STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1177-AOP-R12 AFIN: 02-00028

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Georgia-Pacific Chemicals LLC
Highway 82 & Paper Mill Road
Crossett, Arkansas 71635

3. PERMIT WRITER:

Kimberly O'Guinn

4. PROCESS DESCRIPTION AND NAICS CODE:

NAICS Description: Plastics Material and Resin Manufacturing
NAICS Code: 325211

5. SUBMITTALS:

6/7/2011

6. REVIEWER'S NOTES:

Georgia Pacific Chemicals LLC, formerly Georgia-Pacific Resins, Inc., located on Highway 82 & Papermill Road, Crossett, Arkansas 71635 submitted applications to modify the existing permit.

This modification is to add a one thousand gallon ethylene glycol tank to the A-13 insignificant activities list. Permitted emission limits remain unchanged.

7. COMPLIANCE STATUS:

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

There are no current or pending enforcement actions for this facility at this time.

8. PSD APPLICABILITY:

a. Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N

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?

With this modification for #1177-AOP-R11 the VOC emission rate is being adjusted from 65.1 tpy to 148.9 tpy to reflect the source potential based on the change in test method for the Spray Dryer Process (SN-03). When applied to the original construction of the source (1983), the net VOC increase would still have been offset by the available emissions credit, staying below the Significant Emission Increase.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
See Table in Plantwide Condition #18	Record keeping only	40 CFR Part 60, Subpart Kb
SN-11 and equipment in formaldehyde production	HAP	40 CFR Part 63, Subparts F, G, and H (HON Rule)
SN-11 and equipment in wet strength resin production	HAP	40 CFR Part 63, Subpart W
SN-11 and equipment in Amino/Phenolic Resin Production	HAP	40 CFR Part 63, Subparts OOO, SS, UU, and WW
SN-05, SN-129, SN-42, SN-51, SN-25, SN-120, SN-121, SN-122, SN-41, SN-06, SN-123, SN-126, SN-134	HAP	40 Subpart 63, Subpart FFFF

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. MODELING:

Criteria Pollutants

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu g/m^3$)	Averaging Time	Highest Concentration ($\mu g/m^3$)	% of NAAQS
PM_{10}	131.4	50	Annual	15.9	32%
		150	24-hour	40.15	27%

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu g/m^3$)	Averaging Time	Highest Concentration ($\mu g/m^3$)	% of NAAQS
SO_2	26.2	80	Annual	1.17	1.5%
		1,300	3-hour	31.9	2.5%
		365	24-hour	8.54	2.3%
NO_X	46.6	100	Annual	1.22	1.2%
CO	25.2	10,000	8-hour	16.478	0.1%
		40,000	1-hour	41.73	0.1%

Non-Criteria Pollutants:

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?
Formaldehyde	1.5	0.1650	52.40	N
Phenol	19.3	2.1230	4.70	N
Methanol	262.1	28.8310	44.96	N
Epichlorohydrin	1.89	0.2079	0.10	Y
O-Cresol	22.1	2.431	0.10	Y
Maleic Anhydride	0.4	0.044	0.10	N
Ammonia	17.42	1.92	8.90	N
Acetaldehyde	13.88	1.53	6.40	N
Benzene	1.59	0.18	0.10	Y
Toluene	75.36	8.28	0.90	Y
Epichlorohydrin	1.89	0.2079	0.10	Y

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?
Formaldehyde	15	2.95	Y
Phenol	192	17.6	Y
Maleic Anhydride	10	8.6	Y
Ammonia	174.2	16.22	Y
Acetaldehyde	138.8	1.31	Y
Methanol	2621.0	46.13	Y

Hydrogen Iodide and Iodine Screening

AERMOD air dispersion modeling was performed on the estimated hydrogen iodide (HI) and iodine (I_2) hourly emissions from data recorded during typical batch production of Lytor 105k, the source of HI and I_2 emissions.

The ACGIH does not list a TWA for I_2, but it lists a TLV-C of 0.1 ppm.

There are currently no proposed or established long term exposure limits for HI in IARC, NIOSH, NTP, MAK, ACGIH, OSHA, or EPA databases for hazardous chemicals. There are currently no established short term HI exposure limits established in the aforementioned databases, either. However, there is a proposed Acute Exposure Guideline Level proposed for the AEGL Program. The information listed for HI under the AEGL Program states there is insufficient information for HI and the proposed exposure limits are based on Hydrogen Bromide (HBr). The AEGL Program can be accessed through the EPA website.

AEGL 8-Hour Limits (ppm)			
Chemical	**Level 1 Non-disabling**	**Level 2 Disabling**	**Level 3 Lethality**
HF	1.0	12	22
HCl	1.8	11	26
HBr*	1.0	11	31
HI*	1.0	11	31

- **Proposed**

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu g/m^3$)	Averaging Time	Highest Concentration ($\mu g/m^3$)	% of NAAQS
		150	24-hour	40.15	27%
SO_2	26.2	80	Annual	1.17	1.5%
		1,300	3-hour	31.9	2.5%
		365	24-hour	8.54	2.3%
NO_X	46.6	100	Annual	1.22	1.2%
CO	25.2	10,000	8-hour	16.478	0.1%
		40,000	1-hour	41.73	0.1%

Non-Criteria Pollutants:

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?
Formaldehyde	1.5	0.1650	52.40	N
Phenol	19.3	2.1230	4.70	N
Methanol	262.1	28.8310	44.96	N
Epichlorohydrin	1.89	0.2079	0.10	Y
O-Cresol	22.1	2.431	0.10	Y
Maleic Anhydride	0.4	0.044	0.10	N
Ammonia	17.42	1.92	8.90	N
Acetaldehyde	13.88	1.53	6.40	N
Benzene	1.59	0.18	0.10	Y
Toluene	75.36	8.28	0.90	Y
Epichlorohydrin	1.89	0.2079	0.10	Y

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?
Formaldehyde	15	2.95	Y
Phenol	192	17.6	Y
Maleic Anhydride	10	8.6	Y
Ammonia	174.2	16.22	Y
Acetaldehyde	138.8	1.31	Y
Methanol	2621.0	46.13	Y

Hydrogen Iodide and Iodine Screening

AERMOD air dispersion modeling was performed on the estimated hydrogen iodide (HI) and iodine (I_2) hourly emissions from data recorded during typical batch production of Lytor 105k, the source of HI and I_2 emissions.

The ACGIH does not list a TWA for I_2, but it lists a TLV-C of 0.1 ppm.

There are currently no proposed or established long term exposure limits for HI in IARC, NIOSH, NTP, MAK, ACGIH, OSHA, or EPA databases for hazardous chemicals. There are currently no established short term HI exposure limits established in the aforementioned databases, either. However, there is a proposed Acute Exposure Guideline Level proposed for the AEGL Program. The information listed for HI under the AEGL Program states there is insufficient information for HI and the proposed exposure limits are based on Hydrogen Bromide (HBr). The AEGL Program can be accessed through the EPA website.

AEGL 8-Hour Limits (ppm)			
Chemical	**Level 1 Non-disabling**	**Level 2 Disabling**	**Level 3 Lethality**
HF	1.0	12	22
HCl	1.8	11	26
HBr*	1.0	11	31
HI*	1.0	11	31

- **Proposed**

AEGL Level 1 was developed for both HF and HCl using human volunteers. The limit for HF was adjusted for uncertainty and sensitive individuals. HCl limit study included individuals diagnosed with asthma. Since the study already included sensitive individuals, the limit was not adjusted. The HF and HCl limits were based on 6 hour for HF and 45 min for HCl. Since mild irritancy is considered a threshold effect and generally does not vary greatly over time, the AEGL Program assumes prolonged exposure will not result in an enhanced effect. Therefore, there should be no noticeable difference in effect from 45 minutes of being exposed to 1.0 ppm HI than 8 hours of being exposed to 1.0 ppm HI.

Using mild irritancy as the threshold effect (HI), TLV-C (I_2), and applying the same assumptions used by PAIL the modeled concentration for HI and I_2 were evaluated.

Pollutant	1/100 of Threshold Limit Value ($\mu g/m^3$)	Modeled Concentration ($\mu g/m^3$)	Pass?
Hydrogen Iodide	52.323	2.4978	Y
Iodine	10.381	0.0722	Y

Both HI and I_2 pass modeling. Based on the modeling and available information the permitted emission rates for HI and I_2 do appear to comply with the Non-Criteria control strategy.

Hydrogen Sulfide Odor Screening

The facility is subject to Hydrogen Sulfide Emissions, A.C.A §8-3-103. H_2S modeling indicates ambient concentrations of H_2S are below the limits established in A.C.A §8-3-103 (a). Compliance with A.C.A §8-3-103 (a)(2) was determined using a 1-hour average period due to limitations of the model and the availability of metdata in 1-hour increments.

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

Pollutant	Threshold value	Modeled Concentration (ppb)	Pass?
H_2S	20 parts per million (5-minute average*)	0.0422	Y
	80 parts per billion (8-hour average) residential area	0.00923	Y
	100 parts per billion (8-hour average) nonresidential area	0.00923	Y

*To determine the 5-minute average use the following equation

$Cp = Cm\ (t_m/t_p)^{0.2}$ where
Cp = 5-minute average concentration
Cm = 1-hour average concentration
t_m = 60 minutes
t_p = 5 minutes

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
All uncontrolled tanks	Tanks 4.0	Varied	N/A	N/A	
05	Mass Balance and Testing	Varied	The boiler itself is the final step in a VOC control chain and it follows a scrubber and condenser.	98%	
10 and 11	Testing	Varied	Thermal Oxidizers	Minimum 95% required	
129	Mass balance and AP-42	Varied	SN-129 is a control device used to operate when SN-05 is shut down.		
All Baghouses	Grain loadings for PM emissions Any VOC emissions calculated from Tanks 4 or testing	Varied			
12	Testing	Varied	Scrubber	99.0	
40	Tanks 4.0	0.1 lb VOC/hr	None	N/A	Uncontrolled
132, 133	Mass Balance	0.08 lb VOC/hr	None	N/A	Uncontrolled
134	Mass Balance		None	N/A	Uncontrolled

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
05, 129	SO_2, VOC	EPA Approved	Initial	Department Guidance
03	PM_{10}, VOC	EPA Approved	Initial	Department Guidance

14. 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)
10, 11	Firebox Temperature	Temperature Monitoring Device	Continuous	Y
05 129	Temperature	Temperature Monitoring Device	Continuous	Y
12	pH, Liquid flow rate	Monitoring Device	Weekly	Y
03, 05, 09, 13, 18, 19	Pressure Drop	Visual Inspection	Weekly	N

15. 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)
All Kb Tanks	Dimensions	N/A		N
10	Firebox Temperature	1600 °F	Continuous	Y
11	Firebox Temperature	1250 °F	Continuous	Y
11	Transfer rack design analysis and throughput	None	Annual	Y
11 and Subpart OOO processes	Leak Detection Requirements	None	Varied	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
129	Temperature	1500 °F	Daily	N
114	Throughput	500,000 gal	Monthly	Y
Facility	Production Rates	See Plantwide Conditions #13 and #25	Monthly	Y
12	Hours of Operation	4,400	Monthly	Y
12	pH	9.0 or greater	Weekly	Y
12	Liquid flow rate	80-120 gallons/min	Weekly	Y
70	Throughput	500,000 gal	Monthly	Y
135	Ammonia Throughput	1,300,000 gallons	Monthly	Y
05	Firebox Temperature	1100 °F	Daily	N
95	HAP	0.25 tpy single or combination	Monthly	Y

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
3, 6, 9,13, 18, and 19	5	Department Guidance	Weekly Observations
5	20/40	Department Guidance	Weekly and per batch observations
10, 11	5	Department Guidance	Natural Gas Combustion
129	20	Department Guidance	Weekly Observations

17. DELETED CONDITIONS:

Former SC	Justification for removal
N/A	

18. GROUP A INSIGNIFICANT ACTIVITIES

Source Name	Group A Category	Emissions (tpy)						
		PM/ PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
Emergency Generator	13	0.17	0.15	0.19	0.50	2.34		0.003
Urea Storage Silo	13	0.4						
Epichlorohydrin Storage Tank	13			0.03				0.03
Kettle Urea Feed Hoppers	13	0.4						
DETA Railcar Storage & Transfer to Trucks	13			0.09				
Column	13			0.2				
XTOL Light Distilled Head Storage Tank	13			0.45				
Test Tank	13			0				
Tall Oil Soap Skimmings Storage Tank	13			0.4				
Rosin Drumming Melter	13			0.4				
Phenol Storage Tank	13			0.12				0.12
Urea Solution Storage Tank	13							
Wet Strength Resin and Urea Solution Dilute Tank	13			0.4				
Loading Station/Racks	13			1.44				0.166
Methanol Railcar Maintenance	13			0.02				0.02
RCI Distillate Tank	13			0.012				0.013
Hexamine Storage Tank	13			0.0008				0.012
Product Blend involving Urea Formaldehyde Resins (SN-86 and SN-87)	13							

Source Name	Group A Category	Emissions (tpy)						
		PM/ PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
(2) 7,200 gallon Epichlorihydrin trailers	13			0.0001				0.0001
10 hp self-priming water pump	13	0.002	0.002	0.05	0.017	0.028		0.001
208 hp non-road, non-stationary emergency generator	13	0.06	0.05	0.07	0.17	0.77		0.001
111 hp non-road, non-stationary diesel fired air compressor	13	0.004	0.004	0.005	0.01	0.06		0.00009
325 hp hydroblaster	1	0.14	0.13		0.44	2.01		
Ethylene Glycol Tank	13			0.00007				

19. VOIDED, SUPERCEDED, OR SUBSUMED PERMITS:

List all active permits voided/superceded/subsumed by the issuance of this permit.

Permit #
1177-AOP-R11

20. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.

Karen Cerney, P.E.

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-01-10

Georgia-Pacific Chemicals LLC
Permit #1177-AOP-R12
AFIN: 02-00028

$/ton factor	22.07	Annual Chargeable Emissions (tpy)	781.28
Permit Type	AA	Permit Fee $	0

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)	0
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	☑	263.6	263.6	0	0	263.6
PM_{10}	☐	234.9	234.9	0		
SO_2	☑	109	109	0	0	109
VOC	☑	263.6	263.6	0	0	263.6
CO	☐	65.7	65.7	0		
NO_X	☑	118.6	118.6	0	0	118.6
H2S	☑	1.3	1.3	0	0	1.3
H2SO4	☑	0.4	0.4	0	0	0.4
Total Iodine	☑	3.75	3.75	0	0	3.75
Formic Acid	☑	0.44	0.44	0	0	0.44
Nonylphenol	☑	0	0	0	0	0
Acetaldehyde	☐	10.3	10.3	0		
Epichlorohydrin*	☐	0.4	0.4	0		
Formaldehyde*	☐	52.8	52.8	0		
Maleic Anhydride*	☐	0.4	0.4	0		
Methanol*	☐	118.7	118.7	0		
O-Cresol*	☐	0.4	0.4	0		
Phenol*	☐	17	17	0		
Arsenic Compounds	☐	0.4	0.4	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Lead Compounds	☐	0.4	0.4	0		
Cadium	☐	0.4	0.4	0		
Chromium	☐	0.4	0.4	0		
Manganese	☐	1.05	1.05	0		
Ammonia	☑	18.14	18.14	0	0	18.14
TRS	☐	3.1	3.1	0		
Benzene	☐	0.1	0.1	0		
DME	☑	2.45	2.45	0	0	2.45
Toluene	☐	0.2	0.2	0		