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BUREAU OF AIR REGULATIO

Golder Associates

December 20, 1999

9937529

Cluster Rule

Mr. Al Linero
Bureau of Air Quality Management
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

**RE: $NO_2$ AIR IMPACT ANALYSIS FOR GEORGIA-PACIFIC PALATKA MILL**

Dear Mr. Linero:

Please find enclosed three copies of the $NO_2$ air modeling analysis report performed for the Georgia-Pacific Palatka Mill. The analysis has been performed in support of an air construction permit application for the Cluster Rule Compliance Project.

All air modeling ISCST3 and BPIP files used for the compliance demonstration will be provided to the DEP electronically.

A readme.txt file will be included describing the contents of each ZIP file. Should you have any questions about the modeling analysis, please call Steve Marks or me at (352) 336-5600. Thank you.

Sincerely,

Golder Associates Inc.

Janet K. Keller

for David A. Buff, P.E.
Principle Engineer

DB/SRM/jkk

cc: Myra Carpenter
Steve Marks, Golder

CC: C Carlson
NED

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# $NO_2$ AMBIENT IMPACT ANALYSIS FOR GEORGIA-PACIFIC CORPORATION

## PALATKA MILL

Prepared For:

GEORGIA-PACIFIC CORPORATION
PALATKA, FLORIDA

Prepared By:

Golder Associates Inc.
6241 NW 23rd Street, Suite 500
Gainesville, Florida 32653-1500

December 1999
9937529B/R3

Distribution:
3 copies - FDEP
3 copies - Georgia-Pacific
2 copies - Golder Associates

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# 1.0 INTRODUCTION

Georgia-Pacific Corporation (G-P) operates a Kraft pulp and paper mill located in Palatka, Putnam County, Florida. An atmospheric dispersion modeling analysis of the G-P Palatka Mill has been conducted for nitrogen dioxide ($NO_2$) in support of an air construction permit application for the Cluster Rule Compliance Project.

The Cluster Rule Compliance Project, as described in the associated air construction permit application, includes the addition of a new condensate steam stripper and a thermal oxidizer for combustion of non-condensable gases (NCGs) containing total reduced sulfur (TRS). In addition, the No. 4 Combination Boiler will be used as a back-up incineration device for the NCGs. The existing TRS incinerator will be shut down and replaced by a new thermal oxidizer. An increase in emissions of nitrogen oxides ($NO_x$) will result from these changes.

In support of the air construction permit application, G-P is submitting this air dispersion modeling analysis to demonstrate that the G-P Palatka Mill is in compliance with ambient air quality standards (AAQS) and Prevention of Significant Deterioration (PSD) Class II and Class I allowable increments for $NO_2$, considering the proposed changes for the Cluster Rule project.

This report contains the technical information and analysis developed in accordance with the PSD regulations as promulgated by the U.S. Environmental Protection Agency (EPA) and implemented through delegation to the Florida Department of Environmental Protection (FDEP). It presents an assessment of potential air quality impacts associated with the G-P Palatka Mill for $NO_2$, for which AAQS have been promulgated.

The existing applicable, national and Florida AAQS are presented in Table 1-1. Primary national AAQS were promulgated to protect the public health. Secondary national AAQS were promulgated to protect the public welfare from any known or anticipated adverse effects associated with the presence of pollutants in the ambient air. Florida has adopted State AAQS in Rule 62-204.240. These standards are the same as the national AAQS for $NO_2$.

EPA has promulgated allowable PSD air quality increments, which limit increases in air quality levels above an air quality baseline concentration level for sulfur dioxide ($SO_2$), particulate matter ($PM_{10}$), and $NO_2$. Increases above these increments would constitute significant deterioration. The EPA class designations and allowable PSD increments are presented in Table 1-1. The magnitude of the allowable increment depends on the classification of the area where the source is located or will have an impact. Three classifications are designated based on criteria established in the Clean Air Act Amendments. Congress promulgated areas as Class I (international parks, national wilderness areas, memorial parks, larger than 5,000 acres; and national parks, larger than 6,000 acres) or as Class II (all areas not designated as Class I). No Class III areas, which would be allowed greater deterioration than Class II areas, were designated.

Putnam County has been designated as an attainment or unclassifiable area for all criteria pollutants. The County is also classified as a PSD Class II area for $PM_{10}$, $SO_2$, and $NO_2$. The nearest PSD Class I area is the Okefenokee National Wilderness Area, located 111 kilometers (km) north of the G-P Palatka Mill.

The air quality impact analysis demonstrates that emissions from the G-P Palatka Mill will not result in ambient concentrations above the AAQS or the PSD Class II or Class I increments for $NO_2$.

This report is divided into five sections, including this introduction:

- Section 2.0 presents a description of the G-P Palatka facility, along with source $NO_2$ emission rates and stack parameters;
- Section 3.0 presents existing air quality data for purposes of determining suitable background air quality concentrations for $NO_2$;
- Section 4.0 presents the air modeling methodology, emissions inventories, and data used in the analysis;
- Section 5.0 presents the results, which demonstrate compliance of the G-P Palatka Mill with the AAQS and PSD increments for $NO_2$.

Table 1-1. National and State AAQS, Allowable PSD Increments, and Significant Impact Levels (μg/m$^3$)

| Pollutant | Averaging Time | AAQS | | | PSD Increments | | Significant Impact Levels[d] |
|---|---|---|---|---|---|---|---|
| | | National Primary Standard | National Secondary Standard | State of Florida | Class I | Class II | |
| Particulate Matter[a] (PM10) | Annual Arithmetic Mean | 50 | 50 | 50 | 4 | 17 | 1 |
| | 24-Hour Maximum | 150[b] | 150[b] | 150[b] | 8 | 30 | 5 |
| Sulfur Dioxide | Annual Arithmetic Mean | 80 | NA | 60 | 2 | 20 | 1 |
| | 24-Hour Maximum | 365[b] | NA | 260[b] | 5 | 91 | 5 |
| | 3-Hour Maximum | NA | 1,300[b] | 1,300[b] | 25 | 512 | 25 |
| Carbon Monoxide | 8-Hour Maximum | 10,000[b] | 10,000[b] | 10,000[b] | NA | NA | 500 |
| | 1-Hour Maximum | 40,000[b] | 40,000[b] | 40,000[b] | NA | NA | 2,000 |
| Nitrogen Dioxide | Annual Arithmetic Mean | 100 | 100 | 100 | 2.5 | 25 | 1 |
| Ozone[a] | 1-Hour Maximum | 235[c] | 235[c] | 235[c] | NA | NA | NA |
| Lead | Calendar Quarter Arithmetic Mean | 1.5 | 1.5 | 1.5 | NA | NA | NA |

Note: Particulate matter (PM10) = particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.
NA = Not applicable, *i.e.*, no standard exists.

[a] On July 18, 1997, EPA promulgated revised AAQS for particulate matter and ozone. For particulate matter, PM2.5 standards were introduced with a 24-hour standard of 65 μg/m$^3$ (3-year average of 98th percentile) and an annual standard of 15 μg/m$^3$ (3-year average at community monitors). Implementation of these standards are many years away. The ozone standard was modified to be 0.08 ppm for an 8-hour average; achieved when the 3-year average of the 99th percentile is 0.08 ppm or less. FDEP has not yet adopted these standards.

[b] Short-term maximum concentrations are not to be exceeded more than once per year.

[c] Achieved when the expected number of days per year with concentrations above the standard is fewer than 1.

[d] Maximum concentrations.

Sources: Federal Register, Vol. 43, No. 118, June 19, 1978. 40 CFR 50. 40 CFR 52.21. Rule 62-204, F.A.C.

# 2.0 PROJECT DESCRIPTION

## 2.1 SITE DESCRIPTION

The G-P Palatka Mill is located in Palatka, Putnam County, Florida. A site map of the area, showing the plant property boundaries, is provided in Figure 2-1. The G-P Palatka Mill consists of a Kraft pulp and paper mill which has three power boilers (one natural gas-fired; two No. 6 fuel oil-fired), a recovery boiler, a smelt dissolving tank, a lime kiln, a total reduced sulfur (TRS) incinerator, and a combination bark/oil-fired boiler.

## 2.2 G-P PALATKA EMISSIONS

### 2.2.1 PROPOSED PROJECT

As part of the Cluster Rule Compliance Project, the existing TRS Incinerator will be removed and a new thermal oxidizer will be installed for NCG destruction. The No. 4 Combination Boiler will be used as a back-up NCG incineration device. Additional $NO_x$ emissions will result from both of these sources.

As presented in the Cluster Rule Compliance Project application, the total $NO_x$ emissions increase for the scenario of the new thermal oxidizer combusting NCGs 100 percent of the time was 88.1 tons per year (TPY). For the alternative scenario of the thermal oxidizer operating 90 percent of the time and the NCGs being sent to the No. 4 Combination Boiler the remaining 10 percent of the time, the total $NO_x$ emissions increase was 76.0 TPY. Given this, and the fact that the new thermal oxidizer will have a stack height of 100 feet compared to the No. 4 Combination Boiler stack height of 231 feet, only one scenario was modeled (*i.e.,* that of the new thermal oxidizer combusting NCGs 100 percent of the time).

$NO_x$ emissions from the new thermal oxidizer only were modeled initially to determine if the increase in $NO_2$ impacts, due to the project, were greater than significant impact levels (refer to Table 1-1). As presented in Section 5.0, the predicted maximum impacts were greater than significant impact levels, and therefore, further modeling is required to demonstrate compliance with AAQS and PSD increments.

### 2.2.2 OTHER G-P PALATKA SOURCES

The $NO_2$ modeling analysis is being conducted to assess the impacts of the increase in $NO_2$ emissions due to the new thermal oxidizer and the use of the No. 4 Combination Boiler as the back-up incineration device. The maximum annual (long-term) emissions for all permitted point sources of $NO_x$ located at the G-P Palatka Mill are presented in Table 2-1. The basis for the maximum emissions are the permitted emission rates, or, for those sources not having a permitted emission, the basis was permitted or maximum operational rates.

### 2.2.3 PSD BASELINE EMISSIONS

Baseline $NO_x$ emissions for the G-P Palatka Mill, for purposes of calculating PSD increment consumption, are presented in Table 2-2. For $NO_2$, both the major and minor source baseline date is February 8, 1988. Therefore, changes in actual emissions from both major and minor sources occurring after this date, resulting from a physical change or a change in the method of operation, affects PSD increments. The 1988 baseline emissions for $NO_x$ emissions from the Palatka Mill were obtained directly from the 1988 Annual Operating Report submitted to FDEP by G-P, and are shown in Table 2-2.

## 2.3 SITE LAYOUT AND STRUCTURES

A plot plan of the G-P Palatka facility, showing stack locations, is presented in Figure 2-2. The dimensions of the major buildings and structures at the facility are presented in Section 4.0.

## 2.4 STACK PARAMETERS

Stack parameters for both the future case and the PSD baseline case are presented in Table 2-3.

Table 2-1. Maximum Future $NO_x$ Emissions Used in the Modeling Analysis for Georgia-Pacific, Palatka

| Emission Unit | Unit ID | Long-Term Emissions (TPY) | (lb/hr) | (g/s) |
|---|---|---|---|---|
| New Thermal Oxidizer | TO | 88.1 | 20.1 | 2.53 |
| No. 4 Recovery Boiler | RB4 | 738.1 | 168.50 | 21.23 |
| No. 4 Smelt Dissolving Tank | SDT4 | 69.0 | 15.80 | 1.99 |
| No. 4 Lime Kiln | LK4 | 220.3 | 50.30 | 6.34 |
| No. 4 Power Boiler | PB4 | 183.9 | 42.00 | 5.29 |
| No. 5 Power Boiler | PB5 | 780.8 | 178.30 | 22.47 |
| No. 6 Power Boiler | PB6 | 39.4 | 9.00 | 1.13 |
| No. 4 Combination Boiler w/o NCGs | CB4 | 574.5 | 131.20 | 16.53 |
| TOTALS | | 2694.1 | 615.2 | 77.5 |

Note: lb/hr = pounds per hour.
g/s = grams per second.
TPY = tons per year.

Table 2-2. PSD Baseline (1988) Emissions Used in the $NO_x$ Modeling Analysis for Georgia-Pacific, Palatka

| Emission Unit[a] | Unit ID | Long-Term Emissions (TPY) | Long-Term Emissions (lb/hr) | Long-Term Emissions (g/s) |
|---|---|---|---|---|
| No. 4 Recovery Boiler | RB4B | 392.1 | 89.5 | 11.28 |
| No. 4 Smelt Dissolving Tank | SDT4B | 0 | 0 | 0 |
| No. 4 Lime Kiln | LK4B | 249.4 | 56.9 | 7.17 |
| No. 4 Power Boiler | PB4B | 113.1 | 25.8 | 3.25 |
| No. 5 Power Boiler | PB5B | 560.3 | 127.9 | 16.12 |
| No. 4 Combination Boiler | CB4B | 313.6 | 71.6 | 9.02 |
| TOTALS | | 1,628.5 | 371.8 | 46.8 |

[a] Includes only those sources in existence or permitted as of March 8, 1988.

References:

1988 Baseline: Annual Operating Report submitted to FDEP for 1988.

Note: lb/hr = pounds per hour.
g/s = grams per second.
TPY = tons per year.

Table 2-3. Stack Parameters and Locations Used in the $NO_x$ Modeling Analysis for Georgia-Pacific, Palatka

| | | Relative Location [a] | | | | Stack Parameters | | | | Operating Parameters | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | X | | Y | | Height | | Diameter | | Temperature | | Velocity | |
| Emission Unit | Unit ID | (ft) | (m) | (ft) | (m) | (ft) | (m) | (ft) | (m) | (°F) | (°K) | (ft/s) | (m/s) |
| | | | | | | **Future Conditions** | | | | | | | |
| New Thermal Oxidizer | TO | 77 | 24 | -11 | -4 | 100 | 30.5 | 3.60 | 1.10 | 130 | 328 | 68.8 | 20.96 |
| No. 4 Recovery Boiler | RB4 | -630 | -192 | 300 | 91 | 230 | 70.1 | 12.00 | 3.66 | 400 | 478 | 63.7 | 19.42 |
| No. 4 Smelt Dissolving Tanks | SDT4 [b] | -475 | -145 | 415 | 126 | 206 | 62.8 | 5.00 | 1.52 | 160 | 344 | 21.2 | 6.46 |
| No. 4 Lime Kiln | LK4 | 70 | 21 | -320 | -98 | 131 | 39.9 | 4.42 | 1.35 | 150 | 339 | 60.8 | 18.53 |
| No. 4 Power Boiler | PB4 | -265 | -81 | 435 | 133 | 200 | 61.0 | 4.00 | 1.22 | 395 | 475 | 71.6 | 21.82 |
| No. 5 Power Boiler | PB5 | -332 | -101 | 330 | 101 | 232 | 70.7 | 9.00 | 2.74 | 445 | 503 | 60.6 | 18.47 |
| No. 4 Combination Boiler | CB4 | -313 | -95 | 340 | 104 | 237 | 72.2 | 8.00 | 2.44 | 440 | 500 | 71.8 | 21.88 |
| No. 6 Power Boiler | PB6 | -298 | -91 | 390 | 119 | 60 | 18.3 | 6.00 | 1.83 | 660 | 622 | 57.2 | 17.43 |
| | | | | | | **PSD Baseline (1988) Conditions** | | | | | | | |
| No. 4 Recovery Boiler | RB4B | -630 | -192 | 300 | 91 | 230 | 70.1 | 12.00 | 3.66 | 400 | 478 | 63.7 | 19.42 |
| No. 4 Smelt Dissolving Tanks | SDT4[b]B | -475 | -145 | 415 | 126 | 206 | 62.8 | 5.00 | 1.52 | 160 | 344 | 21.2 | 6.46 |
| No. 4 Lime Kiln | LK4B | 70 | 21 | -320 | -98 | 131 | 39.9 | 4.42 | 1.35 | 150 | 339 | 60.8 | 18.53 |
| No. 4 Power Boiler | PB4B | -265 | -81 | 435 | 133 | 122 | 37.2 | 4.00 | 1.22 | 395 | 475 | 71.6 | 21.82 |
| No. 5 Power Boiler | PB5B | -332 | -101 | 330 | 101 | 232 | 70.7 | 9.00 | 2.74 | 445 | 503 | 60.6 | 18.47 |
| No. 4 Combination Boiler | CB4B | -313 | -95 | 340 | 104 | 237 | 72.2 | 8.00 | 2.44 | 440 | 500 | 71.8 | 21.88 |

[a] Relative to existing TRS Incinerator stack location and true north

[b] Source has two stacks. Location is centroid.

06-26-98

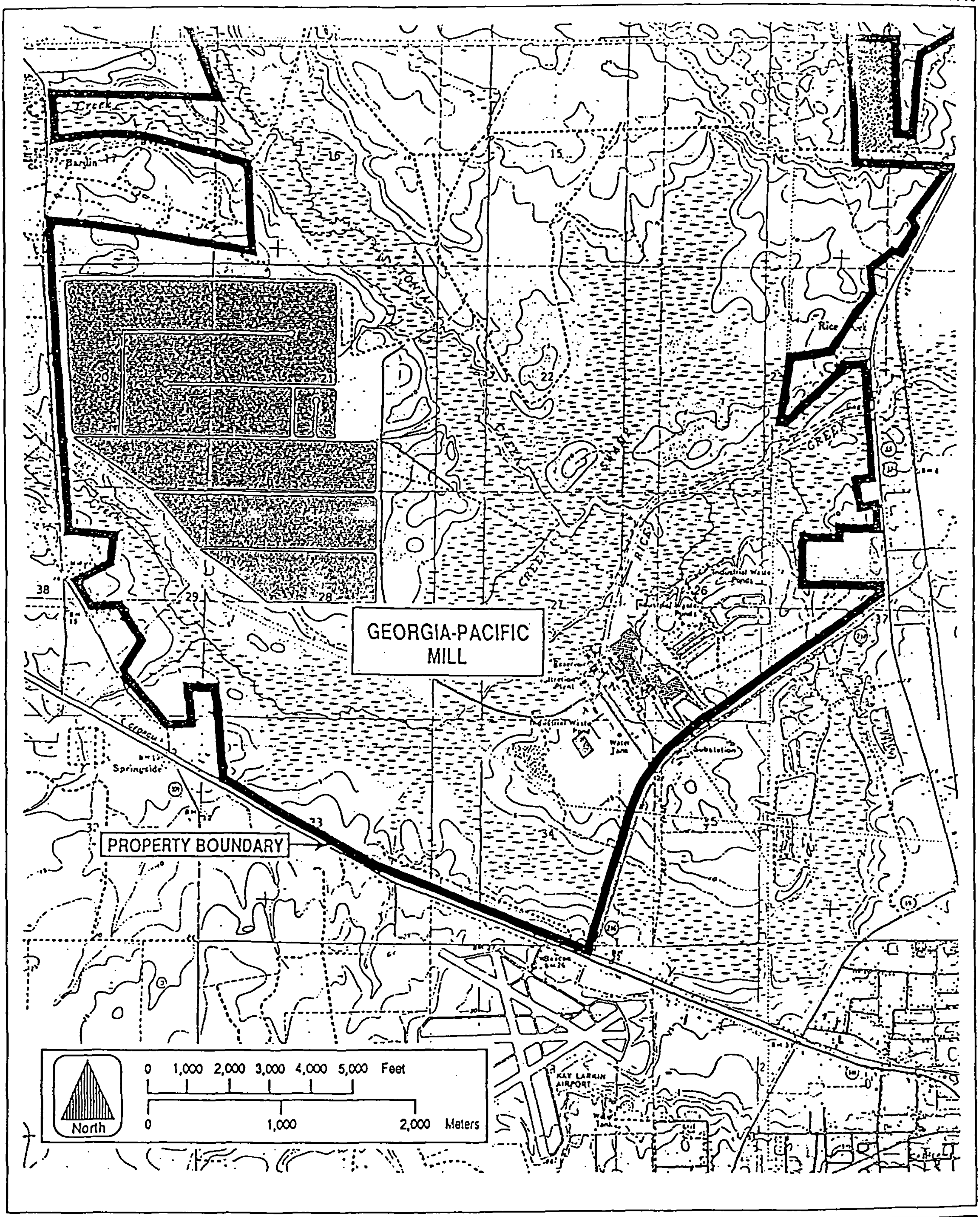


Figure 2-1.

Site Map: Georgia-Pacific Corporation

Palatka Mill

Golder Associates


| ITEM | NO. REQ'D. | DESCRIPTION | MAT'L | REFERENCE |
|---|---|---|---|---|

REFERENCE ONLY
JUN 1 0 1998

DWN. BY: EH
DATE: 5/18/98
CHK. BY:
DATE:
APP. BY:
DATE:

**A.H. LUNDBERG ASSOCIATES, INC.**
P.O. Box 597 Bellevue, Washington 98009

MILL PLOT PLAN

| SCALE | EQUIP. NO. | DRAWING NO. | SHT. | REV. |
|---|---|---|---|---|
| 1"=50'-0" | | AL-985248-P22 | 1/1 | 00 |

AL-985248-P22 SHT. 1/1

SPEC.

| DESCRIPTION | DRAWING NO. |
|---|---|
| REFERENCE | |



| REV. | DESCRIPTION | BY | DATE | CHK | DATE |
|---|---|---|---|---|---|
| | REVISIONS | | | | |

| REV. | DESCRIPTION | BY | DATE | CHK | DATE |
|---|---|---|---|---|---|
| | REVISIONS | | | | |

# 3.0 AMBIENT MONITORING ANALYSIS

Background concentrations are necessary to determine total ambient air quality impacts to demonstrate compliance with the AAQS. "Background concentrations" are defined as concentrations due to sources other than those specifically included in the modeling analysis. For all pollutants, background would include other point sources not included in the modeling (*i.e.*, distant sources or small sources), fugitive emission sources, and natural background sources.

## 3.1 $NO_2$ AMBIENT BACKGROUND CONCENTRATIONS

Presented in Table 3-1 is a summary of existing continuous ambient $NO_2$ data for monitors located in the area of Palatka. Data are presented for the last year of record, 1998. As shown, no $NO_2$ monitors were operational in the vicinity of Palatka during this period. The nearest $NO_2$ monitoring stations were located in Jacksonville.

The $NO_2$ monitoring data show that ambient $NO_2$ concentrations were well below the ambient air quality standards of 100 micrograms per cubic meter ($\mu g/m^3$) annual average. The monitor in Jacksonville is not considered to be representative of the Palatka area due to the distance this monitor is from Palatka, but it is the closest monitoring station to Palatka.

For purposes of an ambient $NO_2$ background concentration for use in the modeling analysis, the annual average concentration of 28 $\mu g/m^3$, recorded at the Jacksonville monitor during 1998, was selected. This concentration is very conservative since this monitor is impacted by significant mobile sources in Jacksonville, while Palatka has relatively little mobile traffic.

Table 3-1. Summary of Continuous Nitrogen Dioxide Ambient Monitoring Data Collected Near Palatka

| Year | County | Station ID | Monitor Location | Number of Observations | Concentration ($\mu g/m^3$) Maximum 1-Hour | 2nd-High 1-Hour | Annual Average |
|---|---|---|---|---|---|---|---|
| 1998 | Duval | 12-031-0032 | Jacksonville-2900 Bennett St. | 8,204 | 125 (0.066 ppm) | 125 (0.066 ppm) | 28 (0.015 ppm) |

Note: ppm = parts per million.
0.053 ppm = 100 $\mu g/m^3$.
$\mu g/m^3$ = micrograms per cubic meter.

# 4.0 AIR QUALITY IMPACT ANALYSIS METHODOLOGY

## 4.1 AIR MODELING ANALYSIS APPROACH

An air quality impact analysis of the G-P Palatka Mill was conducted for $NO_2$. The air quality modeling analysis was performed using the Industrial Source Complex Short-Term (ISCST3) model, Version 99155, currently recommended for regulatory applications, to assess maximum ground-level impacts due to the G-P Palatka Mill and other sources in the area. The analysis followed EPA and FDEP modeling guidelines for assessing compliance with the AAQS and PSD increments.

The impact analysis used screening and refinement phases to determine the maximum pollutant impacts associated with the G-P facility. The difference between the two modeling phases is the density of the receptor grid spacing used when predicting concentrations. Concentrations are predicted for the screening phase using a coarse (*i.e.*, large spacing) receptor grid and a 5-year meteorological data record. In this analysis, the receptor grid consisted of a polar receptor grid with a 10-degree angular spacing between receptors.

Refinements of the maximum predicted concentrations from the screening phase are performed in the vicinity of the receptors of the screening receptor grid at which the highest predicted concentrations occurred over the 5-year period. Generally, if maximum concentrations predicted in another year are within 10 percent of the overall maximum concentration predicted for the 5-year period, then the other concentrations are refined as well. Modeling refinements are performed to determine maximum concentrations with a receptor grid spacing of 100 meters (m) or less.

The domain of a refined receptor grid will generally extend to all adjacent screening receptors surrounding a particular screening grid receptor. The air dispersion model is then executed with the refined grid for the entire year of meteorology during which the maximum concentration in the screening phase occurred. This approach is used to ensure that a valid maximum concentration is obtained.

Because the G-P Palatka Mill is located approximately 111 and 179 km, respectively, from the Okefenokee national Wildlife Refuge (ONWR) and the Wolf Island NWR (WINWR) PSD Class I areas, an increment analysis was conducted at these two areas, according to FDEP requirements.

A more detailed description of the model, along with the emission inventory, meteorological data, and screening receptor grids, is presented in the following sections.

## 4.2 SIGNIFICANT IMPACT ANALYSIS

A significant impact analysis was performed to determine the magnitude and distance to which the project's $NO_2$ impacts exceed the EPA's $NO_2$ significant impact level of 1 $\mu g/m^3$, annual average. If the significant impact level is not exceeded in the vicinity of the plant, AAQS and PSD Class II increment analyses are not required. A significant impact analysis is also performed for the project at the PSD Class I area(s). If the maximum $NO_2$ impact from the proposed project does not exceed EPA's proposed PSD Class I significant impact level of 0.1 $\mu g/m^3$ at the PSD Class I areas, a PSD Class I increment analysis is not required.

For the significant impact analyses, the increase in $NO_x$ emissions due to the proposed project (88.1 TPY) was modeled. The analyses did not consider the reduction in emissions due to the shutting down of the existing TRS incinerator.

## 4.3 AAQS AND PSD CLASS II INCREMENT ANALYSES

When 5 years of meteorological data are used, the highest annual $NO_2$ concentrations are compared to the $NO_2$ AAQS and allowable $NO_2$ PSD Class II increment. For the AAQS analysis, the future emissions of the facility are modeled together with background emission facilities. Additionally, a non-modeled background concentration is added to the maximum predicted air quality concentration to determine a total air quality concentration. The maximum annual total concentration is compared to the AAQS.

For the PSD Class II increment analysis, the PSD increment consuming and expanding sources at the G-P Palatka Mill site are modeled with background PSD consuming or expanding sources. The maximum predicted annual PSD increment consumption is compared to the $NO_2$ PSD Class II increment.

## 4.4 PSD CLASS I INCREMENT ANALYSIS

For a PSD Class I increment analysis, the PSD increment consuming and expanding sources at the G-P Palatka Mill are modeled along with other background PSD consuming or expanding sources within 100-150 miles from the PSD Class I area. The maximum predicted annual $NO_2$ PSD increment at the PSD Class I area is compared to the allowable PSD Class I increment.

## 4.5 MODEL SELECTION

The ISCST3 dispersion model (Version 99155) was used to evaluate all pollutant impacts. This model is currently available on the EPA's Internet web site, Support Center for Regulatory Air Models (SCRAM), within the Technical Transfer Network (TTN). A listing of ISCST3 model features is presented in Table 4-1. The ISCST3 model is designed to calculate hourly concentrations based on hourly meteorological data (*i.e.*, wind direction, wind speed, atmospheric stability, ambient temperature, and mixing heights). The ISCST3 model is applicable to sources located in either flat or rolling terrain where terrain heights do not exceed stack heights. These areas are referred to as simple terrain.

Since the terrain surrounding the G-P Palatka Mill is flat, the modeling analysis assumed that all receptors were at the base elevation of the facility (*i.e.*, flat terrain assumption in ISCST3).

In this analysis, the EPA regulatory default options were used to predict all maximum impacts. The ISCST3 model can run in the rural or urban land use mode, which affects stability dispersion coefficients, wind speed profiles, and mixing heights. Land use can be characterized based on a scheme recommended by EPA (Auer, 1978). If more than 50 percent of the land use within a 3-km radius circle around a facility is classified as industrial or commercial, or high-density residential, then the urban option should be selected. Otherwise, the rural option is appropriate. Based on reviews of aerial and U.S. Geological Survey (USGS) topographical maps and a site visit, the land use within a 3-km (1.9-mile) radius of the G-P Palatka Mill site is considered to be rural (*i.e.*, very little heavy industrial, light-moderate industrial, commercial, or compact residential land use categories). Therefore, the rural mode was used in the air dispersion model to predict impacts from the G-P Palatka Mill and other emission sources considered in the modeling analysis.

The ISCST3 model was used to predict maximum pollutant concentrations for the annual averaging time period. The predicted concentration was then compared to the applicable significant impact level, monitoring *de minimis* level, allowable PSD increment, and the AAQS.

### 4.6 METEOROLOGICAL DATA

Meteorological data used in the ISCST3 model to determine air quality impacts consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) offices located at the Jacksonville International Airport (JAX) and Waycross, GA, respectively. Concentrations were predicted using 5 years of hourly meteorological data from 1984 through 1988. These data have been approved by FDEP for modeling applications in the Putnam County area. The NWS office at JAX is located approximately 91 km (56 miles) north of the site and is the closest primary weather station to the study area considered to have meteorological data representative of the project site. The JAX station meteorological data have been used for previous air modeling studies for the G-P Palatka Mill.

The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling height. The wind speed, cloud cover, and cloud ceiling values were used in the ISCST3 meteorological preprocessor program to determine atmospheric stability using the Turner stability scheme. Based on the temperature measurements at morning and afternoon, mixing heights were calculated from the radiosonde data at Waycross, GA using the Holzworth approach (Holzworth, 1972). Hourly mixing heights were derived from the morning and afternoon mixing heights using the interpolation method developed by EPA (Holzworth, 1972). The hourly surface data and mixing heights were used to develop a sequential, hourly meteorological data set (*i.e.*, wind direction, wind speed, temperature, stability, and mixing heights). Because the observed hourly wind directions at the NWS stations are classified into one of thirty-six 10-degree sectors, the wind directions were randomized within each sector to account for the expected variability in air flow. These calculations were performed using the EPA RAMMET meteorological preprocessor program.

## 4.7 EMISSION INVENTORY

### 4.7.1 G-P PALATKA MILL

The maximum $NO_2$ emissions for the G-P Palatka Mill for the future operating condition are summarized in Table 2-1. The $NO_x$ PSD baseline emissions are presented in Table 2-2. Future and baseline stack parameters and source locations are presented in Table 2-3.

It is noted that G-P, based on the recently issued No. 3 Bleach Plant permit (Permit No. 1070005-006-AC/PSD-FL-264), will raise the stack height of the No. 4 Power Boiler from the current 122 feet to a new height of 200 feet. This will insure that the predicted ISCST3 model concentrations do not exceed the AAQS for $SO_2$ in the vicinity of the G-P plant. The new thermal oxidizer will have a stack height of 100 feet.

### 4.7.2 OTHER EMISSION SOURCES

In the vicinity of the G-P Palatka Mill, the proposed Cluster Rule Compliance Project will exceed the significant impact level for $NO_2$ at only one property boundary receptor located at (100°, 533 meters) from the modeling origin. A significant impact distance was set at 1,100 meters for the air modeling analysis. As a result, other non-G-P facilities were evaluated for inclusion in the AAQS and PSD Class II increment analyses. A listing of these facilities was developed mainly from data bases from previous air modeling studies performed by Golder Associates for G-P Palatka and from Title V air permit data. A summary of these facilities is presented in Table 4-2.

The Seminole Electric and FPL Putnam facilities are the only major $NO_x$ sources to be included in the AAQS and PSD Class II increment air modeling analyses. As shown in Table 4-2, all other facilities are located beyond 50 km from the significant impact area. The individual source emissions, stack, and operating parameters for the AAQS and PSD Class II modeling analyses were developed and are presented in Table 4-3.

A PSD Class I increment modeling analysis is not required for $NO_2$ because the increase in $NO_x$ emissions due to the Cluster Rule Compliance Project causes impacts which are below EPA's proposed PSD Class I significant impact levels. Therefore, the project is not significant at the ONWR PSD Class I area.

## 4.8 BUILDING DOWNWASH EFFECTS FOR G-P PALATKA MILL

Based on the building dimensions associated with buildings and structures at the plant, all stacks at the G-P Palatka Mill will comply with the good engineering practice (GEP) stack height regulations. However, these stacks are less than GEP height. Therefore, the potential for building downwash to occur was considered in the air modeling analysis for these stacks.

Generally, a stack is considered to be within the influence of a building if it is within the lesser of 5 times L, where L is the lesser dimension of the building height or projected width. The ISCST3 model uses two procedures to address the effects of building downwash. For both methods, the direction-specific building dimensions are input for $H_b$ and $l_b$ for 36 radial directions, with each direction representing a 10-degree sector. The $H_b$ is the building height and $L_b$ is the lesser of the building height or projected width. For short stacks (*i.e.*, physical stack height is less than $H_b$ + 0.5 $L_b$), the Schulman and Scire (1980) method is used. The features of the Schulman and Scire method are as follows:

1. Reduced plume rise as a result of initial plume dilution,
2. Enhanced plume spread as a linear function of the effective plume height, and
3. Specification of building dimensions as a function of wind direction.

For cases where the physical stack height is greater than $H_b$ + 0.5 $L_b$, but less than GEP, the Huber-Snyder (1976) method is used. Both downwash algorithms affect stacks that are within the influence of a building, without regard for the actual distance the stack or stack's plume is from the building during any given moment.

The building dimensions considered in the air modeling analysis for the G-P Palatka Mill are presented in Table 4-4. The location of the buildings and stacks can also be found on the site plot plan (Figure 2-2). At the G-P Palatka Mill, several stacks are influenced by one or more buildings. For the modeling analysis, direction-specific building dimensions are input for $H_b$ and $L_b$ for 36 radial directions, with each direction representing a 10-degree sector. All direction-specific building parameters were calculated with the Building Profile Input Program (BPIP), Version 95086. The BPIP program was used to generate building data for the ISCST3 model input. A detailed listing of direction-specific building data used in the air modeling analysis is provided in Appendix A. The major influencing structures at G-P Palatka Mill were the same in the baseline and future modeling scenarios.

## 4.9 RECEPTOR LOCATIONS

For predicting maximum concentrations due to the project only in the vicinity of the G-P Palatka Mill, an array of discrete polar receptors was used. The number of discrete receptors was 236, which included 36 receptors located along the property line of the G-P Palatka Mill and 200 additional offsite receptors located at distances of 0.7, 1.1, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5 and 5.0 km from the existing TRS Incinerator stack location, the origin (*i.e.*, 0,0) location for the air modeling analysis. A summary of the boundary receptors at the G-P Palatka Mill is presented in Table 4-5.

Modeling refinements were performed, as needed. At a distance of less than 575 m, the angular distance between receptors is 100 m or less and additional refinements may not be performed. At distances of 600 m and beyond, modeling refinements are performed by employing an angular spacing between radials of 1 or 2 degrees and a spacing interval along radials of 100 m.

Pollutant concentrations for $NO_2$ were also predicted at 10 receptors located along the southern and eastern boundaries of the ONWR PSD Class I Area, plus one additional receptor located at the WINWR. A listing of the 11 Class I receptors is presented in Table 4-6. Due to the large distance from the G-P Palatka Mill to the ONWR and WINWR, additional receptor refinements were not performed for these areas.

Based on the results of the significant impact analysis, the proposed project will be significant at only one receptor located on the plant property boundary. However, for the AAQS and PSD Class II modeling analyses, the modeling area was extended to include all property boundary and offsite receptor locations within 1,100 meters from the origin.

## 4.10 BACKGROUND CONCENTRATIONS

Total air quality impacts were predicted for the AAQS analysis by adding the maximum annual averaged concentrations due to all modeled sources to estimated background concentrations. Background concentrations are concentrations due to sources not explicitly included in the modeling analysis. These concentrations consist of two components:

- Impacts due to other non-modeled emission sources (*i.e.*, point sources not explicitly included in the modeling inventory), and
- Natural and fugitive emission sources.

The non-modeled background concentrations were obtained from air quality monitoring data, as described in Section 3.0, and are as follows:

| Pollutant | Averaging Period | Background Concentration ($\mu g/m^3$) |
|---|---|---|
| $NO_2$ | Annual | 28 |

Table 4-1. Major Features of the ISCST3 Model

| ISCST3 Model Features |
|---|
| • Polar or Cartesian coordinate systems for receptor locations |
| • Rural or one of three urban options which affect wind speed profile exponents, dispersion rates, and mixing height calculations |
| • Plume rise due to momentum and buoyancy as a function of downwind distance for stack emissions (Briggs, 1969, 1971, 1972, and 1975; Bowers, et al., 1979). |
| • Procedures suggested by Huber and Snyder (1976); Huber (1977); and Schulman and Scire (1980) for evaluating building wake effects |
| • Procedures suggested by Briggs (1974) for evaluating stack-tip downwash |
| • Separation of multiple emission sources |
| • Consideration of the effects of gravitational settling and dry deposition on ambient particulate concentrations |
| • Capability of simulating point, line, volume, area, and open pit sources |
| • Capability to calculate dry and wet deposition, including both gaseous and particulate precipitation scavenging for wet deposition |
| • Variation of wind speed with height (wind speed-profile exponent law) |
| • Concentration estimates for 1-hour to annual average times |
| • Terrain-adjustment procedures for elevated terrain including a terrain truncation algorithm for ISCST3; a built-in algorithm for predicting concentrations in complex terrain |
| • Consideration of time-dependent exponential decay of pollutants |
| • The method of Pasquill (1976) to account for buoyancy-induced dispersion |
| • A regulatory default option to set various model options and parameters to EPA recommended values (see text for regulatory options used) |
| • Procedure for calm-wind processing including setting wind speeds less than 1 m/s to 1 m/s. |

Note: ISCST3 = Industrial Source Complex Short-Term.
Source: EPA, 1998.

Table 4-2. $NO_x$ Facilities Considered in the AAQS and PSD Class II Air Modeling Analysis

| Facility | UTM Coordinates East (km) | UTM Coordinates North (km) | Location[a] X (km) | Location[a] Y (km) | Location[a] Distance (km) | Location[a] Direction (deg.) |
|---|---|---|---|---|---|---|
| Seminole Power Plant | 438.8 | 3289.2 | 4.8 | 5.8 | 7.5 | 40 |
| FPL Putnam Power Plant | 443.3 | 3277.6 | 9.3 | -5.8 | 11.0 | 122 |
| Atlantic Coast Asphalt | 445.3 | 3339.6 | 11.3 | 56.2 | 57.3 | 11 |
| Duval Asphalt Products | 443.2 | 3344.0 | 9.2 | 60.6 | 61.3 | 9 |
| Sloan Construction | 439.6 | 3346.0 | 5.6 | 62.6 | 62.8 | 5 |
| Naval Air Station | 415.2 | 3344.5 | -18.8 | 61.1 | 63.9 | 343 |
| Maxwell House | 439.7 | 3350.0 | 5.7 | 66.6 | 66.8 | 5 |
| University of North Florida | 451.2 | 3348.5 | 17.2 | 65.1 | 67.3 | 15 |
| Memorial Hospital | 442.2 | 3351.0 | 8.2 | 67.6 | 68.1 | 7 |
| Baptist Medical Center | 435.4 | 3352.0 | 1.4 | 68.6 | 68.6 | 1 |
| St. Vincents Medical Center | 433.9 | 3353.0 | -0.1 | 69.6 | 69.6 | 360 |
| JEA - Southside Power Plant | 437.7 | 3353.9 | 3.7 | 70.5 | 70.6 | 3 |
| Gulf Life Insurance | 436.2 | 3354.1 | 2.2 | 70.7 | 70.7 | 2 |
| National Linen Service | 434.9 | 3354.8 | 0.9 | 71.4 | 71.4 | 1 |
| Environmental Tech. | 439.4 | 3355.0 | 5.4 | 71.6 | 71.8 | 4 |
| Cathedral Towers | 437.1 | 3355.4 | 3.1 | 72.0 | 72.1 | 2 |
| Rinker Material | 439.5 | 3355.6 | 5.5 | 72.2 | 72.4 | 4 |
| Florida Steel - Baldwin | 405.9 | 3350.2 | -28.1 | 66.8 | 72.5 | 337 |
| Jacksonville University Hospital | 436.5 | 3357.2 | 2.5 | 73.8 | 73.8 | 2 |
| Anchor Glass Container Co. | 431.3 | 3357.5 | -2.7 | 74.1 | 74.1 | 358 |
| Bush Boake Allen, Inc. | 427.6 | 3357.3 | -6.4 | 73.9 | 74.2 | 355 |
| J. W. Swisher | 437.9 | 3357.9 | 3.9 | 74.5 | 74.6 | 3 |
| Duval Asphalt Products | 427.0 | 3357.7 | -7.0 | 74.3 | 74.6 | 355 |
| ES Metals | 431.8 | 3358.3 | -2.2 | 74.9 | 74.9 | 358 |
| Coastal Fuel Marketing | 439.7 | 3358.7 | 5.7 | 75.3 | 75.5 | 4 |
| JEA - Kennedy Power Plant | 440.0 | 3359.2 | 6.0 | 75.8 | 76.0 | 5 |
| Atlantic Coast Asphalt | 429.5 | 3359.7 | -4.5 | 76.3 | 76.4 | 357 |
| PCS Phosphate | 439.3 | 3359.8 | 5.3 | 76.4 | 76.6 | 4 |
| Steuart Petroleum Co. | 438.5 | 3360.5 | 4.5 | 77.1 | 77.2 | 3 |
| Millenium Specialty Products | 435.6 | 3360.7 | 1.6 | 77.3 | 77.3 | 1 |
| Duval Asphalt Products | 428.7 | 3361.4 | -5.3 | 78.0 | 78.2 | 356 |
| Celotex Corp. | 446.4 | 3362.4 | 12.4 | 79.0 | 80.0 | 9 |
| Amerada Hess | 442.7 | 3365.0 | 8.7 | 81.6 | 82.1 | 6 |
| JEA - Northside Power Plant | 446.9 | 3364.8 | 12.9 | 81.4 | 82.4 | 9 |
| Stone Container Corp. | 441.8 | 3365.6 | 7.8 | 82.2 | 82.6 | 5 |
| Sears Catalog Center | 438.2 | 3365.9 | 4.2 | 82.5 | 82.6 | 3 |
| J. B. Coxwell Contracting | 446.0 | 3365.9 | 12.0 | 82.5 | 83.4 | 8 |
| BF Goodrich Co. | 450.0 | 3365.5 | 16.0 | 82.1 | 83.6 | 11 |
| Anheiser Busch, Inc | 440.6 | 3366.8 | 6.6 | 83.4 | 83.7 | 5 |
| U.S. Naval Station- Mayport | 460.4 | 3362.8 | 26.4 | 79.4 | 83.7 | 18 |
| JEA - St. Johns River Power Park | 447.1 | 3366.7 | 13.1 | 83.3 | 84.3 | 9 |
| Georgia Pacific | 440.1 | 3368.3 | 6.1 | 84.9 | 85.1 | 4 |
| City of Jacksonville | 446.5 | 3367.7 | 12.5 | 84.3 | 85.2 | 8 |
| Rayonier, Inc. | 454.7 | 3392.2 | 20.7 | 108.8 | 110.8 | 11 |
| Jefferson Smurfit Corp. | 456.2 | 3394.2 | 22.2 | 110.8 | 113.0 | 11 |
| Gilman Paper Co. St. Mary's GA | 448.2 | 3401.3 | 14.2 | 117.9 | 118.8 | 7 |

[a] Relative to the location of G-P Palatka Mill, located at the following UTM Coordinates:
East (km) 434.0
North (km) 3283.4

The significant impact area (SIA) equals 1.0 km
Sources beyond 50 from the SIA were not included in the AAQS and PSD Class II air modeling analyses

Table 4-3. Inventory of $NO_x$ Sources Included in the AAQS and PSD Class II Air Modeling Analyses

| APIS Number | Facility Units | ISCST3 ID Name | Stack Parameters Height (m) | Diameter (m) | Temper. (K) | Velocity (m/s) | Emission Rate (g/s) | $NO_2$ PSD Source? (EXP/CON) | Modeled in AAQS | Class II |
|---|---|---|---|---|---|---|---|---|---|---|
| 31JAX540025 | Seminole Power Plant | | | | | | | | | |
| | Units 1 and 2 | SEMELECT | 205.7 | 10.97 | 326.5 | 7.99 | 1319.32 | No | Yes | No |
| 31JAX540014 | Florida Power & Light - Putnam | | | | | | | | | |
| | 4x70Mw CT/HRSG + DB | FPLPUTNM | 22.3 | 3.15 | 437.4 | 58.60 | 346.45 | No | Yes | No |

Table 4-4. Structure Dimensions Used in the Georgia-Pacific Modeling Analysis

| Structure | Actual Building Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | Height | | Length | | Width | |
| | ft | m | ft | m | ft | m |
| RB4 Preciptator | 85 | 25.9 | 130 | 39.6 | 559 | 170.4 |
| RB4 Boiler Building | 193.7 | 59.0 | 104 | 31.7 | 100 | 30.5 |
| Power Plant Building | 107.6 | 32.8 | 92 | 28 | 92 | 28 |
| Pulp Dryer No. 3 | 84.5 | 25.8 | 63 | 19.2 | 147 | 44.8 |
| Pulp Dryer No. 5 | 70.5 | 21.5 | 306 | 93.3 | 95 | 29 |
| Pulp Dryer No. 4 | 73 | 22.3 | 242 | 73.8 | 127 | 38.7 |
| Warehouse Complex 1 | 62.67 | 19.1 | 1,382 | 421.2 | 411 | 125.3 |
| Warehouse Complex 2 | 46.8 | 14.3 | 852 | 259.7 | 370 | 112.8 |
| Nos. 1 and 2 Machines, Storage | 71.16 | 21.7 | 232 | 70.7 | 412 | 125.6 |
| Kraft Converting and Storing | 60.75 | 18.5 | 264 | 80.5 | 516 | 157.3 |
| Kraft Warehouse and Multi-Wall | 56.7 | 17.3 | 274 | 83.5 | 507 | 154.5 |
| Digester | 62.2 | 19 | 264 | 80.5 | 32 | 9.8 |

Table 4-5. Summary of Direction-Specific Distances from the TRS Incinerator to Georgia-Pacific Plant Property Boundaries

| Direction (Degrees) | Distance (m) | Direction (Degrees) | Distance (m) |
|---|---|---|---|
| 10 | 5,000 | 190 | 750 |
| 20 | 4,500 | 200 | 1,829 |
| 30 | 2,500 | 210 | 1,829 |
| 40 | 2,500 | 220 | 1,981 |
| 50 | 1,500 | 230 | 2,134 |
| 60 | 1,500 | 240 | 2,438 |
| 70 | 1,500 | 250 | 2,896 |
| 80 | 838 | 260 | 3,048 |
| 90 | 686 | 270 | 3,658 |
| 100 | 533 | 280 | 3,962 |
| 110 | 457 | 290 | 4,572 |
| 120 | 457 | 300 | 5,182 |
| 130 | 457 | 310 | 4,801 |
| 140 | 457 | 320 | 4,875 |
| 150 | 457 | 330 | 6,000 |
| 160 | 488 | 340 | 5,500 |
| 170 | 533 | 350 | 5,250 |
| 180 | 610 | 360 | 5,125 |

Note: Existing TRS Incinerator is modeling origin.

Table 4-6. PSD Class I Area Receptors Used in the Modeling Analysis

| PSD Class I Area | UTM Coordinates | |
|---|---|---|
| | East (km) | North (km) |
| Wolf Island NWR | 470.5 | 3459.0 |
| Okefenokee NWR | 391.0 | 3417.0 |
| Okefenokee NWR | 390.0 | 3410.0 |
| Okefenokee NWR | 392.0 | 3400.0 |
| Okefenokee NWR | 390.0 | 3395.0 |
| Okefenokee NWR | 391.0 | 3390.0 |
| Okefenokee NWR | 390.0 | 3384.0 |
| Okefenokee NWR | 383.0 | 3382.0 |
| Okefenokee NWR | 378.0 | 3382.0 |
| Okefenokee NWR | 374.0 | 3383.0 |
| Okefenokee NWR | 370.0 | 3383.0 |

# 5.0 AIR MODELING ANALYSIS RESULTS

## 5.1 SIGNIFICANT IMPACT ANALYSIS

### 5.1.1 Site Vicinity

The maximum predicted annual $NO_2$ concentrations due to the Cluster Rule Compliance Project only are presented in Table 5-1. The maximum predicted annual average impact of 1.06 ug/m$^3$ exceeds the significant impact level of 1 ug/m$^3$, annual average. The proposed project is predicted to exceed the significant impact level at one receptor on the property boundary, and to be less than significant everywhere else. The location of the predicted maximum impact is at 100 degrees and 533 meters from the existing TRS incinerator stack location (the modeling analysis origin).

### 5.1.2 PSD Class I Area

The maximum predicted annual $NO_2$ concentrations due to the Cluster Rule Compliance Project at the ONWR and the WINWR are presented in Table 5-2. The maximum predicted impact of 0.0031 μg/m$^3$, annual average, is well below the proposed EPA PSD Class I significant impact level of 0.1 μg/m$^3$. Therefore, a full PSD Class I increment analysis was not performed.

## 5.2 AAQS ANALYSIS

A summary of the AAQS screening analysis is presented in Table 5-3. Because the maximum predicted impact occurred at 533 m from the modeling origin, additional refinements were not performed. The maximum predicted impact due to modeled sources is 7.9 μg/m$^3$, annual average. With a background concentration of 28 μg/m$^3$, the total maximum impact is 36 μg/m$^3$, annual average This concentration is well below the AAQS of 100 μg/m$^3$.

## 5.3 PSD CLASS II INCREMENT ANALYSIS

The maximum predicted $NO_2$ PSD increment consumption, from the screening analysis, due to all PSD-affecting sources, is presented in Table 5-4. Based on the results of the screening analyses, additional refined modeling analyses were not performed. The maximum predicted annual average $NO_2$ PSD increment consumption is 2.1 $\mu g/m^3$, which is well below the allowable PSD Class II increment of 25 $\mu g/m^3$.

Table 5-1. Maximum Predicted $NO_2$ Impacts Due to Cluster Rule Compliance Project Only, Significant Impact Analysis, at Site Vicinity

| Averaging Time | Concentration[a] (µg/m³) | Receptor Location[b] | | Time Period (YYMMDDHH) | Significant Impact Level (µg/m³) |
|---|---|---|---|---|---|
| | | Direction (degree) | Distance (m) | | |
| Annual | | | | | |
| | 1.01 | 100 | 533 | 84123124 | 1 |
| | 1.06 | 100 | 533 | 85123124 | |
| | 1.01 | 100 | 533 | 86123124 | |
| | 1.01 | 100 | 533 | 87123124 | |
| | 0.90 | 100 | 533 | 88123124 | |

[a] Based on 5-year meteorological record, Jacksonville/Waycross, 1984-88
[b] Relative to existing TRS Incinerator Stack Location

Note: YYMMDDHH = Year, Month, Day, Hour Ending

Table 5-2. Maximum Predicted $NO_2$ Impacts Due to Cluster Rule Compliance Project Only, Significant Impact Analyses, at Okefenokee and Wolf Island NWR PSD Class I Areas

| Averaging Time | Concentration[a] ($\mu g/m^3$) | Receptor Location (UTM) (m) | (m) | Time Period (YYMMDDHH) | EPA Proposed Significant Impact Level ($\mu g/m^3$) |
|---|---|---|---|---|---|
| Annual | | | | | |
| | 0.0031 | 374000 | 3383000 | 84123124 | 0.1 |
| | 0.0026 | 391000 | 3390000 | 85123124 | |
| | 0.0030 | 383000 | 3382000 | 86123124 | |
| | 0.0025 | 378000 | 3382000 | 87123124 | |
| | 0.0024 | 370000 | 3383000 | 88123124 | |

[a] Based on 5-year meteorological record, Jacksonville/Waycross, 1984-88
[b] Relative to existing TRS Incinerator Stack Location

Note: YYMMDDHH = Year, Month, Day, Hour Ending

Table 5-3. Maximum Predicted $NO_2$ Impacts Due to All Future Sources for Comparison to AAQS

| Averaging Time | Concentration (ug/m3) | | | Receptor Location[b] | | Time Period | Florida |
|---|---|---|---|---|---|---|---|
| | Total | Modeled | Background | Direction (degree) | Distance (m) | (YYMMDDHH) | AAQS ($ug/m^3$) |
| Annual | | | | | | | |
| | 35.1 | 7.1 | 28 | 100 | 533 | 84123124 | 100 |
| | 35.5 | 7.5 | 28 | 100 | 533 | 85123124 | |
| | 34.9 | 6.9 | 28 | 100 | 533 | 86123124 | |
| | 35.9 | 7.9 | 28 | 100 | 533 | 87123124 | |
| | 35.3 | 7.3 | 28 | 100 | 533 | 88123124 | |

[a] Based on 5-year meteorological record, Jacksonville/Waycross, 1984-88
[b] Relative to existing TRS Incinerator Stack Location

Note: YYMMDDHH = Year, Month, Day, Hour Ending

Table 5-4. Maximum Predicted $NO_2$ PSD Class II Increment Consumption

| Averaging Time | Concentration[a] (μg/m³) | Receptor Location[b] Direction (degree) | Distance (m) | Time Period (YYMMDDHH) | Allowable PSD Class II Increment (μg/m³) |
|---|---|---|---|---|---|
| Annual | | | | | |
| | 1.9 | 100 | 533 | 84123124 | 25 |
| | 2.1 | 100 | 533 | 85123124 | |
| | 1.9 | 100 | 533 | 86123124 | |
| | 2.1 | 100 | 533 | 87123124 | |
| | 1.9 | 100 | 533 | 88123124 | |

[a] Based on 5-year meteorological record, Jacksonville/Waycross, 1984-88
[b] Relative to existing TRS Incinerator Stack Location

Note: YYMMDDHH = Year, Month, Day, Hour Ending
PSD = Prevention of Significant Deterioration

# APPENDIX A

# DIRECTION-SPECIFIC BUILDING INFORMATION USED FOR THE AIR MODELING ANALYSIS

```
'BPIP data for GA-PACIFIC PALATKA  FUTURE -  5/27/99'
'ST'
'FEET' 0.3048
'UTMN' -34.0
12
'RB4 Precipitator' 1 0.0
4 85
    -304    552
    -304    682
    -245    682
    -245    552
'RB4 Building' 1 0.0
4 193.7
    -228    569
    -228    659
    -124    659
    -124    569
'Power House' 1 0.0
4 107.6
    -83     533
    -83     625
     9      625
     9      533
'Pulp Dryer 3' 1 0.0
4 84.5
        496        -158
        496         105
        643         105
        643        -158
'Pulp Dryer 5' 1 0.0
4 70.5
        696        -158
        696         148
        791         148
        791        -158
'Pulp Dryer 4' 1 0.0
4 73
        791        -158
        791          84
        918          84
        918        -158
'Warehouse complex 1' 1 0.0
4 62.67
        485        -580
        485        -169
        1867        -169
        1867    -580
'Warehouse Complex 2' 1 0.0
4 46.8
        675        -950
        675        -580
        1527        -580
        1527        -950
'#1 & #2 Machines, Storage' 1 0.0
4 71.16
        211         327
        211         739
        443         739
        443         327
'Kraft Converting & Storage' 1 0.0
```

```
4 60.75
        211        739
        211        1255
        475        1255
        475        739
'Kraft Warehouse & Multiwall' 1 0.0
6 56.7
        559        886
        559        1393
        833        1393
        833        1118
        717        1118
        717        886
'Digester' 1 0.0
4 62.2
        211        95
        211        127
        475        127
        475        95
10
'TRS   '  0.0  250     0.00       0.00
'RB4   '  0.0  230  -354.54     601.00
'SDT4  '  0.0  206  -161.73     609.67
'LK4   '  0.0  131  -123.00    -302.50
'PB4   '  0.0  122    23.55     508.82
'PB5   '  0.0  232   -90.71     459.23
'CB4   '  0.0  232   -69.36     456.90
'PB6   '  0.0   60   -28.97     489.96
'BLEACH'  0.0  118   557.09     183.92
'TO    '  0.0  100    58.00     -52.50
0
```

BPIP (Dated: 95086)

DATE : 09/01/99
TIME : 13:41:39
BPIP data for GA-PACIFIC PALATKA FUTURE - 5/27/99, revised 9-1-99

==========================
BPIP PROCESSING INFORMATION:
==========================

The ST flag has been set for processing for an ISCST2 run.

Inputs entered in FEET will be converted to meters using a conversion factor of 0.3048. Output will be in meters.

UTMP is set to UTMN. The input is assumed to be in a local X-Y coordinate system as opposed to a UTM coordinate system. True North is in the positive Y direction.

Plant north is set to -34.00 degrees with respect to True North.

BPIP data for GA-PACIFIC PALATKA FUTURE - 5/27/99, revised 9-1-99

PRELIMINARY* GEP STACK HEIGHT RESULTS TABLE
(Output Units: meters)

| Stack Name | Stack Height | Stack-Building Base Elevation Differences | GEP** EQN1 | Preliminary* GEP Stack Height Value |
|---|---|---|---|---|
| TRS | 76.20 | 0.00 | 118.45 | 118.45 |
| RB4 | 70.10 | 0.00 | 116.20 | 116.20 |
| SDT4 | 62.79 | 0.00 | 121.92 | 121.92 |
| LK4 | 39.93 | N/A | 0.00 | 65.00 |
| PB4 | 60.96 | 0.00 | 121.79 | 121.79 |
| PB5 | 70.71 | 0.00 | 121.92 | 121.92 |
| CB4 | 72.24 | 0.00 | 121.92 | 121.92 |
| PB6 | 18.29 | 0.00 | 121.92 | 121.92 |
| BLEACH | 35.97 | 0.00 | 64.39 | 65.00 |
| TO | 30.48 | 0.00 | 47.40 | 65.00 |

* Results are based on Determinants 1 & 2 on pages 1 & 2 of the GEP Technical Support Document. Determinant 3 may be investigated for additional stack height credit. Final values result after Determinant 3 has been taken into consideration.

** Results were derived from Equation 1 on page 6 of GEP Technical Support Document. Values have been adjusted for any stack-building base elevation differences.

Note: Criteria for determining stack heights for modeling emission limitations for a source can be found in Table 3.1 of the GEP Technical Support Document.

BPIP (Dated: 95086)

DATE : 09/01/99
TIME : 13:41:39

BPIP data for GA-PACIFIC PALATKA FUTURE - 5/27/99, revised 9-1-99

BPIP output is in meters

| | | | | | | |
|---|---|---|---|---|---|---|
| SO BUILDHGT TRS | 0.00 | 18.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| SO BUILDHGT TRS | 0.00 | 0.00 | 18.96 | 18.96 | 0.00 | 59.04 |
| SO BUILDHGT TRS | 59.04 | 59.04 | 32.80 | 0.00 | 0.00 | 0.00 |
| SO BUILDHGT TRS | 0.00 | 18.96 | 18.96 | 18.96 | 18.96 | 18.96 |
| SO BUILDHGT TRS | 18.96 | 18.96 | 18.96 | 18.96 | 0.00 | 0.00 |

```
SO BUILDHGT TRS        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID TRS        0.00  471.02    0.00    0.00    0.00    0.00
SO BUILDWID TRS        0.00    0.00  339.41  382.73    0.00   39.61
SO BUILDWID TRS       38.03   34.39   74.74    0.00    0.00    0.00
SO BUILDWID TRS        0.00   55.19   44.04   31.56  100.16   86.21
SO BUILDWID TRS       88.62  285.77  339.41  382.73    0.00    0.00
SO BUILDWID TRS        0.00    0.00    0.00    0.00    0.00    0.00

SO BUILDHGT RB4       59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT RB4       59.04   59.04   59.04   59.04   25.91   25.91
SO BUILDHGT RB4       25.91    0.00    0.00   25.91   25.91   25.91
SO BUILDHGT RB4       59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT RB4       59.04   59.04   59.04   59.04   25.91   25.91
SO BUILDHGT RB4       25.91    0.00    0.00   25.91   25.91   25.91
SO BUILDWID RB4       38.11   38.11   38.11   35.11   30.60   29.58
SO BUILDWID RB4       34.29   37.95   38.11   38.11   37.84   33.53
SO BUILDWID RB4       28.21    0.00    0.00   27.03   32.55   37.07
SO BUILDWID RB4       38.11   38.11   38.11   35.11   30.60   29.58
SO BUILDWID RB4       34.29   37.95   38.11   38.11   37.84   33.53
SO BUILDWID RB4       28.21    0.00    0.00   27.03   32.55   37.07

SO BUILDHGT SDT4      59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT SDT4      59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT SDT4      59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT SDT4      59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT SDT4      59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT SDT4      59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDWID SDT4      41.86   40.83   38.55   35.11   30.60   29.58
SO BUILDWID SDT4      34.29   37.95   40.47   41.75   41.77   40.52
SO BUILDWID SDT4      38.03   34.39   33.54   37.39   40.12   41.62
SO BUILDWID SDT4      41.86   40.83   38.55   35.11   30.60   29.58
SO BUILDWID SDT4      34.29   37.95   40.47   41.75   41.77   40.52
SO BUILDWID SDT4      38.03   34.39   33.54   37.39   40.12   41.62

SO BUILDHGT LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDHGT LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4        0.00    0.00    0.00    0.00    0.00    0.00
SO BUILDWID LK4        0.00    0.00    0.00    0.00    0.00    0.00

SO BUILDHGT PB4       32.80   32.80   32.80   32.80   32.80   59.04
SO BUILDHGT PB4       59.04   59.04   59.04   59.04   59.04   32.80
SO BUILDHGT PB4       32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB4       32.80   32.80   32.80   32.80   32.80   59.04
SO BUILDHGT PB4       59.04   59.04   59.04   59.04   59.04   32.80
SO BUILDHGT PB4       32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDWID PB4       39.65   39.17   37.50   34.68   45.75   29.58
SO BUILDWID PB4       34.29   37.95   40.47   41.75   41.77   37.50
SO BUILDWID PB4       34.68   73.63   74.74   33.99   37.02   38.93
SO BUILDWID PB4       39.65   39.17   37.50   34.68   45.75   29.58
SO BUILDWID PB4       34.29   37.95   40.47   41.75   41.77   37.50
SO BUILDWID PB4       34.68   73.63   74.74   33.99   37.02   38.93

SO BUILDHGT PB5       32.80   32.80   32.80   32.80    0.00    0.00
SO BUILDHGT PB5       25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB5       59.04   59.04   59.04   59.04   32.80   32.80
SO BUILDHGT PB5       32.80   32.80   32.80   32.80   21.69   21.69
SO BUILDHGT PB5       25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB5       59.04   59.04   59.04   59.04   32.80   32.80
SO BUILDWID PB5       39.65   39.17   37.50   34.68    0.00    0.00
SO BUILDWID PB5       42.80   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB5       38.03   34.39   33.54   37.39   37.02   38.93
SO BUILDWID PB5       39.65   39.17   37.50   34.68  132.28  130.20
SO BUILDWID PB5       44.92   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB5       38.03   34.39   33.54   37.39   37.02   38.93
```

```
SO BUILDHGT CB4      32.80   32.80   32.80   32.80    0.00    0.00
SO BUILDHGT CB4      25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT CB4      59.04   59.04   32.80   32.80   32.80   32.80
SO BUILDHGT CB4      32.80   32.80   32.80   32.80   21.69   21.69
SO BUILDHGT CB4      25.91   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT CB4      59.04   59.04   32.80   32.80   32.80   32.80
SO BUILDWID CB4      39.65   39.17   37.50   34.68    0.00    0.00
SO BUILDWID CB4      42.80   37.95   40.47   41.75   41.77   40.52
SO BUILDWID CB4      38.03   34.39   74.74   33.99   37.02   38.93
SO BUILDWID CB4      39.65   39.17   37.50   34.68  132.28  130.20
SO BUILDWID CB4      44.92   37.95   40.47   41.75   41.77   40.52
SO BUILDWID CB4      38.03   34.39   74.74   33.99   37.02   38.93

SO BUILDHGT PB6      32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB6      59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB6      59.04   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB6      32.80   32.80   32.80   32.80   32.80   32.80
SO BUILDHGT PB6      59.04   59.04   59.04   59.04   59.04   59.04
SO BUILDHGT PB6      59.04   32.80   32.80   32.80   32.80   32.80
SO BUILDWID PB6      39.65   39.17   37.50   34.68   45.75   37.44
SO BUILDWID PB6      34.29   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB6      38.03   73.63   74.74   33.99   37.02   38.93
SO BUILDWID PB6      39.65   39.17   37.50   34.68   45.75   37.44
SO BUILDWID PB6      34.29   37.95   40.47   41.75   41.77   40.52
SO BUILDWID PB6      38.03   73.63   74.74   33.99   37.02   38.93

SO BUILDHGT BLEACH   25.76   25.76   18.96   18.96   18.96   21.49
SO BUILDHGT BLEACH   21.49   25.76   25.76   25.76   25.76   25.76
SO BUILDHGT BLEACH   25.76   25.76   25.76   25.76   25.76   25.76
SO BUILDHGT BLEACH   25.76   25.76   18.96   18.96   18.96   21.49
SO BUILDHGT BLEACH   22.25   25.76   25.76   25.76   25.76   25.76
SO BUILDHGT BLEACH   25.76   25.76   25.76   25.76   25.76   25.76
SO BUILDWID BLEACH   87.92   91.19   44.04   31.56  100.16   99.31
SO BUILDWID BLEACH  112.25   91.46   91.51   88.79   83.37   75.41
SO BUILDWID BLEACH   65.17   52.94   50.29   62.87   73.54   81.97
SO BUILDWID BLEACH   87.92   91.19   44.04   31.56  100.16   95.06
SO BUILDWID BLEACH   80.94   91.46   91.51   88.79   83.37   75.41
SO BUILDWID BLEACH   65.17   52.94   50.29   62.87   73.54   81.97

SO BUILDHGT TO       18.96   18.96    0.00    0.00    0.00    0.00
SO BUILDHGT TO       18.96   18.96   18.96   18.96    0.00    0.00
SO BUILDHGT TO        0.00    0.00    0.00    0.00    0.00   18.96
SO BUILDHGT TO       18.96   18.96   18.96   18.96   18.96   18.96
SO BUILDHGT TO       18.96   18.96   18.96   18.96    0.00    0.00
SO BUILDHGT TO        0.00    0.00    0.00    0.00    0.00   18.96
SO BUILDWID TO      512.78  471.02    0.00    0.00    0.00    0.00
SO BUILDWID TO       88.62  285.77  339.41  382.73    0.00    0.00
SO BUILDWID TO        0.00    0.00    0.00    0.00    0.00   72.16
SO BUILDWID TO       64.66   55.19   44.04   31.56  100.16   86.21
SO BUILDWID TO       88.62  285.77  339.41  382.73    0.00    0.00
SO BUILDWID TO        0.00    0.00    0.00    0.00    0.00  538.96
```

```
'BPIP data for GA-PACIFIC PALATKA  1988 NOX BASELINE    12-16-99'
'ST'
'FEET' 0.3048
'UTMN' -34.0
12
'RB4 Precipitator' 1 0.0
4 85
     -304    552
     -304    682
     -245    682
     -245    552
'RB4 Building' 1 0.0
4 193.7
     -228    569
     -228    659
     -124    659
     -124    569
'Power House' 1 0.0
4 107.6
     -83     533
     -83     625
      9      625
      9      533
'Pulp Dryer 3' 1 0.0
4 84.5
        496     -158
        496      105
        643      105
        643     -158
'Pulp Dryer 5' 1 0.0
4 70.5
        696     -158
        696      148
        791      148
        791     -158
'Pulp Dryer 4' 1 0.0
4 73
        791     -158
        791       84
        918       84
        918     -158
'Warehouse complex 1' 1 0.0
4 62.67
        485     -580
        485     -169
        1867    -169
        1867    -580
'Warehouse Complex 2' 1 0.0
4 46.8
        675     -950
        675     -580
        1527    -580
        1527    -950
'#1 & #2 Machines, Storage' 1 0.0
4 71.16
        211      327
        211      739
        443      739
        443      327
'Kraft Converting & Storage' 1 0.0
4 60.75
        211      739
        211     1255
        475     1255
        475      739
'Kraft Warehouse & Multiwall' 1 0.0
6 56.7
        559      886
        559     1393
        833     1393
        833     1118
        717     1118
        717      886
'Digester' 1 0.0
4 62.2
        211       95
        211      127
```

```
        475       127
        475        95
7
'RB4    '   0.0  230  -354.54     601.00
'SDT4   '   0.0  206  -161.73     609.67
'LK4    '   0.0  131  -123.00    -302.50
'PB4    '   0.0  200    23.55     508.82
'PB5    '   0.0  232   -90.71     459.23
'CB4    '   0.0  237   -69.36     456.90
'BLEACH'    0.0  118   557.09     183.92
0
```

BPIP (Dated: 95086)

DATE : 12/16/99
TIME : 11:03:22
BPIP data for GA-PACIFIC PALATKA 1988 NOX BASELINE 12-16-99

============================
BPIP PROCESSING INFORMATION:
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The ST flag has been set for processing for an ISCST2 run.

Inputs entered in FEET will be converted to meters using a conversion factor of 0.3048. Output will be in meters.

UTMP is set to UTMN. The input is assumed to be in a local X-Y coordinate system as opposed to a UTM coordinate system. True North is in the positive Y direction.

Plant north is set to -34.00 degrees with respect to True North.

BPIP data for GA-PACIFIC PALATKA 1988 NOX BASELINE 12-16-99

PRELIMINARY* GEP STACK HEIGHT RESULTS TABLE
(Output Units: meters)

| Stack Name | Stack Height | Stack-Building Base Elevation Differences | GEP** EQN1 | Preliminary* GEP Stack Height Value |
|---|---|---|---|---|
| RB4 | 70.10 | 0.00 | 116.20 | 116.20 |
| SDT4 | 62.79 | 0.00 | 121.92 | 121.92 |
| LK4 | 39.93 | N/A | 0.00 | 65.00 |
| PB4 | 60.96 | 0.00 | 121.79 | 121.79 |
| PB5 | 70.71 | 0.00 | 121.92 | 121.92 |
| CB4 | 72.24 | 0.00 | 121.92 | 121.92 |
| BLEACH | 35.97 | 0.00 | 64.39 | 65.00 |

* Results are based on Determinants 1 & 2 on pages 1 & 2 of the GEP Technical Support Document. Determinant 3 may be investigated for additional stack height credit. Final values result after Determinant 3 has been taken into consideration.

** Results were derived from Equation 1 on page 6 of GEP Technical Support Document. Values have been adjusted for any stack-building base elevation differences.

Note: Criteria for determining stack heights for modeling emission limitations for a source can be found in Table 3.1 of the GEP Technical Support Document.

BPIP (Dated: 95086)

DATE : 12/16/99
TIME : 11:03:22

BPIP data for GA-PACIFIC PALATKA 1988 NOX BASELINE 12-16-99

BPIP output is in meters

| | | | | | | |
|---|---|---|---|---|---|---|
| SO BUILDHGT RB4 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 |
| SO BUILDHGT RB4 | 59.04 | 59.04 | 59.04 | 59.04 | 25.91 | 25.91 |
| SO BUILDHGT RB4 | 25.91 | 0.00 | 0.00 | 25.91 | 25.91 | 25.91 |
| SO BUILDHGT RB4 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 |
| SO BUILDHGT RB4 | 59.04 | 59.04 | 59.04 | 59.04 | 25.91 | 25.91 |
| SO BUILDHGT RB4 | 25.91 | 0.00 | 0.00 | 25.91 | 25.91 | 25.91 |
| SO BUILDWID RB4 | 38.11 | 38.11 | 38.11 | 35.11 | 30.60 | 29.58 |
| SO BUILDWID RB4 | 34.29 | 37.95 | 38.11 | 38.11 | 37.84 | 33.53 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SO BUILDWID RB4 | 28.21 | 0.00 | 0.00 | 27.03 | 32.55 | 37.07 |
| SO BUILDWID RB4 | 38.11 | 38.11 | 38.11 | 35.11 | 30.60 | 29.58 |
| SO BUILDWID RB4 | 34.29 | 37.95 | 38.11 | 38.11 | 37.84 | 33.53 |
| SO BUILDWID RB4 | 28.21 | 0.00 | 0.00 | 27.03 | 32.55 | 37.07 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SO BUILDHGT SDT4 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 |
| SO BUILDHGT SDT4 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 |
| SO BUILDHGT SDT4 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 |
| SO BUILDHGT SDT4 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 |
| SO BUILDHGT SDT4 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 |
| SO BUILDHGT SDT4 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 |
| SO BUILDWID SDT4 | 41.86 | 40.83 | 38.55 | 35.11 | 30.60 | 29.58 |
| SO BUILDWID SDT4 | 34.29 | 37.95 | 40.47 | 41.75 | 41.77 | 40.52 |
| SO BUILDWID SDT4 | 38.03 | 34.39 | 33.54 | 37.39 | 40.12 | 41.62 |
| SO BUILDWID SDT4 | 41.86 | 40.83 | 38.55 | 35.11 | 30.60 | 29.58 |
| SO BUILDWID SDT4 | 34.29 | 37.95 | 40.47 | 41.75 | 41.77 | 40.52 |
| SO BUILDWID SDT4 | 38.03 | 34.39 | 33.54 | 37.39 | 40.12 | 41.62 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SO BUILDHGT LK4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SO BUILDHGT LK4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SO BUILDHGT LK4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SO BUILDHGT LK4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SO BUILDHGT LK4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SO BUILDHGT LK4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SO BUILDWID LK4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SO BUILDWID LK4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SO BUILDWID LK4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SO BUILDWID LK4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SO BUILDWID LK4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| SO BUILDWID LK4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SO BUILDHGT PB4 | 32.80 | 32.80 | 32.80 | 32.80 | 32.80 | 59.04 |
| SO BUILDHGT PB4 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 | 32.80 |
| SO BUILDHGT PB4 | 32.80 | 32.80 | 32.80 | 32.80 | 32.80 | 32.80 |
| SO BUILDHGT PB4 | 32.80 | 32.80 | 32.80 | 32.80 | 32.80 | 59.04 |
| SO BUILDHGT PB4 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 | 32.80 |
| SO BUILDHGT PB4 | 32.80 | 32.80 | 32.80 | 32.80 | 32.80 | 32.80 |
| SO BUILDWID PB4 | 39.65 | 39.17 | 37.50 | 34.68 | 45.75 | 29.58 |
| SO BUILDWID PB4 | 34.29 | 37.95 | 40.47 | 41.75 | 41.77 | 37.50 |
| SO BUILDWID PB4 | 34.68 | 73.63 | 74.74 | 33.99 | 37.02 | 38.93 |
| SO BUILDWID PB4 | 39.65 | 39.17 | 37.50 | 34.68 | 45.75 | 29.58 |
| SO BUILDWID PB4 | 34.29 | 37.95 | 40.47 | 41.75 | 41.77 | 37.50 |
| SO BUILDWID PB4 | 34.68 | 73.63 | 74.74 | 33.99 | 37.02 | 38.93 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SO BUILDHGT PB5 | 32.80 | 32.80 | 32.80 | 32.80 | 0.00 | 0.00 |
| SO BUILDHGT PB5 | 25.91 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 |
| SO BUILDHGT PB5 | 59.04 | 59.04 | 59.04 | 59.04 | 32.80 | 32.80 |
| SO BUILDHGT PB5 | 32.80 | 32.80 | 32.80 | 32.80 | 21.69 | 21.69 |
| SO BUILDHGT PB5 | 25.91 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 |
| SO BUILDHGT PB5 | 59.04 | 59.04 | 59.04 | 59.04 | 32.80 | 32.80 |
| SO BUILDWID PB5 | 39.65 | 39.17 | 37.50 | 34.68 | 0.00 | 0.00 |
| SO BUILDWID PB5 | 42.80 | 37.95 | 40.47 | 41.75 | 41.77 | 40.52 |
| SO BUILDWID PB5 | 38.03 | 34.39 | 33.54 | 37.39 | 37.02 | 38.93 |
| SO BUILDWID PB5 | 39.65 | 39.17 | 37.50 | 34.68 | 132.28 | 130.20 |
| SO BUILDWID PB5 | 44.92 | 37.95 | 40.47 | 41.75 | 41.77 | 40.52 |
| SO BUILDWID PB5 | 38.03 | 34.39 | 33.54 | 37.39 | 37.02 | 38.93 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SO BUILDHGT CB4 | 32.80 | 32.80 | 32.80 | 32.80 | 0.00 | 0.00 |
| SO BUILDHGT CB4 | 25.91 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 |
| SO BUILDHGT CB4 | 59.04 | 59.04 | 32.80 | 32.80 | 32.80 | 32.80 |
| SO BUILDHGT CB4 | 32.80 | 32.80 | 32.80 | 32.80 | 21.69 | 21.69 |
| SO BUILDHGT CB4 | 25.91 | 59.04 | 59.04 | 59.04 | 59.04 | 59.04 |
| SO BUILDHGT CB4 | 59.04 | 59.04 | 32.80 | 32.80 | 32.80 | 32.80 |
| SO BUILDWID CB4 | 39.65 | 39.17 | 37.50 | 34.68 | 0.00 | 0.00 |
| SO BUILDWID CB4 | 42.80 | 37.95 | 40.47 | 41.75 | 41.77 | 40.52 |
| SO BUILDWID CB4 | 38.03 | 34.39 | 74.74 | 33.99 | 37.02 | 38.93 |
| SO BUILDWID CB4 | 39.65 | 39.17 | 37.50 | 34.68 | 132.28 | 130.20 |
| SO BUILDWID CB4 | 44.92 | 37.95 | 40.47 | 41.75 | 41.77 | 40.52 |
| SO BUILDWID CB4 | 38.03 | 34.39 | 74.74 | 33.99 | 37.02 | 38.93 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SO BUILDHGT BLEACH | 25.76 | 25.76 | 18.96 | 18.96 | 18.96 | 21.49 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SO BUILDHGT BLEACH | 21.49 | 25.76 | 25.76 | 25.76 | 25.76 | 25.76 |
| SO BUILDHGT BLEACH | 25.76 | 25.76 | 25.76 | 25.76 | 25.76 | 25.76 |
| SO BUILDHGT BLEACH | 25.76 | 25.76 | 18.96 | 18.96 | 18.96 | 21.49 |
| SO BUILDHGT BLEACH | 22.25 | 25.76 | 25.76 | 25.76 | 25.76 | 25.76 |
| SO BUILDHGT BLEACH | 25.76 | 25.76 | 25.76 | 25.76 | 25.76 | 25.76 |
| SO BUILDWID BLEACH | 87.92 | 91.19 | 44.04 | 31.56 | 100.16 | 99.31 |
| SO BUILDWID BLEACH | 112.25 | 91.46 | 91.51 | 88.79 | 83.37 | 75.41 |
| SO BUILDWID BLEACH | 65.17 | 52.94 | 50.29 | 62.87 | 73.54 | 81.97 |
| SO BUILDWID BLEACH | 87.92 | 91.19 | 44.04 | 31.56 | 100.16 | 95.06 |
| SO BUILDWID BLEACH | 80.94 | 91.46 | 91.51 | 88.79 | 83.37 | 75.41 |
| SO BUILDWID BLEACH | 65.17 | 52.94 | 50.29 | 62.87 | 73.54 | 81.97 |