

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1177-AOP-R10 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 Lindsey-O'Guinn

4. PROCESS DESCRIPTION AND NAICS CODE:

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

5. SUBMITTALS:

5/12/08, 8/18/08, 10/15/08, 11/13/08, 12/15/08, 6/9/09, 6/26/09,

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.

On May 12, 2008 the Department received an application for a modification application requesting the following modifications to the existing permit:

- Incorporate the provisions of 40 CFR 63, Subpart FFFF, *National Emission Standards for Hazardous Air Pollutants for Miscellaneous Organic Chemical Manufacturing (MON)*.
- The reclassification of the formaldehyde, urea formaldehyde concentrate and resin loading racks (SN-136, SN-137, SN-138, and SN-139) from Insignificant Activities to permitted sources.
- Incorporate minor permit revisions and typographical errors.

On August 18, 2008, the facility submitted an application for an administrative amendment to the facility's insignificant activity list. The update is necessary to include two Urea Formaldehyde Resins Storage Tanks (SN-86 and SN-87).

On October 15, 2008, the Department received an application for an administrative amendment to correct the description for the storage tank identified as RM-1 (SN-76) to reflect current usage for dilute caustic storage in accordance with Group A-4.

On November 13, 2008, the Department received an application for a minor modification application requesting the following modifications:

- The installation of an overhead condenser and vacuum pump system to the facility's rosin size cooker/reactor (C-1).
- The increase of the production limit for rosin derivatives by 20,000,000 pounds/year while reducing the rosin size production rate by 20,000,000 pounds/year.

On December 15, 2008, the Department received an application for a minor modification application requesting to add three urea formaldehyde storage tanks (SN-85, SN-88 and SN-89) and a back-up emergency generator (SN-140).

On June 9, 2009, the Department received an application for an administrative amendment to the insignificant activity list. The revision is necessary to allow for the addition of a portable diesel fired air compressor.

On June 26, 2009, the Department received an application for an administrative amendment to the facility's insignificant activity list. The modification is necessary to allow two 7,200 gallon epichlorohydrin tank truck trailers to remain onsite. Also, the facility submitted a minor modification application requesting the following modification:

- Removal of Reactors R-1 and R-2 (SN-29), Caesin Mix Tanks; CT-61 and CT-62 (Insignificant Activities).
- Discontinue the use of Release Tanks RT-2 (SN-28) and RT-3 (SN-116), Storage Tanks T-60 (SN-117) and T-63 (SN-25) and the Brine Storage Tank T-86 (Insignificant Activity).
- Discontinue the usage of tanks T-61 (SN-118) and T-62 (SN-26) as deaerator product storage.
- Discontinue the usage of tank T-59 (SN-119) as storage for Crude Tall Oil (CTO).

With these modifications permitted VOC emissions will decrease by 4.2 tons per year (tpy), Methanol and Formaldehyde permitted emission will increase by 0.4 tpy each, and Ammonia emissions will increase by 1.2 tpy.

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?

There is not a net increase in any regulated pollutant that exceeds the significance level that will cause this modification to be subject to PSD review.

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 (µg/m ³) | Averaging Time | Highest Concentration (µg/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 ($\mu\text{g}/\text{m}^3$) | Averaging Time | Highest Concentration ($\mu\text{g}/\text{m}^3$) | % 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) = $0.11 \times \text{TLV}$ | Proposed lb/hr | Pass? |
|------------------|--------------------------------|-----------------------------------------|----------------|-------|
| Formaldehyde | 1.5 | 0.1650 | 11.92 | N |
| Phenol | 19.3 | 2.1230 | 4.5 | N |
| Methanol | 262.1 | 28.8310 | 10.68 | Y |
| Epichlorohydrin | 1.89 | 0.2079 | 0.1 | Y |
| O-Cresol | 22.1 | 2.431 | 0.01 | Y |
| Maleic Anhydride | 0.4 | 0.044 | 0.10 | N |
| Ammonia | 17.42 | 1.92 | 6.2 | N |

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 ($\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value | Modeled Concentration ($\mu\text{g}/\text{m}^3$) | Pass? |
|------------------|--------------------------------------------------------------------|----------------------------------------------------|-------|
| Formaldehyde | 15 | 2.95 | Y |
| Phenol | 192 | 17.6 | Y |
| Maleic Anhydride | 10 | 8.6 | Y |
| Ammonia | 174.2 | 16.22 | Y |

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 ($\mu\text{g}/\text{m}^3$) | Modeled Concentration ($\mu\text{g}/\text{m}^3$) | Pass? |
|-----------------|-------------------------------------------------------------|----------------------------------------------------|-------|
| Hydrogen Iodide | 52.323 | 2.4978 | Y |
| Iodine | 10.381 | 0.0722 | Y |

Both HI and I₂ pass modeling. Based on the modeling and available information the permitted emission rates for HI and I₂ 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. H₂S modeling indicates ambient concentrations of H₂S 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.

H₂S 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 H₂S Standards Y

| Pollutant | Threshold value | Modeled Concentration (ppb) | Pass? |
|------------------|------------------------------------------------------------|-----------------------------|-------|
| H ₂ S | 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

$$C_p = C_m (t_m/t_p)^{0.2} \text{ where}$$

C_p = 5-minute average concentration

C_m = 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 | 1.02 lbVOC/hr | 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 |
|--------------------|-----------------------------------------------------------------|
| 9 | SN-05 & SN-129 exempt from CAM under 40 CFR.2(b)(1)(i) |
| 41 | |
| 112, 113, 114, 115 | Dispersed size production has been discontinued at the facility |

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 | | | | |
| Trenches, Sumps, API separator & Wastewater collection pond | 13 | | | 0.87 | | | | 0.87 |
| 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 |

| Source Name | Group A Category | Emissions (tpy) | | | | | | |
|--------------------------------------------------------------------|------------------|---------------------|-----------------|--------|------|-----------------|--------|--------|
| | | PM/PM ₁₀ | SO ₂ | VOC | CO | NO _x | HAPs | |
| | | | | | | | Single | Total |
| 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 | | | | | | | |
| (2) 7,200 gallon Epichlorhydrin trailers | 13 | | | 0.0001 | | | | 0.0001 |
| Portable Air Compressor with Diesel Engine | 13 | 0.04 | 0.25 | 0.05 | 0.12 | 0.56 | | |

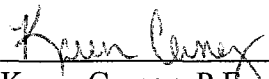
19. VOIDED, SUPERCEDED, OR SUBSUMED PERMITS:

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

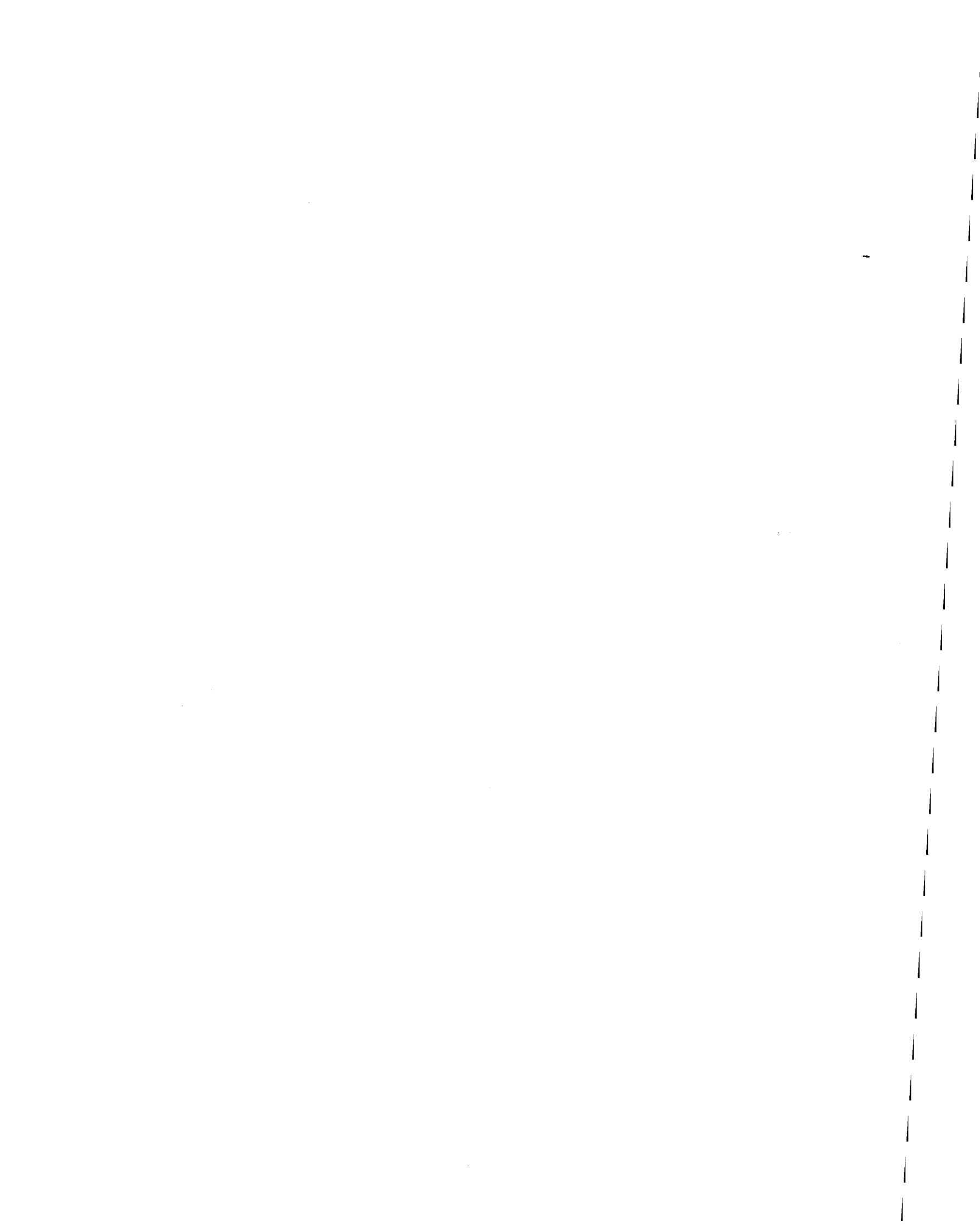
| |
|-------------|
| Permit # |
| 1177-AOP-R9 |

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 07-27-09

Facility Name: Georgia Pacific Chemicals
 FIN: 02-00028
 Permit Number: 1177-AOP-R10

| | | | |
|---------------|--------------|-----------------------------------|--------|
| \$/ton factor | 22.07 | Annual Chargeable Emissions (tpy) | 657.03 |
| Permit Type | Modification | Permit Fee \$ | 1000 |

| | |
|-----------------------------------------------------------------|--------------------------|
| Minor Modification Fee \$ | 500 |
| Minimum Modification Fee \$ | 1000 |
| Renewal with Minor Modification \$ | 500 |
| Check if Facility Holds an Active Minor Source Permit | <input type="checkbox"/> |
| If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$ | 0 |
| Total Permit Fee Chargeable Emissions (tpy) | 20.6 |
| 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 condensable 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 | ☑ | 233.6 | 234.9 | 1.3 | 1.3 | 234.9 |
| PM ₁₀ | ☑ | 233.6 | 234.9 | 1.3 | | |
| SO ₂ | ☑ | 107.8 | 109 | 1.2 | 1.2 | 109 |
| VOC | ☑ | 172.1 | 171 | -1.1 | -1.1 | 171 |
| CO | ☑ | 61.9 | 65.7 | 3.8 | | |
| NO _x | ☑ | 101 | 118.6 | 17.6 | 17.6 | 118.6 |
| H ₂ S | ☑ | 1.3 | 1.3 | 0 | 0 | 1.3 |
| H ₂ SO ₄ | ☑ | 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 | ☑ | 0.05 | 0.05 | 0 | | |
| Epichlorohydrin* | ☑ | 0.4 | 0.4 | 0 | | |
| Formaldehyde* | ☑ | 46.35 | 46.75 | 0.4 | | |
| Maleic Anhydride* | ☑ | 0.4 | 0.4 | 0 | | |
| Methanol* | ☑ | 44.5 | 44.9 | 0.4 | | |
| m-Cresol* | ☑ | 0.4 | 0.4 | 0 | | |
| Phenol* | ☑ | 17.3 | 17.3 | 0 | | |
| Arsenic Compounds | ☑ | 0.4 | 0.4 | 0 | | |

