	6.6
		NO _x	2.3	10.1
430	SN-1753 Loadout Baghouse	PM ₁₀	0.4	1.5
436	Baghouse-Bagging	PM ₁₀	0.9	4.0
439	IPA Feed Tank (T-033)	VOC	0.2	0.6
480	Cooling Tower CT-61-001	PM ₁₀	0.7	3.1
481	Cooling Tower CT-61-002	PM ₁₀	0.7	3.1
499	Fugitive Emissions From Equipment Leaks	VOC	0.8	4.4

24. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 30, 31 and 34. [Regulation 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
401	T-3 and T-37 Phenol Tanks Scrubber	Phenol	0.01	0.03
406	EDB Storage Tank (T-035)	Ethylene Dibromide	0.22	0.93
413	PC-1 Scrubber	HBr	0.01	0.05
		Bromine	0.01	0.05
		Acetaldehyde	0.01	0.05
		Acetophenone	0.01	0.05
		Phenol	0.01	0.05
		Hydrazine	0.01	0.05
		Chlorine	0.01	0.05
		Bromoform	0.01	0.05
		Chloroform	0.01	0.05
		Methyl Bromide	0.01	0.05
		Allyl Chloride	0.57	2.50
		HCl	0.01	0.05
416	PC-4 Scrubber	HBr	0.10	0.44
		Bromine	0.10	0.44
		Acetaldehyde	0.10	0.44
		Acetophenone	0.10	0.44
		Phenol	0.10	0.44
		Hydrazine	0.10	0.44
		Chlorine	0.10	0.44
		Ethylene Dibromide	0.10	0.44

SN	Description	Pollutant	lb/hr	tpy
		Vinyl Bromide	0.10	0.44
		HCl	0.10	0.44
417	PC-6 Scrubber	HBr	0.01	0.05
		Bromine	0.01	0.05
		Acetaldehyde	0.01	0.05
		Acetophenone	0.01	0.05
		Phenol	0.01	0.05
		Hydrazine	0.01	0.05
		Chlorine	0.01	0.05
		Ethylene Dibromide	0.01	0.05
		Vinyl Bromide	0.01	0.05
		HCl	0.01	0.05
419	Baghouse-Bagging	PM	0.5	1.9
420	Baghouse-Drying	PM	0.7	3.0
421	PC-8 Scrubber	MeCl ₂	0.5	2.2
427	Flaker Scrubber Vent	PM	0.7	3.1
428	Spray Dryer Baghouse	PM	2.4	10.4
430	SN-1753 Loadout Baghouse	PM	0.4	1.5
436	Baghouse-Bagging	PM	0.9	4.0
440	Bromine Measure Pot Scrubber	Br	0.34	0.62
480	Cooling Tower CT-61-001	PM	0.7	3.1
481	Cooling Tower CT-61-002	PM	0.7	3.1
499	Fugitive Emissions From Equipment Leaks	HBr	0.2	0.6
		Bromine	0.1	1.7
		Hydrazine	0.13	0.55
		Phenol	0.09	1.69
		Dibromoethane	0.05	0.19

25. The Visible emissions may not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9. Compliance with opacity limits shall be demonstrated by compliance with Specific Conditions 30 and 31.

SN	Limit	Regulatory Citation
419, 420, 427, 428, 430, 436, 440	5%	Regulation 18 §18.501

26. The water flow rates in the following table shall not be exceeded. The permittee shall maintain, on-site, documentation that the physical flow capacities of SN-480, and SN-481 meet the values in the table. [§19.705 of Regulation 19 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6]

SN	Description	Maximum Water Flow Rate through Tower (gallons per minute)
480	Cooling Tower	1,600
481	Cooling Tower	1,600

27. The conductivity shall not exceed 5,000 μ S, measured once per day, for SN-480 and SN-481. [§19.705 of Regulation 19, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6]
28. The permittee shall maintain monthly records of conductivity for SN-480 and SN-481. These records shall be kept on-site and shall be submitted in accordance with General Provision 7. [Regulation 19, §19.705 and 40 CFR Part 52, Subpart E]
29. The permittee may produce FF-680, TBP, CN-1753, and BE-51 at the FF-680 Plant. Other products may be produced without a permit modification if: [Regulation No. 19 §19.705, Regulation No. 18 §18.1104, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and CFR Part 52, Subpart E]
- No new equipment with air contaminant emissions will be installed, other than insignificant sources (insignificant sources may be permitted via the administrative amendment process);
 - The worst-case emissions limits contained in this permit will not be exceeded. In addition, no new pollutants will be emitted. The permittee shall produce written emissions calculations and submit them to the Department pursuant to paragraph (d) below;
 - No new air pollution control requirements are triggered, such as provisions of 40 CFR Part 52, Part 60, Part 61, or Part 63;
 - The permittee submits to the Department information concerning items in paragraph (a) thru (c) above at least 30-days prior to the production of the new product and the Department does not object during this 30-day period.

Control Equipment Operating Parameters

30. All scrubbers associated with FF-680 production shall be kept in good working condition at all times and shall meet the conditions shown in the following table. [Regulation No. 19 §19.303, 40 CFR Part §64.6(c)(1), Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
- The scrubber shall have a flow meter to measure the flow rate of the scrubbing liquor. The scrubber liquor flow rates shall be measured once per day. The permittee will keep the results onsite and make the results to Department personnel upon request.

- b. The permittee will measure the caustic concentration once per day. The permittee will keep the results onsite and make the results to Department personnel upon request.
- c. Should the scrubber liquor flow rate or caustic concentration drop below the minimum rate, as specified in the following table, action shall be taken within 12 hours to remedy the situation. The permittee shall document the duration of every such situation in a logbook. The logbook shall be kept onsite and be available to Department personnel upon request.
- d. Caustic concentrations and monitoring of caustic concentrations are not required for scrubbers which use only water as the scrubbing liquor.

SN	Control Equipment	Parameter	Units	Minimum Operating Limits
401	Scrubber	liquor flow rate	gal/min	5
413	Scrubber	liquor flow rate	gal/min	12
		caustic concentration in scrubbing liquor	% by wt.	2.5
416	Scrubber	liquor flow rate	gal/min	5
417	Scrubber	liquor flow rate	gal/min	5
		caustic concentration in scrubbing liquor	% by wt.	2.5
418	Scrubber	liquor flow rate	gal/min	2
421	Scrubber	liquor flow rate	gal/min	7
427	Scrubber	liquor flow rate	gal/min	10
		caustic concentration in scrubbing liquor	% by wt.	2.5
440	Scrubber	liquor flow rate	gal/min	5
		caustic concentration in scrubbing liquor	% by wt.	2.5

31. All baghouses associated with FF-680 production shall be kept in good working condition at all times and shall meet the conditions shown in the following table. [Regulation No. 19 §19.303 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
- Each baghouse shall have a pressure drop device to measure the pressure drop across the baghouse. The pressure drop for each baghouse shall be read once each day and shall be recorded in a logbook.
 - When the meter shows the pressure drop is below the parameters as specified in the following table, action shall be taken within 12 hours to remedy the situation. The permittee shall document every such situation in a logbook. The logbook shall be kept onsite and be available to Department personnel upon request.

SN	Control Equipment	Parameter	Units	Minimum Operating Limits
419	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1
420	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1
428	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1
429	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1
430	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1
436	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1

32. The permittee shall test the PC-8 Scrubber, SN-413 for Bromine emissions using EPA Reference Method 26A. Each test shall consist of at least 3 sampling periods at a minimum of 1 hour each. Compliance testing shall be conducted while Great Lakes operates the FF-680 plant within 90% of its permitted capacity. If the plant does not attain 90% of its permitted capacity during testing, the operating rate during testing will be 90% of the maximum operating rate until the next test is complete. This testing is to be completed once in the first year of every 5 year permit period. This test data shall be used for determination of compliance with the conditions set forth in this permits. [Regulation 19 §19.702 and 40 CFR Part 52 Subpart E]
33. The permittee shall test the PC-8 Scrubber, SN-413 for VOC emissions using EPA Reference Method 25A. Each test shall consist of at least 3 sampling periods at a minimum of 1 hour each. Compliance testing shall be conducted while Great Lakes operates the FF-680 plant within 90% of its permitted capacity. If the plant does not attain 90% of its permitted capacity during testing, the operating rate during testing will be 90% of the maximum operating rate until the next test is complete. This testing is to be completed once in the first year of every 5 year permit period. This test data shall be used for determination of compliance with the conditions set forth in this permits. [Regulation 19 §19.702 and 40 CFR Part 52 Subpart E]

FF-680 Unit Production

34. Production at the FF-680 Unit shall not exceed the limits in the following table during any twelve consecutive months. [Regulation No. 19 §19.705, Regulation No. 18

§18.1004, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and CFR Part 52, Subpart E]

Product	Lot per Rolling 12-month basis	Unit
FF680	4,380	FF-60-Lots
TBP	8,760	FF-680-Lots
CN1753	5,475	CN-Lots
BE51	1,095	BE51-Lots

35. The permittee shall maintain records which demonstrate compliance with the limits listed in Specific Condition #34. The permittee shall maintain both monthly records and a twelve-month total. The records shall be updated on a monthly basis. These records shall be kept onsite, provided to Department personnel upon request, and may be used by the Department for enforcement purposes. [Regulation No. 19 §19.705, Regulation No. 18 §18.1004, 40 CFR Part 52, Subpart E and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Compliance Assurance Monitoring for SN-416 VOC emissions

36. SN-416 is subject to and shall comply with all applicable provisions of §19.304 of Regulation 19, 40 CFR Part 52, Subpart E, and Section §64.9 for Compliance Assurance Monitoring. [40 CFR §64.6(c)(1)]
- The permittee shall maintain a scrubber liquid flow rate of at least 5 gallons per minute while underlying process is in operation.
 - The permittee shall daily measure and record scrubber liquor flow rate.
 - The scrubber shall be inspected weekly for physical integrity. Maintenance and repair shall be performed on an as needed basis. Records shall be kept of all weekly equipment inspections and of any maintenance performed.
 - Maintenance and repair shall be performed in accordance with the manufacturer's specifications.
37. SN-416 is subject to and shall comply with all applicable provisions of §19.304 of Regulation 19, 40 CFR Part 52, Subpart E, and Section §64.9 for Compliance assurance monitoring. The following information pertaining to exceedances or excursions from permitted values shall be submitted in semi-annual reports in accordance with General Provision #7 as outlined in 40 CFR §70.6
- The permittee shall maintain records for SN-416 that summarize the number, duration, and cause of excursions or exceedances of emission limits as well as corrective action taken. [40 CFR §64.9(a)(2)(i) and §64.9(b)]
 - The permittee shall maintain a quality improvement plan (QIP) threshold for each indicator of no more than nine excursions or 5% of the daily averages in a six-month period. [40 CFR §64.9(a)(2)(iii) and §64.9(b)]
 - The permittee shall develop and implement a new QIP if the threshold is exceeded during any six-month period. [40 CFR §64.9(a)(2)(iii) and §64.9(b)]

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- d. The permittee shall maintain records for SN-416 that describes the actions taken to implement the QIP. Upon completion of the QIP, documentation shall be maintained to confirm that the plan was completed and reduced the likelihood of similar excursions or exceedances. [40 CFR §64.9(a)(2)(iii) and §64.9(b)]

CD-75 Unit

SN-502 EDC Storage Tank (T-902); SN-503 Vent Header Thermal Oxidizer/Scrubber; SN-504 Packaging Baghouse Vent; SN-505 Dust Collector Blower; SN-507 Storage Baghouse Vent; SN-509 Rotary Dryer Baghouse Vent; SN-510 Packaging Bagger Vent; SN-513 Ethanol Storage Tank (T-904); SN-517 EDC Stripper Feed Tank (T-518); SN-518 EDC/EtOH Storage Tank (T-517); SN-580 Cooling Tower CT-65-027; SN-599 Fugitive Emissions From Equipment Leaks

Source Description

CD-75 Process

The CD-75 process is based on the bromination of cyclododecatriene. The reaction phase is operated in a solvent system. At the end of the reaction cycle, solids are separated from the mother liquor. The cake is washed, dried, and packaged.

The mother liquor is distilled for recovery of the solvent. Residues from distillation are piped to the adjacent Bromine Recovery Unit (BRU) for recovery of bromine. Reactors, centrifuge, dryer, solvent separation, intermediate tanks, and auxiliary tanks vent through a common manifold to an ethanol recovery column. Exhaust gases from the ethanol recovery column are routed through a water scrubber followed by a thermal oxidizer that has been installed to reduce total organic hazardous air pollutant (OHAP) emissions of subject equipment by $\geq 98\%$ by weight. Following the thermal oxidizer, the vent gases are routed through a caustic scrubber for acid gas control before being vented to the atmosphere as SN-503.

Solid product is transferred pneumatically from the dryer system to a hammer mill. Milled product is transferred to intermediate storage which also has a dust collector vented to the atmosphere (SN-507). Final packaging operations vent to the atmosphere through a final dust collector (SN-504).

There are several storage tanks that vent to the atmosphere: a bromine storage tank equipped with a scrubber (SN-501), an ethylene dichloride storage tank (SN-502), a recycle ethanol tank (SN-511, Insignificant), a recycle ethylene dichloride tank (SN-512, Insignificant), an ethanol storage tank (SN-523), and a cyclododecatriene storage tank (SN-514, Insignificant).

Chilsonator

The Chilsonator process compresses powder products into granules. Powder is pneumatically lifted into the chilsonator feed silo. Vent from the pneumatic transport system is vented to a baghouse type dust collector that vents as SN-505. Collected dust is blended back into the product.

Blending operations are carried out to blend the final product with stabilizer. Powder is pneumatically lifted into the blender feed silo. Vent from the pneumatic transport system is vented to a baghouse type dust collector. The cleaned air is exhausted to the atmosphere (SN-

509). Collected dust is blended back into product. Packaging operations vent through a dust collector to atmosphere (SN-510).

Specific Conditions

38. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 43, 44, 45, and 46. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
502	EDC Storage Tank (T-902)	VOC	0.4	1.5
503	Vent Header Thermal Oxidizer/Scrubber	PM ₁₀	0.2	0.9
		SO ₂	0.1	0.1
		VOC	1.1	4.6
		CO	2.0	8.5
		NO _x	2.3	10.1
504	Packaging Baghouse Vent	PM ₁₀	0.1	0.5
		VOC	3.6	15.8
505	Dust Collector Blower	PM ₁₀	0.2	0.8
507	Storage Baghouse Vent	PM ₁₀	0.1	0.5
		VOC	0.6	2.7
509	Rotary Dryer Baghouse Vent	PM ₁₀	0.2	0.8
510	Packaging Bagger Vent	PM ₁₀	0.2	0.8
513	Ethanol Storage Tank (T-904)	VOC	0.1	0.4
517	EDC Stripper Feed Tank (T-518)	VOC	0.6	2.4
518	EDC/EtOH Storage Tank (T-517)	VOC	0.1	0.3
580	Cooling Tower CT-65-027	PM ₁₀	1.3	5.6
599	Fugitive Emissions From Equipment Leaks	VOC	3.0	13.0

39. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 43, 44, 45, and 46. [Regulation 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
501	Bromine Storage Tank Scrubber	Bromine	0.14	0.26
502	EDC Storage Tank (T-902)	Ethylene Dichloride	0.33	1.42
503	Vent Header Thermal Oxidizer/Scrubber	PM	0.2	0.9
		Ethylene Dichloride	0.10	0.44
		Ethyl Chloride	0.10	0.44
		Propylene Oxide	0.10	0.44
		Bromoform	0.10	0.44
		HCl	0.10	0.44
		Chlorine	0.10	0.44
		Methyl Bromide	0.10	0.44
504	Packaging Baghouse Vent	PM	0.1	0.5
		Ethylene Dichloride	2.52	11.04
505	Dust Collector Blower	PM	0.2	0.8
507	Storage Baghouse Vent	PM	0.1	0.5
		Ethylene Dichloride	0.41	1.80
509	Rotary Dryer Baghouse Vent	PM	0.2	0.8
510	Packaging Bagger Vent	PM	0.2	0.8
517	EDC Stripper Feed Tank (T-518)	Ethylene Dichloride	0.54	2.33
580	Cooling Tower CT-65-027	PM	1.3	5.6
599	CD75 Unit Fugitives	Ethylene Dichloride	2.17	9.47
		Propylene Oxide	0.12	0.53

40. Visible emissions may not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9. Compliance with opacity limits shall be demonstrated by compliance with Specific Condition 46.

SN	Limit	Regulatory Citation
504, 505, 507, 509, 510	5%	Regulation 18 §18.501

41. CD-75 and chilsonated products are allowed to be produced at this source. Other products may be produced without a permit modification if: [Regulation No. 19 §19.705, 40 CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

- a. No new equipment with air contaminant emissions will be installed, other than insignificant sources (insignificant sources may be permitted via the administrative amendment process);
 - b. The worst-case emissions limits contained in this permit will not be exceeded. In addition, no new pollutants will be emitted. The permittee shall produce written emissions calculations and submit them to the Department pursuant to paragraph (d) below;
 - c. No new air pollution control requirements are triggered, such as provisions of 40 CFR Part 52, Part 60, Part 61, or Part 63;
 - d. The permittee submits to the Department information concerning items in paragraph (a) thru (c) above at least 30-days prior to the production of the new product and the Department does not object during this 30-day period.
42. The water flow rates in the following table shall not be exceeded. The permittee shall maintain, on-site, documentation that the physical flow capacity of SN-580 meets the value in the table. [§19.705 of Regulation 19 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6]

SN	Description	Maximum Water Flow Rate through Tower (gallons per minute)
580	Cooling Tower	1,700

43. The conductivity shall not exceed 8,500 μ S, measured monthly, for SN-580. [§19.705 of Regulation 19, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6]
44. The permittee shall maintain monthly records of conductivity for SN-580. These records shall be kept on-site and shall be submitted in accordance with General Provision 7. [Regulation 19, §19.705 and 40 CFR Part 52, Subpart E]

Control Equipment Operating Parameters

45. All scrubbers associated with CD-75 production shall be kept in good working condition at all times and shall meet the conditions shown in the following table. [Regulation No. 19 §19.303, Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
- a. The scrubber shall have a flow meter to measure the flow rate of the scrubbing liquor. The scrubber liquor flow rates shall be measured once per day. The result shall be kept onsite and be available to Department personnel upon request.
 - b. The caustic concentration shall be measured once per day. The result shall be kept onsite and be available to Department personnel upon request.
 - c. Should the scrubber liquor flow rate or caustic concentration drop below the minimum rate, as specified in the following table, action shall be taken within 12 hours to remedy the situation. The permittee shall document the duration of every

such situation in a logbook. The logbook shall be kept onsite and be available to Department personnel upon request.

SN	Control Equipment	Parameter	Units	Minimum Operating Limits
501	Scrubber	liquor flow rate	gal/min	5
		caustic concentration in scrubbing liquor	% by wt.	2.5

46. All baghouses associated with CD-75 production shall be kept in good working condition at all times and shall meet the conditions shown in the following table. [Regulation No. 19 §19.303, Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
- Each baghouse shall have a pressure drop device to measure the pressure drop across the baghouse. The pressure drop for each baghouse shall be read once each day and shall be recorded in a logbook.
 - When the meter shows the pressure drop is below the parameters as specified in the following table, action shall be taken within 12 hours to remedy the situation. The permittee shall document every such situation in a logbook. The logbook shall be kept onsite and be available to Department personnel upon request.

SN	Control Equipment	Parameter	Units	Minimum Operating Limits
504	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1
505	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1
507	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1
509	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1
510	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1

47. The permittee will test the emissions of SN-503 for VOC using Method 25A or other approved methodology every five years pursuant to Plantwide Condition #3. [Regulation No. 19 §19.702 and 40 CFR Part 52, Subpart E]
48. The permittee will test the emissions of SN-503 for ethanol and ethylene dichloride using Method 18 or other approved methodology every five years pursuant to Plantwide Condition #3. [Regulation No. 18 §18.1002 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
49. The permittee shall continuously monitor the thermal oxidizer combustion zone temperature, scrubber pH, and scrubber liquor flow rate, SN-503 and shall meet the conditions shown in the following table. [Regulation 19, §19.703, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, & 40 CFR Part 52, Subpart E]

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SN	Control Equipment	Parameter	Units	Minimum Operating Limits*
503	Scrubber	Liquor flow rate	gal/min	49
		pH	pH	6.5
	Thermal Oxidizer	temperature	°F	1,650

*15 minute block averages allowed within 40 CFR 63.152(f).

50. The permittee shall maintain records which demonstrate compliance with monitoring requirement in Specific Condition 49. These records shall be maintained on site and shall be submitted to the Department upon request. [Regulation 19, §19.705 and 40 CFR Part 52, Subpart E]

PHT -4 Unit

SN-604 Phthalic Anhydride Storage Tank; SN-606 Vacuum System; SN-608 Mechanical Vacuum Pump; SN-609 Toluene Storage Tank; SN-610 Dryer Condenser; SN-611 PHT – 4 Caustic Vent Scrubber; SN-680 PHT Cooling Tower CT-64-001; SN-681 PHT Cooling Tower CT-64-002; SN-682 PHT Cooling Tower CT-64-003; SN-699 Fugitive Emissions From Equipment Leaks

Source Description

PHT -4 Production

The PHT -4 production process contains two similar production lines or trains: PHT -4-I and PHT -4-II (Train 1 and Train 2). Both trains share a reactant storage tank (SN-604). Since two PHT -4 trains are nearly identical, the following description applies to both Train 1 and Train 2.

PHT -4 (tetrabromophthalic anhydride) is produced by the bromination of a reactant in an oleum system. During the reaction, vapors are vented off. One of the by-products is recovered and either sold as product or converted to another by-product; the other by-products are recycled back to the reaction. The PHT -4 is formed as it is separated from the mother liquor by filtration. The cake is washed, dried, and packaged for sale.

The reaction, the by-product acid storage tanks, bulk-bromine storage tank, and all process vessels are vented to a water scrubber and caustic scrubber for control (SN-611 for both trains).

A shell and tube vent condenser (SN-610) is used to control particulate emissions from the process.

PHT -4 Diol Production

In this process, PHT -4 is reacted with two raw materials to form PHT -4 Diol. The reactant PHT4 is transferred to a hopper by a mechanical vacuum pump which vents to the atmosphere as SN-608. The reaction solvent tank is vented to the atmosphere as SN-609. Vapors generated during the reaction are controlled by a primary and secondary condensation system. Non-condensables are vented to the atmosphere through the vacuum system (SN-606).

The PHT -4 plant is subject to 40 CFR Part 63 (NESHAP) Subparts F, G, and H (HON). The PHT -4 plant is subject to these regulations because tetrabromophthalic anhydride (PHT -4) is the primary product of the unit (listed as Group III chemical in Table 1 to Subpart F), phthalic anhydride is listed in Table 2 to Subpart F, and the GLCC South Plant is considered a HAP major source (see 40 CFR 63.100(b)). The PHT -4 Diol chemical manufacturing process units are not subject to the HON regulations due to the primary product qualifier. The PHT -4 Diol processes are instead subject to regulations under the Miscellaneous Organic Chemicals Manufacturing (MON) NESHAP Subpart FFFF.

Specific Conditions

51. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 54, 55, 69, 70, 71 and 72. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
604	Phthalic Anhydride Storage Tank	VOC	1.0	4.4
606	Vacuum System	VOC	0.7	2.9
608	Mechanical Vacuum Pump	PM ₁₀	0.1	0.2
609	Toluene Storage Tank	VOC	0.2	0.5
610	Dryer Condenser	PM ₁₀	0.8	3.3
611	PHT – 4 Caustic Vent Scrubber	PM ₁₀ SO ₂	0.1 4.3	0.3 18.9
680	PHT Cooling Tower CT-64-001	PM ₁₀	0.8	3.4
681	PHT Cooling Tower CT-64-002	PM ₁₀	0.8	3.4
682	PHT Cooling Tower CT-64-003	PM ₁₀	0.8	3.4
699	Fugitive Emissions From Equipment Leaks	VOC	0.5	2.0

52. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 54, 55, 69, 70, 71 and 72. [Regulation 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
604	Phthalic Anhydride Storage Tank	Phthalic Anhydride	1.0	4.4
606	Vacuum System	Toluene Propylene Oxide	0.10 0.55	0.44 2.41
608	Mechanical Vacuum Pump	PM	0.1	0.2
609	Toluene Storage Tank	Toluene	0.2	0.5
610	Dryer Condenser	PM	0.8	3.3
611	PHT – 4 Caustic Vent Scrubber	PM Bromine	0.1 0.10	0.3 0.44
680	PHT Cooling Tower CT-64-001	PM	0.8	3.4

SN	Description	Pollutant	lb/hr	tpy
681	PHT Cooling Tower CT-64-002	PM	0.8	3.4
682	PHT Cooling Tower CT-64-003	PM	0.8	3.4
699	Fugitive Emissions From Equipment Leaks	Bromine	0.18	0.79
		Propylene Oxide	0.14	0.60
		Toluene	0.29	1.26
		Phthalic Anhydride	0.03	0.11

53. Visible emissions may not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9. Compliance with opacity limits shall be demonstrated by compliance with Specific Condition 69 and 70.

SN	Limit	Regulatory Citation
608, 610, 611	5%	Regulation 18 §18.501

54. The water flow rates in the following table shall not be exceeded. The permittee shall maintain, on-site, documentation that the physical flow capacities of SN-680, SN-681, and SN-682 meet the values in the table. [§19.705 of Regulation 19 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6]

SN	Description	Maximum Water Flow Rate through Tower (gallons per minute)
680	Cooling Tower	1,600
681	Cooling Tower	1,600
682	Cooling Tower	1,600

55. The conductivity shall not exceed 5,500 μ S, measured monthly, for SN-680, SN-681, and SN-682. [§19.705 of Regulation 19, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6]
56. The permittee shall maintain monthly records of conductivity for SN-680, SN-681, and SN-682. These records shall be kept on-site and shall be submitted in accordance with General Provision 7. [Regulation 19, §19.705 and 40 CFR Part 52, Subpart E]

Compliance Assurance Monitoring for SN-611 SO₂ emissions

57. SN-611 is subject to and shall comply with all applicable provisions of §19.304 of Regulation 19, 40 CFR Part 52, Subpart E, and Section §64.9 for Compliance Assurance Monitoring. [40 CFR §64.6(c)(1)]

- a. The permittee shall maintain a scrubber liquid flow rate of at least 40 gallons per minute and a minimum caustic concentration of 2.5% while underlying process is in operation.
 - b. The permittee shall daily measure and record scrubber liquor flow rate and caustic concentration.
 - c. The scrubber shall be inspected weekly for physical integrity. Maintenance and repair shall be performed on an as needed basis. Records shall be kept of all weekly equipment inspections and of any maintenance performed.
 - d. Maintenance and repair shall be performed in accordance with the manufacturer's specifications.
58. SN-611 is subject to and shall comply with all applicable provisions of §19.304 of Regulation 19, 40 CFR Part 52, Subpart E, and Section §64.9 for Compliance assurance monitoring. The following information pertaining to exceedances or excursions from permitted values shall be submitted in semi-annual reports in accordance with General Provision #7 as outlined in 40 CFR §70.6
- a. The permittee shall maintain records for SN-611 that summarize the number, duration, and cause of excursions or exceedances of emission limits as well as corrective action taken. [40 CFR §64.9(a)(2)(i) and §64.9(b)]
 - b. The permittee shall maintain a quality improvement plan (QIP) threshold for each indicator of no more than nine excursions or 5% of the daily averages in a six-month period. [40 CFR §64.9(a)(2)(iii) and §64.9(b)]
 - c. The permittee shall develop and implement a new QIP if the threshold is exceeded during any six-month period. [40 CFR §64.9(a)(2)(iii) and §64.9(b)]
 - d. The permittee shall maintain records for SN-611 that describes the actions taken to implement the QIP. Upon completion of the QIP, documentation shall be maintained to confirm that the plan was completed and reduced the likelihood of similar excursions or exceedances. [40 CFR §64.9(a)(2)(iii) and §64.9(b)]

NESHAP Subparts F, G, and H

59. The PHT-4 Plant (PHT-4 production) is subject to and shall comply with applicable provisions of 40 CFR Part 63 Subpart A B General Provisions and 40 CFR Part 60 Subparts F, G, and H B Hazardous Organic NESHAP (HON). A copy of NESHAP Subparts F, G, and H is provided in Appendix X, Appendix X and Appendix X. Applicable provisions include, but are not limited to, the provisions in Specific Conditions 59 through 68 [Regulation No. 19 §19.304 and 40 CFR 63 Subpart F, G and H]
60. The permittee shall keep readily accessible records showing the dimensions of the 35,000 gallon phthalic anhydride tank (SN-604) and an analysis showing the capacity of the storage vessel. This record shall be kept as long as the storage vessel retains Group 2 status and is in operation. [Regulation No. 19 §19.304 and 40 CFR §63.123(a)]

61. The permittee shall not exceed 12,775,000 gallons of throughput per twelve consecutive months for the phthalic anhydride storage tank (SN-604). The permittee shall maintain both monthly and a twelve month rolling total to verify compliance with this limit. The records shall be updated on a monthly basis. These records shall be kept onsite, provided to Department personnel upon request, and may be used by the Department for enforcement purposes. [Regulation 19, §19.705, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
62. The permittee is subject to and shall comply with applicable provisions of the General Standards. [Regulation No. 19 §19.304 and 40 CFR §63.162]
- a. Each piece of equipment in PHT-4 Plant shall be identified such that it can be distinguished readily from equipment that is not subject to this subpart. Identification of the equipment does not require physical tagging of the equipment. For example, the equipment may be identified on a plant site plan, in log entries, or by designation of process unit boundaries by some form of weatherproof identification. [Regulation No. 19 §19.304 and 40 CFR §63.162(c)]
 - b. When each leak is detected as specified in §63.169, Specific Condition 64, the following requirements apply:
 - i. Clearly identify the leaking equipment.
 - ii. The identification on a valve may be removed after it has been monitored as specified in §§63.168(f)(3), and 63.175(e)(7)(i)(D), and no leak has been detected during the follow-up monitoring. If the owner or operator elects to comply using the provisions of §63.174(c)(1)(i), the identification on a connector may be removed after it is monitored as specified in §63.174(c)(1)(i) and no leak is detected during that monitoring.
 - iii. The identification which has been placed on equipment determined to have a leak may be removed after it is repaired.
 - c. Except as provided in 40 CFR §63.162(g)(1), all terms that define a period of time for completion of required tasks (e.g., weekly, monthly, quarterly, annual), refer to the standard calendar periods unless specified otherwise.
 - i. If the initial compliance date does not coincide with the beginning of the standard calendar period, the permittee may elect to utilize a period beginning on the compliance date, or may elect to comply in accordance with the provisions of 40 CFR §§63.162(g)(2) or (g)(3).
 - ii. Time periods specified in this subpart for completion of required tasks may be changed by mutual agreement between the owner or operator and the Administrator, as specified in subpart A of this part. For each time period that is changed by agreement, the revised period shall remain in effect until it is changed. A new request is not necessary for each recurring period.
 - iii. Except as provided in 40 CFR §§63.162(g)(1) or (g)(2), where the period specified for compliance is a standard calendar period, if the initial compliance date does not coincide with the beginning of the calendar

period, compliance shall be required according to the schedule specified in 40 CFR §§63.162(g)(3)(i) or (g)(3)(ii), as appropriate.

1. Compliance shall be required before the end of the standard calendar period within which the compliance deadline occurs, if there remain at least 3 days for tasks that must be performed weekly, at least 2 weeks for tasks that must be performed monthly, at least 1 month for tasks that must be performed each quarter, or at least 3 months for tasks that must be performed annually; or
 2. In all other cases, compliance shall be required before the end of the first full standard calendar period after the period within which the initial compliance deadline occurs.
 - iv. In all instances where a provision of this subpart requires completion of a task during each of multiple successive periods, an owner or operator may perform the required task at any time during each period, provided the task is conducted at a reasonable interval after completion of the task during the previous period.
 - d. In all cases where the provisions of this subpart require the permittee to repair leaks by a specified time after the leak is detected, it is a violation of the permit to fail to take action to repair the leaks within the specified time. If action is taken to repair the leaks within the specified time, failure of that action to successfully repair the leak is not a violation of this permit. However, if the repairs are unsuccessful, a leak is detected and the permittee shall take further action as required by applicable provisions of 40 CFR §§63 Subpart H.
63. The permittee is subject to and shall comply with applicable provisions of the Standards: Open-ended valves or lines. [Regulation No. 19 §19.304 and 40 CFR §63.167]
 - a. Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in §63.162(b), Specific Condition 63.b, §63.162(d), Specific Condition 63.d, and §63.162(e), Specific Condition 63.c of this section. [Regulation No. 19 §19.304 and 40 CFR §63.167(a)(1)]
 - i. The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line, or during maintenance or repair. [Regulation No. 19 §19.304 and 40 CFR §63.167(a)(2)]
 - b. Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed. [Regulation No. 19 §19.304 and 40 CFR §63.167(b)]
 - c. When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (a) of this section at all other times. [Regulation No. 19 §19.304 and 40 CFR §63.167(c)]
 - d. Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the requirements of 40 CFR §63.167(a), (b) and (c). [Regulation No. 19 §19.304 and 40 CFR §63.167(d)]

- e. Open-ended valves or lines containing materials which would autocatalytically polymerize or, would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block and bleed system as specified in 40 CFR §63.167(a) through (c) are exempt from the requirements of 40 CFR §63.167(a) through (c).
64. The permittee is subject to and shall comply with applicable provisions of 40 CFR §63.169 (Standards: Pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service).
- a. Pumps, valves, connectors, and agitators in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and instrumentation systems shall be monitored within 5 calendar days by the method specified in §63.180(b) if evidence of a potential leak to the atmosphere is found by visual, audible, olfactory, or any other detection method. If such a potential leak is repaired as required in 40 CFR §63.169(c) and (d), it is not necessary to monitor the system for leaks by the method specified in §63.180(b) of this subpart.
 - b. If an instrument reading of 10,000 parts per million or greater for agitators, 5,000 parts per million or greater for pumps handling polymerizing monomers, 2,000 parts per million or greater for all other pumps (including pumps in food/medical service), or 500 parts per million or greater for valves, connectors, instrumentation systems, and pressure relief devices is measured, a leak is detected.
 - c. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 40 CFR ' 63.171.
 - i. The first attempt at repair shall be made no later than 5 calendar days after each leak is detected.
 - ii. For equipment identified in 40 CFR ' 63.169(a) that is not monitored by the method specified in §63.180(b), repaired shall mean that the visual, audible, olfactory, or other indications of a leak to the atmosphere have been eliminated; that no bubbles are observed at potential leak sites during a leak check using soap solution; or that the system will hold a test pressure.
 - d. First attempts at repair include, but are not limited to, the practices described under §§63.163(c)(2) and 63.168(g), for pumps and valves, respectively.
65. The permittee is subject to and shall comply with applicable provisions of 40 CFR §63.171 (Standards: Delay of repair).
- a. Delay of repair of equipment for which leaks have been detected is allowed if repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur by the end of the next process unit shutdown.
 - b. Delay of repair of equipment for which leaks have been detected is allowed for equipment that is isolated from the process and that does not remain in organic HAP service.
 - c. Delay of repair for valves, connectors, and agitators is also allowed if:

- i. The permittee determines that emissions of purged material resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair, and
 - ii. When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with 40 CFR §63.172.
 - d. Delay of repair for pumps is also allowed if:
 - i. Repair requires replacing the existing seal design with a new system that the permittee has determined under the provisions of 40 CFR §63.176(d) will provide better performance or:
 - 1. A dual mechanical seal system that meets the requirements of 40 CFR §63.163(e)t,
 - 2. A pump that meets the requirements of 40 CFR §63.163(f), or
 - 3. A closed-vent system and control device that meets the requirements of 40 CFR §63.163(g); and
 - ii. Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.
 - e. Delay of repair beyond a process unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the second process unit shutdown will not be allowed unless the third process unit shutdown occurs sooner than 6 months after the first process unit shutdown.
- 66. The permittee is subject to and shall comply with applicable provisions of 40 CFR §63.180 (Test methods and procedures). [Regulation No. 19 §19.304 and 40 CFR §63.180]
 - a. Monitoring shall comply with the following requirements: [Regulation No. 19 §19.304 and 40 CFR §63.180(b)]
 - i. Monitoring shall comply with Method 21 of 40 CFR part 60, appendix A.
 - ii. Except as provided for in 40 CFR §63.180(b)(2)(ii), the detection instrument shall meet the performance criteria of Method 21 of 40 CFR part 60, appendix A, except the instrument response factor criteria in Section 3.1.2(a) of Method 21 shall be for the average composition of the process fluid not each individual VOC in the stream. For process streams that contain nitrogen, water, air, or other inerts which are not organic HAP's or VOC's, the average stream response factor may be calculated on an inert-free basis. The response factor may be determined at any concentration for which monitoring for leaks will be conducted.
 - 1. If no instrument is available at the plant site that will meet the performance criteria specified in paragraph 40 CFR 63.180(b)(2)(i), the instrument readings may be adjusted by multiplying by the average response factor of the process fluid, calculated on an inert-free basis as described in 40 CFR ' 63.180 (b)(2)(i) of this section.

- iii. The instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21 of 40 CFR part 60, appendix A.
- iv. Calibration gases shall be:
 - 1. Zero air (less than 10 parts per million of hydrocarbon in air); and
 - 2. Mixture of methane in air at the concentrations specified in 40 CFR ' 63.180(b)(4)(ii)(A) through (b)(4)(ii)(C). A calibration gas other than methane in air may be used if the instrument does not respond to methane or if the instrument does not meet the performance criteria specified in 40 CFR ' 63.180(b)(2)(i). In such cases, the calibration gas may be a mixture of one or more of the compounds to be measured in air.
 - a. For Phase I, a mixture of methane or other compounds, as applicable, in air at a concentration of approximately, but less than, 10,000 parts per million.
 - b. For Phase II, a mixture of methane or other compounds, as applicable, and air at a concentration of approximately, but less than, 10,000 parts per million for agitators, 5,000 parts per million for pumps, and 500 parts per million for all other equipment, except as provided in 40 CFR §63.180(b)(4)(iii).
 - c. For Phase III, a mixture of methane or other compounds, as applicable, and air at a concentration of approximately, but less than, 10,000 parts per million methane for agitators; 2,000 parts per million for pumps in food/medical service; 5,000 parts per million for pumps in polymerizing monomer service; 1,000 parts per million for all other pumps; and 500 parts per million for all other equipment, except as provided in 40 CFR ' 63.180(b)(4)(iii).
 - 3. The instrument may be calibrated at a higher methane concentration than the concentration specified for that piece of equipment. The concentration of the calibration gas may exceed the concentration specified as a leak by no more than 2,000 parts per million. If the monitoring instrument's design allows for multiple calibration scales, then the lower scale shall be calibrated with a calibration gas that is no higher than 2,000 parts per million above the concentration specified as a leak and the highest scale shall be calibrated with a calibration gas that is approximately equal to 10,000 parts per million. If only one scale on an instrument will be used during monitoring, the owner or operator need not calibrate the scales that will not be used during that day's monitoring.
- v. Monitoring shall be performed when the equipment is in organic HAP service, in use with an acceptable surrogate volatile organic compound which is not an organic HAP, or is in use with any other detectable gas or vapor.

- vi. Monitoring data that do not meet the criteria specified in 40 CFR 63.180(b)(1) through (b)(5) may be used to qualify for less frequent monitoring under the provisions in §63.168(d)(2) and (d)(3) or §63.174(b)(3)(ii) or (b)(3)(iii) provided the data meet the conditions specified in paragraphs §63.168(b)(6)(i) and (b)(6)(ii).
 - 1. The data were obtained before April 22, 1994.
 - 2. The departures from the criteria specified in §§63.168(b)(1) through (b)(5) or from the specified monitoring frequency of §63.168(c) are minor and do not significantly affect the quality of the data. Examples of minor departures are monitoring at a slightly different frequency (such as every six weeks instead of monthly or quarterly), following the performance criteria of section 3.1.2(a) of Method 21 of appendix A of 40 CFR part 60 instead of paragraph §63.168(b)(2), or monitoring at a different leak definition if the data would indicate the presence or absence of a leak at the concentration specified in this subpart. Failure to use a calibrated instrument is not considered a minor departure.
- b. When equipment is monitored for compliance as required in §§63.165(a), and 63.172(f) or when equipment subject to a leak definition of 500 ppm is monitored for leaks as required by this subpart, the permittee may elect to adjust or not to adjust the instrument readings for background. If the permittee elects to not adjust instrument readings for background, the permittee shall monitor the equipment according to the procedures specified in 40 CFR 63.180(b)(1) through (b)(4). In such case, all instrument readings shall be compared directly to the applicable leak definition to determine whether there is a leak. If an owner or operator elects to adjust instrument readings for background, the owner or operator shall monitor the equipment according to the procedures specified in 40 CFR 63.180(c)(1) through (c)(4).
 - i. The requirements of 40 CFR 63.180(b) (1) through (4) shall apply.
 - ii. The background level shall be determined, using the same procedures that will be used to determine whether the equipment is leaking.
 - iii. The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Method 21 of 40 CFR part 60, appendix A.
 - iv. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 parts per million for determining compliance.
- c. Each piece of equipment within a process unit that can reasonably be expected to contain equipment in organic HAP service is presumed to be in organic HAP service unless an owner or operator demonstrates that the piece of equipment is not in organic HAP service. For a piece of equipment to be considered not in organic HAP service, it must be determined that the percent organic HAP content can be reasonably expected not to exceed 5 percent by weight on an annual average basis. For purposes of determining the percent organic HAP content of

the process fluid that is contained in or contacts equipment, Method 18 of 40 CFR part 60, appendix A shall be used.

- i. An owner or operator may use good engineering judgment rather than the procedures in paragraph 40 CFR 63.180(d)(1) to determine that the percent organic HAP content does not exceed 5 percent by weight. When an owner or operator and the Administrator do not agree on whether a piece of equipment is not in organic HAP service, however, the procedures in 40 CFR 63.180(d)(1) shall be used to resolve the disagreement.
 1. Conversely, the owner or operator may determine that the organic HAP content of the process fluid does not exceed 5 percent by weight by, for example, accounting for 98 percent of the content and showing that organic HAP is less than 3 percent.
 2. If an owner or operator determines that a piece of equipment is in organic HAP service, the determination can be revised after following the procedures in 40 CFR 63.180(d)(1), or by documenting that a change in the process or raw materials no longer causes the equipment to be in organic HAP service.
 3. Samples used in determining the percent organic HAP content shall be representative of the process fluid that is contained in or contacts the equipment.

67. The permittee is subject to and shall comply with applicable provisions of 40 CFR §63.181 (Recordkeeping requirements).

- a. The permittee may comply with the recordkeeping requirements for these process units in one recordkeeping system if the system identifies each record by process unit and the program being implemented (e.g., quarterly monitoring, quality improvement) for each type of equipment. All records and information required by this section shall be maintained in a manner that can be readily accessed at the plant site. This could include physically locating the records at the plant site or accessing the records from a central location by computer at the plant site.
[Regulation No. 19 §19.304 and 40 CFR ' 63.181(a)]
- b. The following information pertaining to all equipment in each process unit subject to the requirements in §§63.162 through 63.174 shall be recorded:
 - i. A list of identification numbers for equipment subject to the requirements of this subpart. Connectors need not be individually identified if all connectors in a designated area or length of pipe subject to the provisions of this subpart are identified as a group, and the number of connectors subject is indicated.
 - ii. Physical tagging of the equipment to indicate that it is in organic HAP service is not required. Equipment subject to the provisions of this subpart may be identified on a plant site plan, in log entries, or by other appropriate methods.

- iii. For any leaks detected as specified in §63.169, a weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.
- c. When each leak is detected as specified in §63.169, the following information shall be recorded and kept for 2 years:
 - i. The instrument and the equipment identification number and the operator name, initials, or identification number.
 - ii. The date the leak was detected and the date of first attempt to repair the leak.
 - iii. The date of successful repair of the leak.
 - iv. Maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A after it is successfully repaired or determined to be non-repairable.
 - v. “Repair delayed” and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
 - 1. The owner or operator may develop a written procedure that identifies the conditions that justify a delay of repair. The written procedures may be included as part of the startup/shutdown/malfunction plan, required by §63.6(e)(3), for the source or may be part of a separate document that is maintained at the plant site. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure.
 - 2. If delay of repair was caused by depletion of stocked parts, there must be documentation that the spare parts were sufficiently stocked on-site before depletion and the reason for depletion.
 - vi. Dates of process unit shutdowns that occur while the equipment is unrepaired.
 - vii. Copies of the periodic reports as specified in §63.182(d), if records are not maintained on a computerized database capable of generating summary reports from the records.
- d. The owner or operator of equipment in heavy liquid service shall comply with the following:
 - i. Retain information, data, and analyses used to determine that a piece of equipment is in heavy liquid service.
 - ii. When requested by the Administrator, demonstrate that the piece of equipment or process is in heavy liquid service.
 - iii. A determination or demonstration that a piece of equipment or process is in heavy liquid service shall include an analysis or demonstration that the process fluids do not meet the definition of “in light liquid service.” Examples of information that could document this include, but are not limited to, records of chemicals purchased for the process, analyses of process stream composition, engineering calculations, or process knowledge.

68. The permittee is subject to and shall comply with applicable provisions of 40 CFR §63.182 (Reporting requirements). [Regulation No. 19 §19.304 and 40 CFR §63.182]
- a. The permittee will submit semiannual reports starting six months after the initial after the compliance date and every six months thereafter. The report containing:
 - i. The number of valves for which leaks were detected as described in §63.168(b), the percent leakers, and the total number of valves monitored;
 - ii. The number of valves for which leaks were not repaired as required in §63.168(f), identifying the number of those that are determined non-repairable;
 - iii. The number of pumps for which leaks were detected as described in §63.163(b) of this subpart, the percent leakers, and the total number of pumps monitored;
 - iv. The number of pumps for which leaks were not repaired as required in §63.163(c) of this subpart;
 - v. The number of connectors for which leaks were detected as described in §63.174(a) of this subpart, the percent of connectors leaking, and the total number of connectors monitored;
 - vi. The number of connectors for which leaks were not repaired as required in §63.174(d) of this subpart, identifying the number of those that are determined non-repairable;
 - vii. The facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was technically infeasible.
 - viii. The results of all monitoring to show compliance with §§63.164(i), 63.165(a), and 63.172(f) of this subpart conducted within the semiannual reporting period.

Control Equipment Operating Parameters

69. All scrubbers associated with the PHT-4 Plant shall be kept in good working condition at all times and shall meet the conditions shown in the following table. [Regulation No. 19 §19.303, 40 CFR Part §64.6(c)(1), Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
- a. The scrubber shall have a flow meter to measure the flow rate of the scrubbing liquor. The scrubber liquor flow rates shall be measured once per day. The result shall be kept onsite and be available to Department personnel upon request.
 - b. The caustic concentration shall be measured once per day. The result shall be kept onsite and be available to Department personnel upon request.
 - c. Should the scrubber liquor flow rate or caustic concentration drop below the minimum rate, as specified in the following table, action shall be taken within 12 hours to remedy the situation. The permittee shall document the duration of every such situation in a logbook. The logbook shall be kept onsite and be available to Department personnel upon request.

SN	Control Equipment	Parameter	Units	Minimum Operating Limits
611	Scrubber	liquor flow rate	gal/min	40
		caustic concentration in scrubbing liquor	% by wt.	2.5

70. All baghouses associated with the PHT-4 Plant shall be kept in good working condition at all times and shall meet the conditions shown in the following table. [Regulation No. 19 §19.303, Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
- Each baghouse shall have a pressure drop device to measure the pressure drop across the baghouse. The pressure drop for each baghouse shall be read once each day and shall be recorded in a logbook.
 - When the meter shows the pressure drop is below the parameters as specified in the following table, action shall be taken within 12 hours to remedy the situation. The permittee shall document every such situation in a logbook. The logbook shall be kept onsite and be available to Department personnel upon request.

SN	Control Equipment	Parameter	Units	Minimum Operating Limits
608	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1

PHT -4 Production

71. The permittee shall maintain a minimum recirculation rate of 5 gallons per minute to the Condenser (SN-610). The recirculation rate shall be monitored and recorded at a minimum of once per week. Records of recirculation rate shall be maintained onsite and provided to Department personnel upon request. [Regulation No. 19 §19.303, Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
72. PHT-4 production shall not exceed 1370 PHT-4 lots per twelve consecutive months for each PHT-4 Train. [Regulation No. 19 §19.705, 40 CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
73. The permittee shall maintain records of PHT-4 production which demonstrate compliance with the limits listed in Specific Condition 72. The permittee shall maintain both monthly records and a twelve month total. The records shall be updated on a monthly basis. These records shall be kept onsite, provided to Department personnel upon request, and may be used by the Department for enforcement purposes. The permittee will submit the records to ADEQ as required by General Condition #7. [Regulation No. 19 §19.705, 40 CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
74. The permittee shall not change the compound being stored in storage tank J-901 (the phthalic anhydride storage tank, SN-604) without prior written approval from the

Department. [Regulation No. 19 §19.705, CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Testing

75. The permittee shall test scrubber, SN-611 for Bromine emissions using EPA Reference Method 26A. The test shall consist of at least 3 sampling periods at a minimum of 1 hour each. Compliance testing shall be conducted while Great Lakes operates the plant within 90% of its permitted capacity. If the plant does not attain 90% of its permitted capacity during testing, the operating rate during testing will be 90% of the maximum operating rate until the next test is complete. During the compliance test, the permittee shall measure the scrubber liquor flow rate to the scrubbers and caustic concentration of the scrubber liquids. This testing is to be completed once in the first year of every 5 year permit period. This test data shall be used for determination of compliance with the conditions set forth in this permits. [Regulation 19 §19.702 and 40 CFR Part 52 Subpart E]
76. The permittee shall test scrubber, SN-611 for PM₁₀ emissions using EPA Reference Method 201 or 201A. The test shall consist of at least 3 sampling periods at a minimum of 1 hour each. Compliance testing shall be conducted while Great Lakes operates the plant within 90% of its permitted capacity. If the plant does not attain 90% of its permitted capacity during testing, the operating rate during testing will be 90% of the maximum operating rate until the next test is complete. During the compliance test, the permittee shall measure the scrubber liquor flow rate to the scrubbers and caustic concentration of the scrubber liquids. This testing is to be completed once in the first year of every 5 year permit period. This test data shall be used for determination of compliance with the conditions set forth in this permits. [Regulation 19 §19.702 and 40 CFR Part 52 Subpart E]

PHT -4 Diol and PHT -4 Diol Blend Production

77. PHT-4 Diol production and tank throughput shall not exceed the limits indicated by the following table: [Regulation No. 19 §19.705, CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Description	Lots per Rolling 12-month basis
PHT -4 Diol Production	1,200
Tank #1 Throughput	225
Tank #2 Throughput	225
Blend Tank Throughput	450

78. The permittee shall maintain records of PET-Diol production and tank throughput that demonstrates compliance with the limits listed in Specific Condition 77. The permittee shall maintain both monthly records and a twelve-month total. The records shall be updated on a monthly basis. These records shall be kept onsite, provided to Department

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personnel upon request, and may be used by the Department for enforcement purposes. The permittee will submit the records to ADEQ as required by General Condition #7. [Regulation No. 19 §19.705 CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

DBS Unit

SN-901 DBS Vent Header Scrubber Vent; SN-902 Styrene Storage Tank (T-24); SN-914 HCl Storage Tank; SN-917 Cooling Tower; SN-918 Cooling Tower (CT-66-002); SN-920 DBS HCl Tank Scrubber Vent; SN-999 Fugitive Emissions From Equipment Leaks

Source Description

DBS Production

The dibromostyrene (DBS) process chemistry is based on three independent reactions. The process has been segmented into eight functional steps. The following is a listing and brief description of each step.

Step I Reaction: The Step I Reaction is conducted in a continuous pipe reactor. The feedstock is continuously fed to the Step I reactor, R-101, through a feed/recycle sparger. The vapor feed is introduced to the reactor in the gas section of the feed/recycle sparger. R-101 is vented to emission point SN-901.

Step I Distillation: The non-condensibles are routed from C-111 through two overhead condensers, a vapor/liquid separator (T-33), and emission point SN-901. The column bottoms are routed to an intermediate storage tank, T-06. T-06 is vented to emission point SN-901.

Pre-Bromination: Pre-bromination takes place in a reticulation loop on T-06. Bromine is added to the crude intermediate product. T-06 is vented to emission point SN-901.

Crude Intermediate Distillation: Crude intermediate product, stored in T-06, is continuously fed to C-112, a distillation column. Refined intermediate product is taken overhead as a distillate. C-112 vents through two overhead condensers and are then scrubbed. The scrubbed vapors are vented through emission point SN-910. Crude intermediate residue is removed as a bottom stream. The refined intermediate product is collected in the feed storage tanks, T-02, 04, 10, and 11, while the intermediate residue is stored in the C-112 bottoms storage tank, T-12, prior to disposal in the bromine recovery unit. The refined intermediate storage tanks vent to emission point SN-904. T-12 is vented to emission point SN-901.

Step II Reaction, Quench, and NaOH Wash: Refined intermediate is brominated batch wise in the Step II reactor, R-103, to form Step II intermediate product. After complete conversion, the reaction mass is pumped to the Step II quench reactor, R-104.

The Step II intermediate product is quenched by washing residual bromine from the reaction mass in R-104. R-104 is vented to emission point SN-901. Water is added, and the mixture is agitated and recirculated. Agitation is stopped and the phases are allowed to separate. The organic layer is directed to the caustic wash receiver, T-36, for caustic wash. T-36 is vented to emission point SN-901. The aqueous layer from R-104 is transferred to extraction. Water and a caustic are added to T-36 prior to transfer of the organic layer from R-104. The mixture is

agitated and recirculated. Agitation is stopped and the phases are allowed to separate. The organic layer is directed to the C-113 feed stock tank, T-14. T-14 vents to emission point SN-905. The aqueous layer from T-36 is transferred to extraction.

Step II Distillation: Step II intermediate product is collected as the bottoms from the column and fed to the falling film evaporator, H-10. Step II intermediate material is removed as a vapor from the falling film evaporator and is condensed in two heat exchangers prior to storage tank, T-16. T-16 vents to emission point SN-905. The residue from the falling film evaporator is stored in T-12 prior to disposal in the bromine recovery unit. T-12 is vented to emission point SN-901. The C-113 overhead vapors vent through a heat exchanger and are then scrubbed. The scrubbed vapors are vented through emission point SN-910.

Step III Reaction: Step II intermediate product is converted to Step III in a two stage continuous reaction system. Step II intermediate product is continuously added to the Step III reactor, R-105. R-105 vents to emission point SN-906. The two-phase reaction mass is transferred to D-01, a phase separator, where water is added to enhance the separation of the partially converted Step II intermediate product and the aqueous layer. D-01 vents to emission point SN-906. The organic layer underflows to R-106, the second stage reactor. R-106 vents to emission point SN-906. The aqueous phase from D-01 is directed to the T-35R scrubber, via T-51. T-35R vents to emission point SN-901. T-51 vents to emission point SN-906.

The level controlled discharge of R-106 is directed to D-02, a phase separator. D-02 vents to emission point SN-906. In D-02, water is added and the phases are allowed to separate. DBS underflows the phase separator and is routed to the Step III neutralizer, R-107. R-107 vents to emission point SN-906. The aqueous phase from D-02 is directed to T-35R, via D-04 and T-51.

Step III Reaction - Neutralization: The residual alkalinity in the DBS is neutralized in R-107. The level is maintained by discharging to D-03, a phase separator. D-03 vents to emission point SN-906. Water is added to D-03 and the phases are allowed to separate. The organic phase underflows to intermediate product storage tanks for inhibitor addition. These intermediate product storage tanks vent to emission points SN-907 and SN-908. The aqueous phase overflows to D-05, a phase separator. D-05 vents to emission point SN-901.

Specific Conditions

79. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 83 and 85. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
901	DBS Vent Header Scrubber Vent	VOC	1.2	5.3
902	Styrene Storage Tank (T-24)	VOC	0.1	0.4
917	Cooling Tower (CT-66-001)	PM ₁₀	1.3	5.4
918	Cooling Tower (CT-66-002)	PM ₁₀	0.8	3.5
999	Fugitive Emissions From Equipment Leaks	VOC	2.1	8.9

80. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 83 and 85. [Regulation 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
901	DBS Vent Header Scrubber Vent	HBr HCl	0.38 0.04	1.67 0.18
902	Styrene Storage Tank	Styrene	0.09	0.38
914	HCl Storage Tank	HCl	0.12	0.51
917	Cooling Tower (CT-66-001)	PM	1.3	5.4
918	Cooling Tower (CT-66-002)	PM	0.8	3.5
920	HCl Tank Scrubber	HCl	0.47	2.04
999	Fugitive Emissions From Equipment Leaks	HCl Hydrazine Styrene HBr Br ₂	0.09 0.01 2.02 1.3 0.18	0.36 0.05 8.83 5.67 0.79

81. The permittee is allowed to make dibromostyrene (DBS) at the DBS Plant. Other products may be produced without a permit modification if: [Regulation No. 19 §19.705, 40 CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

- a. No new equipment with air contaminant emissions will be installed, other than insignificant sources (insignificant sources may be permitted via the administrative amendment process);
- b. The worst-case emissions limits contained in this permit will not be exceeded. In addition, no new pollutants will be emitted. The permittee shall produce written emissions calculations and submit them to the Department pursuant to paragraph (d) below;
- c. No new air pollution control requirements are triggered, such as provisions of 40 CFR Part 52, Part 60, Part 61, or Part 63;
- d. The permittee submits to the Department information concerning items in paragraph (a) thru (c) above at least 30-days prior to the production of the new product and the Department does not object during this 30-day period.

Testing

82. The permittee shall measure the emissions from SN-901 during the production of the Dibromostyrene (DBS) for the pollutants specified in Specific Conditions 79 and 80. The permittee will test for VOC using Method 25A or other approved methodology, and DBS using the approved method. [Regulation No. 19 §19.702, 40 CFR Part 52, Subpart E, Regulation No. 18 §18.1002 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
 - a. At least once every five years, the permittee shall test the emissions during the production of each product manufactured associated with the emission point. Upon written request from the permittee, the ADEQ may grant a waiver (in writing) of this requirement in the event that a production run of a product will be of short duration and not amenable to the scheduling of emissions testing. The testing shall be in accordance with Plantwide Condition 3 and a test procedure which has been specifically approved by the Department prior to the testing.
 - b. During the testing, the plant shall be operated within 10 percent of the rated throughput. Failure to test at the rated throughput shall limit the production to 10 percent above the tested throughput.
 - c. The permittee will test for VOC using Method 25A or other approved methodology, and DBS, PBr₃, and BCP using the approved method.

Control Equipment Operating Parameters

83. The permittee shall replace the carbon canister(s) on SN-902 annually. [Regulation No. 19 §19.303, Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
84. The permittee will keep records of the carbon canister replacement. The records will be kept onsite and made available to Department personnel upon request. [Regulation No. 19 §19.705, 40 CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

85. The scrubber (associated with SN-901) shall be kept in good working condition at all times and shall meet the conditions shown in the following table. [Regulation No. 19 §19.303, Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
- The scrubber shall have a flow meter to measure the flow rate of the scrubbing liquor. The scrubber liquor flow rates shall be measured once per day. The result shall be kept onsite and be available to Department personnel upon request.
 - The caustic concentration shall be measured once per day. The result shall be kept onsite and be available to Department personnel upon request.
 - Should the scrubber liquor flow rate or caustic concentration drop below the minimum rate, as specified in the following table, action shall be taken within 12 hours to remedy the situation. The permittee shall document the duration of every such situation in a logbook. The logbook shall be kept onsite and be available to Department personnel upon request.

SN	Control Equipment	Parameter	Units	Minimum Operating Limits
901	Scrubber	liquor flow rate	gal/min	0.8
		caustic concentration in scrubbing liquor	%	2.5

Bromine Recovery Units

SN-1001 Bromine Recovery Unit (BRU-II); SN-2001 Bromine Recovery Unit (BRU-III)

Source Description

The Bromine Recovery Unit consists of equipment to recover bromine and chlorine from feed streams. The Bromine Recovery Unit consists of two units: BRU-II and BRU-III. During the operation of each BRU, natural gas, combustion air, and the feed streams are fed to the oxidation system. Here, the halogenated organic feed streams are converted to carbon monoxide, carbon dioxide, hydrogen bromide, hydrogen chloride, and water vapor.

Next, the off-gases go to the halogen recovery system. In this system, HBr and HCl are absorbed from the gases into an aqueous system which is then sent to the bromine plant for further processing. The gases leave the halogen recovery system and are routed through a thermal oxidizer where any remaining organics and excess CO are destroyed. The hot exhaust gasses then pass through a waste heat boiler for heat recovery steam generation and are vented to the atmosphere through SN-1001 for BRU-II and SN-2001 for BRU-III.

With recycle streams containing an appreciable amount of ash (more than 0.1% non-organics or ash), a venture scrubber is used at a particulate differential pressure set point to reduce the solids (ash) entrained in the gas stream.

Specific Conditions

86. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 88 through 99. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
1001	Bromine Recovery Unit (BRU-II)	PM ₁₀	2.0	8.8
		SO ₂	0.1	0.5
		VOC	0.1	0.5
		CO	0.3	1.4
		NO _x	2.6	11.4
2001	Bromine Recovery Unit (BRU-III)	PM ₁₀	3.4	14.6
		SO ₂	0.1	0.5
		VOC	0.2	0.6
		CO	2.1	9.2
		NO _x	2.6	11.4
2099	Fugitive Emissions From Equipment Leaks	VOC	0.3	1.1

87. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 88 through 99. [Regulation 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
1001	Bromine Recovery Unit (BRU-II)	PM	2.0	8.8
		HCl	1.30	5.70
		HBr	5.50	24.10
2001	Bromine Recovery Unit (BRU-III)	PM	3.4	14.6
		HCl	1.60	5.70
		HBr	6.70	29.30
2099	Fugitive Emissions From Equipment Leaks	Methyl Bromide	0.04	0.15
		HBr	0.12	0.50

Bromine Recovery Unit II

88. The BRU-II (SN-1001) shall only burn natural gas or a reducing agent as the auxiliary fuel. [Regulation No. 19 §19.705, 40 CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
89. Visible emissions may not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9. Compliance with opacity limits shall be demonstrated by compliance with Specific Condition 88.

SN	Limit	Regulatory Citation
1001	5%	Regulation 18 §18.501

90. The permittee is only allowed to burn the following waste streams to feed the BRU-II (SN-1001): [Regulation No. 19 §19.705, 40 CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Feed Streams for BRU-II	
CD-75 still bottoms	DBS (from Project M)
PEG Extraction Oils (from DBS)	Terroicide
Off-specification materials (from DBS)	FF-680 TBE
FF-680 Decant Oils	Bromine tower bottoms

Feed Streams for BRU-II	
Lab materials	Polydibromostyrene recycle stream
Off-specification bromobenzene	Bromochloropropane recycle streams
Methyl Bromide	

Testing

91. Every The permittee shall test the Bromine Recovery Unit, SN-1001, for PM₁₀, NO_x, HCl, HBr, and CO emissions using EPA Reference Method 201 or 201A for PM₁₀, EPA Reference Method 7E for NO_x, EPA Reference Method 26A for HCl and HBr, and EPA Reference Method 10 for CO. Each test shall consist of at least 3 sampling periods at a minimum of 1 hour each. Compliance testing shall be conducted while Great Lakes operates the plant within 90% of its permitted capacity. If the plant does not attain 90% of its permitted capacity during testing, the operating rate during testing will be 90% of the maximum operating rate until the next test is complete. During the compliance test, the permittee shall measure the scrubber liquor flow rate to the scrubbers and caustic concentration of the scrubber liquids. This testing is to be completed once in the first year of every 5 year permit period. This test data shall be used for determination of compliance with the conditions set forth in this permits. [Regulation 19 §19.702 and 40 CFR Part 52 Subpart E]
92. During the compliance testing required by Specific Condition 91 and at all times the BRU-II is operated thereafter, the permittee shall continuously monitor and record the venturi scrubber differential pressure and thermal oxidizer temperature. The venturi scrubber differential pressure shall not fall below 40" of water except when exclusively processing MeBr for Bromine recovery (the venturi scrubber is not required to be operated during this scenario). The thermal oxidizer temperature shall not fall below 1600° F. Compliance is determined based on 3-hour averages of monitored parameters. [Regulation No. 19 §19.303 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
93. The permittee shall maintain daily records of the dates and times that the BRU-II was dedicated exclusively to MeBr. The daily records shall be maintained onsite for a minimum of five years and be made available to Department personnel upon request. [Regulation No. 19 §19.705, 40 CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Bromine Recovery Unit III

94. The BRU-III (SN-2001) shall only burn natural gas or a reducing agent as the auxiliary fuel. [Regulation No. 19 §19.705, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and CFR Part 52, Subpart E]
95. Visible emissions may not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9. Compliance with opacity limits shall be demonstrated by compliance with Specific Condition 94.

SN	Limit	Regulatory Citation
2001	5%	Regulation 18 §18.501

96. The permittee is only allowed to burn the following waste streams in the BRU-III (SN-2001): [Regulation No. 19 §19.705, CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Feed Streams for BRU-III	
CD-75 still bottoms	DBS (from Project M)
PEG Extraction Oils (from DBS)	Terroicide
Off-specification materials (from DBS)	FF-680 TBE
FF-680 Decant Oils	Bromine tower bottoms
Lab materials	Polydibromostyrene recycle stream
Off-specification bromobenzene	Bromochloropropane recycle streams

Testing

97. The permittee shall test the Bromine Recovery Unit, SN-2001, for PM₁₀, NO_x, HCl, HBr, and CO emissions using EPA Reference Method 201 or 201A for PM₁₀, EPA Reference Method 7E for NO_x, EPA Reference Method 26A for HCl and HBr, and EPA Reference Method 10 for CO. Each test shall consist of at least 3 sampling periods at a minimum of 1 hour each. Compliance testing shall be conducted while Great Lakes operates the plant within 90% of its permitted capacity. If the plant does not attain 90% of its permitted capacity during testing, the operating rate during testing will be 90% of the maximum operating rate until the next test is complete. During the compliance test, the permittee shall measure the scrubber liquor flow rate to the scrubbers and caustic concentration of the scrubber liquids. This testing is to be completed once in the first year of every 5 year permit period. This test data shall be used for determination of compliance with the conditions set forth in this permits. [Regulation 19 §19.702 and 40 CFR Part 52 Subpart E]
98. During the compliance testing required by Specific Condition 97 and at all times the BRU-III is operated thereafter, the permittee shall continuously monitor and record the

venturi scrubber differential pressure. The venturi scrubber differential pressure shall not fall below 40" of water. Compliance is determined based on 3-hour averages of the monitored parameter. [Regulation No. 19 §19.303, Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

99. The permittee will continuously monitor and record the temperature of the BRU-III. The permittee will maintain a minimum temperature of 1600° F at all times the BRU-III is operating. Compliance is determined based on a 3-hour average of temperature. The permittee may test BRU III at a lower temperature to establish a lower operating temperature. The permittee will notify the Department in writing of the time and duration of any test. The permittee may submit a permit modification to incorporate the lower temperature into the permit. [Regulation 19, §19.705, A.C.A. §8-4-203 as referenced by §8-4-301 and §8-4-311]

PDBS Unit

SN-1101 Line One Polymerizer and Vacuum Pump Vent; SN-1104 Process Dust Collector; SN-1106 Vacuum Pellet Transport System; SN-1107 Line Two Polymerizer and Vacuum Pump Vent; SN-1199 Fugitive Emissions From Equipment Leaks

Source Description

PDBS Plant

The PDBS process contains two production lines. Each line has its own polymerizer and extruder. Other equipment is shared between the two lines. Raw materials are fed into the reactor where the polymerization of PDBS occurs.

In Line 1, the polymerizer vents toluene vapors, which are routed through condensers and a vacuum pump. The residual vapors from these streams are combined and emitted through vent SN-1101.

Line 2 operates in the same fashion as Line 1, except the residual vapors are routed through an additional final carbon filter before being emitted through vent SN-1107.

The raw PDBS material exiting the extruders is fed to an underwater pelletizer, where solidified strings of product are cut into pellets. The dust emissions from the dryer are vented to a baghouse duct collector, SN-1104. Other miscellaneous dust emission sources are routed to SN-1104, such as the supersack unloader, the Loss in Weight (LIW) feeder, and the mixer. The dried PDBS pellet product is conveyed to a product hopper and packaging operations. Dust emissions from the product hopper are controlled with a baghouse, SN-1106.

Specific Conditions

100. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 104 and 105. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
1101	Line One Polymerizer and Vacuum Pump Vent	VOC	1.6	6.7
1104	Process Dust Collector	PM ₁₀	0.6	2.7
1106	Vacuum Pellet Transport System	PM ₁₀	0.1	0.5
1107	Line Two Polymerizer and Vacuum Pump Vent	VOC	0.3	1.4
1199	Fugitive Emissions From Equipment Leaks	VOC	1.1	4.4

101. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 104 and 105. [Regulation 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
1101	Line One Polymerizer and Vacuum Pump Vent	Toluene	1.33	5.79
1104	Process Dust Collector	PM	0.6	2.7
1106	Vacuum Pellet Transport System	PM	0.1	0.5
1107	Line Two Polymerizer and Vacuum Pump Vent	Toluene	0.30	1.32
1199	Fugitive Emissions From Equipment Leaks	Toluene Styrene	0.40 0.61	1.75 2.65

102. Visible emissions may not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9. Compliance with opacity limits shall be demonstrated by compliance with Specific Condition 105.

SN	Limit	Regulatory Citation
1104, 1106	5%	Regulation 18 §18.501

103. The permittee is allowed to produce PDBS derivatives, pellets from the Solids Pelletizing Process, and other products at the PDBS Plant without a permit modification if: [Regulation No. 19 §19.705, 40 CFR Part 52, Subpart E, Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
- No new equipment with air contaminant emissions will be installed, other than insignificant sources (insignificant sources may be permitted via the administrative amendment process);
 - The worst-case emissions limits contained in this permit will not be exceeded. In addition, no new pollutants will be emitted. The permittee shall produce written emissions calculations and submit them to the Department pursuant to paragraph (d) below;
 - No new air pollution control requirements are triggered, such as provisions of 40 CFR Part 52, Part 60, Part 61, or Part 63;
 - The permittee submits to the Department information concerning items in paragraph (a) thru (c) above at least 30-days prior to the production of the new product and the Department does not object during this 30-day period.

Testing

104. The permittee shall test the emissions from SN-1101 during production for VOC, PM₁₀, and Toluene using Method 25A for VOC, Method 201 or 201A for PM₁₀, and Method 18 for Toluene. The test shall consist of at least 3 sampling periods at a minimum of 1 hour each. Compliance testing shall be conducted while Great Lakes operates the Plant within 90% of its permitted capacity. If the plant does not attain 90% of its permitted capacity during testing, the operating rate during testing will be 90% of the maximum operating rate until the next test is complete. This testing is to be completed once in the first year of every 5 year permit period. This test data shall be used for determination of compliance with the conditions set forth in this permit.

Upon written request from the permittee, the Department may grant a waiver (in writing) of this requirement in the event that a production run of a product will be of short duration and not amenable to the scheduling of emissions testing.

[Regulation No. 19 §19.702, 40 CFR Part 52, Subpart E, Regulation No. 18 §18.1002 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Control Equipment Operating Parameters

105. All baghouses associated with the PDBS Plant shall be kept in good working condition at all times and shall meet the conditions shown in the following table. [Regulation No. 19 §19.303, 40 CFR Part §64.6(c)(1), Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
- Each baghouse shall have a pressure drop device to measure the pressure drop across the baghouse. The pressure drop for each baghouse shall be read once each day and shall be recorded in a logbook. When the pressure drop is below 0.1 inches of H₂O, the permittee shall clean or replace the bag filters.
 - When the meter shows the pressure drop is below the parameters as specified in the following table, action shall be taken within 12 hours to remedy the situation. The permittee shall document every such situation in a logbook. The logbook shall be kept onsite and be available to Department personnel upon request.

SN	Control Equipment	Parameter	Units	Minimum Operating Limits
1104	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1
1106	Fabric Filter	Pressure drop across baghouse	In. H ₂ O	0.1

Compliance Assurance Monitoring for SN-1104 PM₁₀ emissions

106. SN-1104 is subject to and shall comply with all applicable provisions of §19.304 of Regulation 19, 40 CFR Part 52, Subpart E, and Section §64.9 for Compliance Assurance Monitoring. [40 CFR §64.6(c)(1)]
- The permittee shall maintain a minimum pressure drop of 0.1 inches of water.

- b. The permittee shall daily measure and record pressure drop readings.
 - c. The fabric filter shall be inspected weekly for physical integrity. Maintenance and repair shall be performed on an as needed basis. Records shall be kept of all weekly equipment inspections and of any maintenance performed.
 - d. Maintenance and repair shall be performed in accordance with the manufacturer's specifications.
107. SN-1104 is subject to and shall comply with all applicable provisions of §19.304 of Regulation 19, 40 CFR Part 52, Subpart E, and Section §64.9 for Compliance assurance monitoring. The following information pertaining to exceedances or excursions from permitted values shall be submitted in semi-annual reports in accordance with General Provision #7 as outlined in 40 CFR §70.6
- a. The permittee shall maintain records for SN-1104 that summarize the number, duration, and cause of excursions or exceedances of emission limits as well as corrective action taken. [40 CFR §64.9(a)(2)(i) and §64.9(b)]
 - b. The permittee shall maintain a quality improvement plan (QIP) threshold for each indicator of no more than nine excursions or 5% of the daily averages in a six-month period. [40 CFR §64.9(a)(2)(iii) and §64.9(b)]
 - c. The permittee shall develop and implement a new QIP if the threshold is exceeded during any six-month period. [40 CFR §64.9(a)(2)(iii) and §64.9(b)]
 - d. The permittee shall maintain records for SN-1104 that describes the actions taken to implement the QIP. Upon completion of the QIP, documentation shall be maintained to confirm that the plan was completed and reduced the likelihood of similar excursions or exceedances. [40 CFR §64.9(a)(2)(iii) and §64.9(b)]

SN-102 Sour Gas Flare

Source Description

Sour gas is separated from feed brine extracted from production wells at each of the well locations and each of the processing plants. The Great Lakes Chemical Company's South Plants' sour gas is transported from the well locations and processing plant via pipeline to Great Lakes' Central Plant. From the Central Plant, the combined sour gas streams are routed via pipeline to Lion Oil Company, a neighboring petroleum refinery.

When Lion Oil's amine unit is not operating, the combined sour gas streams are routed to the Great Lakes' Central Plant's sodium hydrosulfide (NaHS) unit. NaHS gas is used as fuel in the Central Plant's Boiler #2. In the event of a planned or unplanned outage of Lion Oil's amine unit, the Central Plant's NaHS unit, and /or other equipment related to the off-site transfer or processing of sour gas, the South Plant is equipped with a flare (SN-102) to burn the sour gas. The flare is equipped with a 0.125 MMBtu/hr natural gas pilot.

Specific Conditions

108. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 110 and 111. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
102	Flare (pilot combustion)	PM ₁₀	0.1	0.1
		SO ₂	0.1	0.1
		VOC	0.1	0.1
		CO	0.1	0.1
		NO _x	0.1	0.1

109. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Condition 110 and 111. [Regulation 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
102	Flare (pilot combustion)	PM	0.1	0.1

110. Visible emissions from the flare pilot (SN-102) shall not exceed 5% opacity. The permittee shall show compliance by burning only pipeline quality natural gas as fuel for the flare pilot (SN-102). [Regulation No. 18 §18.501 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

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111. The permittee shall use only pipeline quality natural gas as fuel for the flare pilot (SN-102). [Regulation No. 19 §19.705, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR Part 70.6]

Alternate Operating Scenario
 Sour Gas Flaring Events

112. During planned outages of Lion Oil's amine unit, the Central Plant's NaHS unit, and/or other equipment related to the off-site transfer or processing of sour gas (including startup and shutdown associated therewith), the permittee shall be allowed to combust the South Plant's sour gas in the South Plant's sour gas flare in accordance with Specific Conditions 113, 114, 116 and 117 or route the sour gas to another facility permitted to accept it. [Regulation 19, §19.601]
113. The permittee shall not exceed the emission rates set forth in the following table when flaring sour gas during planned outages of Lion Oil's amine unit, the Central Plant's NaHS unit, and/or other equipment related to the off-site transfer or processing of sour gas (including startup and shutdown associated therewith). The permittee shall demonstrate compliance with this condition through compliance with Specific Condition 114. [Regulation 19, §19.501 and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
102	Flare Sour Gas Combustion	PM ₁₀	2.9	0.5
		SO ₂	1060.6	35.0
		VOC	3.9	0.7
		CO	10.1	1.8
		NO _x	1.9	0.4

114. The permittee shall maintain records which document compliance with the emission limits listed in Specific Condition 113. These records shall indicate the reason for flaring, the duration of each event, the total volume of gas flared during each event, and the air emissions resulting from each event in both lb/hr and tons/yr. These records shall be updated for each flaring event, kept on site, and made available to Department personnel upon request and submitted to the Department in accordance with General Provision 7. If emissions exceed the limits in Specific Condition 113, the emissions must be reported in accordance with §19.601 or §19.602, as applicable. [Regulation No. 19, §19.705 and 40 CFR Part 52, Subpart E]
115. The permittee shall not exceed the emission rates set forth in the following table when flaring sour gas during planned outages of Lion Oil's amine unit, the Central Plant's NaHS unit, and/or other equipment related to the off-site transfer or processing of sour gas (including startup and shutdown associated therewith). The permittee shall demonstrate compliance with this condition through compliance with Specific Condition 116. [Regulation 18, §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
102	Flare Sour Gas Combustion	PM	2.9	0.5
		H ₂ S	11.3	2.0

116. The permittee shall maintain calculations demonstrating compliance with Specific Condition 115. These records shall indicate the reason for flaring, the duration of each flaring event, the total volume of gas flared during each event, and the air emissions resulting from each event in both lb/hr and tons/yr. These records shall be updated for each flaring event, kept on site, made available to Department personnel upon request and submitted to the Department in accordance with General Provision 7. If emissions exceed the limits in Specific Condition #148, the emissions must be reported in accordance with §18.1101, as applicable. [Regulation 18, §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and 8-4-311]
117. Sour gas flaring of any duration during any unplanned outage of Lion Oil's amine unit, the Central Plant's NaHS unit, and/or other equipment related to the off-site transfer or processing of sour gas (including startup and shutdown associated therewith), shall be considered an "upset condition" or "emergency condition" and shall be reported in accordance with Regulations 19, §§ 19.601, 19.602, and Regulation 18, §§ 18.1101 and 18.105, as applicable. [A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Process Water Treatment Plant

SN-201, SN-202 and SN-209

Source Description

Great Lakes Chemical Corporation operates a Process Water Treatment Plant (PWTP) at the South Plant to treat process water prior to deep well injection. The major steps in the water treatment at the PWTP are described below.

- Process Water from other South Plant process units/areas is brought to the area.
- The process water undergoes pH neutralization and treatment with anhydrous ammonia and hydrochloric acid.
- The treated water is filtered and sent for deep well injection.
- Sludge is transported off-site.

An HCl storage tank, SN-201, is present at the PWTP. HCl emissions from the tank are minimized by utilizing a water scrubber. Most storage vessels in the PWTP are open to the atmosphere. Some VOC's may be emitted since the process water contains organics in solution; SN-202 accounts for emissions from PWTP area, including wastewater storage tanks and sumps located within the various process units at the South Plant. Fugitive equipment leaks are accounted for as SN-299.

Specific Conditions

118. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by permitting emissions for this source at maximum potential. [Regulation 19 §19.501 et seq. and 40 CFR Part 52, Subpart E]

SN	Description	Pollutant	lb/hr	tpy
202	Process Water Treatment Plant (Fugitive Emissions)	VOC	9.4	40.8

119. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Condition 120. [Regulation 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN	Description	Pollutant	lb/hr	tpy
201	HCl Storage Tank Scrubber	HCl	0.47	2.04
299	Process Water Treatment Plant (Fugitive Emissions)	HCl	0.06	0.23

120. The scrubber (associated with SN-201) shall be kept in good working condition at all times and shall meet the conditions shown in the following table. [Regulation No. 19 §19.303, Regulation No. 18 §18.1104 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
- The scrubber shall have a flow meter to measure the flow rate of the scrubbing liquor. The scrubber liquor flow rates shall be measured once per day. The result shall be kept onsite and be available to Department personnel upon request.
 - The water flowrate shall be measured once per day. The result shall be kept onsite and be available to Department personnel upon request.
 - Should the scrubber liquor flow rate drop below the minimum rate, as specified in the following table, action shall be taken within 12 hours to remedy the situation. The permittee shall document the duration of every such situation in a logbook. The logbook shall be kept onsite and be available to Department personnel upon request.

SN	Control Equipment	Parameter	Units	Minimum Operating Limits
201	Scrubber	water flow rate	gal/min	5

Emergency Fire Water Pump engines

SN-203, SN-204

Source Description

Great Lakes Chemical Corporation has two emergency engines, SN-203, a 300 Hp Fire Water Pump Engine and SN-204, a 245 Hp Fire Water Pump Engine.

Specific Conditions

121. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 123 and 125. [Reg.19.501 *et seq.* and 40 C.F.R. § 52 Subpart E]

SN	Description	Pollutant	lb/hr	tpy
203	Fire Water Pump Engine (300 Hp) Emergency Engine No. 1	PM ₁₀	0.7	0.2
		SO ₂	0.7	0.2
		VOC	0.8	0.2
		CO	2.1	0.6
		NO _x	9.3	2.4
204	Fire Water Pump Engine (245 Hp) Emergency Engine No. 2	PM ₁₀	0.6	0.2
		SO ₂	0.6	0.2
		VOC	0.7	0.2
		CO	1.7	0.5
		NO _x	7.6	1.9

122. The permittee shall not exceed the emission rates set forth in the following table. The permittee shall demonstrate compliance with this condition by Specific Conditions 123 and 125. [Reg.18.801 and Ark. Code Ann. § 8-4-203 as referenced by Ark. Code Ann. §§ 8-4-304 and 8-4-311]

SN	Description	Pollutant	lb/hr	tpy
203	Fire Water Pump Engine (300 Hp) Emergency Engine No. 1	PM	0.7	0.2
		Other HAPs	0.07	0.07
204	Fire Water Pump Engine (245 Hp) Emergency Engine No. 2	PM	0.6	0.2
		Other HAPs	0.01	0.01

123. Visible emissions may not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9.

SN	Limit	Regulation Citation
203, 204	20%	§19.501

124. Annual observations of the opacity from SN-203 and SN-204 shall be conducted by a person trained but not necessarily certified in EPA Reference Method 9. If visible emissions in excess of the permittee levels are detected, the permittee shall immediately take action to identify the cause of the visible emissions in excess of the permit limit, implement corrective action, and perform an EPA Reference Method 9 test to verify emissions are not in excess of the permitted level. The permittee shall maintain records which contain the following items in order to demonstrate compliance with this specific condition. These records shall be updated monthly kept on site, and made available to Department personnel upon request.
- a. The date and time of the observation.
 - b. If visible emissions which appeared to be above the permitted limit were detected.
 - c. If visible emissions which appeared to be above the permitted limit were detected, the cause of the exceedance of the opacity limit, the corrective action taken, and if the visible emissions appeared to be below the permitted limit after the corrective action was taken.
 - d. The name of the person conducting the opacity observations.

[§19.705 of Regulation 19 and 40 CFR Part 52, Subpart E]

125. The permittee shall not operate the emergency generators SN-203 or SN-204 in excess of 500 total hours each (emergency and non-emergency) per calendar year in order to demonstrate compliance with the annual emission rate limits. Emergency operation in excess of these hours may be allowable but shall be reported and will be evaluated in accordance with Reg.19.602 and other applicable regulations. [Reg.19.705, Ark. Code Ann. § 8-4-203 as referenced by Ark. Code Ann. §§ 8-4-304 and 8-4-311, and 40 C.F.R. § 70.6]
126. The permittee shall maintain monthly records to demonstrate compliance with Specific Condition 125. The permittee shall update these records by the fifteenth day of the month following the month to which the records pertain. The calendar year totals and each individual month's data shall be maintained on-site, made available to Department personnel upon request, and submitted in accordance with General Provision #7. [Reg.19.705 and 40 C.F.R. § 52 Subpart E]
127. If you have an existing stationary RICE, excluding existing non-emergency CI stationary RICE, with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the applicable emission limitations, operating limitations and other requirements no later than June 15, 2007. If you have an existing non-emergency CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary CI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than May 3, 2013. If you have an existing stationary SI RICE with

a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than October 19, 2013. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6595(a)(1)]

128. The permittee must for SN-203 and SN-204:

- a. Change oil and filter every 500 hours of operation or annually, whichever comes first.
- b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary;
- c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

[Regulation 19, §19.304 and 40 CFR Part 63, §63.6602, Table 2c]

129. Diesel shall be the only fuel combusted at SN-203 and 204. The diesel combusted in these sources shall not exceed sulfur content of 0.0015% by weight unless a previous fuel exists on site with a sulfur content of 0.5% or less, which may be used until the supply is depleted. The facility shall maintain records which demonstrate compliance with the sulfur content limits of this condition. These records shall be maintained on-site and shall be made available to Department personnel upon request. [Regulation 19, §19.705 and 40 CFR Part 52 Subpart E, §63.6604(b)]
130. The permittee must be in compliance with the emission limitations, operating limitations, and other requirements in this subpart that apply to you at all times. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6605(a)]
131. The permittee 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 you to make any further efforts to reduce emissions if levels required by this standard have been achieved. 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. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6605(b)]
132. The permittee must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution

- control practice for minimizing emissions. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6625(e)]
133. The permittee must install a non-resettable hour meter if one is not already installed. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6625(f)]
134. The permittee must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6625(h)]
135. If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of Table 2c to this subpart or in items 1 or 4 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 business days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6625(i)]
136. The permittee must demonstrate continuous compliance with each emission limitation, operating limitation, and other requirements in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you according to methods specified in Table 6 to this subpart. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6640(a)]
137. The permittee must also report each instance in which you did not meet the requirements in Table 8 to this subpart that apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you

do not need to comply with the requirements in Table 8 to this subpart: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing emergency stationary RICE, an existing limited use stationary RICE, or an existing stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart, except for the initial notification requirements: a new or reconstructed stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new or reconstructed emergency stationary RICE, or a new or reconstructed limited use stationary RICE. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6640(e)]

138. The permittee must operate the emergency stationary RICE according to the requirements in paragraphs (a) through (d) of this section. In order for the engine to be considered an emergency stationary RICE 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 (a) through (d) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (a) through (d) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.
- a. There is no time limit on the use of emergency stationary RICE in emergency situations.
 - b. You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (c) and (d) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (b).
 - i. Emergency stationary RICE 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 RICE beyond 100 hours per calendar year.
 - ii. Emergency stationary RICE 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 §63.14), 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.

- iii. Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
- c. Emergency stationary RICE located at major sources of HAP 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 (f)(2) of this section. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.
- d. Emergency stationary RICE located at area sources of HAP 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 (f)(2) of this section. Except as provided in paragraphs (f)(4)(i) and (ii) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency 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.

[Regulation 19, §19.304 and 40 CFR Part 63, §63.6640(f)]

139. The permittee must comply with the emission and operating limitations, you must keep the records described in paragraphs (a)(1) through (a)(5).
- a. N/A
 - b. Records of the occurrence and duration of each malfunction of operation (*i.e.*, process equipment) or the air pollution control and monitoring equipment.
 - c. N/A
 - d. Records of all required maintenance performed on the air pollution control and monitoring equipment.
 - e. Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

[Regulation 19, §19.304 and 40 CFR Part 63, §63.6655(a)]

140. The permittee must keep the records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applies to you.
[Regulation 19, §19.304 and 40 CFR Part 63, §63.6655(d)]

141. The permittee must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan if you own or operate any of the following stationary RICE. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6655(e)(2)]
142. The permittee must, for SN-203 and SN-204, keep records of hours of operation through a non-resettable hour meter. Documentation must be maintained recording the number of hours spent for emergency operation, including what classified the operation as emergency, and the number of hours spent for non-emergency operation. [Regulation 19, §19.304, 40 CFR Part 63, §63.6625(f) and §63.6655(f)]
143. The permittee must maintain records required by 40 CFR Part 63, Subpart ZZZZ, for SN-203 and SN-204 for 5 years in suitable form and readily available for review. [Regulation 19, §19.304 and 40 CFR Part 63, §63.6660]

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SECTION V: COMPLIANCE PLAN AND SCHEDULE

Great Lakes Chemical Corporation - South Plant will continue to operate in compliance with those identified regulatory provisions. The facility will examine and analyze future regulations that may apply and determine their applicability with any necessary action taken on a timely basis.

SECTION VI: PLANTWIDE CONDITIONS

1. The permittee shall notify the Director in writing within thirty (30) days after commencing construction, completing construction, first placing the equipment and/or facility in operation, and reaching the equipment and/or facility target production rate. [Regulation 19 §19.704, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
2. If the permittee fails to start construction within eighteen months or suspends construction for eighteen months or more, the Director may cancel all or part of this permit. [Regulation 19 §19.410(B) and 40 CFR Part 52, Subpart E]
3. The permittee must test any equipment scheduled for testing, unless otherwise stated in the Specific Conditions of this permit or by any federally regulated requirements, within the following time frames: (1) new equipment or newly modified equipment within sixty (60) days of achieving the maximum production rate, but no later than 180 days after initial start up of the permitted source or (2) operating equipment according to the time frames set forth by the Department or within 180 days of permit issuance if no date is specified. The permittee must notify the Department of the scheduled date of compliance testing at least fifteen (15) business days in advance of such test. The permittee shall submit the compliance test results to the Department within thirty (30) calendar days after completing the testing. [Regulation 19 §19.702 and/or Regulation 18 §18.1002 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
4. The permittee must provide:
 - a. Sampling ports adequate for applicable test methods;
 - b. Safe sampling platforms;
 - c. Safe access to sampling platforms; and
 - d. Utilities for sampling and testing equipment.

[Regulation 19 §19.702 and/or Regulation 18 §18.1002 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
5. The permittee must operate the equipment, control apparatus and emission monitoring equipment within the design limitations. The permittee shall maintain the equipment in good condition at all times. [Regulation 19 §19.303 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
6. This permit subsumes and incorporates all previously issued air permits for this facility. [Regulation 26 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
7. For any emission sources subject to requirements under this permit which are shut down or removed from service for all or a portion of the permit term, the permittee shall maintain documentation of the date that the equipment was shut down or removed from

service. If the source is returned to service at a later date, then this date shall also be documented on these records. These records shall be maintained in a well-organized format, made available to Department personnel upon request, and submitted in accordance with General Provision #7. Any emission source which is properly documented in accordance with this condition shall be exempt from applicable performance testing, monitoring, recordkeeping, and/or reporting requirements of this permit during the period that the source is not in operation. The permittee shall comply with all such applicable requirements at all times while a source is in operation. This condition does not relieve the permittee of the obligation to comply with applicable requirements contained in federal regulations to which the facility is subject.

MON MACT 40 CFR Part 63, Subpart FFFF

8. This facility is subject to and shall comply with all applicable provisions of 40 CFR Part 63 Subpart FFFF – National Emissions Standards for Hazardous Air Pollutants for Miscellaneous Organic Chemical Manufacturing. The requirements of Subpart FFFF as they apply to this facility are summarized below. The process units affected by FFFF are in the tables below. [§19.304 of Regulation 19 and 40 CFR §63.2435]

CD-75P Unit		
Equipment ID	Description	Group Determination (Subject/Exempt)
Batch Process Vent Group Determinations		
RX-65-101	Brominator Reactor	Subject
RX-65-102	Bromination Reactor	
TT-65-101	EDC/EtOH Storage	
TT-65-201	EDC/EtOH Storage	
TT-65-301	EDC/EtOH Storage	
TK-65-501	CD-75P Slurry Tank	
TT-65-501	Solvent Storage	
TT-65-502	Solvent Storage	
CF-65-800	V-501 Centrifuge	
SH-100	Centrifuge Cake Hopper	
DR-65-028	Dryer	
TT-65-100	Mother Liquor Receiver	
TT-65-517	EDC/EtOH Tank	Exempt – total HAP <200 lb/yr
TK-65-901	Bromine Shot Tank	Exempt – total HAP <200 lb/yr
Continuous Process Vent Group Determinations		
Equipment ID	Description	Group Determination (Subject/Exempt)
TT-65-506	EDC Storage	Subject
TT-65-510	Wet Ethanol Storage	Exempt - <50 ppmv HAP

CD-75P Unit		
Equipment ID	Description	Group Determination (Subject/Exempt)
VS-65-611	Water Scrubber Vent	Subject
Storage Tanks		
Equipment ID	Description	Group Determination (Subject/Exempt)
TT-65-902	Ethylene Dichloride Storage Tank	Subject
TT-65-901	Bromine Storage; Storage Tank	Subject
TT-65-905	CDDT Storage; Storage Tank	Subject
TT-65-904	Ethanol Storage Tank	Subject
TT-65-900	TBE Storage; Storage Tank	Subject
TT-65-502	Collector Tank Still Pot; Surge Control Vessel	Subject
TT-65-201	Still Pot Holding Pot; Bottoms Receiver	Subject
TT-65-402	Solvent Collection Tank; Bottoms Receiver	Subject
TT-65-403	Solvent Collection Tank; Bottoms Receiver	Subject
TT-65-500	EDC Stripper Feed Tank (EDC Stripper operating); Surge Control Vessel	Subject
TT-65-516	EDC Stripper Feed Tank (EDC Stripper operating); Surge Control Vessel	Subject
TT-65-518	EDC Stripper Feed Tank (EDC Stripper operating); Surge Control Vessel	Subject
Wastewater		
CL-65-510	Ethanol Column Effluent	Subject
TT-65-906	Bromine Shot Tank Scrubber Effluent	Subject
--	CD75P Process Sump	Subject
TT-65-500	EDC Stripper Feed Tank	Subject
TT-65-516	EDC Stripper Feed Tank	Subject
TT-65-518	EDC Stripper Feed Tank	Subject
Heat Exchangers		
Equipment ID	Description	Group Determination (Subject/Exempt)
CT-65-026	CD75P Water Cooling Tower System	Subject
CT-65-027	CD75P Water Cooling Tower System	Subject

FF680 Unit		
Equipment ID	Description	Group Determination (Subject/Exempt)
Batch Process Vent Group Determinations		
RX-62-001	R1 Bromination Reactor	Subject
RX-62-002	R2 Bromination Reactor	
RX-62-003	R3 Bromination Reactor	
RX-62-004	R4 Bromination Reactor	
TT-62-010	TPB Weigh Tank	Exempt – Total HAP <200 lb/yr
TT-62-029	Dirty HBr Tank	Exempt – Total HAP <200 lb/yr
TT-62-102	48% HBr Tank	Exempt – Total HAP <200 lb/yr
TK-62-055	TPB Steam Strip Tank	Exempt – Total HAP <200 lb/yr
--	Overflow Box	Exempt – Total HAP <200 lb/yr
TK-62-058	TBP Water Wash Tank	Exempt – Total HAP <200 lb/yr
TK-62-059	TBP Water Wash Tank	Exempt – Total HAP <200 lb/yr
TK-62-052	TBP Flaker Feed Tank	Exempt – Total HAP <200 lb/yr
DF-62-001	TBP Flaker	Exempt – Total HAP <200 lb/yr
PH-62-001	Agitated Feed Hopper	Exempt – Total HAP <200 lb/yr
TT-61-017	PG Blend Tank	Exempt – Total HAP <200 lb/yr
TT-61-012	Bromine Measure Pot	Exempt – Total HAP <200 lb/yr
TT-61-009	EDB Weigh Tank	Subject
RX-61-005	Condensation Reactor	
RX-61-006	Condensation Reactor	
RX-61-007	Condensation Reactor	
TK-61-014	T-42 Feed Tank	
TK-61-015	T-42 Feed Tank	
TK-62-055	TPB Steam Strip Tank	
--	Overflow Box	
TK-62-052	TBP Flaker Feed Tank	
DF-62-001	TBP Flaker	
PH-62-010	Agitated Feed Hopper	
Continuous Process Vent Group Determinations		
Equipment ID	Description	Group Determination (Subject/Exempt)
WP-61-001	E1 Still System	Subject
CL-61-009	PC9 IPA Still System	
TT-61-040	M/L Filtrate Tank	
TT-61-041	IPA Filtrate Tank	
TT-61-046	Vent Recovery Tank	
TT-61-038	Product Water Wash Tank	
CF-61-001	Primary Centrifuge	
BH-62-002	Packaging Baghouse	Exempt – Total HAP <50 ppmv
FT-61-001	Filter Belt	Exempt – Total HAP <50

FF680 Unit		
Equipment ID	Description	Group Determination (Subject/Exempt)
		ppmv
DR-61-001	FF680 Dryer	Exempt – Total HAP <50 ppmv
TT-61-045	PG Separator Tank	Exempt – Total HAP <50 ppmv
TT-61-034	IPA Still Feed Tank	Subject
TT-61-016	PG ML Tank	Subject
WP-61-002	E2 PG/Water Still System	Subject
Storage Tanks		
Equipment ID	Description	Group Determination (Subject/Exempt)
TT-62-003	Phenol Storage Tank	Subject
TT-62-037	Phenol Storage Tank	Subject
TT-60-054	Hydrazine Storage Tank	Subject
TT-60-TOT	Hydrazine Tote Bin; Storage Tank	Subject
TT-61-035	EDB Storage Tank	Subject
TT-61-031	PB Storage Tank	Subject
TT-61-322	Vacuum Receiver; Surge Control	Subject
TT-61-022	Vacuum Receiver; Surge Control	Subject
TT-61-023	PC-8 Surge Tank; Surge Control	Subject
TT-61-030	IPA/PG Filtrate Tank; Surge Control	Subject
TT-61-033	IPA Feed Tank; Surge Control	Subject
TT-61-042	Centrifuge Charge Tank; Surge Control	Subject
TT-61-047	E-1 Bottoms Receiver	Subject
TT-61-048	E-1 Bottoms Receiver	Subject
TT-61-049	E-2 Feed Tank; Surge Control	Subject
TT-61-051	E-2 Bottoms Receiver	Subject
TT-62-006	PC-3 Surge Tank; Surge Control	Subject
TT-62-004	PC-2 Surge Tank; Surge Control	Subject
TT-62-056	PC-5 Surge Tank; Surge Control	Subject
TT-61-021	TBE Neutralizer Tank; Surge Control	Subject
TT-61-024	TBE Recirculation Tank; Surge Control	Subject
TT-61-036	Seal Flush Tank; Surge Control	Subject
TT-62-053	PC-1 Surge Tank; Surge Control	Subject
TT-62-025	PC-11 Surge Tank; Surge Control	Subject
Wastewater		
Equipment ID	Description	Group Determination (Subject/Exempt)
LIQ 1	TT-62-006 PC-3 Surge Tank	Subject

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FF680 Unit		
Equipment ID	Description	Group Determination (Subject/Exempt)
	wastewater	
LIQ 2	TT-62-004 PC-2 Surge Tank wastewater	Subject
LIQ 3	TT-62-053 PC-1 Surge Tank wastewater	Subject
LIQ 4	FP-62-001 filter bag waste	Subject
LIQ 5A	TK-62-058 wastewater	Subject
LIQ 5B	TK-62-059 wastewater	Subject
LIQ 9	FB-62-101, 102, 103 carbon waste	Subject
LIQ 10	FP-62-003 filter bag waste	Subject
LIQ 11	FB-62-104 carbon waste	Subject
LIQ 12	TT-61-004 PC-4 Surge Tank wastewater	Subject
LIQ 13	Wastewater from TT-61-028 to sump	Subject
LIQ 14	TT-61-021 TBE Neutralization Tank wastewater	Subject
LIQ 24	Waste from TT-61-045 PG Storage Separator Tank	Subject
LIQ 25	CL-61-010 PC-10 bottoms waste	Subject
LIQ 26	Liquid condensed in CD-61-023	Subject
LIQ 28	CL-61-009 PC-9 wastewater	Subject
LIQ 30	TT-61-038 floor drain	Subject
Transfer Racks		
Equipment ID	Description	Group Determination (Subject/Exempt)
N/A	FF680 Loadout to Truck/Railcar	Subject
Heat Exchangers		
Equipment ID	Description	Group Determination (Subject/Exempt)
Various	FF680 Cooling Towers	Subject

DBS Unit		
Batch Process Vent Deterinations		
Equipment ID	Description	Group Determination
TT-66-001	Bromine Weigh Tank	Exempt - Total <200 lb/yr HAP
HE-66-043	HBr Heat Exchanger	Exempt - <50 ppmv HAP
TT-66-007	BEB Wash Tank	Exempt - Total <200 lb/yr HAP
RX-66-103	Step II reactor	Exempt - Total <200 lb/yr HAP
RX-66-104	Step II Quench Reactor	Subject
RX-66-036	NaOH Wash Reactor	

TK-66-041	Aqueous Raffinate Surge Tank	
TT-66-051	Step III Caustic Receiver	Exempt - Total <200 lb/yr HAP
Continuous Process Vents		
Equipment ID	Description	Group Determination (Subject/Exempt)
RX-66-105	Step III Quench Reactor	Subject
RX-66-106	Step III Stage II Reactor	Subject
RX-66-107	Step III Neutralizer	Subject
DC-66-001	Step III Stage I Separator	Subject
DC-66-002	RX-106 Product Separator	Subject
DC-66-003	Product Separator	Subject
EV-66-010	Falling Film Separator	Subject
Storage Tanks		
Equipment ID	Description	Group Determination (Subject/Exempt)
TT-66-024	Styrene Storage Tank	Subject
TK-66-062	Liquid HBr Tank	Subject
TT-66-004	Refined BEB Storage Tank	Subject
TT-66-010	BEB Storage	Subject
TT-66-011	BEB Storage	Subject
TT-66-027	Bromine Storage	Subject
TT-66-002	BEB Storage	Subject
TT-66-090	BCP Storage Tank	Subject
TT-66-006	C-112 Feed Storage Tank	Subject
TT-66-003	Step 1 Low Assay Tank	Subject
TT-66-037	HBr Tank	Subject
TT-66-039	Step 1 Low Assay Tank	Subject
TK-66-012	Column Bottoms Tank	Subject
TT-66-028	50% NaOH Storage	Subject
TT-66-030	PEG Storage Tank	Subject
TT-66-201	36% HCl Storage Tank	Subject
TT-66-1010	Final Product Storage	Subject
TT-66-1019	Final Product Storage	Subject
TT-66-2010	Final Product Intermediate	Subject
TT-66-2019	Final Product Storage	Subject
TT-66-016	Intermediate Tank	Subject
TT-66-014	Feed Tank	Subject
TT-66-040	Intermediate Tank	Subject
TT-66-053	PEG Day Tank	Subject
Wastewater		
Equipment ID	Description	Group Determination (Subject/Exempt)
SP-66-010	BEB/H2O Decanter	Subject
TT-66-007	BEB Wash Tank	Subject

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HE-66-031	Condensers	Subject
HE-66-032	Condensers	Subject
HE-66-011	Condensers	Subject
HE-66-012	Condensers	Subject
TK-66-041	Aqueous Raffinate Surge Tank	Subject
RX-66-036	NaOH Wash Reactor	Subject
HE-66-021	Condensers	Subject
HE-66-022	Condensers	Subject
TT-66-035	HBr/NaOH Scrubber Tank	Subject
Transfer Racks		
Equipment ID	Description	Group Determination (Subject/Exempt)
DBS	DBS Tank Truck and Railcar Loading	Subject
Heat Exchangers		
Equipment ID	Description	Group Determination (Subject/Exempt)
Various	BEB Process Area Cooling Towers	Subject
Various	DBS Process Area Cooling Towers	Subject

PDBS Unit		
Equipment ID	Description	Group Determination (Subject/Exempt)
Batch Process Vent Determinations		
TT-67-103	VAZO/Toluene	Subject
VR-67-001	Recovery Tank	Exempt – Total HAP <200lb/yr
SN-67-405	De-Watering	Exempt - <50 ppmv HAP
Continuous Process Vent Group Determinations		
FA-67-307	SN-1101 Vent	Subject
--	SN-1107 Carbon	Subject
Storage Tanks		
Equipment ID	Description	Group Determination (Subject/Exempt)
TT-67-510	n-DDM Tank	Subject
TT-67-509	GMA Tank	Subject
TT-67-101	DBS Tank	Subject
TT-67-202	CHP Tank	Subject
TT-67-104	VAZO/Toluene Feed Tank	Subject
TT-67-105	Condensate Tank	Subject
Wastewater		
Equipment ID	Description	Group Determination (Subject/Exempt)
TT-67-404	Wastewater stream from Gala Water	Subject
TT-67-404	Gala Water Surge Tank	Subject

Heat Exchangers		
Equipment ID	Description	Group Determination (Subject/Exempt)
CT-66-001	DBS Cooling Tower system	Subject

PHT -4 Unit		
Batch Process Vent Determinations		
Equipment ID	Description	Group Determination (Subject/Exempt)
RX-63-204	PHT – Diol Reactor	Subject
CD-63-300	Process Condenser	Subject
BH-63-204	PHT -4 Hopper	Exempt: Not a batch
Storage Tanks		
Equipment ID	Description	Group Determination (Subject/Exempt)
TK-63-920	Propylene Oxide Storage Tank	Subject
TT-63-915	Diethylene Glycol Storage Tank	Subject
TT-63-910	Toluene Storage Tank	Subject
TT-63-002	Diol R/C Storage	Subject
TT-63-003	Diol R/C Storage	Subject
TT-63-004	Diol R/C Storage	Subject
Transfer Racks		
Equipment ID	Description	Group Determinations (Subject/Exempt)
--	Diol T/T	Subject
Wastewater		
Equipment ID	Description	Group Determination (Subject/Exempt)
CD-63-208	Vacuum Jet Condenser	Subject
CD-63-209	Vacuum Jet Condenser	Subject
TK-63-300	Water/Toluene Decanter	Subject
FP-63-377/378	PHT4 Diol Filters	Subject
FP-63-380	Filter Pot	Subject
Heat Exchangers		
Equipment ID	Description	Group Determination (Subject/Exempt)
Various	PHT4 Diol Cooling Towers	Subject

9. General Requirements

- a. The permittee must be in compliance with the emission limits and work practice standards in tables 1 through 7 to this subpart at all times, except during periods of startup, shutdown, and malfunction (SSM), and you must meet the requirements specified in §§63.2455 through 63.2490 (or the alternative means of compliance in §63.2495, §63.2500, or §63.2505), except as specified in

paragraphs §63.2450(b) through §63.2450(s) of this section. You must meet the notification, reporting, and recordkeeping requirements specified in §§63.2515, 63.2520, and 63.2525. [40 CFR §63.2450(a)]

- b. The permittee must determine if an emission stream is a halogenated vent stream, as defined in §63.2550, by calculating the mass emission rate of halogen atoms in accordance with §63.115(d)(2)(v). Alternatively, you may elect to designate the emission stream as halogenated. [40 CFR §63.2450(b)]
- c. When organic HAP emissions from different emission types (*e.g.*, continuous process vents, batch process vents, storage tanks, transfer operations, and waste management units) are combined, you must comply with the requirements of 40 CFR §63.2450(c)(1) or (2). [40 CFR §63.2450(c)]
 - 1. The permittee must comply with the applicable requirements of this subpart for each kind of organic HAP emissions in the stream (*e.g.*, the requirements of table 1 to this subpart for continuous process vents and the requirements of table 4 to this subpart for emissions from storage tanks).
 - 2. The permittee must determine the applicable requirements based on the hierarchy presented in paragraphs (c)(2)(i) through (vi) of this section. For a combined stream, the applicable requirements are specified in the highest-listed paragraph in the hierarchy that applies to any of the individual streams that make up the combined stream. For example, if a combined stream consists of emissions from Group 1 batch process vents and any other type of emission stream, then you must comply with the requirements in paragraph (c)(2)(i) of this section for the combined stream; compliance with the requirements in paragraph (c)(2)(i) of this section constitutes compliance for the other emission streams in the combined stream. Two exceptions are that you must comply with the requirements in table 3 to this subpart and §63.2465 for all process vents with hydrogen halide and halogen HAP emissions, and recordkeeping requirements for Group 2 applicability or compliance are still required (*e.g.*, the requirement in §63.2525(f) to track the number of batches produced and calculate rolling annual emissions for processes with Group 2 batch process vents). [40 CFR §63.2450(c)(2)]
 - i. The requirements of table 2 to this subpart and §63.2460 for Group 1 batch process vents, including applicable monitoring, recordkeeping, and reporting.
 - ii. The requirements of table 1 to this subpart and §63.2455 for continuous process vents that are routed to a control device, as defined in §63.981, including applicable monitoring, recordkeeping, and reporting.

- iii. The requirements of table 5 to this subpart and §63.2475 for transfer operations, including applicable monitoring, recordkeeping, and reporting.
 - iv. The requirements of table 7 to this subpart and §63.2485 for emissions from waste management units that are used to manage and treat Group 1 wastewater streams and residuals from Group 1 wastewater streams, including applicable monitoring, recordkeeping, and reporting.
 - v. The requirements of table 4 to this subpart and §63.2470 for control of emissions from storage tanks, including applicable monitoring, recordkeeping, and reporting.
 - vi. The requirements of table 1 to this subpart and §63.2455 for continuous process vents after a recovery device including applicable monitoring, recordkeeping, and reporting.
- d. Reserved.
- e. Requirements for control devices [40 CFR §63.2450(e)]
- 1. Except when complying with §63.2485, if you reduce organic HAP emissions by venting emissions through a closed-vent system to any combination of control devices (except a flare) or recovery devices, you must meet the requirements of §63.982(c) and the requirements referenced therein.
 - 2. Except when complying with §63.2485, if you reduce organic HAP emissions by venting emissions through a closed-vent system to a flare, you must meet the requirements of §63.982(b) and the requirements referenced therein.
 - 3. If the permittee uses a halogen reduction device to reduce hydrogen halide and halogen HAP emissions from halogenated vent streams, you must meet the requirements of §63.994 and the requirements referenced therein. If you use a halogen reduction device before a combustion device, you must determine the halogen atom emission rate prior to the combustion device according to the procedures in §63.115(d)(2)(v).
- f. Requirements for flare compliance assessments.
- 1. As part of a flare compliance assessment required in §63.987(b), you have the option of demonstrating compliance with the requirements of §63.11(b) by complying with the requirements in either §63.11(b)(6)(i) or §63.987(b)(3)(ii).
 - 2. If you elect to meet the requirements in §63.11(b)(6)(i), you must keep flare compliance assessment records as specified in paragraphs (f)(2)(i) and (ii) of this section.
 - i. Keep records as specified in §63.998(a)(1)(i), except that a record of the heat content determination is not required.
 - ii. Keep records of the flare diameter, hydrogen content, exit velocity, and maximum permitted velocity. Include these

records in the flare compliance report required in §63.999(a)(2).

- g. The requirements specified in paragraphs (g)(1) through (5) of this section apply instead of or in addition to the requirements specified in subpart SS of this part 63.
 - 1. Conduct gas molecular weight analysis using Method 3, 3A, or 3B in appendix A to part 60 of this chapter.
 - 2. Measure moisture content of the stack gas using Method 4 in appendix A to part 60 of this chapter.
 - 3. If the uncontrolled or inlet gas stream to the control device contains carbon disulfide, you must conduct emissions testing according to paragraph (g)(3)(i) or (ii) of this section.
 - 4. As an alternative to using Method 18, Method 25/25A, or Method 26/26A of 40 CFR part 60, appendix A, to comply with any of the emission limits specified in tables 1 through 7 to this subpart, you may use Method 320 of 40 CFR part 60, appendix A. When using Method 320, you must follow the analyte spiking procedures of section 13 of Method 320, unless you demonstrate that the complete spiking procedure has been conducted at a similar source.
- h. Reserved
- i. When §63.997(e)(2)(iii)(C) requires you to correct the measured concentration at the outlet of a combustion device to 3 percent oxygen if you add supplemental combustion air, the requirements in either paragraph (i)(1) or (2) of this section apply for the purposes of this subpart.
 - 1. The permittee must correct the concentration in the gas stream at the outlet of the combustion device to 3 percent oxygen if you add supplemental gases, as defined in §63.2550, to the vent stream, or;
 - 2. The permittee must correct the measured concentration for supplemental gases using Equation 1 of §63.2460; you may use process knowledge and representative operating data to determine the fraction of the total flow due to supplemental gas.
- j. Each CEMS must be installed, operated, and maintained according to the applicable Performance Specification of 40 CFR part 60, appendix B, and according to paragraph (j)(2) of this section, except as specified in paragraph (j)(1)(i) of this section. For any CEMS meeting Performance Specification 8, you must also comply with appendix F, procedure 1 of 40 CFR part 60.
 - 1. Each CEMS must be installed, operated, and maintained according to the applicable Performance Specification of 40 CFR part 60, appendix B, and according to paragraph (j)(2) of this section, except as specified in paragraph (j)(1)(i) of this section. For any CEMS meeting Performance Specification 8, you must also comply with appendix F, procedure 1 of 40 CFR part 60.
 - i. If you wish to use a CEMS other than an Fourier Transform Infrared Spectroscopy (FTIR) meeting the requirements of Performance Specification 15 to measure hydrogen halide and

- halogen HAP before we promulgate a Performance Specification for such CEMS, you must prepare a monitoring plan and submit it for approval in accordance with the procedures specified in §63.8.
2. The You must determine the calibration gases and reporting units for TOC CEMS in accordance with paragraph (j)(2)(i), (ii), or (iii) of this section.
- i. For CEMS meeting Performance Specification 9 or 15 requirements, determine the target analyte(s) for calibration using either process knowledge of the control device inlet stream or the screening procedures of Method 18 on the control device inlet stream.
 - ii. For CEMS meeting Performance Specification 8 used to monitor performance of a combustion device, calibrate the instrument on the predominant organic HAP and report the results as carbon (C₁), and use Method 25A or any approved alternative as the reference method for the relative accuracy tests.
 - iii. For CEMS meeting Performance Specification 8 used to monitor performance of a noncombustion device, determine the predominant organic HAP using either process knowledge or the screening procedures of Method 18 on the control device inlet stream, calibrate the monitor on the predominant organic HAP, and report the results as C₁. Use Method 18, ASTM D6420-99, or any approved alternative as the reference method for the relative accuracy tests, and report the results as C₁.
3. The permittee must conduct a performance evaluation of each CEMS according to the requirements in 40 CFR 63.8 and according to the applicable Performance Specification of 40 CFR part 60, appendix B, except that the schedule in §63.8(e)(4) does not apply, and the results of the performance evaluation must be included in the notification of compliance status report.
4. The CEMS data must be reduced to operating day or operating block averages computed using valid data consistent with the data availability requirements specified in §63.999(c)(6)(i)(B) through (D), except monitoring data also are sufficient to constitute a valid hour of data if measured values are available for at least two of the 15-minute periods during an hour when calibration, quality assurance, or maintenance activities are being performed. An operating block is a period of time from the beginning to end of batch operations within a process. Operating block averages may be used only for batch process vent data.
5. If you add supplemental gases, you must correct the measured concentrations in accordance with paragraph (i) of this section and §63.2460(c)(6).
- k. The provisions in paragraphs (k)(1) through (6) of this section apply in addition to the requirements for continuous parameter monitoring system (CPMS) in subpart SS of this part 63. [40 CFR §63.2450(k)]

1. The permittee must record the results of each calibration check and all maintenance performed on the CPMS as specified in §63.998(c)(1)(ii)(A).
2. When subpart SS of this part 63 uses the term “a range” or “operating range” of a monitored parameter, it means an “operating limit” for a monitored parameter for the purposes of this subpart.
3. As an alternative to continuously measuring and recording pH as specified in §§63.994(c)(1)(i) and 63.998(a)(2)(ii)(D), you may elect to continuously monitor and record the caustic strength of the effluent. For halogen scrubbers used to control only batch process vents you may elect to monitor and record either the pH or the caustic strength of the scrubber effluent at least once per day.
4. As an alternative to the inlet and outlet temperature monitoring requirements for catalytic incinerators as specified in §63.988(c)(2) and the related recordkeeping requirements specified in §63.998(a)(2)(ii)(B)(2) and (c)(2)(ii), you may elect to comply with the requirements specified in paragraphs (k)(4)(i) through (iv) of this section.
 - i. Monitor and record the inlet temperature as specified in subpart SS of this part 63.
 - ii. Check the activity level of the catalyst at least every 12 months and take any necessary corrective action, such as replacing the catalyst to ensure that the catalyst is performing as designed.
 - iii. Maintain records of the annual checks of catalyst activity levels and the subsequent corrective actions.
 - iv. Recording the downstream temperature and temperature difference across the catalyst bed as specified in §63.998(a)(2)(ii)(B)(2) and (b)(2)(ii) is not required.
5. For absorbers that control organic compounds and use water as the scrubbing fluid, you must conduct monitoring and recordkeeping as specified in paragraphs (k)(5)(i) through (iii) of this section instead of the monitoring and recordkeeping requirements specified in §§63.990(c)(1), 63.993(c)(1), and 63.998(a)(2)(ii)(C).
 - i. The permittee must use a flow meter capable of providing a continuous record of the absorber influent liquid flow.
 - ii. The permittee must determine gas stream flow using one of the procedures specified in §63.994(c)(1)(ii)(A) through (D).
 - iii. The permittee must record the absorber liquid-to-gas ratio averaged over the time period of any performance test.
6. For a control device with total inlet HAP emissions less than 1 tpy, you must establish an operating limit(s) for a parameter(s) that you will measure and record at least once per averaging period (i.e., daily or block) to verify that the control device is operating properly. You may elect to measure the same parameter(s) that is required for control

devices that control inlet HAP emissions equal to or greater than 1 tpy. If the parameter will not be measured continuously, you must request approval of your proposed procedure in the precompliance report. You must identify the operating limit(s) and the measurement frequency, and you must provide rationale to support how these measurements demonstrate the control device is operating properly. [40 CFR §63.2450(k)(6)]

- l. Reserved
- m. Reserved
- n. Reserved
- o. Reserved
- p. Reserved
- q. Reserved
- r. For each surge control vessel or bottoms receiver that meets the capacity and vapor pressure thresholds for a Group 1 storage tank, you must meet emission limits and work practice standards specified in Table 4 to this subpart.

10. Continuous Process Vent Requirements (CD-75 Unit)

- a. The permittee must meet each emission limit in the following table that applies to the continuous process vents. [40 CFR §63.2455(a)]

For Each	For Which	Great Lakes Must
Group 1 continuous process vent		i. Reduce emissions of total OHAP by $\geq 98\%$ by weight or to an outlet concentration of ≤ 20 ppmv as OHAP or TOC by venting emissions through a closed vent system to any combination of control devices (except a flare); or ii. Reduce emissions of total organic HAP by venting emissions through a closed vent system to a flare; or iii. Use a recovery device to maintain the TRE above 1.9
Halogenated Group 1 Continuous Process Vent	A combustion control device is used to control organic HAP emissions.	i. Use a halogen reduction device after the combustion device to reduce emissions of hydrogen halide and halogen HAP by $\geq 99\%$ by weight, or to ≤ 0.45 kg/hr, or to ≤ 20 ppmv; or ii. Use a halogen reduction device before the combustion device to reduce the halogen atom mass emission rate to ≤ 0.45 kg/hr, or to ≤ 20 ppmv.
Group 2 continuous process vent	A recovery device is used to maintain the TRE level > 1.9 but ≤ 5.0 .	Comply with Subpart SS recovery device monitoring requirements

- b. For each continuous process vent, you must either designate the vent as a Group 1 continuous process vent or determine the total resource effectiveness (TRE) index value as specified in §63.115(d), except as specified in paragraphs (b)(1) through (3) of this section.
 - 1. The permittee is not required to determine the Group status or the TRE index value for any continuous process vent that is combined with Group 1 batch process vents before a control device or recovery device because the requirements of §63.2450(c)(2)(i) apply to the combined stream.
 - 2. When TRE index value of 4.0 is referred to in §63.115(d), TRE index values of 5.0 for existing affected sources and 8.0 for new and reconstructed affected sources apply for the purposes of this subpart.
 - 3. When §63.115(d) refers to “emission reductions specified in §63.113(a),” the reductions specified in Table 1 to this subpart apply for the purposes of this subpart.
- c. If the permittee uses a recovery device to maintain the TRE above a specified threshold, you must meet the requirements of §63.982(e) and the requirements referenced therein, except as specified in §63.2450 and paragraph (c)(1) of this section.
 - 1. When §63.993 uses the phrase “the TRE index value is between the level specified in a referencing subpart and 4.0,” the phrase “the TRE index value is >1.9 but ≤ 5.0 ” applies for an existing affected source, and the phrase “the TRE index value is >5.0 but ≤ 8.0 ” applies for a new and reconstructed affected source, for the purposes of this subpart.

11. Batch Process Vent requirements (CD-75 Unit and FF680 Unit)

- a. The permittee must meet each emission limit in the following table that applies to the batch process vents. [40 CFR §63.2460(a)]

For Each	For Which	Great Lakes Must
Process with Group 1 batch process vent	a. Reduce collective uncontrolled OHAP emissions from the sum of all batch process vents within the process by $\geq 98\%$ by weight by venting emissions from a sufficient number of the vents through a closed-vent system to any combination of control devices (except a flare); or b. Reduce collective uncontrolled OHAP emissions from the sum of all batch process vents within the process by $\geq 95\%$ by weight by venting emissions from a sufficient number of vents through a closed-vent system to any combination of recovery devices; or c. For vents with neither a flare nor the alternative standard in §63.2505 is used to reduce OHAP to ≤ 20 ppm as TOC, use a combination of a. or b. above to achieve at least 98% control or 95% recovery.	
Halogenated Group 1 Continuous Process Vent	a. Use a halogen reduction device after the combustion control device; or.	Reduce emissions of hydrogen halide and halogen HAP by $\geq 99\%$ by weight, or to ≤ 0.45 kg/hr, or ≤ 20 ppmv; or
	b. Use a halogen reduction device before the combustion control device.	Reduce the halogen atom mass emission rate to ≤ 0.45 kg/hr or to a concentration ≤ 20 ppmv.

- b. If a process has batch process vents, as defined in §63.2550, you must determine the group status of the batch process vents by determining and summing the uncontrolled organic HAP emissions from each of the batch process vents within the process using the procedures specified in §63.1257(d)(2)(i) and (ii), except as specified in paragraphs (b)(1) through (7) of this section.
1. To calculate emissions caused by the heating of a vessel without a process condenser to a temperature lower than the boiling point, you must use the procedures in §63.1257(d)(2)(i)(C)(3).

2. To calculate emissions from depressurization of a vessel without a process condenser, you must use the procedures in §63.1257(d)(2)(i)(D)(10).
3. To calculate emissions from vacuum systems for the purposes of this subpart, the receiving vessel is part of the vacuum system, and terms used in Equation 33 to 40 CFR part 63, subpart GGG, are defined as follows:

P_{system} = absolute pressure of the receiving vessel;

P_i = partial pressure of the HAP determined at the exit temperature and exit pressure conditions of the condenser or at the conditions of the dedicated receiver;

P_j = partial pressure of condensables (including HAP) determined at the exit temperature and exit pressure conditions of the condenser or at the conditions of the dedicated receiver;

MW_{HAP} = molecular weight of the HAP determined at the exit temperature and exit pressure conditions of the condenser or at the conditions of the dedicated receiver.

4. To calculate uncontrolled emissions when a vessel is equipped with a process condenser, the permittee must use the procedures in §63.1257(d)(3)(i)(B), except as specified in paragraphs (b)(4)(i) through (vii) of this section.
 - i. The permittee must determine the flowrate of gas (or volume of gas), partial pressures of condensables, temperature (T), and HAP molecular weight (MW_{HAP}) at the exit temperature and exit pressure conditions of the condenser or at the conditions of the dedicated receiver.
 - ii. The permittee must assume that all of the components contained in the condenser exit vent stream are in equilibrium with the same components in the exit condensate stream (except for noncondensables).
 - iii. The permittee must perform a material balance for each component.
 - iv. For the emissions from gas evolution, the term for time, t, must be used in Equation 12 to 40 CFR part 63, subpart GGG.
 - v. Emissions from empty vessel purging shall be calculated using Equation 36 to 40 CFR part 63, subpart GGG and the exit temperature and exit pressure conditions of the condenser or the conditions of the dedicated receiver.
 - vi. The permittee must conduct an engineering assessment as specified in §63.1257(d)(2)(ii) for each emission episode that is not due to

vapor displacement, purging, heating, depressurization, vacuum operations, gas evolution, air drying, or empty vessel purging. The requirements of paragraphs (b)(3) through (4) of this section shall apply.

- vii. The permittee may elect to conduct an engineering assessment if you can demonstrate to the Administrator that the methods in §63.1257(d)(3)(i)(B) are not appropriate.
5. The permittee may elect to designate the batch process vents within a process as Group 1 and not calculate uncontrolled emissions under either of the situations in paragraph (b)(5)(i), (ii), or (iii) of this section.
- i. If the permittee complies with the alternative standard specified in §63.2505.
 - ii. If all Group 1 batch process vents within a process are controlled; you conduct the performance test under hypothetical worst case conditions, as defined in §63.1257(b)(8)(i)(B); and the emission profile is based on capture and control system limitations as specified in §63.1257(b)(8)(ii)(C).
 - iii. If the permittee complies with an emission limit using a flare that meets the requirements specified in §63.987.
6. The permittee may change from Group 2 to Group 1 in accordance with either paragraph (b)(6)(i) or (ii) of this section. You must comply with the requirements of this section and submit the test report in the next Compliance report.
- i. The permittee may switch at any time after operating as Group 2 for at least 1 year so that you can show compliance with the 10,000 pounds per year (lb/yr) threshold for Group 2 batch process vents for at least 365 days before the switch. You may elect to start keeping records of emissions from Group 2 batch process vents before the compliance date. Report a switch based on this provision in your next compliance report in accordance with §63.2520(e)(10)(i).
 - ii. If the conditions in paragraph (b)(6)(i) of this section are not applicable, you must provide a 60-day advance notice in accordance with §63.2520(e)(10)(ii) before switching.
7. As an alternative to determining the uncontrolled organic HAP emissions as specified in §63.1257(d)(2)(i) and (ii), you may elect to demonstrate that non-reactive organic HAP are the only HAP used in the process and non-reactive HAP usage in the process is less than 10,000 lb/yr. You must provide data and supporting rationale in your notification of compliance status report explaining why the non-reactive organic HAP usage will be less than 10,000 lb/yr. You must keep records of the non-reactive organic HAP usage as specified in §63.2525(e)(2) and include information in compliance reports as specified in §63.2520(e)(5)(iv).

- c. Exceptions to the requirements in subparts SS and WW of this part 63 are specified in paragraphs (c)(1) through (9) of this section.
1. Process condensers, as defined in §63.2550(i), are not considered to be control devices for batch process vents. You must determine whether a condenser is a control device for a batch process vent or a process condenser from which the uncontrolled HAP emissions are evaluated as part of the initial compliance demonstration for each MCPU and report the results with supporting rationale in your notification of compliance status report.
 2. Initial Compliance
 - i. To demonstrate initial compliance with a percent reduction emission limit in Table 2 to this subpart FFFF, you must compare the sums of the controlled and uncontrolled emissions for the applicable Group 1 batch process vents within the process, and show that the specified reduction is met. This requirement does not apply if you comply with the emission limits of Table 2 to this subpart FFFF by using a flare that meets the requirements of §63.987.
 - ii. When the permittee conducts a performance test or design evaluation for a non-flare control device used to control emissions from batch process vents, you must establish emission profiles and conduct the test under worst-case conditions according to §63.1257(b)(8) instead of under normal operating conditions as specified in §63.7(e)(1). The requirements in §63.997(e)(1)(i) and (iii) also do not apply for performance tests conducted to determine compliance with the emission limits for batch process vents. For purposes of this subpart FFFF, references in §63.997(b)(1) to “methods specified in §63.997(e)” include the methods specified in §63.1257(b)(8).
 - iii. As an alternative to conducting a performance test or design evaluation to demonstrate initial compliance with a percent reduction requirement for a condenser, you may determine controlled emissions using the procedures specified in §63.1257(d)(3)(i)(B) and paragraphs (b)(3) through (4) of this section.
 - iv. When §63.1257(d)(3)(i)(B)(7) specifies that condenser-controlled emissions from an air dryer must be calculated using Equation 11 of 40 CFR part 63, subpart GGG, with “V equal to the air flow rate,” it means “V equal to the dryer outlet gas flow rate,” for the purposes of this subpart. Alternatively, you may use Equation 12 of 40 CFR part 63, subpart GGG, with V equal to the dryer inlet air flow rate. Account for time as appropriate in either equation.
 - v. If a process condenser is used for any boiling operations, you must demonstrate that it is properly operated according to the procedures specified in §63.1257(d)(2)(i)(C)(4)(ii) and

- (d)(3)(iii)(B), and the demonstration must occur only during the boiling operation. The reference in §63.1257(d)(3)(iii)(B) to the alternative standard in §63.1254(c) means §63.2505 for the purposes of this subpart. As an alternative to measuring the exhaust gas temperature, as required by §63.1257(d)(3)(iii)(B), you may elect to measure the liquid temperature in the receiver.
- vi. The permittee must conduct a subsequent performance test or compliance demonstration equivalent to an initial compliance demonstration within 180 days of a change in the worst-case conditions.
3. The permittee must establish operating limits under the conditions required for your initial compliance demonstration, except you may elect to establish operating limit(s) for conditions other than those under which a performance test was conducted as specified in paragraph (c)(3)(i) of this section and, if applicable, paragraph (c)(3)(ii) of this section.
- i. The operating limits may be based on the results of the performance test and supplementary information such as engineering assessments and manufacturer's recommendations. These limits may be established for conditions as unique as individual emission episodes for a batch process. You must provide rationale in the precompliance report for the specific level for each operating limit, including any data and calculations used to develop the limit and a description of why the limit indicates proper operation of the control device. The procedures provided in this paragraph (c)(3)(i) have not been approved by the Administrator and determination of the operating limit using these procedures is subject to review and approval by the Administrator.
- ii. If the permittee elects to establish separate monitoring levels for different emission episodes within a batch process, you must maintain records in your daily schedule or log of processes indicating each point at which you change from one operating limit to another, even if the duration of the monitoring for an operating limit is less than 15 minutes. You must maintain a daily schedule or log of processes according to §63.2525(c).
4. As an alternative to the requirement for daily averages in §63.998(b)(3), you may determine averages for operating blocks. An operating block is a period of time that is equal to the time from the beginning to end of batch process operations within a process.
5. Reserved.
6. Outlet concentration correction for supplemental gases. If you use a control device other than a combustion device to comply with a TOC, organic HAP, or hydrogen halide and halogen HAP outlet concentration emission limit for batch process vents, you must correct the actual concentration for supplemental gases using Equation 1 of this section;

you may use process knowledge and representative operating data to determine the fraction of the total flow due to supplemental gas.

$$C_a = C_m \left(\frac{Q_s + Q_a}{Q_a} \right)$$

Where:

C_a = corrected outlet TOC, organic HAP, or hydrogen halide and halogen HAP concentration, dry basis, ppmv;

C_m = actual TOC, organic HAP, or hydrogen halide and halogen HAP concentration measured at control device outlet, dry basis, ppmv;

Q_a = total volumetric flowrate of all gas streams vented to the control device, except supplemental gases;

Q_s = total volumetric flowrate of supplemental gases.

7.If flow to a control device could be intermittent, you must install, calibrate, and operate a flow indicator at the inlet or outlet of the control device to identify periods of no flow. Periods of no flow may not be used in daily or block averages, and it may not be used in fulfilling a minimum data availability requirement.

8.Terminology. When the term “storage vessel” is used in subpart WW of this part 63, the term “process tank,” as defined in §63.2550(i), applies for the purposes of this section.

9.Reserved.

12. Process Vents that Emit Hydrogen Halide and Halogen HAP

- a. The permittee must meet each emission limit in Table 3 to this subpart that applies to you, and you must meet each applicable requirement in §63.2465 (b) through (d) of this section.

For Each	GLCC Must
Process with uncontrolled hydrogen halide and halogen HAP emissions from process vents $\geq 1,000$ lb/yr	Reduce collective hydrogen halide and halogen HAP emissions by $\geq 99\%$ by weight or to an outlet concentration ≤ 20ppmv by venting through a closed-vent system to any combination of control devices. Reduce the halogen atom mass emission rate from the sum of all batch process vents and each individual continuous process vents to ≤ 0.45 kg/hr by venting

For Each	GLCC Must
	through a closed vent system to a halogen reduction device. [Per §63.2450(o), GLCC may not use a flare to control hydrogen halide and halogen HAP emissions.]

- b. If any process vents within a process emit hydrogen halide and halogen HAP, you must determine and sum the uncontrolled hydrogen halide and halogen HAP emissions from each of the process vents within the process using the procedures specified in §63.1257(d)(2)(i) and/or (ii), as appropriate. When §63.1257(d)(2)(ii)(E) requires documentation to be submitted in the precompliance report, it means the notification of compliance status report for the purposes of this paragraph.
- c. If collective uncontrolled hydrogen halide and halogen HAP emissions from the process vents within a process are greater than or equal to 1,000 pounds per year (lb/yr), you must comply with §63.994 and the requirements referenced therein, except as specified in §63.2465 (c)(1) through (3) of this section.

13. Storage Tank Requirements for PHT -4 and CD-75 Units

- a. The permittee must meet each emission limit in table for the storage tanks, and the permittee must meet each applicable requirement specified in paragraphs (b) through (e) of 40 CFR §63.2470. [40 CFR §63.2470(a)]

For Each	For Which	GLCC Must
Group 1 storage tank	The maximum true vapor pressure of HAP at the storage temperature is ≤ 76.6 kPa	i. Comply with the requirements of subpart WW of this part, except as specified in §63.2470; or ii. Reduce total HAP emissions by ≥ 95 percent by weight or to ≤ 20 ppmv of TOC or organic HAP and ≤ 20 ppmv of hydrogen halide and halogen HAP by venting emissions through a closed vent system to any combination of control devices (excluding a flare); or iii. Reduce total organic HAP emissions by venting emissions through a closed vent system to a flare; or iv. Reduce total HAP emissions by venting emissions to a fuel gas system or process in accordance with §63.982(d) and the requirements referenced therein.
Halogenated vent	A combustion	i. Use a halogen reduction device after the combustion

For Each	For Which	GLCC Must
stream from a Group 1 storage tank	control device to control organic HAP emissions	device to reduce emissions of hydrogen halide and halogen HAP by ≥ 99 percent by weight, or to ≤ 0.45 kg/hr, or to ≤ 20 ppmv; or ii. Use a halogen reduction device before the combustion device to reduce the halogen atom mass emission rate to ≤ 0.45 kg/hr or to a concentration ≤ 20 ppmv.

- b. Reserved.
- c. Exceptions to subparts SS and WW of this part 63.
 - 1.If the permittee conducts a performance test or design evaluation for a control device used to control emissions only from storage tanks, the permittee must establish operating limits, conduct monitoring, and keep records using the same procedures as required in subpart SS of this part 63 for control devices used to reduce emissions from process vents instead of the procedures specified in §§63.985(c), 63.998(d)(2)(i), and 63.999(b)(2). [40 CFR §63.2470(c)(1)]
 - 2.When the term “storage vessel” is used in subparts SS and WW of this part 63, the term “storage tank,” as defined in §63.2550 applies for the purposes of this subpart. [40 CFR §63.2470(c)(2)]
- d. The emission limits in Table 4 to this subpart for control devices used to control emissions from storage tanks do not apply during periods of planned routine maintenance. Periods of planned routine maintenance of each control device, during which the control device does not meet the emission limit specified in Table 4 to this subpart, must not exceed 240 hours per year (hr/yr). The permittee may submit an application to the Administrator requesting an extension of this time limit to a total of 360 hr/yr. The application must explain why the extension is needed, it must indicate that no material will be added to the storage tank between the time the 240-hr limit is exceeded and the control device is again operational, and it must be submitted at least 60 days before the 240-hr limit will be exceeded. [40 CFR §63.2470(d)]
- e. As an alternative to the emission limits specified in Table 4 to this subpart, the permittee may elect to implement vapor balancing in accordance with §63.1253(f), except as specified in paragraphs (e)(1) through (3) of 40 CFR §63.2470. [40 CFR §63.2470(e)]
 - 1.When§63.1253(f)(6)(i) refers to a 90 percent reduction, 95 percent applies for the purposes of this subpart. [40 CFR §63.2470(e)(1)]
 - 2.Comply with §63.1253(f)(6)(i), the owner or operator of an offsite cleaning or reloading facility must comply with §§63.2445 through 63.2550 instead of complying with §63.1253(f)(7)(ii), except as specified in paragraph (e)(2)(i) or (ii) of 40 CFR §63.2470. [40 CFR §63.2470(e)(2)]

- i. The reporting requirements in §63.2520 do not apply to the owner or operator of the offsite cleaning or reloading facility. [40 CFR §63.2470(e)(2)(i)]
 - ii. As an alternative to complying with the monitoring, recordkeeping, and reporting provisions in §§63.2445 through 63.2550, the owner or operator of an offsite cleaning or reloading facility may comply as specified in §63.2535(a)(2) with any other subpart of this part 63 which has monitoring, recordkeeping, and reporting provisions as specified in §63.2535(a)(2). [40 CFR §63.2470(e)(2)(ii)]
3. The permittee may elect to set a pressure relief device to a value less than the 2.5 pounds per square inch gage pressure (psig) required in §63.1253(f)(5) if the permittee provides rationale in the notification of compliance status report explaining why the alternative value is sufficient to prevent breathing losses at all times. [40 CFR §63.2470(e)(3)]
4. The permittee may comply with the vapor balancing alternative in §63.1253(f) when the storage tank is filled from a barge. All requirements for tank trucks and railcars specified in §63.1253(f) also apply to barges, except as specified in §63.2470(e)(4)(i). [40 CFR §63.2470(e)(4)]
- i. When §63.1253(f)(2) refers to pressure testing certifications, the requirements in 40 CFR 61.304(f) apply for barges. [40 CFR §63.2470(e)(4)(i)]

14. Equipment Leak Requirements

- a. The permittee must meet each requirement in table 6 to this subpart that applies to your equipment leaks, except as specified in paragraphs (b) through (d) of 40 CFR §63.2480. [40 CFR §63.2480(a)]

For All	GLCC Must
Equipment that is in organic HAP Service (CD-75 Unit)	a. Comply with the requirements of subpart UU of this part 63 and the requirements referenced therein, except as specified in §63.2480(b) and (d); or b. Comply with the requirements of subpart H of this part 63 and the requirements referenced therein, except as specified in §63.2480(b) and (d); or c. Comply with the requirements of 40 CFR part 65, subpart F and the requirements referenced therein, except as specified in §63.2480(c) and

For All	GLCC Must
	(d).

- b. If the permittee complies with either subpart H or subpart UU of this part 63, you may elect to comply with the provisions in paragraphs (b)(1) through (5) of this section as an alternative to the referenced provisions in subpart H or subpart UU of this part.
- 1.The requirements for pressure testing in §63.179(b) or §63.1036(b) may be applied to all processes, not just batch processes. [40 CFR §63.2480(b)(1)]
 - 2.For the purposes of this subpart, pressure testing for leaks in accordance with §63.179(b) or §63.1036(b) is not required after reconfiguration of an equipment train if flexible hose connections are the only disturbed equipment. [40 CFR §63.2480(b)(2)]
 - 3.For an existing source, the permittee is not required to develop an initial list of identification numbers for connectors as would otherwise be required under §63.1022(b)(1) or §63.181(b)(1)(i). [40 CFR §63.2480(b)(3)]
 - 4.For connectors in gas/vapor and light liquid service at an existing source, the permittee may elect to comply with the requirements in §63.169 or §63.1029 for connectors in heavy liquid service, including all associated recordkeeping and reporting requirements, rather than the requirements of §63.174 or §63.1027. [40 CFR §63.2480(b)(4)]
 - 5.For pumps in light liquid service in an MCPU that has no continuous process vents and is part of an existing source, the permittee may elect to consider the leak definition that defines a leak to be 10,000 parts per million (ppm) or greater as an alternative to the values specified in §63.1026(b)(2)(i) through (iii) or §63.163(b)(2). [40 CFR §63.2480(b)(5)]
- c. If the permittee complies with 40 CFR part 65, subpart F, you may elect to comply with the provisions in paragraphs (c)(1) through (9) of this section as an alternative to the referenced provisions in 40 CFR part 65, subpart F.
- 1.The requirements for pressure testing in §65.117(b) may be applied to all processes, not just batch processes. [40 CFR §63.2480(c)(1)]
 - 2.For the purposes of this subpart, pressure testing for leaks in accordance with §65.117(b) is not required after reconfiguration of an equipment train if flexible hose connections are the only disturbed equipment. [40 CFR §63.2480(c)(2)]
 - 3.For an existing source, the permittee is not required to develop an initial list of identification numbers for connectors as would otherwise be required under §65.103(b)(1). [40 CFR §63.2480(c)(3)]

4. The permittee may elect to comply with the monitoring and repair requirements specified in §65.108(e)(3) as an alternative to the requirements specified in §65.108(a) through (d) for any connectors at the affected source. [40 CFR §63.2480(c)(4)]
 5. For pumps in light liquid service in an MCPU that has no continuous process vents and is part of an existing source, the permittee may elect to consider the leak definition that defines a leak to be 10,000 ppm or greater as an alternative to the values specified in §65.107(b)(2)(i) through (iii). [40 CFR §63.2480(c)(5)]
 6. When 40 CFR part 65, subpart F refers to the implementation date specified in §65.1(f), it means the compliance date specified in §63.2445. [40 CFR §63.2480(c)(6)]
 7. When §§65.105(f) and 65.117(d)(3) refer to §65.4, it means §63.2525. [40 CFR §63.2480(c)(7)]
 8. When §65.120(a) refers to §65.5(d), it means §63.2515. [40 CFR §63.2480(c)(8)]
 9. When §65.120(b) refers to §65.5(e), it means §63.2520. [40 CFR §63.2480(c)(9)]
 - d. The provisions of this section do not apply to bench-scale processes, regardless of whether the processes are located at the same plant site as a process subject to the provisions of this subpart.
15. Heat Exchange System Requirements
- a. The permittee must comply with each requirement in the following table that applies to the permittee's heat exchange systems, except as specified in paragraphs (b) and (c) of 40 CFR §63.2490. [40 CFR §63.2490(a)]

For each	GLCC must
Heat exchange system, as defined in 63.101	Comply with the requirements of 63.104 and the requirements referenced therein, except as specified in 63.2490

- b. The phrase “a chemical manufacturing process unit meeting the conditions of §63.100 (b)(1) through (b)(3) of this section” in §63.104(a) means “an MCPU meeting the conditions of §63.2435” for the purposes of this subpart. [40 CFR §63.2490(b)]
- c. Unless one or more of the conditions specified in paragraphs (a)(1) through (a)(6) of this section are met, the permittee shall monitor each heat exchange system used to cool process equipment in a chemical manufacturing process unit meeting the conditions of §63.100(b)(1) through (b)(3) of Subpart FF, except for chemical manufacturing process units meeting the condition specified in §63.100(c) of Subpart FF, according to the provisions in either paragraph (b) or (c) of 40 CFR §63.104. Whenever a leak is detected, the permittee shall comply with the requirements in paragraph (d) of 40 CFR §63.104. [40 CFR §63.104(a)]

1. The heat exchange system is operated with the minimum pressure on the cooling water side at least 35 kilopascals greater than the maximum pressure on the process side. [40 CFR §63.104(a)(1)]
 2. There is an intervening cooling fluid, containing less than 5 percent by weight of total hazardous air pollutants listed in table 4 of this subpart, between the process and the cooling water. This intervening fluid serves to isolate the cooling water from the process fluid and the intervening fluid is not sent through a cooling tower or discharged. For purposes of this section, discharge does not include emptying for maintenance purposes. [40 CFR §63.104(a)(2)]
 3. The once-through heat exchange system is subject to a National Pollution Discharge Elimination System (NPDES) permit with an allowable discharge limit of 1 part per million or less above influent concentration or 10 percent or less above influent concentration, whichever is greater. [40 CFR §63.104(a)(3)]
 4. The once-through heat exchange system is subject to an NPDES permit that: [40 CFR §63.104(a)(4)]
 - i. Requires monitoring of a parameter(s) or condition(s) to detect a leak of process fluids into cooling water; [40 CFR §63.104(a)(4)(i)]
 - ii. Specifies or includes the normal range of the parameter or condition; [40 CFR §63.104(a)(4)(ii)]
 - iii. Requires monitoring for the parameters selected as leak indicators no less frequently than monthly for the first six months and quarterly thereafter; and [40 CFR §63.104(a)(4)(iii)]
 - iv. Requires the permittee to report and correct leaks to the cooling water when the parameter or condition exceeds the normal range. [40 CFR §63.104(a)(4)(iv)]
 5. The recirculating heat exchange system is used to cool process fluids that contain less than 5 percent by weight of total hazardous air pollutants listed in table 4 of this subpart. [40 CFR §63.105(a)(5)]
 6. The once-through heat exchange system is used to cool process fluids that contain less than 5 percent by weight of total hazardous air pollutants listed in table 9 of subpart G of this part. [40 CFR §63.104(a)(6)]
- d. The permittee can elect to comply with the requirements of paragraph (a) of 40 CFR §63.104 by monitoring the cooling water for the presence of one or more organic hazardous air pollutants or other representative substances whose presence in cooling water indicates a leak shall comply with the requirements specified in paragraphs (b)(1) through (b)(6) of 40 CFR §63.104. The cooling water shall be monitored for total hazardous air pollutants, total volatile organic compounds, total organic carbon, one or more speciated HAP compounds, or other representative substances that would indicate the presence of a leak in the heat exchange system. [40 CFR §63.104(b)]

1. The cooling water shall be monitored monthly for the first 6 months and quarterly thereafter to detect leaks. [40 CFR §63.104(b)(1)]
2. Reserved
 - i. For recirculating heat exchange systems (cooling tower systems), the monitoring of speciated hazardous air pollutants or total hazardous air pollutants refers to the hazardous air pollutants listed in table 4 of this subpart. [40 CFR §63.104(b)(2)(i)]
 - ii. For once-through heat exchange systems, the monitoring of speciated hazardous air pollutants or total hazardous air pollutants refers to the hazardous air pollutants listed in table 9 of subpart G of this part. [40 CFR §63.104(b)(2)(ii)]
3. The concentration of the monitored substance(s) in the cooling water shall be determined using any EPA-approved method listed in part 136 of 40 CFR as long as the method is sensitive to concentrations as low as 10 parts per million and the same method is used for both entrance and exit samples. Alternative methods may be used upon approval by the Administrator. [40 CFR §63.104(b)(3)]
4. The samples shall be collected either at the entrance and exit of each heat exchange system or at locations where the cooling water enters and exits each heat exchanger or any combination of heat exchangers. [40 CFR §63.104(b)(4)]
 - i. For samples taken at the entrance and exit of recirculating heat exchange systems, the entrance is the point at which the cooling water leaves the cooling tower prior to being returned to the process equipment and the exit is the point at which the cooling water is introduced to the cooling tower after being used to cool the process fluid. [40 CFR §63.104(b)(4)(i)]
 - ii. For samples taken at the entrance and exit of once-through heat exchange systems, the entrance is the point at which the cooling water enters and the exit is the point at which the cooling water exits the plant site or chemical manufacturing process units. [40 CFR §63.104(b)(4)(ii)]
 - iii. For samples taken at the entrance and exit of each heat exchanger or any combination of heat exchangers in chemical manufacturing process units, the entrance is the point at which the cooling water enters the individual heat exchanger or group of heat exchangers and the exit is the point at which the cooling water exits the heat exchanger or group of heat exchangers. [40 CFR §63.104(b)(4)(iii)]
5. A minimum of three sets of samples shall be taken at each entrance and exit as defined in paragraph (b)(4) of this section. The average entrance and exit concentrations shall then be calculated. The concentration shall be corrected for the addition of any makeup water or for any evaporative losses, as applicable. [40 CFR §63.104(b)(5)]

6. A leak is detected if the exit mean concentration is found to be greater than the entrance mean using a one-sided statistical procedure at the 0.05 level of significance and the amount by which it is greater is at least 1 part per million or 10 percent of the entrance mean, whichever is greater. [40 CFR §63.104(b)(6)]
- e. The permittee who elects to comply with the requirement of paragraph (a) of 40 CFR §63.104 by monitoring using a surrogate indicator of heat exchange system leaks shall comply with the requirements specified in paragraphs (c)(1) through (c)(3) of 40 CFR §63.104. Surrogate indicators that could be used to develop an acceptable monitoring program are ion specific electrode monitoring, pH, conductivity or other representative indicators. [40 CFR §63.104(c)]
1. The permittee shall prepare and implement a monitoring plan that documents the procedures that will be used to detect leaks of process fluids into cooling water. The plan shall require monitoring of one or more surrogate indicators or monitoring of one or more process parameters or other conditions that indicate a leak. Monitoring that is already being conducted for other purposes may be used to satisfy the requirements of this section. The plan shall include the information specified in paragraphs (c)(1)(i) and (c)(1)(ii) of 40 CFR §63.104. [40 CFR §63.104(c)(1)]
 - i. A description of the parameter or condition to be monitored and an explanation of how the selected parameter or condition will reliably indicate the presence of a leak. [40 CFR §63.104(c)(1)(i)]
 - ii. The parameter level(s) or conditions(s) that shall constitute a leak. This shall be documented by data or calculations showing that the selected levels or conditions will reliably identify leaks. The monitoring must be sufficiently sensitive to determine the range of parameter levels or conditions when the system is not leaking. When the selected parameter level or condition is outside that range, a leak is indicated. [40 CFR §63.104(c)(1)(ii)]
 - iii. The monitoring frequency which shall be no less frequent than monthly for the first 6 months and quarterly thereafter to detect leaks. [40 CFR §63.104(c)(1)(iii)]
 - iv. The records that will be maintained to document compliance with the requirements of this section. [40 CFR §63.104(c)(1)(iv)]
 2. If a substantial leak is identified by methods other than those described in the monitoring plan and the method(s) specified in the plan could not detect the leak, the permittee shall revise the plan and document the basis for the changes. The permittee shall complete the revisions to the plan no later than 180 days after discovery of the leak. [40 CFR §63.104(c)(2)]
 3. The permittee shall maintain, at all times, the monitoring plan that is currently in use. The current plan shall be maintained on-site, or shall be accessible from a central location by computer or other means that provides access within 2 hours after a request. If the monitoring plan

is superseded, the owner or operator shall retain the most recent superseded plan at least until 5 years from the date of its creation. The superseded plan shall be retained on-site (or accessible from a central location by computer or other means that provides access within two hours after a request) for at least 6 months after its creation. [40 CFR §63.104(c)(3)]

- f. If a leak is detected according to the criteria of paragraph (b) or (c) of this section, the permittee shall comply with the requirements in paragraphs (d)(1) and (d)(2) of 40 CFR §63.104(d), except as provided in paragraph (e) of 40 CFR §63.104(d). [40 CFR §63.104(d)]
 - 1. The leak shall be repaired as soon as practical but not later than 45 calendar days after the owner or operator receives results of monitoring tests indicating a leak. The leak shall be repaired unless the permittee demonstrates that the results are due to a condition other than a leak. [40 CFR §63.104(d)(1)]
 - 2. Once the leak has been repaired, the permittee shall confirm that the heat exchange system has been repaired within 7 calendar days of the repair or startup, whichever is later. [40 CFR §63.104(d)(2)]
- 16. The permittee must keep the records specified in paragraphs (a) through (k) of 40 CFR §63.2525. [40 CFR §63.2525]
 - a. Each applicable record required by subpart A of this part 63 and in referenced subparts F, G, SS, UU, WW, and GGG of this part 63 and in referenced subpart F of 40 CFR part 65. [40 CFR §63.2525(a)]
 - b. Records of each operating scenario as specified in paragraphs (b)(1) through (8) of this section. [40 CFR §63.2525(b)]
 - 1. A description of the process and the type of process equipment used. [40 CFR §63.2525(b)(1)]
 - 2. An identification of related process vents, including their associated emissions episodes if not complying with the alternative standard in §63.2505; wastewater point of determination (POD); storage tanks; and transfer racks. [40 CFR §63.2525(b)(2)]
 - 3. The applicable control requirements of this subpart, including the level of required control, and for vents, the level of control for each vent. [40 CFR §63.2525(b)(3)]
 - 4. The control device or treatment process used, as applicable, including a description of operating and/or testing conditions for any associated control device. [40 CFR §63.2525(b)(4)]
 - 5. The process vents, wastewater POD, transfer racks, and storage tanks (including those from other processes) that are simultaneously routed to the control device or treatment process(s). [40 CFR §63.2525(b)(5)]
 - 6. The applicable monitoring requirements of this subpart and any parametric level that assures compliance for all emissions routed to the control device or treatment process. [40 CFR §63.2525(b)(6)]

7. Calculations and engineering analyses required to demonstrate compliance. [40 CFR §63.2525(b)(7)]
8. For reporting purposes, a change to any of these elements not previously reported, except for paragraph (b)(5) of 40 CFR §63.2525, constitutes a new operating scenario. [40 CFR §63.2525(b)(8)]
- c. A schedule or log of operating scenarios for processes with batch vents from batch operations updated each time a different operating scenario is put into effect. [40 CFR §63.2525(c)]
- d. The information specified in paragraphs (d)(1) and (2) of 40 CFR §63.2525 for Group 1 batch process vents in compliance with a percent reduction emission limit in Table 2 to this subpart if some of the vents are controlled to less the percent reduction requirement. [40 CFR §63.2525(d)]
 1. Records of whether each batch operated was considered a standard batch. [40 CFR §63.2525(d)(1)]
 2. The estimated uncontrolled and controlled emissions for each batch that is considered to be a nonstandard batch. [40 CFR §63.2525(d)(2)]
- e. The information specified in paragraph (e)(2), (3), or (4) of 40 CFR §63.2525, as applicable, for each process with Group 2 batch process vents or uncontrolled hydrogen halide and halogen HAP emissions from the sum of all batch and continuous process vents less than 1,000 lb/yr. No records are required for situations described in paragraph (e)(1) of 40 CFR §63.2525.
 1. No records are required if the permittee documented in the permittee's notification of compliance status report that the MCPU meets any of the situations described in paragraph (e)(1)(i), (ii), or (iii) of 40 CFR §63.2525. [40 CFR §63.2525(e)(1)]
 - i. The MCPU does not process, use, or generate HAP. [40 CFR §63.2525(e)(1)(i)]
 - ii. The permittee controls the Group 2 batch process vents using a flare that meets the requirements of §63.987. [40 CFR §63.2525(e)(1)(ii)]
 - iii. The permittee controls the Group 2 batch process vents using a control device for which your determination of worst case for initial compliance includes the contribution of all Group 2 batch process vents. [40 CFR §63.2525(e)(1)(iii)]
 2. If the permittee documented in the notification of compliance status report that an MCPU has Group 2 batch process vents because the non-reactive organic HAP is the only HAP and usage is less than 10,000 lb/yr, as specified in §63.2460(b)(7), the permittee must keep records of the amount of HAP material used, and calculate the daily rolling annual sum of the amount used no less frequently than monthly. If a record indicates usage exceeds 10,000 lb/yr, the permittee must estimate emissions for the preceding 12 months based on the number of batches operated and the estimated emissions for a standard batch, and the permittee must begin recordkeeping as specified in paragraph (e)(4) of this section. After 1 year, the permittee may revert to recording only

usage if the usage during the year is less than 10,000 lb. [40 CFR §63.2525(e)(2)]

- 3.If the permittee documented in the notification of compliance status report that total uncontrolled organic HAP emissions from the batch process vents in an MCPU will be less than 1,000 lb/yr for the anticipated number of standard batches, then the permittee must keep records of the number of batches operated and calculate a daily rolling annual sum of batches operated no less frequently than monthly. If the number of batches operated results in organic HAP emissions that exceed 1,000 lb/yr, the permittee must estimate emissions for the preceding 12 months based on the number of batches operated and the estimated emissions for a standard batch, and the permittee must begin recordkeeping as specified in paragraph (e)(4) of 40 CFR §63.2525. After 1 year, the permittee may revert to recording only the number of batches if the number of batches operated during the year results in less than 1,000 lb of organic HAP emissions. [40 CFR §63.2525(e)(3)]
- 4.If the permittee meets none of the conditions specified in paragraphs (e)(1) through (3) of 40 CFR §63.2525 the permittee must keep records of the information specified in paragraphs (e)(4)(i) through (iv) of 40 CFR §63.2525[40 CFR §63.2525(e)(4)].
 - i. A record of the day each batch was completed and/or the operating hours per day for continuous operations with hydrogen halide and halogen emissions. [40 CFR §63.2525(e)(4)(i)]
 - ii. A record of whether each batch operated was considered a standard batch. [40 CFR §63.2525(e)(4)(ii)]
 - iii. The estimated uncontrolled and controlled emissions for each batch that is considered to be a nonstandard batch. [40 CFR §63.2525(e)(4)(iii)]
 - iv. Records of the daily 365-day rolling summations of emissions, or alternative records that correlate to the emissions (e.g., number of batches), calculated no less frequently than monthly. [40 CFR §63.2525(e)(4)(iv)]
- f. A record of each time a safety device is opened to avoid unsafe conditions in accordance with §63.2450(s). [40 CFR §63.2525(f)]
- g. Records of the results of each CPMS calibration check and the maintenance performed, as specified in §63.2450(k)(1). [40 CFR §63.2525(g)]
- h. For each CEMS, the permittee must keep records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period. [40 CFR §63.2525(h)]
- i. For each PUG, the permittee must keep records specified in paragraphs (i)(1) through (5) of 40 CFR §63.2525. [40 CFR §63.2525(i)]
 - 1.Descriptions of the MCPU and other process units in the initial PUG required by §63.2535(l)(1)(v). [40 CFR §63.2525(i)(1)]

2. Rationale for including each MCPU and other process unit in the initial PUG (i.e., identify the overlapping equipment between process units) required by §63.2535(l)(1)(v). 40 CFR §63.2525(i)(2)]
 3. Calculations used to determine the primary product for the initial PUG required by §63.2535(l)(2)(iv). 40 CFR §63.2525(i)(3)]
 4. Descriptions of process units added to the PUG after the creation date and rationale for including the additional process units in the PUG as required by §63.2535(l)(1)(v). 40 CFR §63.2525(i)(4)]
 5. The calculation of each primary product redetermination required by §63.2535(l)(2)(iv). 40 CFR §63.2525(i)(5)]
- j. In the SSMP required by §63.6(e)(3), the permittee is not required to include Group 2 emission points, unless those emission points are used in an emissions average. For equipment leaks, the SSMP requirement is limited to control devices and is optional for other equipment. [40 CFR §63.2525(j)]
 - k. For each bag leak detector used to monitor PM HAP emissions from a fabric filter, maintain records of any bag leak detection alarm, including the date and time, with a brief explanation of the cause of the alarm and the corrective action taken. [40 CFR §63.2525(k)]

SECTION VII: INSIGNIFICANT ACTIVITIES

The following sources are insignificant activities. Any activity that has a state or federal applicable requirement shall be considered a significant activity even if this activity meets the criteria of §26.304 of Regulation 26 or listed in the table below. Insignificant activity determinations rely upon the information submitted by the permittee in an application dated April 2, 2010.

Description	Category
DBS Unit Hot Oil Heater (0.87 MMBtu/hr)	A-1
PHT -4 Unit Hot Oil Heater (4.0 MMBtu/hr)	A-1
Fire Water Pump Engine #1 (2.5 MMBtu/hr)	A-1
Fire Water Pump Engine 32 (3.06 MMBtu/hr)	A-1
Storage Tanks: PDBS: One 6 gal, Two 45 gal; FF-680: One 30 gal; One 100 gal; PHT -4: Two 100 gal	A-2
Storage Tanks: DBS: One 4000 gal; Four 2,000 gal; One 6,400 gal; One 5,000 gal; One 320 gal; One 6,000 gal; One 700 gal PDBS: Two 500 gal; One 900 gal; One 265 gal CD-75: One 4,500 gal; One 7,500 gal FF-680: Two 2,000 gal; One 750 gal; One 10,000 gal, One 2,800 gal, One 1,400 gal PHT -4: One 6,000 gal; One 1,500 gal	A-3
Bromine Production: Caustic Storage Tank DBS Production: Caustic Storage Tank CD-75 Production: Two 20% Caustic Storage Tanks PHT -4: Caustic Storage Tank	A-4
Bromine Production Unit HBr Tank (1) Caustic Solution Tank (1) Produced Oil Tank (2) DBS Final Product Storage Tank (2) DBS HBr Storage Tank (2) DBS Vacuum Jet Condenser DBS Step III Process Vent DBS BEB Tanks Carbon Drum PDBS FT-67-107 Carbon Filter PDBS Side Feeder PDBS Super Sack Loader PDBS Dry Fines Surge Tank (1) CD-75 Tanks (2)	A-13

Great Lakes Chemical Corporation - South Plant
Permit #: 0873-AOP-R8
AFIN: 70-00037

Description	Category
FF-680 Tanks (2) FF-680 Filter Belt PHT -4 Tanks (4) PHT -4 filter Belt PHT -4 Product Blender PHT -4 Bag Loading PHT -4 Steam: Water Separator Pot NaBr Tank (1)	

SECTION VIII: GENERAL PROVISIONS

1. Any terms or conditions included in this permit which specify and reference Arkansas Pollution Control & Ecology Commission Regulation 18 or the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 *et seq.*) as the sole origin of and authority for the terms or conditions are not required under the Clean Air Act or any of its applicable requirements, and are not federally enforceable under the Clean Air Act. Arkansas Pollution Control & Ecology Commission Regulation 18 was adopted pursuant to the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 *et seq.*). Any terms or conditions included in this permit which specify and reference Arkansas Pollution Control & Ecology Commission Regulation 18 or the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 *et seq.*) as the origin of and authority for the terms or conditions are enforceable under this Arkansas statute. [40 C.F.R. § 70.6(b)(2)]
2. This permit shall be valid for a period of five (5) years beginning on the date this permit becomes effective and ending five (5) years later. [40 C.F.R. § 70.6(a)(2) and Reg.26.701(B)]
3. The permittee must submit a complete application for permit renewal at least six (6) months before permit expiration. Permit expiration terminates the permittee's right to operate unless the permittee submitted a complete renewal application at least six (6) months before permit expiration. If the permittee submits a complete application, the existing permit will remain in effect until the Department takes final action on the renewal application. The Department will not necessarily notify the permittee when the permit renewal application is due. [Reg.26.406]
4. Where an applicable requirement of the Clean Air Act, as amended, 42 U.S.C. 7401, *et seq.* (Act) is more stringent than an applicable requirement of regulations promulgated under Title IV of the Act, the permit incorporates both provisions into the permit, and the Director or the Administrator can enforce both provisions. [40 C.F.R. § 70.6(a)(1)(ii) and Reg.26.701(A)(2)]
5. The permittee must maintain the following records of monitoring information as required by this permit.
 - a. The date, place as defined in this permit, and time of sampling or measurements;
 - b. The date(s) analyses performed;
 - c. The company or entity performing the analyses;
 - d. The analytical techniques or methods used;
 - e. The results of such analyses; and
 - f. The operating conditions existing at the time of sampling or measurement.

[40 C.F.R. § 70.6(a)(3)(ii)(A) and Reg.26.701(C)(2)]

6. The permittee must retain the records of all required monitoring data and support information for at least five (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 this permit. [40 C.F.R. § 70.6(a)(3)(ii)(B) and Reg.26.701(C)(2)(b)]
7. The permittee must submit reports of all required monitoring every six (6) months. If the permit establishes no other reporting period, the reporting period shall end on the last day of the month six months after the issuance of the initial Title V permit and every six months thereafter. The report is due on the first day of the second month after the end of the reporting period. The first report due after issuance of the initial Title V permit shall contain six months of data and each report thereafter shall contain 12 months of data. The report shall contain data for all monitoring requirements in effect during the reporting period. If a monitoring requirement is not in effect for the entire reporting period, only those months of data in which the monitoring requirement was in effect are required to be reported. The report must clearly identify all instances of deviations from permit requirements. A responsible official as defined in Reg.26.2 must certify all required reports. The permittee will send the reports to the address below:

Arkansas Department of Environmental Quality
Air Division
ATTN: Compliance Inspector Supervisor
5301 Northshore Drive
North Little Rock, AR 72118-5317

[40 C.F.R. § 70.6(a)(3)(iii)(A) and Reg.26.701(C)(3)(a)]

8. The permittee shall report to the Department all deviations from permit requirements, including those attributable to upset conditions as defined in the permit.
 - a. For all upset conditions (as defined in Reg.19.601), the permittee will make an initial report to the Department by the next business day after the discovery of the occurrence. The initial report may be made by telephone and shall include:
 - i. The facility name and location;
 - ii. The process unit or emission source deviating from the permit limit;
 - iii. The permit limit, including the identification of pollutants, from which deviation occurs;
 - iv. The date and time the deviation started;
 - v. The duration of the deviation;
 - vi. The emissions during the deviation;
 - vii. The probable cause of such deviations;
 - viii. Any corrective actions or preventive measures taken or being taken to prevent such deviations in the future; and

ix. The name of the person submitting the report.

The permittee shall make a full report in writing to the Department within five (5) business days of discovery of the occurrence. The report must include, in addition to the information required by the initial report, a schedule of actions taken or planned to eliminate future occurrences and/or to minimize the amount the permit's limits were exceeded and to reduce the length of time the limits were exceeded. The permittee may submit a full report in writing (by facsimile, overnight courier, or other means) by the next business day after discovery of the occurrence, and the report will serve as both the initial report and full report.

- b. For all deviations, the permittee shall report such events in semi-annual reporting and annual certifications required in this permit. This includes all upset conditions reported in 8a above. The semi-annual report must include all the information as required by the initial and full reports required in 8a.

[Reg.19.601, Reg.19.602, Reg.26.701(C)(3)(b), and 40 C.F.R. § 70.6(a)(3)(iii)(B)]

9. If any provision of the permit or the application thereof to any person or circumstance is held invalid, such invalidity will not affect other provisions or applications hereof which can be given effect without the invalid provision or application, and to this end, provisions of this Regulation are declared to be separable and severable. [40 C.F.R. § 70.6(a)(5), Reg.26.701(E), and Ark. Code Ann. § 8-4-203 as referenced by Ark. Code Ann. §§ 8-4-304 and 8-4-311]
10. The permittee must comply with all conditions of this Part 70 permit. Any permit noncompliance with applicable requirements as defined in Regulation 26 constitutes a violation of the Clean Air Act, as amended, 42 U.S.C. § 7401, *et seq.* and is grounds for enforcement action; for permit termination, revocation and reissuance, for permit modification; or for denial of a permit renewal application. [40 C.F.R. § 70.6(a)(6)(i) and Reg.26.701(F)(1)]
11. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the conditions of this permit. [40 C.F.R. § 70.6(a)(6)(ii) and Reg.26.701(F)(2)]
12. The Department may modify, revoke, reopen and reissue the permit or terminate the permit for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. [40 C.F.R. § 70.6(a)(6)(iii) and Reg.26.701(F)(3)]
13. This permit does not convey any property rights of any sort, or any exclusive privilege. [40 C.F.R. § 70.6(a)(6)(iv) and Reg.26.701(F)(4)]

14. The permittee must furnish to the Director, within the time specified by the Director, any information that the Director 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 permittee must also furnish to the Director copies of records required by the permit. For information the permittee claims confidentiality, the Department may require the permittee to furnish such records directly to the Director along with a claim of confidentiality. [40 C.F.R. § 70.6(a)(6)(v) and Reg.26.701(F)(5)]
15. The permittee must pay all permit fees in accordance with the procedures established in Regulation 9. [40 C.F.R. § 70.6(a)(7) and Reg.26.701(G)]
16. No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes provided for elsewhere in this permit. [40 C.F.R. § 70.6(a)(8) and Reg.26.701(H)]
17. If the permit allows different operating scenarios, the permittee shall, contemporaneously with making a change from one operating scenario to another, record in a log at the permitted facility a record of the operational scenario. [40 C.F.R. § 70.6(a)(9)(i) and Reg.26.701(I)(1)]
18. The Administrator and citizens may enforce under the Act all terms and conditions in this permit, including any provisions designed to limit a source's potential to emit, unless the Department specifically designates terms and conditions of the permit as being federally unenforceable under the Act or under any of its applicable requirements. [40 C.F.R. § 70.6(b) and Reg.26.702(A) and (B)]
19. Any document (including reports) required by this permit must contain a certification by a responsible official as defined in Reg.26.2. [40 C.F.R. § 70.6(c)(1) and Reg.26.703(A)]
20. The permittee must allow an authorized representative of the Department, upon presentation of credentials, to perform the following: [40 C.F.R. § 70.6(c)(2) and Reg.26.703(B)]
 - a. Enter upon the permittee's premises where the permitted source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
 - b. Have access to and copy, at reasonable times, any records required under the conditions of this permit;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and
 - d. As authorized by the Act, sample or monitor at reasonable times substances or parameters for assuring compliance with this permit or applicable requirements.

21. The permittee shall submit a compliance certification with the terms and conditions contained in the permit, including emission limitations, standards, or work practices. The permittee must submit the compliance certification annually. If the permit establishes no other reporting period, the reporting period shall end on the last day of the anniversary month of the initial Title V permit. The report is due on the first day of the second month after the end of the reporting period. The permittee must also submit the compliance certification to the Administrator as well as to the Department. All compliance certifications required by this permit must include the following: [40 C.F.R. § 70.6(c)(5) and Reg.26.703(E)(3)]
 - a. The identification of each term or condition of the permit that is the basis of the certification;
 - b. The compliance status;
 - c. Whether compliance was continuous or intermittent;
 - d. The method(s) used for determining the compliance status of the source, currently and over the reporting period established by the monitoring requirements of this permit; and
 - e. Such other facts as the Department may require elsewhere in this permit or by § 114(a)(3) and § 504(b) of the Act.
22. Nothing in this permit will alter or affect the following: [Reg.26.704(C)]
 - a. The provisions of Section 303 of the Act (emergency orders), including the authority of the Administrator under that section;
 - b. The liability of the permittee for any violation of applicable requirements prior to or at the time of permit issuance;
 - c. The applicable requirements of the acid rain program, consistent with § 408(a) of the Act; or
 - d. The ability of EPA to obtain information from a source pursuant to § 114 of the Act.
23. This permit authorizes only those pollutant emitting activities addressed in this permit. [Ark. Code Ann. § 8-4-203 as referenced by Ark. Code Ann. §§ 8-4-304 and 8-4-311]
24. The permittee may request in writing and at least 15 days in advance of the deadline, an extension to any testing, compliance or other dates in this permit. No such extensions are authorized until the permittee receives written Department approval. The Department may grant such a request, at its discretion in the following circumstances:
 - a. Such an extension does not violate a federal requirement;
 - b. The permittee demonstrates the need for the extension; and
 - c. The permittee documents that all reasonable measures have been taken to meet the current deadline and documents reasons it cannot be met.

[Reg.18.314(A), Reg.19.416(A), Reg.26.1013(A), Ark. Code Ann. § 8-4-203 as referenced by Ark. Code Ann. §§ 8-4-304 and 8-4-311, and 40 C.F.R. § 52 Subpart E]

25. The permittee may request in writing and at least 30 days in advance, temporary emissions and/or testing that would otherwise exceed an emission rate, throughput requirement, or other limit in this permit. No such activities are authorized until the permittee receives written Department approval. Any such emissions shall be included in the facility's total emissions and reported as such. The Department may grant such a request, at its discretion under the following conditions:
- a. Such a request does not violate a federal requirement;
 - b. Such a request is temporary in nature;
 - c. Such a request will not result in a condition of air pollution;
 - d. The request contains such information necessary for the Department to evaluate the request, including but not limited to, quantification of such emissions and the date/time such emission will occur;
 - e. Such a request will result in increased emissions less than five tons of any individual criteria pollutant, one ton of any single HAP and 2.5 tons of total HAPs; and
 - f. The permittee maintains records of the dates and results of such temporary emissions/testing.

[Reg.18.314(B), Reg.19.416(B), Reg.26.1013(B), Ark. Code Ann. § 8-4-203 as referenced by Ark. Code Ann. §§ 8-4-304 and 8-4-311, and 40 C.F.R. § 52 Subpart E]

26. The permittee may request in writing and at least 30 days in advance, an alternative to the specified monitoring in this permit. No such alternatives are authorized until the permittee receives written Department approval. The Department may grant such a request, at its discretion under the following conditions:
- l. The request does not violate a federal requirement;
 - m. The request provides an equivalent or greater degree of actual monitoring to the current requirements; and
 - n. Any such request, if approved, is incorporated in the next permit modification application by the permittee.

[Reg.18.314(C), Reg.19.416(C), Reg.26.1013(C), Ark. Code Ann. § 8-4-203 as referenced by Ark. Code Ann. §§ 8-4-304 and 8-4-311, and 40 C.F.R. § 52 Subpart E]

CERTIFICATE OF SERVICE

I, Pamela Owen, hereby certify that a copy of this permit has been mailed by first class mail to
Great Lakes Chemical Corporation - South Plant, P.O. Box 7020, El Dorado, AR, 71731-7020,
on this 11th day of December, 2015.

Pamela Owen

Pamela Owen, ASIII, Air Division