**Prevention of Significant Air Quality Deterioration Review**
**Of Packaging Corporation of America – Valdosta, Georgia**
**Located in Lowndes County, Georgia**

**PRELIMINARY DETERMINATION**
**Permit Application No. 15946**
**May 2005**

**State of Georgia**
**Department of Natural Resources**
**Environmental Protection Division**
**Air Protection Branch**

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| **Stationary Source Permitting Program (SSPP)** |
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# SUMMARY

The Environmental Protection Division (EPD) has reviewed the Packaging Corporation of America – Valdosta Mill (PCA) application for the construction and operation of modifications at the facility located in Clyattville, Georgia (Lowdnes County). The primary activity at PCA is the production of linerboard through the Kraft pulp and paper process. The proposed physical changes will be to the No. 3 Brown Stock Washer System (System Source Code: G016) and the Paper Machines (System Source Code: G014). These modifications will be completed to comply with "Phase 2" of 40 CFR 63 Subpart S – *"National Emission Standard for Hazardous Air Pollutants from the Pulp and Paper Industry,"* (Cluster Rule), which is the requirement to collect the named high volume low concentration (HVLC) streams by the compliance date of April 17, 2006, as well as to provide PCA with the capability to maintain the current production capacity.

The modification of the facility due to the No. 3 Brown Stock Washer System project and Paper Machine System improvements will result in an emissions increase in nitrogen oxides ($NO_X$), sulfur dioxide ($SO_2$), volatile organic compounds (VOC), particulate matter (PM), fine particulate matter ($PM_{10}$), total reduced sulfur (TRS), and sulfuric acid mist. A Prevention of Significant Deterioration (PSD) analysis and netting exercise was performed on the entire PCA facility for all pollutants to determine if any increase was above the "significant" level. $NO_x$, VOC, TRS, and $SO_2$ emission increases were above the PSD significant level thresholds.

The PCA Mill is located in Lowndes County, which is classified as "attainment" or "unclassifiable" for $SO_2$, $PM_{10}$, $NO_x$, CO and ozone (VOC) in accordance with Section 107 of the Clean Air Act, as amended August 1977.

Best Available Control Technology (BACT) for the No. 3 Brown Stock Washer System was determined to be combustion of the VOC and HAP emissions in the HVLC collection system, which exhausts to either of the combination boilers (Source Codes: 1005 or 1006) or to the NCG Thermal Oxidizer (Source Code: 6076). PCA currently employs this control scheme as Maximum Achievable Control Technology (MACT) in order to meet the requirements for "Phase 1" of Cluster Rule, which is the requirement to collect the named low volume high concentration (LVHC) streams by the compliance date of April 15, 2001. BACT for the Paper Machines System was determined to require no additional control.

The modeled $NO_X$ and $SO_2$ emission increases are below PSD ambient significance levels. The modeling analysis shows that the proposed projects will not contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS) or PSD increment. The additional impacts analysis showed no adverse effects on the local economy, soils and vegetation, or visibility from the proposed projects.

The Environmental Protection Division (EPD) review of the data submitted by PCA related to the proposed modifications indicates that the project will be in compliance with all applicable state and federal air quality regulations.

It is the preliminary determination of the EPD that the proposal provides for the application of BACT for the control of $NO_x$, VOC, TRS, and $SO_2$ from the No. 3A Brown Stock Washer System and Paper Machine System, as required by Federal PSD Regulation 40 CFR 52.21(j).

It has been determined through approved modeling techniques that the estimated emissions will not cause or contribute to a violation of any ambient air standard or allowable PSD increment, either in the area surround the facility or the nearby Class I area(s). It has further been determined that the proposal will not cause impairment of visibility or detrimental effects on soils or vegetation. Any air quality impacts produced by project-related growth will be inconsequential.

This Preliminary Determination concludes that an Air Quality Permit be issued to Packaging Corporation of America for the requested modifications. Various conditions have been incorporated into the current Title V operating permit to ensure and confirm compliance with all applicable air quality regulations. A copy of the draft permit amendment is included in Appendix A of this document.

# 1.0 INTRODUCTION

On January 7, 2005, Packaging Corporation of America – Valdosta Mill submitted an application for an air quality permit for modifications to the No. 3 Brown Stock Washer System and the Paper Machines System. The facility submitted the results of the air quality modeling analyses to support the proposed modification on November 19, 2004. The PSD modification will be made at the mill located at 5495 Lake Park-Clyattville Road, Clyattville (Lowndes County), Georgia. The plant currently produces both hardwood and softwood pulp in order to make linerboard on the paper machines.

The proposed physical changes will be to the No. 3 Brown Stock Washer System and the Paper Machines System. The proposed upgrades are summarized below:

- Modify the No. 3 Brown Stock Washer System – The replacement the existing vats and hoods with a new, low air-flow design that will allow the tie in of the washer and associated tanks to the existing HVLC system which can exhaust to either of the combination boilers or to the NCG Thermal Oxidizer.

  This project will result in the control of the VOC and HAP as required by "Phase 2" of Cluster Rule. The modified units will be referred to as the No. 3A Brown Stock Washer System to easily distinguish the requirements, monitoring, and records for the pre-modification washer from the post-modification washer.

- Improvements to the Paper Machine System – The facility is installing a new primary headbox, extension of the fourdrinier table, and other improvements to both the wet and dry end of the paper machine. These improvement will better utilize the capacity of the pulp mill on all grades of paper, will improve product quality and consistency, and improve energy efficiency. Improvements to better accommodate heavy weight grades may be necessary due to future demand. The facility is requesting a maximum daily production limit of 575,000 machine-dried tons/year (MDT/yr) instead of permitting specific changes to the Paper Machine System.

The modeling submitted with Application No. 15946 includes a Pollution Control Project (PCP – see Application No. 15436 dated June 23, 2004) on the Power Boilers (Source Codes: 1005, 1006, and 1017), as well as the modifications proposed in this application. The PCP was issued as Permit Amendment No. 2631-185-0001-V-01-5, dated March 7, 2005. At the time of the PCP modeling, the facility proposed a new $SO_2$ emission limit of 193.6 lb/hr from the C.E. Power Boiler (Source Code: 1017) in order to comply with the NAAQS and the PSD Increment. Alternately, the facility proposed to increase the height of the stack of the C.E. Power Boiler in lieu of complying with the lower $SO_2$ emission limit. The facility has received funding to construct the new stack; however the proposed $SO_2$ emission limit is in effect until the stack of the C.E. Power Boiler is actually raised (estimated completion date of October 2005).

PCA is in the Southwest Georgia Intrastate Air Quality Control Region (AQCR). Within this AQCR, Lowndes County is in attainment or unclassifiable/attainment for all criteria pollutants including ozone as designated in the July 2003 Code of Federal Regulations and amended on September 26, 2003. The area is also in attainment with $PM_{2.5}$. Any proposed project at the plant is therefore required to undergo a PSD applicability analysis in order to determine if the project triggers a PSD review for any pollutant. Since the plant's operation is listed as one of 28 industrial categories specified in the PSD regulations and it emits more than 100 tons per year of a PSD pollutant, the plant is considered a major source under the PSD regulations. As a major source, any project that results in a significant increase of any PSD regulated compound triggers a PSD review.

The first step in determining if a PSD increase occurs is to calculate actual emissions for the two-year period (February 2002 – January 2004) before the application of the construction project and compare this result to the future potential emissions after the completion of the project.

Modified Units - Emissions from "modified" emission units were calculated by subtracting the difference between future potential emissions and past actual baseline average emissions. The future potential values were established through a BACT analysis for the following modified units:

- No. 3 Brown Stock Washer System
- Paper Machine System

Affected Units - Emissions from "affected" emission units were calculated by applying a percentage increase to past actual baseline average emissions. The percentage increase was developed independently for each emission unit, based on the difference between baseline production and potential post-project production. Post-project production was calculated using the following assumption:

- The annual production rate will be 575,000 MDT, equivalent to 603,750 air-dried tons (ADT). Assuming an operating schedule of 24 hours/day, 7 days/week and 8,760 hours/year provides an annual average of 1,575 MDT/day and 1,650 ADT/day.
- The maximum day production at the paper machine will be 1,750 MDT/day after the completion of the project. However, the unit operations of the affected units are not directly linked, e.g. there is storage capacity between pulping stages that moderates the maximum operating rate at affected units required to achieve the maximum grade mix at the paper machine. Maximum design combined capacity of the two brown stock washers operating 24 hours/day is 1,800 ADT. The current facility maximum daily production is 1,680 ADT/day, equivalent to 1,600 MDT/day.
- Using the mill-specific relationships, maximum black liquor solids (BLS) processing will be 139,563 lb BLS/hr for the three Recovery Furnaces and lime production will be 11.03 tons CaO/hour.

Based on the proposed project, the estimated incremental increases of regulated pollutants from the facility are listed in Table 1-1.

Table 1-1: PROJECT EMISSIONS
NO. 3 BROWN STOCK WASHER PROJECT EMISSIONS INVENTORY
PACKAGING CORPORATION OF AMERICA - VALDOSTA, GEORGIA

| Pollutant | Project Increase (ton/yr) | Contemporaneous Increases/Decreases from C.E. & Riley (ton/yr) | Previous Contemporaneous Increases (ton/yr) | Total Project Emissions (ton/yr) | PSD Threshold (tons) | PSD Significant |
|---|---|---|---|---|---|---|
| PM | 49.95 | -80.60 | 7.07 | -23.58 | 15 | No |
| PM10 | 31.12 | -80.60 | 5.49 | -43.99 | 25 | No |
| SO2 | 140.53 | 36.75 | 38.20 | 215.49 | 40 | Yes |
| NOX | 149.30 | 106.05 | 10.94 | 266.29 | 40 | Yes |
| CO | 638.22 | -10,629.19 | 99.99 | -9,890.98 | 100 | No |
| VOC | 130.65 | 9.94 | 1.89 | 142.47 | 40 | Yes |
| TRS | 8.33 | 0.00 | 9.99 | 18.32 | 10 | Yes |
| H2SO4 | 6.64 | 0.21 | --- | 6.85 | 7 | No |
| Fluoride | 0.00 | 0.00 | --- | 0.00 | 3 | No |
| Pb | 0.002 | 0.02 | --- | 0.02 | 1 | No |

## 2.0 PROCESS DESCRIPTION

General Process Description

Please see the overall facility process description in Section 2 of Application No. 15946.

Project Description

The facility proposes to modify the current No. 3 Brown Stock Washer System (to be renamed the No. 3A Brown Stock Washer System) to comply with "Phase 2" of the Cluster Rule requirements and to provide PCA with the capability to maintain the current production capacity. The replacement the existing vats and hoods with a new, low air-flow design that will allow the tie in of the washer and associated tanks to the existing HVLC system, which can exhaust to either of the combination boilers or to the NCG Thermal Oxidizer.

This project will result in the control of the VOC and HAP as required by "Phase 2" of Cluster Rule. The modified units will be referred to as the No. 3A Washer System to easily distinguish the requirements, monitoring and records for the pre-modification washer from the post-modification washer.

In addition to the No. 3 Brown Stock Washer project, the facility may have to implement improvements to the Paper Machine System. The exact type of improvements to the paper machine system are no known at this time, however the improvements will be to better accommodate heavy weight grades due to future demand. The facility is requesting a maximum daily production limit from the paper machine system instead of permitting specific changes.

# 3.0 REVIEW OF APPLICABLE RULES AND REGULATIONS

The Valdosta Mill has reviewed the Federal and State of Georgia air quality regulations to determine which regulations potentially apply to the proposed project.

**Federal Rules**

New Source Review (NSR)

Lowndes County is classified as in attainment or unclassifiable for the NAAQS for all NSR-regulated pollutants; therefore, Nonattainment New Source Review regulations do not apply to this project. However, the project must be evaluated for PSD-significance since PCA is classified as a major source with respect to the Federal PSD rules.

The only sources subject to the PSD regulations are "major stationary sources" and "major modifications" located in areas designated as attainment or unclassifiable for the NAAQS. The proposed activities described herein, by themselves, trigger the PSD regulations since the project related emissions increases (i.e., total future potential to emit from new and modified emissions units minus baseline actual emission rates) are above the PSD-significance levels for the applicable PSD pollutants.

The projected emissions increases associated with the project are summarized in Table 3-1. Emission rates for the No. 3 Brown Stock Washer System and Paper Machine were calculated by subtracting the difference between future scenario potential emissions and past actual baseline average emissions. As discussed in Section 1, PCA has included the previous C.E. and Riley Combination Boilers Overfire Air (OFA) PCP in the modeling analysis associated with this PSD project. As a result, Table 3-2 identifies the project emission increases (including both the PCP OFA project and the current No. 3 Brown Stock Washer Project) with the PSD significant increase threshold values.

As shown in the table, the project, by itself and without considering contemporaneous emission increases and decreases, results in a significant emissions increase for $SO_2$, $NO_X$, and VOC.

Provided below are several highlights associated with the calculations:

- PCA primarily relied upon AP-42 and Facility Test data for baseline emission factors.
- Control efficiencies from the Mill's 2002 Georgia Emissions Inventory were used for developing the baseline emissions.

## Prevention of Significant Deterioration

The regulations for PSD in 40 CFR 52.21 require that any new major source or modification of an existing major source be reviewed to determine the potential emissions of all pollutants subject to regulations under the Clean Air Act. The PSD review requirements apply to any new or modified source which belongs to one of 28 specific source categories having potential emissions of 100 tons per year or more of any regulated pollutant, or to all other sources having potential emissions of 250 tons per year or more of any regulated pollutant. They also apply to any modification of a major stationary source which results in a significant net emission increase of any regulated pollutant.

The PSD regulations require that any major stationary source or major modification subject to the regulations meet the following requirements:

- Application of BACT for each regulated pollutant that would be emitted in significant amounts;
- Analysis of the ambient air impact;
- Analysis of the impact on soils, vegetation, and visibility;
- Analysis of the impact on Class I areas; and
- Public notification of the proposed plant in a newspaper of general circulation.

Definition of BACT

The PSD regulation requires that BACT be applied to all regulated air pollutants emitted in significant amounts. Section 169 of the Clean Air Act defines BACT as an emission limitation reflecting the maximum degree of reduction that the permitting authority (in this case, EPD), on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such a facility through application of production processes and available methods, systems, and techniques. In all cases, BACT must establish emission limitations or specific design characteristics at least as stringent as applicable New Source Performance Standards (NSPSs), National Emission Standards for Hazardous Air Pollutants (NESHAPs), or State Implementation Plan (SIP). In addition, if EPD determines that there is no economically reasonable or technologically feasible way to measure the emissions, and hence to impose and enforceable emissions standard, it may require the source to use a design, equipment, work practice or operations standard or combination thereof, to reduce emissions of the pollutant to the maximum extent practicable.

The BACT determination should, at a minimum, meet two core requirements. The first core requirement is that the determination follows a "top-down" approach. The second core requirement is that the selection of a particular control system as BACT must be justified in terms of the statutory criteria and supported by the record and must explain the basis for the rejection of other more stringent candidate control systems.

EPD's procedures for performing a top down BACT analysis are set forth in EPA's *Draft New Source Review Workshop Manual* (Manual), dated October 1990. One critical step in the BACT analysis is to determine if a control option is technically feasible. If a control is determined to be infeasible, it is eliminated from further consideration. The Manual applies several criteria for determining technical feasibility. The first is straightforward: if the control has been installed and operated by the type of source under review, it is demonstrated and technically feasible.

For controls not demonstrated using this straightforward approach, the Manual applies a more complex approach that involves two concepts for determining technical feasibility: availability and applicability. A technology is considered available if it can be obtained through commercial channels. An available control is applicable if it can be reasonably installed and operated on the source type under construction. A technology that is available and applicable is technically feasible.

The Manual provides some guidance for determining availability. For example, a control is generally considered available if it has reached the licensing and permitting stages of development. However, the Manual further provides that a source would not be required to experience extended time delays or resource penalties to allow research to be conducted on new technologies. In addition, the applicant is not expected to experience extended trials learning how to apply a technology on a dissimilar source type. Consequently, technologies in the pilot scale testing stages of development are not considered available for BACT.

As mentioned before, the Manual also requires available technologies to be applicable to the source type under construction before a control is considered technically feasible. For example, deployment of the control technology on an existing source with similar gas stream characteristics is generally a sufficient basis for concluding technical feasibility. However, even in this instance, the Manual would allow for an applicant to make a demonstration to the contrary. For example, an applicant could show that unresolved technical difficulties with applying a control to the source under consideration (e.g., size of the unit, location of the proposed site, and operating problems related to the specific circumstances of the source) make a control technically infeasible.

According to the Environmental Appeals Board (see In re: Kawaihae Cogeneration Project, 7 E.A.D. 107 at page 1996, EAB 1997), the section on "collateral environmental impacts" of a proposed technology has been interpreted to mean that "if application of a control system results directly in the release (or removal) of pollutants that are not currently regulated under the Act, the net environmental impact of such emissions is eligible for consideration in making the BACT determination." The Appeals Board continues, "The Administration has explained that the primary purpose of the collateral impacts clause is… to temper the stringency of the technological requirements whenever one or more of the specified collateral impacts – energy, environmental, or economic – renders the use of the most effective technology inappropriate." Lastly, the Appeals Board document states, "Unless it is demonstrated to the satisfaction of the permit issuer that such unusual circumstances exist, then the permit applicant must use the most effective technology."

The five steps of a top-down BACT review procedure identified by EPA per BACT guidelines are listed below:

Step 1: Identify all control technologies
Step 2: Eliminate technically infeasible options
Step 3: Rank remaining control technologies by control effectiveness
Step 4: Evaluate most effective controls and document results
Step 5: Select BACT

Now that the PSD BACT standards have been defined, the next step is to review the remaining applicable federal requirements. This step will aid in citing the appropriate legal authority for each requirement in the Title V permit. This analysis (beginning on Page 11) will show that the PSD BACT standards represent the most stringent limit.

The proposed modifications to the No. 3 Brown Stock Washer System and Paper Machine System is classified as a major modification because the potential emission increase in $NO_x$, VOC, TRS, and $SO_2$ exceed the thresholds of PSD Significance levels.

Table 3-1: MODIFIED AND AFFECTED UNITS

NO. 3 BROWN STOCK WASHER PROJECT EMISSIONS INVENTORY

| Mill Area | Emission Unit | PSD Pollutant Emission Increases (tons/yr) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PM | $PM_{10}$ | $PM_{2.5}$ | $SO_2$ | $NO_X$ | CO | VOC | TRS | $H_2SO_4$ | Fluoride | Pb |
| **Modified Emission Units** | | | | | | | | | | | | |
| | No. 3 Brown Stock Washer | --- | --- | --- | --- | --- | --- | -8.20 | -2.88 | --- | --- | --- |
| | Paper Machine System | --- | --- | --- | --- | --- | --- | 1.50 | --- | --- | --- | --- |
| | Paper Machine Dryer Hood | --- | --- | --- | --- | --- | --- | 90.00 | --- | --- | --- | --- |
| **Affected Emission Units** | | | | | | | | | | | | |
| RECOVERY | No. 1 Recovery Furnace | 5.41 | 4.20 | 3.19 | 18.23 | 8.72 | 84.01 | 1.59 | 0.66 | 0.86 | --- | 3.66E-04 |
| | No. 2 Recovery Furnace | 8.06 | 6.24 | 4.76 | 36.95 | 17.67 | 170.29 | 3.22 | 1.68 | 1.74 | --- | 5.03E-04 |
| | No. 3 Recovery Furnace | 13.77 | 10.70 | 8.12 | 76.73 | 36.70 | 353.55 | 6.66 | 2.33 | 3.60 | --- | 6.47E-04 |
| | No. 1 Smelt Dissolving Tank | 0.96 | 0.81 | 0.71 | --- | --- | --- | --- | 0.13 | 0.01 | --- | --- |
| | No. 2 Smelt Dissolving Tank | 1.99 | 1.67 | 1.45 | --- | --- | --- | --- | 0.27 | 0.02 | --- | --- |
| | No. 3 Smelt Dissolving Tank | 2.72 | 2.30 | 1.97 | --- | --- | --- | --- | 0.56 | 0.03 | --- | --- |
| | Black Liquor Oxidizer | --- | --- | --- | --- | --- | --- | 13.39 | 3.90 | --- | --- | --- |
| CAUSTICIZING | No. 4 Lime Kiln | 0.97 | 0.86 | 0.39 | 2.47 | 76.41 | 30.37 | 20.60 | 0.20 | 0.01 | --- | --- |
| | Lime Slaker System | 8.34 | 1.77 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MISC. | No. 4 Chemiwasher System | --- | --- | --- | --- | --- | --- | 0.06 | --- | --- | --- | --- |
| | Digester System | --- | --- | --- | --- | --- | --- | 0.11 | --- | --- | --- | --- |
| | Digester 10 System | --- | --- | --- | --- | --- | --- | 0.01 | --- | --- | --- | --- |
| | Thermal Oxidizer | 0.16 | 0.16 | --- | 6.15 | 9.80 | 0.002 | 0.14 | 2.66E-04 | 0.38 | --- | --- |
| | Multiple Effect Evaporator System | --- | --- | --- | --- | --- | --- | 0.11 | --- | --- | --- | --- |
| | Turpentine System | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Condensate Stripper | --- | --- | --- | --- | --- | --- | 1.04 | --- | --- | --- | --- |
| | Tall Oil Plant | --- | --- | --- | --- | --- | --- | 0.27 | 1.49 | --- | --- | --- |
| | WWTP | --- | --- | --- | --- | --- | --- | 0.15 | --- | --- | --- | --- |
| WOODYARD | Bark Storage Piles | 0.53 | 0.26 | | --- | --- | --- | --- | --- | --- | --- | --- |
| | Chip Storage Pile | 1.15 | 0.09 | | --- | --- | --- | --- | --- | --- | --- | --- |
| | Bark Bin Cyclone | 3.84 | 1.34 | | --- | --- | --- | --- | --- | --- | --- | --- |
| | Chipper Cyclone | 0.99 | 0.35 | | --- | --- | --- | --- | --- | --- | --- | --- |
| | Chip Transfer/Drop Points | 0.77 | 0.27 | | --- | --- | --- | --- | --- | --- | --- | --- |
| | Bark Transfer/Drop Points | 0.29 | 0.10 | | --- | --- | --- | --- | --- | --- | --- | --- |
| | **Totals** | **49.95** | **31.12** | **20.58** | **140.53** | **149.30** | **638.22** | **130.65** | **8.33** | **6.64** | **0.00** | **0.002** |

Table 3-2: SIGNIFICANT INCREASE THRESHOLD VALUES
NO. 3 BROWN STOCK WASHER PROJECT EMISSIONS INVENTORY

| Pollutant | Baseline Emissions (ton/yr) | Project Emissions Increase (ton/yr) | CE/Riley Combination Boilers OFA Project Increase/Decrease (ton/yr) | Project Emissions Net Increase (ton/yr) | PSD Significance Thresholds (ton/yr) | PSD Significant |
|---|---|---|---|---|---|---|
| PM | 195.62 | 49.95 | -80.60 | -30.65 | 15 | No |
| PM10 | 128.68 | 31.12 | -80.60 | -49.48 | 25 | No |
| SO2 | 559.96 | 140.53 | 36.75 | 177.28 | 40 | Yes |
| NOX | 520.80 | 149.30 | 106.05 | 255.35 | 40 | Yes |
| CO | 2,551.42 | 638.22 | -10,629.19 | -9,990.97 | 100 | No |
| VOC | 438.06 | 130.65 | 9.94 | 140.59 | 40 | Yes |
| TRS | 47.21 | 8.33 | 0.00 | 8.33 | 10 | No |
| H2SO4 | 26.47 | 6.64 | 0.21 | 6.85 | 7 | No |
| Fluoride | 0.00 | 0.00 | 0.00 | 0.00 | 3 | No |
| Pb | 0.007 | 0.002 | 0.02 | 0.02 | 1 | No |

## PSD Netting Analysis

Since the proposed project is considered a major modification to an existing major source, the PSD regulations require PCA to conduct a netting analysis, taking into account all contemporaneous emissions increases and decreases at the facility. The purpose of the netting analysis is to establish whether there have been sufficient emission reductions at the facility over the contemporaneous period such that the net increase in emissions is below the PSD applicability threshold level for a given regulated pollutant. Conversely, the netting analysis ensures that the cumulative emissions increases from the small projects constructed during the contemporaneous period are properly accounted for. The facility is required to examine all creditable emissions increases and decreases over the contemporaneous period in the netting analysis. The contemporaneous period is defined as the five-year period extending back from the expected date to commence construction.

PCA expects to commence construction of the No. 3 Brown Stock Washer System project during the 3rd Quarter of 2005 and complete the construction in the 2nd quarter of 2006. Therefore, the contemporaneous period is defined as October 1, 2000 to October 1, 2005.

PCA conducted the No. 1 Recovery Furnace (Source Code: 7000) Maintenance project during the contemporaneous period in October 2000. PCA took federally enforceable limits to avoid PSD for the project. PCA received a 12-month rolling total permit limit for BLS firing and 12-month rolling total emission limits for PM and TRS. These permit limits will remain in effect as part of this permitting process. PCA is required to consider emissions increases and decreases associated with the No. 1 Recovery Furnace Project for all pollutants for which the current project is significant. PCA has considered $SO_2$, $NO_X$, VOC and TRS from the No. 1 Recovery Furnace Maintenance project as part of this exercise.

The emissions increases and decreases associated with the projects from the contemporaneous period described above are summarized in Table 3-3. A summary of the netting analysis associated with the project, including the contemporaneous period is provided in Table 3-4. The proposed project will only result in a significant emissions increase of TRS, VOC, $SO_2$, and $NO_X$. Therefore, only these pollutants will be considered in the BACT and Ambient Air Quality Modeling Analyses.

Table 3-3: PREVIOUS PROJECTS CONTEMPORANEOUS EMISSIONS

| Pollutant | Previous Project Contemporaneous Increase/Decrease (ton/yr) |
|---|---|
| PM | 7.07 |
| $PM_{10}$ | 5.49 |
| $SO_2$ | 38.20 |
| $NO_X$ | 10.94 |
| CO | 99.99 |
| VOC | 1.89 |
| TRS | 9.99 |
| $H_2SO_4$ | --- |
| Fluoride | --- |
| Pb | --- |

Table 3-4: PROJECT EMISSIONS

NO. 3 BROWN STOCK WASHER PROJECT EMISSIONS INVENTORY

| Pollutant | Project Increase (ton/yr) | Contemporaneous Increases/Decreases from C.E. & Riley (ton/yr) | Previous Contemporaneous Increases (ton/yr) | Total Project Emissions (ton/yr) | PSD Threshold (tons) | PSD Significant |
|---|---|---|---|---|---|---|
| PM | 49.95 | -80.60 | 7.07 | -23.58 | 15 | No |
| PM10 | 31.12 | -80.60 | 5.49 | -43.99 | 25 | No |
| SO2 | 140.53 | 36.75 | 38.20 | 215.49 | 40 | Yes |
| NOX | 149.30 | 106.05 | 10.94 | 266.29 | 40 | Yes |
| CO | 638.22 | -10,629.19 | 99.99 | -9,890.98 | 100 | No |
| VOC | 130.65 | 9.94 | 1.89 | 142.47 | 40 | Yes |
| TRS | 8.33 | 0.00 | 9.99 | 18.32 | 10 | Yes |
| H2SO4 | 6.64 | 0.21 | --- | 6.85 | 7 | No |
| Fluoride | 0.00 | 0.00 | --- | 0.00 | 3 | No |
| Pb | 0.002 | 0.02 | --- | 0.02 | 1 | No |

**40 CFR 60 Subpart BB – "Standards of Performance for Kraft Pulp Mills"**

40 CFR 60 Subpart BB sets forth PM and TRS emission standards for various pulp mill equipment including digesters, evaporators, condensate stripper systems, recovery furnaces, smelt dissolving tanks, brown stock washers and lime kilns for which construction or modification commenced after September 24, 1976. The regulation identifies emission limitations and/or control requirements and monitoring, recordkeeping and reporting requirements.

No units subject to 40 CFR 60 Subpart BB are being modified as part of this project.

**40 CFR 60 Subpart Kb – "Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels)"**

40 CFR 60 Subpart Kb regulations apply to volatile organic liquid storage vessels (including petroleum liquid storage vessels) for which construction, reconstruction, or modification commenced after July 23, 1984.

No units subject to 40 CFR 60 Subpart Kb are being modified as part of this project.

**40 CFR Part 63 Subpart S – "National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry"**

PCA qualifies as a major source of HAPs and various processes at the Mill are subject to 40 CFR Part 63 Subpart S (Cluster Rule). The following emission units are subject to the requirements of 40 CFR 63 Subpart S:

- NCG Thermal Oxidizer
- Multiple Effect Evaporator System
- Condensate Stripper
- Regulated Pulping Condensate System
- Digester System
- Digester 10 System
- No. 4 Chemiwasher System
- Turpentine System
- No. 3 BSW System

The activities associated with this project and the permitting exercise will impact the applicability of 40 CFR 63 Subpart S for only the No. 3 Brown Stock Washer System as discussed in Section 1 of this Preliminary Determination.

**40 CFR Part 63 Subpart MM – "National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills"**

The regulations of 40 CR 63 Subpart MM are applicable to lime kilns, recovery furnaces, and smelt dissolving tanks at kraft pulp mill.

No units subject to 40 CFR 63 Subpart MM are being modified as part of this project.

**Compliance Assurance Monitoring (CAM)**

EPA's CAM rule is codified at 40 CFR Part 64. Section 64.2 of the CAM rule specifies the criteria for determining applicability with the CAM rule, and Table 3-5 summarizes the applicability requirements for Part 64. If an emissions unit satisfies ***all*** of the applicability requirements listed in Table 3-5, the emissions unit is subject to CAM. Otherwise, Part 64 does not apply to the emissions unit.

**Table 3-5: CAM Applicability Requirements Summary**

| Part 64 Reference | Requirement |
|---|---|
| §64.2(a) | Unit is located at major source that is required to obtain a Title V permit. |
| §64.2(a)(1) | Unit is subject to an emission limitation or standard for an applicable pollutant. |
| §64.2(a)(2) | Unit uses a control device to achieve compliance with this applicable limitation or standard (See §64.1 for definition of control device). |
| §64.2(a)(3) | Potential pre-control emissions of the applicable pollutant from the unit are at least 100 percent of major source threshold amount (i.e., greater than 100 ton/yr). |
| §64.2(a)(b) | Unit is not otherwise exempt. |

Based on the aforementioned criteria and looking at units that are being modified as part of the project, the No. 3 Brown Stock Washer System is potentially subject to the CAM rule since it uses a control device to achieve compliance with an applicable emission limitation. It does not however, have pre-controlled direct emissions that are greater than 100 ton/yr for $SO_2$. While the Paper Machine Complex is also being modified as part of this project, it does not utilize add-on control equipment.

40 CFR 64.2(b) identifies exemptions from the requirements for any emission limitation or standards proposed by Administrator after November 15, 1990 pursuant to Section 111 or 112 of the Act (the NSPS and NESHAP requirements). HAPs from the No. 3 Brown Stock Washer System are regulated pursuant to 40 CFR 63, Subpart S; therefore, these units would be exempt from developing a CAM Plan for HAPs.

Normally, HVLC gases from the No. 3 Brown Stock Washer System are vented to the C.E. and Riley Combination Boilers. An $SO_2$ CAM plan was prepared as part of PCA's C.E. and Riley Combination Boilers OFA Project permit application. PCA also has the ability to route the HVLC gases to the NCG Thermal Oxidizer as well. $SO_2$ from the NCG Thermal Oxidizer is not regulated pursuant to Subpart S or any other applicable NSPS or NESHAP; therefore, a CAM Plan could be required. After reviewing and completing the EPD CAM Plan form, PCA has not completed a full CAM Plan. PCA believes that current conditions in the existing Part 70 Operating Permit specify a continuous compliance determination method for $SO_2$ based on a combination of emission testing, and operating parameter recordkeeping and reporting (see Condition 6.2.18 of the existing Part 70 Operating Permit). Pursuant to the EPD CAM form, the $SO_2$ emission limit qualifies as an exempt emission limitation and PCA is not required to develop the full CAM Plan for $SO_2$.

### State of Georgia Requirements

The proposed modified emissions units are potentially subject to the following State of Georgia air regulations which are codified in Chapter 391 of the Georgia Administrative Code (G.A.C.):

- 391-3-1-.03(10) – Title V Operating Permit
- 391-3-1-.03(1) – Construction (SIP) Permit

391-3-1-.03(1) – Construction (SIP) Permit

The Georgia construction permit program is codified at 391-3-1-.03(1) and applies to all construction, operation and/or modification of process equipment, fuel burning equipment and/or air pollution control devices. The Georgia EPD website maintains current versions of the applicable permit application forms and instructions on their submittal. PCA has included the appropriate Georgia EPD SIP application forms.

391-3-1-.03(10) – Title V Operating Permit/Title V Operating Permit Number 2631-185-0001-V-01-0, -2, -3, -4, and -5

The Georgia operating permit program is codified at 391-3-1-.03(10) and applies to all Title V-affected stationary sources, regardless of whether a Title V operating permit has been issued or not. PCA has received a Title V Operating permit (Permit Number 2631-185-0001-V-01-0, effective July 16, 2002). Subsequent amendments have resulted in Permit Amendment 2631-185-0001-V-01-1 with a October 7, 2003 effective date; 2631-185-0001-V-01-2 with a February 24, 2004 effective date; 2631-185-0001-V-01-3 with an April 21, 2004 effective date; 2631-185-0001-V-01-4 with a June 7, 2004 effective date; and 2631-185-0001-V-01-5 with a March 7, 2005 effective date. Rule 391-3-1-.03(10)(e)5 outlines the operating permit revision procedures. The proposed project represents a "Significant modification" as defined in 391-3-1-.03(10)(e)5 because it does not qualify as an administrative amendment or a minor permit modification and will trigger PSD applicability.

The requirements of 391-3-1-.03(10) are met by the submission of this permit application using the Title V permit application forms for the proposed project pursuant to 391-3-1-.03(1) and meeting the public, affected States, and EPA review requirements as outlined in 391-3-1-.03(10).

# 4.0 CONTROL TECHNOLOGY REVIEW

The PSD regulations require that a Best Available Control Technology (BACT) analysis be conducted for modified emission units that are part of the project and emit any of the PSD pollutants for which the project is significant. The following emission units are considered to be modified emission units and are subject to a BACT analysis:

- No. 3 Brown Stock Washer System
- Paper Machine

Table 4-1 identifies the pollutants that were reviewed for the BACT analyses associated with each modified emission unit. Supporting BACT tables are provided in Appendix D and are referenced throughout this section.

**Table 4-1**
**Pollutants Subject to BACT Review**
**for Modified Emission Units**

| Emission Unit | Pollutant |
|---|---|
| No. 3 BSW System | VOC, TRS |
| Paper Machine | VOC |

**No. 3 Brown Stock Washer System (System Source Code: G016)**

The only PSD-regulated pollutants emitted above the PSD significance level from the No. 3 Brown Stock Washer System are VOC and TRS. Therefore, a BACT analysis is only required for these pollutants. PCA reviewed these pollutants in the RBLC.

There are no specific entries for VOC emissions from brown stock washers; however, current control techniques required to comply with the 40 CFR Part 63 Subpart S (MACT I, Phase 2) are intended to control various HAPs from brown stock washers and VOCs are specific targets. As a result, PCA believes that the control strategy identified to comply with the "Phase 2" requirements of Cluster Rule (i.e., incineration) will also satisfy the requirements of BACT. PCA believes that incineration represents the top level of control and PCA has embraced this control strategy. This strategy entails routing the modified No. 3A Brown Stock Washer exhaust to the existing HVLC system, which exhausts to the C.E. and Riley Combination Boilers or the NCG Thermal Oxidizer.

RBLC entries for TRS emissions from brown stock washers are based on the following 40 CFR Part 60, Subpart BB limits:

i. an emission limit of 5 ppmdv TRS @ 10% $O_2$, or

ii. the gases are combusted in an incinerator or other device and subject to a minimum temperature of 1200 deg. F for at least 0.5 seconds, or

iii. the gases are combusted in a lime kiln or recovery furnace subject to the requirements of 40 CFR Part 60, Subpart BB. PCA will meet this level of BACT control by routing the gases to the exhaust to the existing HVLC system which exhausts to either the C.E. or Riley Combination Boiler or to the NCG Thermal Oxidizer. Each of these units meets the requisite 1200 deg. F. for 0.5 seconds design criteria.

**Paper Machine System (System Source Code: G014)**

The only PSD-regulated pollutant above the PSD significance level emitted from the Paper Machine System is VOC and therefore, a BACT analysis is only required for VOC. PCA reviewed this pollutant in the RBLC. There are numerous BACT entries that are identified for VOC from coatings applied to the paper and there are a few entries that address the VOC from the pulp. The PCA Paper Machine System does not include an on-machine coating system and PCA has only considered those entries that addressed VOC emissions from the pulp. VOC emissions from Paper Machines without coating operations are a result of VOCs that are carried to the machine with the stock or pulp. Entries in the RBLC refer to the control of VOCs in the stock (or pulp) feeding the paper machine. The application of add-on controls for these types of paper machines has been determined to be technically infeasible due to the high exhaust gas volumetric flow rates and the low VOC concentrations in the exhaust streams. As a result, PCA believes that BACT for the Paper Machine System is no add-on controls.

In order to minimize the VOCs in the stock and thus minimize the resulting VOC emissions, PCA will maintain a segregated shower water supply of (1) clean water that is low VOC/low HAP (e.g., freshwater, clean reclaimed water, and clean process condensates [non-regulated, low VOC streams]) and (2) regulated pulping process condensates that are recycled to the No. 4 Chemiwasher as shower water for compliance with 40 CFR 63 Subpart S. The regulated condensate water supply system will require clean water makeup, but no regulated condensates will go to the clean water system.

- For No.3 Brown Stock Washer System, PCA will use only this low VOC/low HAP clean water supply (fresh water, clean reclaimed water, or clean process condensates) for the final shower water.

- At the No. 4 Chemiwasher System (System Source Code: G039), the final high pressure showers will be supplied from this low VOC/low HAP clean water supply (fresh water, clean reclaimed water, or clean process condensates). The regulated condensate supply will be used only at the $5^{th}$ stage showers or further back in the countercurrent washing sequence to maximize VOC retention in the black liquor.

PCA believes that the aforementioned techniques minimize the VOCs that are delivered with the pulp to the paper machine and, therefore, minimize the VOC emissions from the paper machine. PCA believes that these techniques represent BACT. The facility has proposed a facility-wide paper production limit of 547,620 oven-dried tons of paper (equivalent to 575,000 machine-dried tons of paper at 5% moisture), as calculated on a 12-month rolling total.

## 5.0 TESTING AND MONITORING REQUIREMENTS

Testing Requirements

There are currently no testing requirements for either the No. 3 Brown Stock Washer System or the Paper Machine System.

*No. 3 Brown Stock Washer System*
The facility will be required to undergo initial performance testing on the modified No. 3A Brown Stock Washer System per the requirements of Condition 5.2.9 by October 14, 2006. Also, the facility will need to test the C.E. and Riley Combination Boilers to determine the increase (if any) of $SO_2$ emissions from the addition of the No. 3A Brown Stock Washer System gases. The facility will also be required to retest the NCG Thermal Oxidizer (Source Code: 6076) once the No. 3A Brown Stock Washer System gases are routed to the oxidizer in order to prove compliance with all applicable requirements of 40 CFR 63 Subpart S.

*Paper Machine System*
No testing is required for the Paper Machine System after modifications.

Monitoring and Reporting Requirements

*No. 3 Brown Stock Washer System*
No additional monitoring is needed for the No. 3A Brown Stock Washer System. The facility already monitors various parameters for both the C.E. and Riley Combination Boilers and the NCG Thermal Oxidizer.

*Paper Machine System*
The facility will be required to monitor and record daily paper production and report any twelve-month rolling total that exceeds 547,620 oven-dried tons of paper (equivalent to 575,000 machine-dried tons of paper at 5% moisture).

# 6.0 AMBIENT AIR QUALITY REVIEW

An air quality analysis is required by the PSD rules to determine the ambient impacts associated with the construction and operation of the proposed modifications to the No. 3A Brown Stock Washer System and the Paper Machines Systems. The main purpose of the air quality analysis is to demonstrate that emissions from the proposed project, in conjunction with other applicable emissions from existing sources (including secondary emissions from growth associated with the new project), will not cause or contribute to a violation of any applicable National Ambient Air Quality Standard (NAAQS) or PSD increment in a Class II or Class I area. NAAQS exist for $NO_X$, CO, PM/$PM_{10}$, $SO_2$, Ozone ($O_3$), and lead. PSD increments exist for $SO_2$, $NO_X$, and PM/$PM_{10}$.

A separate air quality analysis is required for each pollutant emitted in which the increase is an amount over the PSD significant emission rate threshold. As shown in Table 3-4, $NO_X$, $SO_2$, VOC, and TRS exceed the PSD significant threshold. However, only $NO_x$ and $SO_2$ have NAAQS and/or PSD increments. Thus, an air quality analysis must be performed for only these air pollutants.

Due to recently completing another project as a PCP (see Application No. 15436 dated June 23, 2004 and subsequent Permit Amendment No. 2631-185-0001-V-01-5 issued March 7, 2005), the facility asserted that only one air quality modeling demonstration was needed to support both projects. Therefore, this discussion covers the modeling from both the OFA project and this No. 3 Brown Stock Washer and Paper Machine Systems project. Also, since the facility will be raising the stack height by October 2005 for the C.E. Power Boiler (Source Code: 1017), a previous $SO_2$ emission limit will be removed from the permit. Only $SO_2$ emissions were affected by the stack height change. Since the emission rates will remain the same and the increase in stack height will result in greater dispersion, lower ambient air concentrations of $PM_{10}$, $NO_X$, and CO should result with the stack height. However, no air quality monitoring was performed to demonstrate the reduced ambient concentration levels.

Compliance with any NAAQS is based upon the total estimated air quality, which is the sum of the ambient estimates resulting from existing sources of air pollution (modeled source impacts plus measured background concentrations) and the modeled ambient impact caused by the applicant's proposed emission increase and associated growth. It is important to note that the air quality cannot be allowed to deteriorate beyond the concentration allowed by the applicable NAAQS, even if not all of the PSD increment is consumed.

Modeling

In general, EPD assesses the ambient impact of a source through the use of mathematical dispersion models. The models are based on the assumption that the dispersion of pollutants is primarily a function of: wind speed and direction, atmospheric stability conditions, and the characteristics of the effective point discharge of the exhaust plume. To predict ambient air concentrations, the models simulate the plume exhausting from the stack, rising a certain distance in the atmosphere, leveling off, and continuing downwind over relatively flat terrain. The concentrations of the pollutants are assumed to have Gaussian distribution about the downwind axis centerline of the plume.

In analyzing the air quality impact of these modifications, the PRIME – Plume Rise Enhancement Model Evaluation version of the EPA Industrial Source Complex Short-Term Version 3 (ISCST3) model was used for all PSD modeling results presented in the preliminary determination. ISCST3 is a Gaussian plume dispersion model that estimates hour-by-hour ground-level concentrations of emissions from an elevated source. The model provides maximum 24-hour and annual average concentrations for receptors located on many grid types around the source for various downwind distances. The model also takes into account the effect of downwash caused by nearby buildings and structures.

For the air quality analyses, National Weather Service (NWS) meteorological data from the years 1982 through 1986 for the Tallahassee Airport were used as surface data and the same years for Waycross, Georgia were used as upper air data.

A receptor grid was used for the modeling runs, including receptors spaced at 50 meter intervals along the fence line/patrolled property line and out to a distance of 1.6 km, 200 meter intervals from 1.6 to 3 km, 500 meter intervals from 3 km to 7 km, and 1000 meter intervals from 7 km to 10 km.

PSD Screening Results

The PSD regulations establish specific maximum allowable increases in ambient concentrations (or increments) for $PM_{10}$, $NO_X$, and CO for all areas in compliance with the NAAQS. All areas of the country are categorized as a function of overall use. The regulations were designed to prevent significant air quality deterioration by specifying allowable incremental changes in $PM_{10}$, $NO_X$, and CO concentrations within each area category. The area categories are defined below:

Class I – Those areas where almost any deterioration of current air quality is undesirable, and little or no industrial development would be allowed (e.g., national parks, wilderness areas).

Class II – Those areas where moderate, well-controlled energy or industrial growth is desired without air quality deterioration up to the national standards (all attainment areas not categorized as Class I were initially designated Class II).

Class III – Those areas where substantial energy or industrial development is intended, and where modest increases in ambient concentrations above Class II increments, but below national standards, would be allowed (designation to Class III must follow strict redesignation procedures).

The Lowndes County area and all other attainment areas in Georgia not designated as Class I areas are Class II areas. The Class I areas nearby the facility are Bradwell Bay (140 km), St. Marks (90 km), and Okefenokee Swamp (73km).

The first step in the air quality analysis was to determine whether the incremental ambient impacts due to the new emissions from the projects were greater than the U.S. EPA-prescribed Modeling Significance Levels. The "significance analysis" determines whether PCA could forgo a full-scale impact analysis, or step-two, to demonstrate compliance with the NAAQS and PSD Class II Increments.

The results of the significance analysis conducted for the PCA projects are summarized in Table 6-1. The impacts due to the total project emissions of $NO_X$ and $SO_2$ were calculated in this analysis using the ISCST3 dispersion model. The complete modeling analysis results are located in Section 7 and Appendix D of Application No. 15946. The EPD modeling results are found in Appendix C of this document.

**Table 6-1. Significant Impact Levels and Modeled Concentrations**

| Pollutant | Averaging Period | PSD Significant Ambient Impact Level ($ug/m^3$) | Modeled Concentration ($ug/m^3$) | Notes |
|---|---|---|---|---|
| $NO_X$ | Annual | 1 | 0.4 | No additional modeling needed |
| $SO_2$ | 3-Hour | 25 | 3.3 | No additional modeling needed |
| | 24-Hour | 5 | 1.6 | No additional modeling needed |
| | Annual | 1 | 0.5 | No additional modeling needed |

As shown in Table 6-1, the modeled concentration increases for $NO_X$ and $SO_2$ from PCA, due to the proposed modifications to the No. 3A Brown Stock Washer and Paper Machines Systems as well as the completed OFA project, are below the Significant Impact Level. The PCA projects can reasonably be assumed to have an insignificant impact on the air quality surrounding the plant, and per U.S. EPA modeling procedures, no NAAQS or PSD Class II increment analyses are required for $NO_X$ and $SO_2$ emissions. However, the facility did provide NAAQS and PSD Increment analyses in Tables 7-15 through 7-20 of Application No. 15946.

Georgia Toxics Analysis

Impacts from each of the pollutants listed Tables 7-27 through 7-29 of Application No. 15946 were analyzed using the EPD Guidance for Ambient Impact Assessment of Toxic Air Pollutant Emissions (referred to as the Georgia Air Toxics Guideline; dated June 21, 1998). The Georgia Air Toxics Guideline is a guide for estimating the environmental impact of sources of toxic air pollutants.

A toxic air pollutant is defined as any substance that may have an adverse effect on public health, excluding any specific substance that is covered by a State or Federal ambient air quality standard. The EPA SCREEN3 computer screening dispersion model was used to predict the maximum 15-minute, 24- hour, and annual average ground level concentration (referred to as Maximum Ground Level Concentration (MGLC)) for each pollutant. Each MGLC was compared to its respective Acceptable Ambient Concentration (AAC). The basis for calculation of AAC comes from the pollutant toxicity rating systems described in the Georgia Air Toxics Guideline. If the screening analysis did not demonstrate an acceptable MGLC, the ISCST3 refined dispersion model was used to predict a more accurate MGLC.

The SCREEN3 evaluation demonstrated that maximum impacts of toxic air pollutants due to the proposed project are less than the maximum AAC levels for all compounds listed in Tables 7-27 through 7-29 of Application No. 15946.

Class I Area Evaluation

A review was completed to determine the proximity of Class I areas to the site in order to determine if any evaluation of the project's impact on a Class I area is required. The closest Class 1 areas are Bradwell Bay (140 km), St. Marks (90 km), and Okefenokee Swamp (73km). EPD recommended that air quality impacts at the two closest Class I Areas – St. Marks and Okefenokee – be evaluated since a screening level Class I analysis was being proposed and since these two Class I areas are within 100 km of PCA. The extremely low project-related emission and the extended distance to Bradwell Bay make it unlikely that adverse impacts will be predicted at Bradwell Bay.

The CALPUFF Dispersion model and the CALPOST post processor were used to determine potential impacts on the Air Quality Related Values (AQRV) at St. Marks and Okefenokee. The CALPUFF air dispersion model was used in a screening level mode following the guidance contained in the *"Inter-Agency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts,"* (U.S. EPS 1998) and the *"Federal Land Manager's Air Quality Related Values Workgroup (FLAG) Phase I Report*," dated December 2000. Polar grids including radial and downwind rings that corresponded to the closest edge and the mid-point of the two Class I Areas were developed as screening level receptor grids for the CALPUFF analysis. Additional information can be found in Section 7.6 of Application No. 15946. The CALPUFF model was used to predict annual sulfur and nitrogen deposition amount for the St. Marks and Okefenokee Class I Areas. The peak annual deposition amounts are summarized in Table 6-2. The highest totals are less than the nitrogen and sulfur Deposition Analysis Threshold (DAT) guideline values recommended by the Federal Land Managers (FLM) in their January 2002 letter to the State and territorial Air Pollution Program Administrators Association of Local Air Pollution Control officials (STAPPA/ALAPCO).

The purpose of the Class I Area modeling analysis is to demonstrate that the new project will not consume more than the available Class I PSD Increments in the Class I Area. A significance analysis was conducted, first to determine whether the project could be expected to have a significant impact in the Class I Area. Table 6-2 below details the findings of the modeling for Okefenokee and St. Marks Class I Areas for the proposed project. Nitrogen and sulfur depositions at both Class I Areas are below the EPA Class I screening levels and no further analysis is required.

**Table 6-2. Class I Area Evaluation**

| Class I Area | Pollutant | Averaging Period | AQRV Threshold (kg/ha/yr) | Deposition Rate (kg/ha/yr) | Notes |
|---|---|---|---|---|---|
| St. Marks | Nitrogen Deposition | Annual | 0.01 | 5.04 E-4 | No additional modeling needed |
| | Sulfur Deposition | Annual | 0.01 | 1.15 E-3 | No additional modeling needed |
| Okefenokee | Nitrogen Deposition | Annual | 0.01 | 6.85 E-4 | No additional modeling needed |
| | Sulfur Deposition | Annual | 0.01 | 1.58 E-3 | No additional modeling needed |

Class II Visibility Analysis

Emissions from certain sources can create visible, defined plumes that are noticeable to the casual observer. Therefore, an exhaust plume visibility analysis was performed for this project to assure that the emission from the project do not create a noticeably visible plume in a local Class II area of interest. No visibility analyses were required for Class I areas. Also, since the short-term emission increase over current peak short-term emission levels are so low, the potential for an increased occurrence of visible plumes from PCA are highly unlikely and the facility did not conduct a visible plume analysis.

Preconstruction Monitoring

The PSD regulations require that continuous preconstruction monitoring of regulated pollutants emitted in significant amounts be conducted to establish existing air quality concentrations in the vicinity of the proposed source or modification. However, no preconstruction monitoring data are required if the impact on the ambient air quality from the project is below *de minimis* concentrations.

In performing this analysis, the maximum impacts for both scenarios were determined to be less than the corresponding *de minimis* concentrations, as shown in Table 6-1. Therefore, based on this data, no ambient monitoring study was required by the Division.

# 7.0 ADDITIONAL IMPACT ANALYSES

PSD requires an analysis of impairment to visibility, soils, and vegetation that will occur as a result of a modification to the facility and an analysis of the air quality impact projected for the area as a result of the general commercial, residential, and other growth associated with the proposed project.

Soils and Vegetation

PCA performed an analysis of the effects of $SO_2$, $NO_x$, $PM_{10}$, and VOC on the area soils and vegetation. In general, acute damage to vegetation is not likely to occur at normal ambient air concentration levels, although some reduction in growth might occur at continuous $NO_X$ as low as 200-500 ug/$m^3$. These values are significantly above the NAAQS for $NO_X$ (100 ug/$m^3$). Damage to plants has been reported due to short-term exposure to $SO_2$ concentrations as 1,200 ug/$m^3$. In view of the small increase in ambient concentration levels anticipated as a result of the proposed project, adverse effects on vegetation from $NO_X$ and $SO_2$ emissions are not expected to occur.

An ozone analysis using the Scheffe method was conducted in order to determine the impact of VOC emissions on existing ozone levels. The predicted ambient air ozone concentration due to the projects at PCA is 0.011 ppm, approximately 9% of the current 1-hour ozone standard of 0.12 ppm. This contribution is a minor amount of the total regional ozone level. There is no need to conduct ozone monitoring as result of the proposed projects.

Growth

An increase in employment at PCA is not expected as a result of any of these proposed changes; therefore, there will be no permanent impact on the surrounding community with regard to demographics. All the plant modifications will occur on existing operations; therefore no grading will be required. The construction phase will not adversely impact air quality in the area. Furthermore, there is no anticipated increase in local industrial growth due to this project.

## 8.0 EXPLANATION OF DRAFT PERMIT CONDITIONS

The permit requirements for this proposed facility are included in draft Permit Amendment No. 2631-185-0001-V-01-6.

*Section 1.0 -Facility Description*

EPD has provided a description of the modifications to the facility in Section 1.3 of the amendment.

*Section 2.0 - Requirements Pertaining to the Entire Facility*

New Permit Condition 2.1.1 limits the facility-wide production of paper to 547,620 oven-dried tons of paper (equivalent to 575,000 machine-dried tons of paper at 5% moisture), as calculated on a 12-month rolling total.

*Section 3.0 - Requirements for Emission Units*

Permit Condition 3.3.17 was modified to incorporate specific requirements for the pulp washing systems.

Permit Condition 3.3.23 was modified to reference additional testing that might be required for the NCG Thermal Oxidizer due to the additional vent gases from the No. 3A Brown Stock Washer System in order to prove compliance with all applicable requirements of 40 CFR 63 Subpart S.

New Permit Conditions 3.3.31 through 3.3.33 were added to fully detail the 40 CFR 63 Subpart S requirements for both LVHC and HVLC streams.

New Permit Conditions 3.3.34 and 3.3.35 were added to specify the pulping condensates that can be used in the No. 3A Brown Stock Washer System and the No. 4 Chemiwasher System, respectively. The use of different shower waters minimizes VOC emissions from the Paper Machine System.

Permit Condition 3.4.16 was modified to allow the HVLC gases from the No. 3 Brown Stock Washer System to be incinerated in either of the combination boilers or the NCG Thermal Oxidizer.

*Section 4.0 - Requirements for Testing*

New Permit Condition 4.2.16 was added to detail the performance testing requirements for the modified No. 3A Brown Stock Washer System.

New Permit Condition 4.2.17 requires the facility to test the $SO_2$ emissions from the Riley and C.E. Combination Boiler stack in order to determine the emissions from the addition of the vent gases from the No. 3A Brown Stock Washer System.

New Permit Condition 4.2.18 requires the facility to conduct a performance test on the NCG Thermal Oxidizer once the No. 3A Brown Stock Washer System gases are sent to the device for control.

*Section 5.0 - Requirements for Monitoring*

New Permit Condition 5.2.13 was added to require the facility to monitor facility-wide daily paper production.

*Section 6.0 - Other Recordkeeping and Reporting Requirements*

Permit Condition 6.1.7.a.iii was modified to reference both the existing temperature for the NCG Thermal Oxidizer, as well as the temperature established per testing requirements of new Permit Condition 4.2.18.

New Permit Condition 6.1.7.b.ix was added to require the facility to report any consecutive twelve-month period during which the facility produces more than 547,620 oven-dried tons of paper (equivalent to 575,000 machine-dried tons of paper at 5% moisture).

New Permit Condition 6.2.30 was added to require the facility to record facility-wide daily paper production.

*Section 7.0 - Other Specific Requirements*

Permit Condition 7.1.2 was deleted since the facility has decided to raise the stack height for the C.E. Power Boiler.

New Permit Condition 7.1.3 was added to state that once EPD was notified that the new C.E. Power Boiler stack is completed, Permit Conditions 3.2.2, 5.2.3.h.i, 6.1.7.d.vii, 6.2.25, 6.2.26, 6.2.27, and 7.1.1 become null and void.

Permit Condition 7.12.1 was added to revoke Permit Amendment Nos. 2631-185-0001-V-01-1, -2, -3, -4, and –5.

*Section 8.0 - General Provisions*

There are no modifications or additions to Section 8.0 of the amendment.

# APPENDIX A

Draft Revised Title V Operating Permit Amendment
Permit Amendment No. 2631-185-0001-V-01-6
Packaging Corporation of America
Clyattville (Lowndes County), Georgia

# APPENDIX B

Packaging Corporation of America PSD Permit Application and Supporting Data

Contents Include:

1. PSD Permit Application No. 15946 dated February 3, 2005

# APPENDIX C

## EPD'S PSD Dispersion Modeling and Air Toxics Assessment Review