STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1077-AOP-R7 AFIN: 70-00012

1. PERMITTING AUTHORITY:

Division of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

LANXESS Corporation - Central Plant
2226 Haynesville Highway
El Dorado, Arkansas 71730

3. PERMIT WRITER:

Derrick Brown

4. NAICS DESCRIPTION AND CODE:

NAICS Description: All Other Miscellaneous Chemical Product and Preparation Manufacturing
NAICS Code: 325998

5. ALL SUBMITTALS:

The following is a list of ALL permit applications included in this permit revision.

Date of Application	Type of Application (New, Renewal, Modification, Deminimis/Minor Mod, or Administrative Amendment)	Short Description of Any Changes That Would Be Considered New or Modified Emissions
9/15/2021	Minor Mod	Construct a Phosgene Generation Unit at the TCO Unit, Phosgene Flare (SN-1437) , and Safety Absorption Equipment (SN-1438)
10/06/21	Minor Mod	Addition of a methyl bromide storage tank (TT-03-039) to the Packaging and Shipping Unit
05/27/22	Minor Mod	Install and operate two new rental cooling towers (SN-414 and SN-415) to operate in place of Cooling Tower SN-411
06/17/22	Minor Mod	Removal of Sweet Gas Rental Boiler

Date of Application	Type of Application (New, Renewal, Modification, Deminimis/Minor Mod, or Administrative Amendment)	Short Description of Any Changes That Would Be Considered New or Modified Emissions
		(SN-308), removal of Alternate Vent Scrubber (SN-402); routing of emergency streams from SN-402 to SN-405; Update insignificant activities
10/07/22	Minor Mod	Usage of Bromine Tank Scrubber (SN-1202 during production downtime to empty HBr cylinders

6. REVIEWER'S NOTES:

LANXESS Corporation (LANXESS) Central Plant operates a chemical product preparation and manufacturing facility located at 2226 Haynesville Highway, Union County, El Dorado, Arkansas. This modification removes sources SN-1435, SN-411, SN-308 and SN-402. This modification adds a Phosgene Flare SN-1437, Safety Absorption Equipment SN-1438 at the TCO Unit, replaces Cooling Tower SN-411 with Rental Cooling Tower #1 SN-1414 and Rental Cooling Tower #2 SN-1415 at the Bromine Production Unit. Also, this modification adds a Methyl Bromide Storage Tank to the Packaging and Shipping Unit. Finally, this modification allows the use of the Bromine Tank Scrubber (VS-11-507) SN-1202 at the Calcium Bromide/Hydrogen Bromide Unit to empty HBr cylinders onsite. This will be done during production downtime. This modification increases permitted emissions by 7.9 tpy of PM/PM_{10}, 9.4 tpy of VOC, and 8.2 tpy of CO, emission decreases are 6.5 tpy of SO_2, and 87.1 tpy of NO_x.

7. COMPLIANCE STATUS:

The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues.

The facility has a pending CAO, and a Compliance Plan and Schedule in Section V of permit #1077-AOP-R6.

8. PSD/GHG APPLICABILITY:

a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N
If yes, were GHG emission increases significant?

b) Is the facility categorized as a major source for PSD? Y
- *Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list*

If yes for 8(b), explain why this permit modification is not PSD.

Pollutant increases associated with this modification do not trigger PSD review.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
Alkyl Bromides Unit TBBPA Unit Packaging and Shipping	VOC	NSPS Part 60, Subpart VV
SN-1907, SN-1908, SN-1909	N/A	NSPS Part 60, Subpart IIII
Facility	Benzene	NESHAP Part 61, Subpart FF
Facility – Compliance option for 40 CFR Part 63 Subpart MMM and FFFF	HAPs	NESHAP Part 63, Subpart F
TCO Unit	HAPs	NESHAP Part 63, Subpart UU
TCO Unit	HAPs	NESHAP Part 63, Subpart YY
TBBPA Unit BRU Unit	HAPs	NESHAP Part 63, Subpart MMM
Alkyl Bromides Unit OCP Unit	HAPs	NESHAP Part 63, Subpart EEEE
TBBPA Unit TCO Unit OCP Unit	HAPs	NESHAP Part 63, Subpart FFFF
SN-1903, SN-1904, SN-1905, SN-1906, SN-1907, SN-1908, SN-1909	N/A	NESHAP Part 63, Subpart ZZZZ
SN-302, SN-309	NO_x, SO_2	NSPS Part 60, Subpart Db
SN-302, SN-309	HAPs	NESHAP Part 63, Subpart DDDDD

10. UNCONSTRUCTED SOURCES:

Unconstructed Source	Permit Approval Date	Extension Requested Date	Extension Approval Date	If Greater than 18 Months without Approval, List Reason for Continued Inclusion in Permit
None				

11. PERMIT SHIELD – TITLE V PERMITS ONLY:

Did the facility request a permit shield in this application? N
(Note - permit shields are not allowed to be added, but existing ones can remain, for minor modification applications or any Rule 18 requirement.)

If yes, are applicable requirements included and specifically identified in the permit? If not, explain why.

For any requested inapplicable regulation in the permit shield, explain the reason why it is not applicable in the table below.

Source	Inapplicable Regulation	Reason
N/A		

12. COMPLIANCE ASSURANCE MONITORING (CAM) – TITLE V PERMITS ONLY:

List sources potentially subject to CAM because they use a control device to achieve compliance and have pre-control emissions of at least 100 percent of the major source level. List the pollutant of concern and a brief summary of the CAM plan (temperature monitoring, CEMs, opacity monitoring, etc.) and frequency requirements of § 64.

Source	Pollutant Controlled	Cite Exemption or CAM Plan Monitoring and Frequency
Facility	-	-

13. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

14. AMBIENT AIR EVALUATIONS:

The following are results for ambient air evaluations or modeling.

a) NAAQS

A NAAQS evaluation is not required under the Arkansas State Implementation Plan, National Ambient Air Quality Standards, Infrastructure SIPs and NAAQS SIP per Ark. Code Ann. § 8-4-318, dated March 2017 and the DEQ Air Permit Screening Modeling Instructions.

b) Non-Criteria Pollutants:

The non-criteria pollutants listed below were evaluated. Based on Department procedures for review of non-criteria pollutants, emissions of all other non-criteria pollutants are below thresholds of concern.

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Department has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m^3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Methanol	262	28.82	14.71	Y
Toluene	75.4	8.29	0.1	Y
Methanol + Methyl Bromide	262/3.83	28.82/0.421	3.0	Y
Triethalamine + Ethyl Chloride	4.14/263.9	0.455/29.0	0.01	Y
Triethylamine	4.14	0.455	2.68	N**
Ethyl chloride	263.9	29.0	3.44	Y
Methylene Chloride	173.7	19.11	3.53	Y
Cl_2*	1.45	*	*	*
HCl	2.98	0.33	6.46	N**
Hydrazine	0.013	0.001	0.08	N
Br_2	0.66	0.07	7.21	N
HBr	6.62	0.73	4.46	N
Hbr/Br_2	6.62/0.66	0.728/0.0726	2.5	N
Ammonium Bromide	No value found		0.1	
H_2S	13.94	1.53	1.31	Y
Ethyl Chloride	263.88	29.02	3.53	Y
Dichloro Benzene*	150.31	*	*	*
Benzene*	1.59	*	*	*
Formaldehyde*	1.5	*	*	*
Hexane*	176.23	*	*	*
Manganese	0.1	0.011	0.00013	Y
Mercury	0.1	0.011	0.00009	Y
Naphthalene*	52.42	*	*	*
Nickel*	1.5	*	*	*
Phosgene	0.40	0.044	0.86	N
Selenium	0.2	0.022	0.0000083	Y

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Toluene*	75.36	*	*	*
1,3 Butadiene	4.42	*	*	*
Xylenes	434.19	*	*	*
Ammonia*	17.41	*	*	*

*HAPs emitted at less than 10 tons per year each and with a TLV greater than 1 mg/m^3.

2nd Tier Screening (PAIL)

AERMOD air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound has been deemed by the Department to be one one-hundredth of the Threshold Limit Value as listed by the ACGIH.

Pollutant	PAIL ($\mu g/m^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu g/m^3$)	Pass?
Methyl Bromide	38.83	*	N**
Hydrazine	0.13	0.52	N**
Br_2	6.6	158.98	N**
HBr	66.2	124.6	N**
Phosgene	4.05	8.30	N**

**The facility is required to submit a Non-Criterial pollutant control strategy (NCPCS) evaluation and refined model per Plantwide Condition 8 of 1077-AOP-R2.
***The facility operates a phosgene monitoring system in the vicinity of the phosgene cylinders.

c) H_2S Modeling:

A.C.A. §8-3-103 requires hydrogen sulfide emissions to meet specific ambient standards. Many sources are exempt from this regulation, refer to the Arkansas Code for details.

Is the facility exempt from the H_2S Standards Y
If exempt, explain: Facility subject to NSPS Subpart VV, and is therefore exempt under A.C.A. §8-3-103(B)(ii)(c)

15. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equip.	Control Equip. Eff.	Comments
102	Testing, PAI MACT Requirements		Adsorber/Scrubber Train	VOC: 98% + Halogens: 94%+	
199	EPA Document 453/R-95-017, Table 2-4				
201	Mass Balance	Emissions estimated using saturated filling loss calculation. 36% HCl solution.	Scrubber	95%	
202	AP-42 Table 4.3-1				
299	EPA Document 453/R-95-017, Table 2-4	Calculated using equation that uses N, valves, pumps, and relief valves provided by GLCC personnel.			
302	AP-42 Tables 1.4-1, 1.4-2	SN-302: 7.6 /b PM/MMscf 280 lb NO_x/MMscf 84 lb CO/MMscf 5.5 lb VOC/MMscf 0.6 lb SO_2/MMscf 31.3 lb SO_2/MMscf:Contract Spec. for Lion Oil nat. gas SN-303 & SN902 Pilot: 7.6 /b PM/MMscf 100 lb NO_x/MMscf 84 lb CO/MMscf 5.5 lb VOC/MMscf 0.6 lb SO_2/MMscf			302-113 MMBtu/hr ; Will fire natural gas and “sweet gas”
309	AP-42, 1.4-1	NO_x and CO Vendor Data			Will fire natural gas and “sweet gas”
403	Testing HCl and Cl_2 to	5.4 E-4 lbs Br_2/hr 5.4 E-4 lbs HBr/hr	N/A	N/A	Est. using maximum stack test data and a

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equip.	Control Equip. Eff.	Comments
	be emitted in trace amounts				safety factor of 2.
405	Testing HCl and Cl_2 to be emitted in trace amounts	0.36 lb Br_2/hr 0.02 lb HBr/hr 0.0036 lb Cl_2/hr 0.0036 lb HCl/hr	Scrubber	95% for Br_2	Est. using maximum stack test data and a safety factor of 2. HCl and Cl_2 are 0.01% of HBr and Br_2.
406	Testing	0.1 lb Br_2/hr 0.01 lb Cl_2/hr	Scrubber	95% for Br_2	Est. using maximum stack test data and a safety factor of 2. Cl_2 is 0.01% of Br_2.
409	Testing	0.1 lb Cl_2/hr	Scrubber		Recent testing shows permitted rates are sufficient.
412, 413	PM/PM_{10}: AP-42 Table 13.4-1 VOC, HCl, HBr to be emitted in trace amounts	1.7 lb total liquid drift per 1000 gal circulating water flow	Drift eliminator	99.9%	0.29 total dissolved solids fraction
414	Vendor Data	0.001% drift	Drift eliminator		
415	Vendor Data	0.001% drift	Drift eliminator		
499	EPA Document 453/R-95-017, Table 2-4	N/A	N/A	N/A	Based on the number, N, of valves, pumps, and relief valves provided by GLCC personnel. These values are put into a formula.
605, 612, 653, 654, 657, 658	Tanks 4.0	N/A	N/A	N/A	Used Worst-case tank of 12,500 gallons and vapor pressure of gasoline RVP 6
660	Ideal Gas Law	N/A	Condenser	95%	300 gal/hr exhaust flow

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equip.	Control Equip. Eff.	Comments
661, 664	Tanks 4.0	N/A	N/A	N/A	Used Worst-case tank of 10,500 gallons and vapor pressure of ethanol
672	Tanks 4.0	N/A	N/A	N/A	
673	Tanks 4.0 (Assumed emissions from tanks are summed) (Assumed two trucks/railcars are loaded simultaneously)	N/A	N/A	N/A	Used Worst-case tank of 12,500 gallons and vapor pressure of gasoline RVP 6
699	EPA Document 453/R-95-017, Table 2-4	N/A	N/A	N/A	
901	Estimated using saturated filling loss calculation.	0.311 lb HCl/hr 0.005 lb HBr/hr (Release rate from scrubber)	Scrubber	95%	52% HBr Solution 36% HCl Solution
902/903	AP-42 Table 13.5-1 H_2S/SO_2: Mass Balance	76 lb PM/MMscf 580 lb NO_x/MMscf 84 lb CO/MMscf 5.5 /b VOC/MMscf 120 lb SO_2/hr 1.28 lb H_2S/hr			
906	Vendor Data	0.005% drift	Drift eliminator		
907	AP-42 Table 13.4-1 PM_{10}: 0.019 lb/1000 gal	0.020% drift			
908	Vendor Data	0.001% drift	Drift eliminator		
909	Vendor Data	0.0009% drift			
999	EPA Document 453/R-95-017, Table 2-4	Calculated using equation that uses N, valves, pumps, and relief valves provided			

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equip.	Control Equip. Eff.	Comments
		by GLCC personnel.			
1001B	Testing	0.5 lb Br_2/hr 0.01 lb Cl_2/hr			Recent testing shows Br_2 below permitted rate. Cl_2 0.01% of Br
1002, 1003, 1005, 1006, 1007	PM_{10}: 0.02 gr/dscf VOC: Testing	Max flow rates: 1002 @ 2,000 cfm 1003 @ 10,000 cfm 1005 @ 12,600 cfm 1006 @ 10,000 cfm 1007 @ 10,000 cfm			VOC, Methanol, and Methyl Bromide: Previous testing indicates that pollutants are below 1.0 lb/hr.
1008	Tanks 4.0 (VOC) AP-42 Table 13.5-1 (CO/NO_x) Table 1.4-2 (PM_{10}/SO_2)	1.51 lb VOC/hr 0.37 lb CO/MMBtu 0.068 lb NO_x/MMBtu 7.6 lb PM/MMscf 0.6 lb SO_2/MMscf 1.51 lb HAP/hr	Flare	95% (VOC)	HAPs: worst case assumption that all VOC is methanol.
1015	Engineering Estimate				Recycle Water Tank assumed to emit trace amounts of VOC
1019	Mass Balance				
1025	Testing for Br_2, Cl_2		Scrubber	Testing for compliance	2.5% caustic; min: 10 gal/min
1030	AP-42 Table 13.4-1 PM_{10}: 0.019 lb/1000 gal				Assumed a worst-case tank of 25,000 gal storing No. 2 fuel oil with 1 turnover per day
1099	EPA Document 453/R-95-017, Table 2-4				
1202	Testing Cl_2 to be emitted in trace amounts	0.000348 lb Br_2/hr; 0.00000348 lb Cl_2/hr	Scrubber	95% for Br_2	Est. using maximum stack test data and a safety factor of 2.
1203	Grain Loading	0.02 gr/cf	Fabric Filter	99% for PM/PM_{10}	600 cfm

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equip.	Control Equip. Eff.	Comments
1204	Testing HCl and Cl_2 to be emitted in trace amounts	1.2 lb HBr/hr 1.2 lb Br_2/hr 0.01 lb Cl_2/hr 0.01 lb HCl/hr	Scrubber	90% for HBr	Recent stack testing indicates permitted emissions are conservative. HCl and Cl_2 emissions are 0.01% of HBr and Br_2 emissions.
1220	AP-42 Table 13.4-1	0.019 lb PM_{10} per 1000 gal circulating water flow	N/A	N/A	1300 gpm recirculating water flow
1221	HBr: GLCC Process Engineer Estimate HCl to be emitted in trace amounts	3 ppmv HBr	Scrubber	90%	These units are not required to be operated and sources are permitted separately
1230	Process simulation software.	Estimates indicate that permitted emissions will not be exceeded.	Scrubber	99.99% HBr; 99.5% for Br_2	
1299	EPA Document 453/R-95-017, Table 2-4	N/A	N/A	N/A	
1301	AP-42 Table 13.5-1 AP-42 Table 1.4-1 (for small boilers)	NO_x = 100 lb/MMscf CO = 0.37 lb/MMBTU PM = 7.6 lb/MMscf VOC = 1.1 lb/hr SO_2 = 0.6 lb/MMscf			Assumed destruction efficiency of 90% for VOC 4.728 MMBTU/hr
1337	PM_{10}: 0.02 gr/scf Br_2/Cl_2: testing		Fabric Filter		1314@925cfm 1315@1600cfm 1337@1000cfm
1350		0.8642 lb Br/turnover		99%	Calculated from Ideal gas Law and turnovers. Cl2 emissions are permitted at 0.01% of Br_2 emissions.
1351					Derivation of emission factors in confidential section.
1361,	Vendor Data	0.005% drift	Drift eliminator		

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equip.	Control Equip. Eff.	Comments
1362					
1399	EPA Document 453/R-95-017, Table 2-4	Factors in lb/hr/component **Gas Service** Valves -0.00028881 Connectors-0.0001786 **LLS** Valves -0.0003638 Connectors-0.0001786 PumpSeals/Agitators-0.0041226 Press Relief valves – 0.0985466 **HLS** Valves -0.005072 Connectors-0.000179 PumpSeals/Agitators-0.004631 Press Relief valves – 0.098564			**Gas Service** Valves -21 Connectors-139 **LLS** Valves -313 Connectors-1878 PumpSeals/Agitators-9 Press Relief valves –4 **HLS** Valves -89 Connectors-588 PumpSeals/Agitators-2 Press Relief valves –2
1403, 1413, 1423	PM10: 0.2 gr/dscf VOC: testing	2.0 lb $MeCl_2$/hr 1.0 lb VOC/hr 0.1 lb EthClrde/hr 0.1 lb triethmine/hr (Testing has proved that the above missions rates sufficient.)			Max flow rate: 1403 @ 10,000cfm 1413 @ 11,500 cfm 1423 @ 1,500 cfm
1404	Testing	0.5 lb $MeCl_2$/hr 2.0 lb VOC/hr 0.1 lb CO/hr 2.0 lb EthChlrde/hr 0.1 lb triethmine/hr (Testing has proved that the above missions rates sufficient.)		98% for VOC	Absorber
1406A/B	Testing	0.1 lb $MeCl_2$/hr 0.1 lb VOC/hr 0.1 lb EthChlrde/hr 0.1 lb triethmine/hr (Testing has proved that the above			

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equip.	Control Equip. Eff.	Comments
		missions rates sufficient.)			
1409	Mass balance	Calculated using a saturated filling loss calculation.			36% HCl solution
1420	EPA Water9 Software				
1421, 1422	Tanks 4.0				Assumed 2 turnovers per day
1433	Drift rate from mrf.	PM_{10}/PM: 0.0050% (Drift rate)			Flow rate: 1,680 gal/min (SN-1433)
1437	*-see application			98%	Flare
1438	*-see application	1.2 ppmv max. discharge concentration			Safety absorption scrubber
1501	HBr + Br: Testing Cl/HCl: Assumed to be emitted in trace amounts when Br is present		Scrubber	Not disclosed. Testing for compliance.	2.5% caustic @1.5 gal/min
1504, 1552	Tanks 4.0	Assumed RVP 13 gasoline (VOC) and o-xylene (HAP) as a conservative estimate, and assumed continuous filling at 312 gal/hr (SN-1504) and 442 gal/hr (SN-1552)			Actual vp of stored components are 7.74 psia@70^{o}F for ethyl bromide or 0.087 psi @68^{o}F
1511	AP-42 Table 13.2.6-1	PM_{10}: 0.69 lb/1000 lb abrasive 1200 lb/hr usage	Fabric Filter		
1551	Testing	1.0 lb HBr/hr 1.0 lb Br_2/hr 0.01 lb Cl_2/hr (Cl_2 permitted at 0.01% of Br_2)	Scrubber	Not disclosed. Testing for compliance.	2.5% caustic @2.0 gal/min

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equip.	Control Equip. Eff.	Comments
1599	EPA Document 453/R-95-017, Table 2-4	Factors in lb/hr/component **Gas Service** Valves -0.00028881 Connectors-0.0001786 **LLS** Valves -0.0003638 Connectors-0.0001786 PumpSeals/Agitators-0.0041226 Press Relief valves –0.0985466			**Gas Service** Valves -13 Connectors-78 **LLS** Valves -354 Connectors-2124 PumpSeals/Agitators-7 Press Relief valves –8
1903, 1904, 1905, 1907, 1908, 1909	AP-42 Section 3.3				Emissions from diesel-fired generator engines

16. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
102	PM_{10} VOC NO_x HBr Br_2	EPA Method 5 or 201A Method 18 Method 7E Dept to approve prior to test Dept to approve prior to test	Initial and every 3 years	Verify emissions
403	Br_2	EPA Reference Method 26 or 26A	5 yr	Verify emissions
405	HBr Br_2	EPA Reference Method 26 EPA Reference Method 26	5 yr	Department Guidance
409	Cl_2	Method specified in 40 CFR Part 60 Appendix A	At least once every five years	Verify emissions
410	HCl	Method specified in 40 CFR Part 60 Appendix A	At least once every five years	Verify emissions and operating parameters
1202, 1204	HBr Br_2	EPA Reference Method 26 EPA Reference Method 26	5 yr	Department Guidance
657	HCl HBr	EPA Reference Method 26 EPA Reference Method 26	5 yr	Department Guidance

SN	Pollutants	Test Method	Test Interval	Justification
	NH_3	CTM 027		
1001A, 1001B	Br_2 Cl_2	EPA Reference Method 26 CTM 027	5 yr	Department Guidance
1002, 1003, 1005, 1006, and 1007	PM10 (VOC if 1003, 1006, or 1007)	201 or 201A 18 for VOC	5 yr	Verify emission rates
1025	Br_2	EPA Reference Method 26 or other pre-approved Method	Initial + 5 yrs	Verify emission rates
1403, 1413, 1406A, 1406B	Organic HAPs Non-VOC organic HAPs	EPA Reference Method 18 Approved Method	At least once every five years	Verify emissions
1404	Organic HAPs Non-VOC organic HAPs CO	EPA Reference Method 18 Approved Method EPA Reference Method 10	At least once every five years	Verify emissions
1409	Hydrogen Chloride	EPA Reference Method 26	At least once every five years	Verify emissions
1423	PM/PM_{10}	EPA Reference Method 5 or 201A.	At least once every five years	Verify emissions
1501	Br_2 HBr	26 or other pre-approved Method	Initial + 5 yrs	Verify emission rates
1551	Br_2	26 or other pre-approved Method	Initial + 5 yrs	Verify emission rates

17. MONITORING OR CEMS:

The permittee must monitor the following parameters with CEMS or other monitoring equipment (temperature, pressure differential, etc.)

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
102	Temperature	Thermocouple	Every 15 minutes when controlling HAP	Y
BRU Scrubber	Scrubbing Liquid Flowrate	CMS	Every 15 minutes	Y
BRU Absorber	Scrubbing Liquid Flowrate	CMS	Every 15 minutes	Y
201	Scrubbing Liquid Flowrate	CMS	Once per day	Y
201	Specific Gravity	Pressure gauge	Once per day	Y
202	Wastewater organic concentration	Sampling	Monthly	Y

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
302, 309	H_2S concentration	ASTM E-260	Every 2 hours at constant flow. Every 15 minutes when not constant	Y
405	Scrubber Liquid Flowrate	CMS	Every 12 hours of operation	N
	Scrubber Liquid caustic concentration	CMS	Every 12 hours of operation	N
406	Flowrate Caustic percentage	CMS Not specified	Every 12 hours of operation	N
409	Flowrate Caustic percentage	CMS Not specified	Every 12 hours of operation	N
410	Flowrate Specific Gravity	CMS Not Specified	Every 12 hours of operation	N
414, 415	TDS, Conductivity, Flowrate	CMS	Monthly	N
657	Scrubber Liquid Flowrate	CMS	Continuously	Y
657	Scrubber Liquid Caustic Concentration	CMS	Continuously	Y
660	Temperature of Heat Exchange Fluid downstream of SN-660	Temperature	Once per operating day	N
901	Flowrate	CMS	Every 12 hours of operation	Y
1001A and B	Scrubber Liquid Flowrate	CMS	Continuously	Y
1001A and B	Scrubber Liquid Caustic Concentration	CMS	Continuously	Y
1008	Pilot Flame Present	Thermocouple	Continuously	N
1019	Scrubber Liquid Flowrate	CMS	Continuously	Y
1025	Flowrate Caustic percentage	CMS	Every 12 hrs of operation	N
1202, 1204	Scrubber Liquid Flowrate	CMS	Every 12 hours of operation	N
	Scrubber Liquid caustic concentration	CMS	Every 12 hours of operation	N
1301	Pilot Flame Present	Thermocouple	Continuously	N
SN-1302	Flowrate Caustic %	CMS Not Specified	Once every 12 hours	N
1403, 1413, 1423	Pressure Drop	Pressure differential	Once each day	N
1404	Flowrate	CMS	Every 12 hours of operation	N

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
1409	Flowrate	CMS	Every 12 hours of operation	N
1420	Wastewater organic concentration	Sampling	Monthly	Y
1501	Flowrate Caustic percentage	CMS 2.5%	Every 12 hours of operation	N
1551	Flowrate Caustic percentage	CMS 2.5%	Every 12 hours of operation	N

18. RECORDKEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
102	All streams processed	Only streams listed to be processed	Monthly	N
201	Scrubbing Liquid Flowrate	9 gal/min	Monthly	Y
201	Specific Gravity	1.1 or lower	Monthly	Y
202	Wastewater organic concentration	4000 ppm	Monthly	Y
303	Fuel Usage	Limited by bubble	Monthly	N
307	Fuel Usage	Limited derating of burner and bubble of annual emissions	Monthly	N
405	Scrubber Liquid Flowrate	Minimum of 5.0 gal/min of caustic solution	Daily	N
	Caustic Concentration	Minimum of 5% caustic concentration		
406	Flowrate Caustic %	10.0 gal/min 2.5%	Daily	N
409	Flowrate Caustic percentage	8.0 gal/min 2.5%	Daily	N

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
411	Maximum Water Flowrate	2,500 gpm	Daily	Y
412	Total Dissolved Solids Concentration	12,000 ppm 0.29 lb TDS per lb water	Weekly	Y
413		0.29 lb TDS per lb water		
Alkyl Bromides Unit	Ethyl Bromide	685.25 lots	Monthly	Y
	N-Butyl Bromide	685.25 lots		
	N-Proply Bromide	685.25 lots		
657	Scrubber Liquid Flowrate	8.0 gal/min of caustic solution	Once every 12 hours	N
657	Scrubber Liquid pH	2.5% caustic solution	Once every 12 hours	N
660	Temperature of Heat Exchange Fluid downstream of SN-660	10ºF	Once per operating day	N
699	Audit results and fugitive emission calculations	N/A	Every 5 years	N
901	Scrubbing Liquid Flowrate	6 gal/min	Every 12 hours	N
902/903	Flaring Records of more than 30 minutes in any 24 hours	None	Daily as needed	Y
TBBPA Unit	TBBPA Methyl Bromide	778 lots 926 lots	Monthly	Y
1001B	Scrubber Liquid pH	2.5% caustic solution	Once every 12 hours	N
1008	Pilot Flame Present	N/A	As Necessary	N
1019	Scrubber Liquid Flowrate	2.0 gal/min of water	Once every 12 hours	N
1025	Caustic % conc and flow rate	2.5% Caustic Min. / 10 gpm min flow	Once every 12 hours	N
1099	# of valves, pumps, relief valves, flanges,	N/A	5 year	N

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
	& compressors			
CaBr/HBr	CaBr 48% HBr Anhydrous HBr	4,258 lots 3,041 lots 1,095 lots	Monthly	Y
1202, 1204	Scrubber Liquid Flowrate	Minimum of 10.0 gal/min	Every 12 hours of operation	N
1202, 1204	pH	Established during testing	Daily, 3 hour block average	N
1203	Pressure Drop	N/A	Once each day	N
1220	Total Dissolved Solids	12,000 ppm	Weekly	Y
1299	Audit results and fugitive emission calculations	N/A	5 year	N
OCP Plant	BZ-54 DP-45 CN-3370 Polymer	91.25 lots 73 lots 1,470 lots 1,720 lots	Monthly	Y
1399	# of valves, pumps, relief valves, flanges, & compressors	N/A	5 year	N
1404	absorber media and flowrate	When TCO is operating, only fresh water at minimum of 9.0 gpm When TCO is not operating, recycle water at minimum of 5.0 gpm	Every twelve hour of operation of the source	N
1409	Scrubber media flowrate Each scrubber media change	9.0 gpm Only fresh water shall be used for each scrubber media change	Every twelve hour of operation of the source	N
TCO	MACT subpart UU limit	See Specific Condition 143.		

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
1501	Flowrate Caustic percentage	1.5 gal/min of caustic solution 2.5% caustic concentration	Daily	N
1551	Flowrate Caustic percentage	2.0 gal/min of caustic solution 2.5% caustic concentration	Daily	N
1501, 1551	Production Rate	Established at time of test	Monthly	N
1504	Maximum Vapor Pressure @ 70 ^{o}F, VOC and Organic HAP	7.74 psi	Monthly	Y
1552	Maximum Vapor Pressure @ 70 ^{o}F, VOC			
1504	Production Fill Volume	2,733,100 gallons	Monthly	Y
1552	Production Fill Volume	3,871,900 gallons	Monthly	Y
1599	# of valves, pumps, relief valves, flanges, & compressors	N/A	5 year	N
1903, 1904, 1907, 1908, 1909	Fuel sulfur content	0.5% by weight		N
1903, 1904, 1907, 1908, 1909	Hour limit	500 hours / 12 months	Monthly	N

19. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
403, 405	5%	Department Guidance	Inspector Observation
102	20%	Department Guidance	Inspector Observation
406	10%	Department Guidance	Inspector Observation
409, 410	5%	Department Guidance	Inspector Observation
1202, 1203, 1204	5%	Department Guidance	Weekly Observations

SN	Opacity	Justification for limit	Compliance Mechanism
1002, 1003, 1005, 1006, 1007	5%	Department Guidance	Weekly Observation
1008	20%	Department Guidance	Weekly Observation
1203	5%	Department Guidance	Weekly Observation
1302,1303, 1312, 1313, 1317, 1318, 1319, 1320, 1337, 1338	5%	Department Guidance	Weekly Observation
1403, 1413, 1423	5%	Department Guidance	Weekly Observation
301, 302, 303, 902	5%	Department Guidance	Fuel Specification
801, 406	10%	Department Guidance	Inspector Observation
1903, 1904, 1907, 1908, 1909	20%	Department Guidance	Annual Observation

20. DELETED CONDITIONS:

Former SC	Justification for removal
100-104	SN-308, source subject to this subpart has been removed.

21. GROUP A INSIGNIFICANT ACTIVITIES:

The following is a list of Insignificant Activities including revisions by this permit.

Source Name	Group A Cat.	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
HBr Storage Tanks (TT-12-807, TT-12-827, TT-12-805, TT-12-665, TT-12-666, TT-12-812, TT-12-804)	A-13							1.35E-4
HBr Loading	A-13							
Hydrazine Tone (Tote 1)	A-13							2.2E-4
Toluene Circulation Tank (TT-08-589)	A-13						0.06	
DP-45 Loadout Operations	A-13			0.1				

Source Name	Group A Cat.	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
BZ-54 Loadout Operations	A-13			0.16				
FM-550 Loadout Operations	A-13			0.02				
2-Ethylhexanol Loadout Operations	A-13			0.02				
Hydrazine Storage Tank (TT-13-1605)	A-13			0.02				
Product Storage Tanks (TT-13-1605, TT-13-315, TT-13-415, TT-13-318, TT-13-316, TT-13-326, TT-13-330)	A-13			0.25				
Additive Storage Tank (TT-13-330)	A-13			0.05				
Spent Scrubber Neutralization Tank (TT-07-583)	A-13							5.0E-2
Tail Water Surge Tank (TT-21-110, TT-21-109)	A-13							6.1E-2
Treated Leachate Surge Tank (TT-27-110)	A-13			0.35				0.35
North Oil Separator Station Oil Tanks #1 and #2	A-13			0.12				
Product Mix Tank (TK-22-653)	A-13			0.32				0.067
Hydrazine Tote (Tote 1)	A-13							2.2E-4
Hydrazine Tote (Tote 2)	A-13							2.2E-4
Raw Material Storage Tank	A-13			1.9E-2				
Wastewater Storage Tank	A-13			0.026				
Brominated DPO Storage Tanks (TT-10-218, TT-10-388)	A-13			0.02				0.2
DPO Storage Tanks (TT-10-202, TT-10-203)	A-13			0.08				
Gasoline Storage Tanks (2,000 gallon and 1,000 Gallon	A-13			0.59				

Source Name	Group A Cat.	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
25 kg Packaging System for E-3000 at Dock 9	A-13	0.23						
Filter Oven	A-13			0.03			0.027	0.027
Polymer Storage Tank (TT-12-822)	A-3			0.02				
DP-45 Storage Tanks (TT-13-306, TT-13-307. TT-13-308, TT-13-309, TT-13-310, TT-13-311, TT-13-314, TT-13-329)	A-3			0.02 (each)				
Product Storage Tank (TT-13-332, RX-13-413)	A-3			0.02 (each)				
BZ-45 Storage Tank (TT-13-456)	A-3			0.02				
Product Storage (RX-13-413)	A-3			0.02				
Product Day Tank (RX-13-349)	A-3			0.02				
Pre-Coat Tank (TT-13-602)	A-3			0.02				
Filter Feed Tank (TT-13-601)	A-3			0.02				
Waste Removal Vacuum Tanks (SP-13-602, SP-13-601)	A-3			0.02				
Phenol Storage Tank (TT-14-039)	A-3			0.02				
HBr Tank (TT-07-655)	A-3							0.05
Stationary Engine Diesel Storage Tank	A-3			0.02				
Diesel Storage Tanks (2)	A-3			0.015				

22. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

The following is a list of all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
1077-AOP-R6

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Facility Name: LANXESS - Central Plant
Permit Number: 1077-AOP-R7
AFIN: 70-00012

$/ton factor	27.27	Annual Chargeable Emissions (tpy)	1227.39
Permit Type	Minor Mod	Permit Fee $	500

Minor Modification Fee $	500
Minimum Modification Fee $	1000
Renewal with Minor Modification $	500
Check if Facility Holds an Active Minor Source or Minor Source General Permit	☐
If Hold Active Permit, Amt of Last Annual Air Permit Invoice $	0
Total Permit Fee Chargeable Emissions (tpy)	-76.21
Initial Title V Permit Fee Chargeable Emissions (tpy)	

HAPs not included in VOC or PM: *Chlorine, Hydrazine, HCl, HF, Methyl Chloroform, Methylene Chloride, Phosphine, Tetrachloroethylene, Titanium Tetrachloride*

Air Contaminants: *All air contaminants are chargeable unless they are included in other totals (e.g., H2SO4 in condensible PM, H2S in TRS, etc.)*

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
PM		98.6	106.5	7.9	7.9	106.5
PM_{10}		97.3	105.2	7.9		
$PM_{2.5}$		0	0	0		
SO_2		581.6	575.1	-6.5	-6.5	575.1
VOC		301.5	310.99	9.49	9.49	310.99
CO		351.8	360	8.2		
NO_X		321.9	234.8	-87.1	-87.1	234.8
Arsenic	☐	0.05	0.04	-0.01		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Benzene	☐	0.15	0.11	-0.04		
Beryllium	☐	0.06	0.05	-0.01		
Cadmium	☐	0.06	0.05	-0.01		
Chlorine	☐	6.13	7.89	1.76		
Chromium	☐	0.06	0.05	-0.01		
Cobalt	☐	0.06	0.05	-0.01		
Dichlorobenzene	☐	0.06	0.05	-0.01		
Ethyl Chloride	☐	16.61	16.61	0		
Formaldehyde	☐	0.7	0.66	-0.04		
HCl	☐	15.38	12.94	-2.44		
Hydrazine	☐	0.33	0.33	0		
Hexane	☐	3.94	3.09	-0.85		
Manganese	☐	0.06	0.05	-0.01		
Mercury	☐	0.06	0.05	-0.01		
Methanol	☐	58.04	58.04	0		
Meth. & Meth. Bromide	☐	13.2	13.2	0		
Methyl Bromide	☐	9.48	9.49	0.01		
Methylene Chloride	☐	44.15	44.15	0		
Naphthalene	☐	0.12	0.11	-0.01		
Nickel	☐	0.06	0.05	-0.01		
Organic HAP	☐	31.64	31.65	0.01		
Phosgene	☐	3.94	3.85	-0.09		
Selenium	☐	0.03	0.03	0		
Toluene	☐	0.11	0.1	-0.01		
Triethyl;amine	☐	12.86	12.86	0		
TEA & Ehtyl Chloride	☐	0.43	0.43	0		
Acetaldehyde	☐	0.06	0.06	0		
Acrolein	☐	0.03	0.03	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
1,3 Butadiene	☐	0.03	0.03	0		
Xylenes	☐	0.06	0.06	0		
POM	☐	0.08	0.08	0		
Ammonium nBromide	☐	0.02	0.02	0		
Bromine	☐	31.39	31.41	0.02		
Hydrogen Bromide	☐	19.52	19.54	0.02		
HBr+Br2	☐	11	11	0		
Hydrogen Sulfide	☐	5.78	5.75	-0.03		
Ammonia	☐	0.44	0.44	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		