

## STATEMENT OF BASIS

for the issuance of Draft Air Permit # 1177-AOP-R6

### 1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality  
8001 National Drive  
Post Office Box 8913  
Little Rock, Arkansas 72219-8913

### 2. APPLICANT:

Georgia-Pacific Resins, Inc.  
Highway 82 and Paper Mill Road  
Crossett, Arkansas 71635

### 3. PERMIT WRITER: Charles Hurt

### 4. PROCESS DESCRIPTION AND NAICS CODE:

| NAICS Code | NAICS Description  |
|------------|--|
| 325211     | Plastics Materials, Synthetic and Resins, and Nonvulcanizable Elastomers |
| 325191     | Gum and Wood Chemicals   |
| 325998     | All Other Basic Organic Chemical Manufacturing                           |

### 5. SUBMITTALS: September 9, 2004, November 18, 2004\*, and December 4, 2004

\* Declared Admin Complete December 28, 2004

### 6. REVIEWER'S NOTES:

Georgia Pacific Resins, Inc. located on Highway 82 & Papermill Road, Crossett, Arkansas 71635 submitted applications requesting a change in service for two storage tanks (SN-17 and SN-60). Novacote resin is currently stored in SN-17 to be replaced by another resin, DETA. The two resins, on a VOC emission rate basis, are equivalent. Cresylic Acid is currently stored in SN-60 to be replaced by Secondary Butylphenols. The two organic compounds, on a VOC as well as HAP emission rate basis, are equivalent. VOC emissions from each tank are 0.1 lb/hr and 0.4 tpy. GPRI also requested to re-melt and fuel blend old rosin material from a current stockpile and sample rosin generated on a daily basis. The fuel blend is to be combusted in the Pitch Boiler (SN-05). Combustion of the fuel blend is considered to be an insignificant activity. As a result of the requested modification permitted Phenol emissions increased by 0.10 lb/hr and 0.40 tpy.

**7. COMPLIANCE STATUS:**

There are currently no enforcement issue or actions against the facility at this time.

**8. APPLICABLE REGULATIONS:**

**PSD Applicability**

|   |     |         |     |
|---|-----|---------|-----|
| Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, et cetera)?                 | Y/N |         | N   |
| Has this facility undergone PSD review in the past?   | N   | Permit# | N/A |
| Is this facility categorized as a major source for PSD?<br>≥ 100 tpy and on the list of 28 (100 tpy)? | Y/N |         | Y   |
| ≥ 250 tpy all other   | Y/N |         | Y   |
|   |     |         | N/A |

**PSD Netting**

|   |     |   |
|---|-----|---|
| Was netting performed to avoid PSD review in this permit? | Y/N | N |
|---|-----|---|

**Source and Pollutant Specific Regulatory Applicability**

| Source   | Pollutant               | Regulation [NSPS, NESHAP (Part 61 & Part 63), or PSD only] |
|--|-------------------------|--|
| 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-130   | Fuel Usage Records only | 40 CFR Part 60, Subpart Dc                                 |

**9. EMISSION CHANGES:**

The following table summarizes plant wide emission changes associated with this permitting action.

| Plant Wide Permitted Emissions (ton/yr) |                        |                        |        |
|---|------------------------|------------------------|--------|
| Pollutant                               | Air Permit 1177-AOP-R5 | Air Permit 1177-AOP-R6 | Change |
| PM/PM <sub>10</sub>                     | 294.9                  | 294.9                  | 0      |

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| <b>Plant Wide Permitted Emissions (ton/yr)</b> |                               |                               |               |
|--|-------------------------------|-------------------------------|---------------|
| <b>Pollutant</b>                               | <b>Air Permit 1177-AOP-R5</b> | <b>Air Permit 1177-AOP-R6</b> | <b>Change</b> |
| SO <sub>2</sub>                                | 61.9                          | 61.9                          | 0             |
| VOC  | 175.7                         | 175.7                         | 0             |
| CO   | 87.6                          | 87.6                          | 0             |
| NO <sub>x</sub>                                | 132.6                         | 132.6                         | 0             |
| Hydrogen Sulfide                               | 1.30                          | 1.30                          | 0             |
| Sulfuric Acid                                  | 0.40                          | 0.40                          | 0             |
| Phenol   | 20.70                         | 21.10                         | 0.40          |
| Formaldehyde                                   | 44.25                         | 44.25                         | 0             |
| Methanol                                       | 33.90                         | 33.90                         | 0             |
| Epichlorohydrin                                | 0.40                          | 0.40                          | 0             |
| O-Cresol                                       | 0.40                          | 0.40                          | 0             |
| Maleic Anhydride                               | 2.50                          | 2.50                          | 0             |
| Total Iodine                                   | 2.50                          | 2.50                          | 0             |
| Nonylphenol                                    | 0.13                          | 0.13                          | 0             |
| Formic Acid                                    | 0.44                          | 0.44                          | 0             |

**10. MODELING:**

**Criteria Pollutants**

| <b>Pollutant</b> | <b>Emission Rate (lb/hr)</b> | <b>NAAQS Standard (µg/m<sup>3</sup>)</b> | <b>Averaging Time</b> | <b>Highest Concentration (µg/m<sup>3</sup>)</b> | <b>% of NAAQS</b> |
|------------------|------------------------------|--|-----------------------|---|-------------------|
| PM <sub>10</sub> | 89.5                         | 50                                       | Annual                | 31.8  | 64%               |
|                  |                              | 150                                      | 24-hour               | 82.4  | 55%               |
| SO <sub>2</sub>  | 34.9                         | 80                                       | Annual                | 19  | 24%               |
|                  |                              | 1,300                                    | 3-hour                | 306.4   | 24%               |
|                  |                              | 365                                      | 24-hour               | 103.7   | 28%               |
| VOC*             | 52.3                         | 0.12 (ppm)                               | 1-hour (ppm)          | 0.01514   | 12.7%             |
| NO <sub>x</sub>  | 35.0                         | 100                                      | Annual                | 23.1  | 23%               |
| CO               | 23.0                         | 10,000                                   | 8-hour                | 6217.8  | 62%               |
|                  |                              | 40,000                                   | 1-hour                | 85465   | 21%               |

\* Scheffe Method

**Non-Criteria Pollutant**

**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 deemed PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value ( $\text{mg}/\text{m}^3$ ), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

| Pollutant        | TLV ( $\text{mg}/\text{m}^3$ ) | PAER (lb/hr) = 0.11*TLV | Proposed lb/hr | Pass? |
|------------------|--------------------------------|-------------------------|----------------|-------|
| Formaldehyde     | 1.5                            | 0.1650                  | 11.0           | N     |
| Phenol           | 19.3                           | 2.1230                  | 5.4            | N     |
| Methanol         | 262.1                          | 28.8310                 | 7.7            | Y     |
| Epichlorohydrin  | 1.89                           | 0.2079                  | 0.1            | Y     |
| O-Cresol         | 22.1                           | 2.431                   | 0.2            | Y     |
| Maleic Anhydride | 0.4                            | 0.044                   | 7.4            | N     |

**2nd Tier Screening (PAIL)**

ISCST3 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 was 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     |

**Hydrogen Iodide and Iodine Screening**

ISCST3 air dispersion modeling was performed on the estimated hydrogen iodide (HI) and iodine ( $\text{I}_2$ ) hourly emissions from data recorded during typical batch production of Lytor 105k, the source of HI and  $\text{I}_2$  emissions.

The ACGIH does not list a TWA for  $\text{I}_2$ , 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.

| <b>AEGL 8-Hour Limits (ppm)</b> |                                  |                              |                              |
|---------------------------------|----------------------------------|------------------------------|------------------------------|
| <b>Chemical</b>                 | <b>Level 1<br/>Non-disabling</b> | <b>Level 2<br/>Disabling</b> | <b>Level 3<br/>Lethality</b> |
| 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<sub>2</sub>), and applying the same assumptions used by PAIL the modeled concentration for HI and I<sub>2</sub> were evaluated.

| <b>Pollutant</b> | <b>1/100 of Threshold Limit<br/>Value (µg/m<sup>3</sup>)</b> | <b>Modeled<br/>Concentration (µg/m<sup>3</sup>)</b> | <b>Pass?</b> |
|------------------|--|---|--------------|
| Hydrogen Iodide  | 52.323   | 2.4978  | Y            |
| Iodine           | 10.381   | 0.0722  | Y            |

Both HI and I<sub>2</sub> pass modeling. Based on the modeling and available information the permitted emission rates for HI and I<sub>2</sub> 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<sub>2</sub>S modeling indicates ambient concentrations of H<sub>2</sub>S 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 metadata in 1-hour increments.

**11. CALCULATIONS:**

| <b>SN</b>              | <b>Emission Factor Source (AP-42, Testing, etc)</b> | <b>Emission Factor and units (lbs/ton, lbs/hr, etc)</b> | <b>Control Equipment Type ( if any)</b>   | <b>Control Equipment Efficiency</b> | <b>Comments (Emission factor controlled/uncontrolled, etc)</b> |
|------------------------|---|---|---|-------------------------------------|--|
| 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.                                 |                                     |  |
| 130                    | AP-42 and testing verified                          | Varied  | None  | N/A                                 |  |

| SN            | Emission Factor Source (AP-42, Testing, etc)  | Emission Factor and units (lbs/ton, lbs/hr, etc) | Control Equipment Type ( if any) | Control Equipment Efficiency | Comments (Emission factor controlled/uncontrolled, etc) |
|---------------|---|--|----------------------------------|------------------------------|---|
| All Baghouses | Grain loadings for PM emissions<br>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  |

**12. TESTING REQUIREMENTS:**

This permit does not require any stack testing.

**13. MONITORING OR CEMS**

The permittee must monitor the following parameters with CEMs or other monitoring equipment (temperature, pressure differential, etc), frequency of recording and the need for records included in any annual, semiannual or other reports.

| SN     | Parameter or Pollutant to be Monitored | Method of Monitoring (CEM, Pressure Gauge, etc) | Frequency* | Report (Y/N)** |
|--------|--|---|------------|----------------|
| 10, 11 | Firebox Temperature                    | Temperature Monitoring Device                   | Continuous | Y              |
| 129    | Temperature                            | Temperature Monitoring Device                   | Continuous | Y              |

\* Indicate frequency of recording required for the parameter (Continuously, hourly, daily, etc.)

\*\* Indicates whether the parameter needs to be included in reports.

#### 14. RECORD KEEPING REQUIREMENTS

The following are items (such as throughput, fuel usage, VOC content of coating, etc) that must be tracked and recorded, frequency of recording and whether records are needed to be included in any annual, semiannual or other reports.

| SN                           | Recorded Item                                | Limit (as established in permit)     | 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              |
| 129                          | Temperature                                  | 1500 °F                              | Daily       | N              |
| 130                          | Fuel Usage                                   | 536.67 MMscf                         | Monthly     | Y              |
| 114                          | Throughput                                   | 500,000 gal                          | Monthly     | Y              |
| Facility                     | Production Rates                             | See Plantwide Conditions #14 and #27 | Monthly     | Y              |
| 12                           | Hours of Operation                           | 4,400                                | Monthly     | Y              |
| 70                           | Throughput                                   | 500,000 gal                          | Monthly     | Y              |

\* Indicate frequency of recording required for the item (Continuously, hourly, daily, etc.)

\*\* Indicates whether the item needs to be included in reports

#### 15. OPACITY

| SN                     | Opacity % | Justification (NSPS limit, Dept. Guidance, etc)                           | Compliance Mechanism (daily observation, weekly, control equipment operation, etc) |
|------------------------|-----------|---|--|
| 3, 6, 9,13, 18, and 19 | 5         | Department Guidance   | Weekly Observations  |
| 5                      | 20/40     | Department Guidance – see administrative agreement in appendix of permit. | Weekly and per batch observations  |



| SN     | Opacity % | Justification<br>(NSPS limit, Dept. Guidance, etc) | Compliance Mechanism (daily observation, weekly, control equipment operation, etc) |
|--------|-----------|--|--|
| 10, 11 | 5         | Department Guidance                                | Natural Gas Combustion   |
| 129    | 20        | Department Guidance                                | Weekly Observations  |
| 130    | 5         | Department Guidance                                | Natural Gas Combustion   |

**16. DELETED CONDITIONS:**

No specific conditions were deleted in this revision.

**17. VOIDED, SUPERSEDED OR SUBSUMED PERMITS**

List all active permits voided/superseded/subsumed by issuance of this permit for this facility.

| Permit #    |
|-------------|
| 1177-AOP-R5 |

**18. CONCURRENCE BY:**

The following supervisor concurs with the permitting decision:

\_\_\_\_\_  
*Phillip Murphy, P.E.*  
*Engineering Supervisor, Air Division*