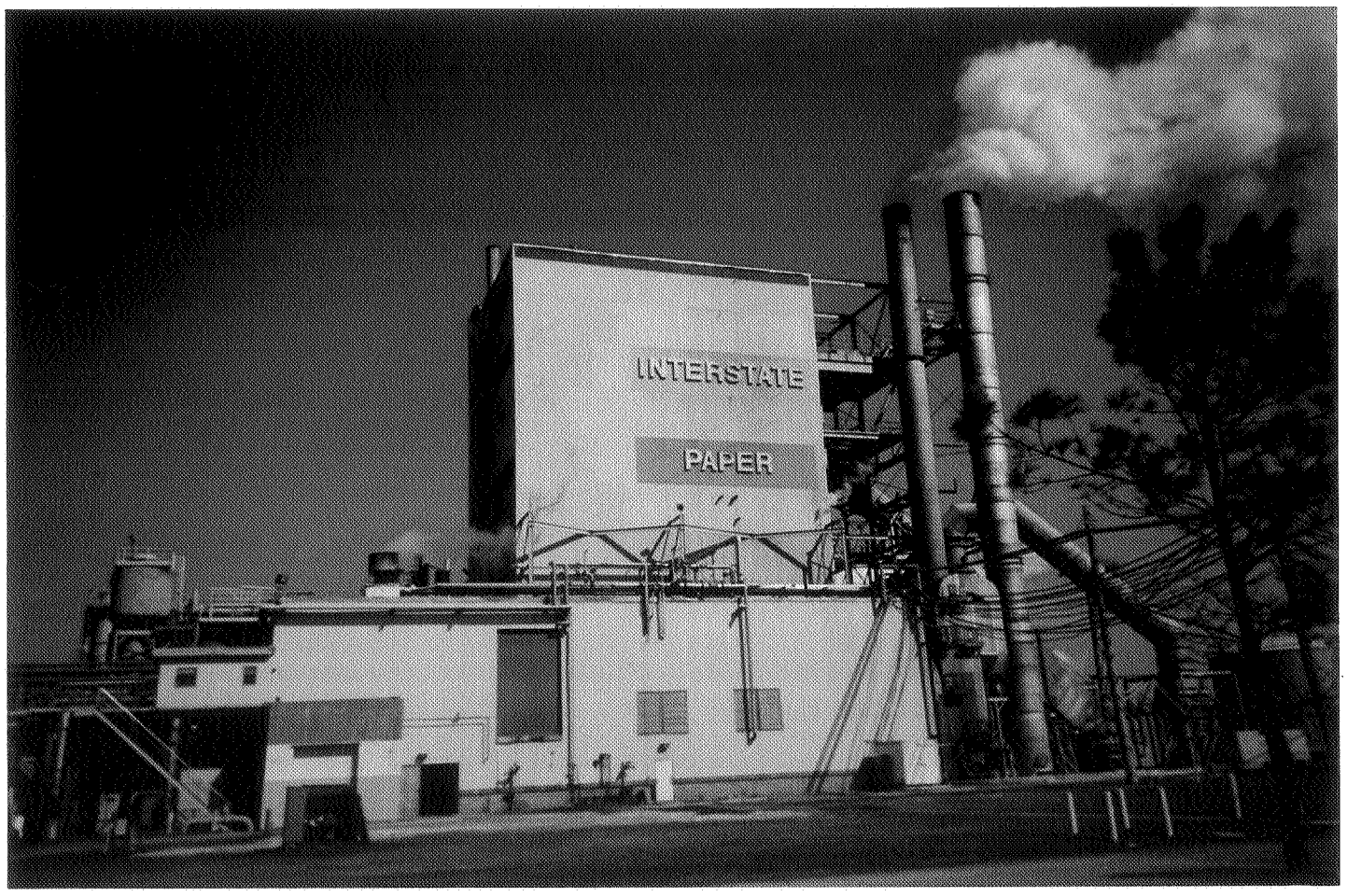
MODELING PROTOCOL FOR ANALYSES OF BEST AVAILABLE RETROFIT TECHNOLOGY

Interstate Paper, LLC
Riceboro, Georgia
April 2006

INTERSTATE PAPER, LLC



Prepared for:
INTERSTATE PAPER, LLC
Prepared by:
ENVIRONMENTAL PLANNING SPECIALISTS, INC. AND
ZEPHYR ENVIRONMENTAL CORPORATION

Environmental Planning Specialists, Inc.

Environmental Consultants

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1.0 INTRODUCTION

On February 18, 2005, the Georgia Environmental Protection Division (EPD) notified Interstate Paper LLC (Interstate Paper) that, after using the most recent Best Available Retrofit Technology (BART) guidelines, two of its sources were BART-eligible. Specifically, the EPD cited a power boiler and a recovery boiler.

Subsequently, on March 9, 2006, the EPD notified Interstate Paper via an email that it was eligible for BART exemption modeling assistance from the Visibility Improvement State and Tribal Association of the Southeast (VISTAS). Specifically, VISTAS will conduct initial modeling using CALPUFF to determine Interstate Paper's contribution to visibility degradation at nearby Class I areas; if Interstate Paper's contribution is found to be less than 0.5 deciviews (dV) then it would be exempt from further BART requirements. On the other hand, if its contribution is found to be greater than 0.5 dV then it would have to either continue with an additional, more refined analysis, or proceed with a determination of BART for its facility.

Also in that March 9, 2006 email the EPD stipulated that if a source wishes to pursue the exemption modeling assistance offered by VISTAS it would need to submit a Modeling Protocol to the EPD by May 1, 2006. Interstate Paper has retained Environmental Planning Specialists, Inc. (EPS) and Zephyr Environmental Corporation (Zephyr) to develop the Modeling Protocol.

This document presents the Modeling Protocol, which was based upon guidance contained in VISTAS' "Protocol for the Application of the CALPUFF Model for Analyses of Best Available Retrofit Technology (BART)" (December 22, 2005 and revised March 9, 2006), referred to as "VISTAS Guidance." Specifically, this Modeling Protocol presents a brief overview of BART, a description of Interstate Paper's facility, what information will be provided by VISTAS, the modeling methodology, an overview of the modeling system, and a summary of the format of the results.

2.0 BACKGROUND

The following sections present background information for this Modeling Protocol including an overview of BART requirements and details pertaining to Interstate Paper's BART eligibility determination.

2.1 BART OVERVIEW

Published in the Federal Register on July 1, 1999, the U.S. Environmental Protection Agency's (EPA's) Regional Haze regulations were established to assist in reaching the goal of preventing "...any future, and the remedying of any existing, impairment of visibility in Class I areas which impairment results from manmade air pollution" as stipulated by Section 169A of the Clean Air Act. In particular, the Regional Haze Rule mandated that States establish goals and develop strategies to improve visibility in all 156 Class I areas throughout the country.

State, local, and tribal agencies throughout the southeastern United States formed VISTAS to address regional haze and visibility issues throughout its region, which includes Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. VISTAS recognizes that air quality issues that affect Class I areas are regional in nature, and are best addressed by cooperation between stakeholders. However, it is important to note that VISTAS does not set binding policy for the regulatory agencies within its boundaries (such as the EPD), but rather it provides information and assistance to those agencies.

One of the key components of EPA's visibility regulations is Best Available Retrofit Technology (BART). A source is subject to BART (BART-eligible) if it meets the following three criteria:

1) It has emissions of at least 250 tpy of a visibility-impairing pollutant (defined by VISTAS as particulate matter less than ten microns (PM_{10}), sulfur dioxide (SO_2), and oxides of nitrogen (NO_x). VISTAS has determined that volatile organic compounds (VOC's), ammonia (NH_3), and particulate matter (PM) are not visibility-impairing pollutants;
2) It began operation between August 7, 1962 and August 7, 1977; and
3) It is one of the 26 listed source categories listed in the BART Regional Haze regulations (see Appendix A).

If a source meets all three of these criteria, then it has to proceed with a BART determination. Like Best Available Control Technology (BACT), BART is an emissions limitation—not a particular control technology.

The process of determining a source's BART emissions limitation consists of three sequential steps:

1) Determine whether or not a BART-eligible source can be excluded from BART controls by demonstrating the source cannot reasonably be expected to cause or contribute to visibility impairment in a Class I area. This is typically accomplished through the use of an air quality dispersion model such as CALPUFF.

2) If the BART-eligible source cannot be excluded based on dispersion modeling, determine the BART controls by considering various control options and selecting the most appropriate option based on a variety of criteria.

3) Incorporate the BART determination into the applicable State Implementation Plan for Regional Haze, due by December 2007.

2.2 INTERSTATE PAPER'S BART ELIGIBILITY

On February 18, 2005, the EPD sent Interstate Paper a letter addressing BART eligibility for emission units at its facility. Attached to this letter was a spreadsheet addressing four sources: a lime kiln, a power boiler, a recovery boiler, and a bubbling fluidized bed boiler. This letter and the attachment are provided for reference in Appendix B.

The following sections present the step-by-step analysis (referred to in Section 2.1) to determine whether or not each emission unit is BART-eligible.

2.2.1 Potential emissions of visibility-impairing pollutants

The first step is to assess the potential annual emissions of visibility-impairing pollutants. A summary of this assessment, taken from the February 18, 2005 letter from EPD to Interstate Paper, is given below.

Table 2-1 Potential emissions of visibility-impairing pollutants

Emission Unit	Potential emissions (tpy)		
	NO_x	PM_{10}	SO_2
Lime Kiln	149	128	9
Power Boiler	409	0*	300
Recovery Boiler	350	0*	2
Bubbling Fluidized Bed Boiler	250	39	250
* Data from EPD not included in the February 18, 2006 letter and attachments (Appendix B)			

Because the lime kiln does not have the potential to emit more than 250 tpy of any visibility-impairing pollutant, it is not BART-eligible. However, the power boiler, recovery boiler, and bubbling fluidized bed boiler have the potential to emit more than 250 tpy of a visibility-impairing pollutant. These units meet the 250 tons-per-year potential emission criterion, and their assessment is continued in the next step.

2.2.2 Chronological determination

Both the power boiler and recovery boiler were place in operation in 1968 (between August 7, 1962 and August 7, 1977). These units meet the chronological criterion for BART eligibility.

The bubbling fluidized bed boiler was installed in 2002 (after August 7, 1977). This unit does not meet the chronological criterion, and is not BART-eligible.

2.2.3 26 source categories

Interstate Paper is a kraft pulp mill, one of the 26 named source categories listed in the Regional Haze regulations (see Appendix A). Interstate Paper meets this criterion.

In summary, considering the three steps above, the two emission units at Interstate Paper that are subject to BART are the power boiler and the recovery boiler.

3.0 FACILITY DESCRIPTION

Interstate Paper, LLC operates a kraft pulp mill that produces unbleached linerboard used in corrugated containers. Pine wood chips are purchased from outside sources and stored in a chip pile. The chips are reclaimed from the chip pile and charged to one of five batch digesters where they are cooked in white liquor (sodium hydroxide/sodium sulfide solution). When the cooking process is completed, the digester is opened and the contents are "blown" into a blow tank. The pulp is then refined, screened and washed in the three brownstock washers to remove the excess spent cooking liquor (black liquor). The black liquor is collected and processed in the recovery area. The washed pulp, referred to as stock, is removed from the washers, sent through the decker for thickening and stored in high-density stock tanks.

The stock from the tanks is mixed with internally recycled pulp and certain additives to be processed on the paper machine. The paper machine forms the pulp into a continuous web (sheet), which is drained, pressed, dried and wound into large rolls of finished linerboard.

The black liquor from the brownstock washers is reprocessed into white liquor for reuse by means of the chemical recovery cycle. The black liquor is concentrated to 45-55 percent solids in multiple effect evaporators then to 68 percent solids in the concentrator. The black liquor is then fired in the recovery boiler where organics are combusted in a reducing atmosphere, producing steam and generating molten sodium carbonate and sodium sulfides. The molten salts, called smelt, flow to the smelt dissolving tank in which weak wash from the causticizing area is mixed to create an intermediate stream called green liquor. The green liquor is processed in the causticizing area, where it is converted into white liquor by slaking with lime (calcium oxide) for reuse in the pulp digesting process.

Additional process steam is provided by a bubbling fluidized bed multi-fuel (primarily wood waste) boiler rated at 300 MMBtu/hr. A power boiler (stand-by use only) that has a maximum heat input rating of 400 MMBTU/hr and fires natural gas and No. 6 fuel oil also generates steam.

3.1 FACILITY LOCATION

Interstate Paper is located in Riceboro, Georgia. Situated in southeastern Georgia, the facility is just to the west of I-95, approximately 17 miles west of the Atlantic Ocean and roughly 30 miles southwest of Savannah. The local region is depicted in Figure 3-1.

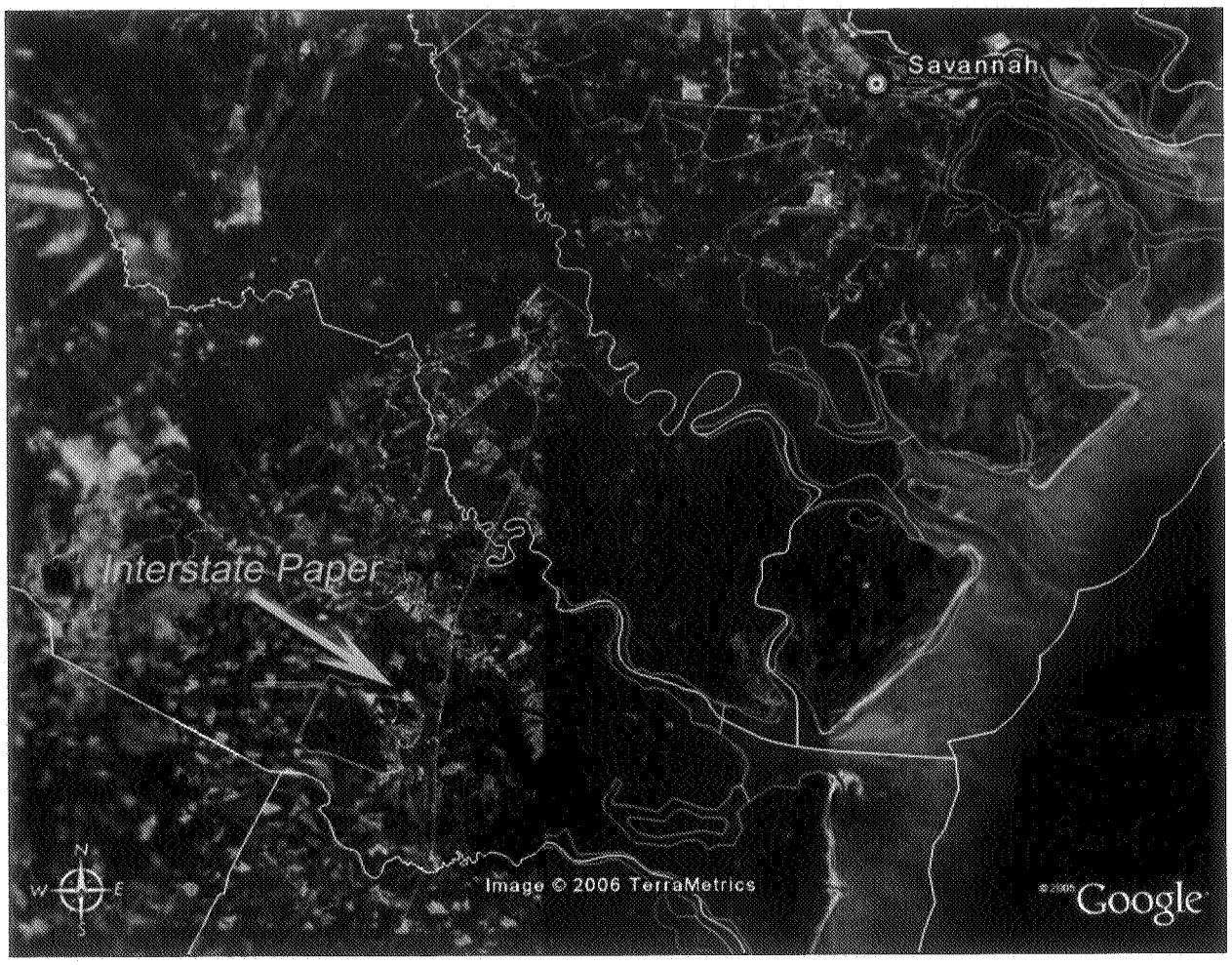


Figure 3-1. Aerial Photo of Local Region

Figure 3-2 shows a more localized view of the Interstate Paper facility.

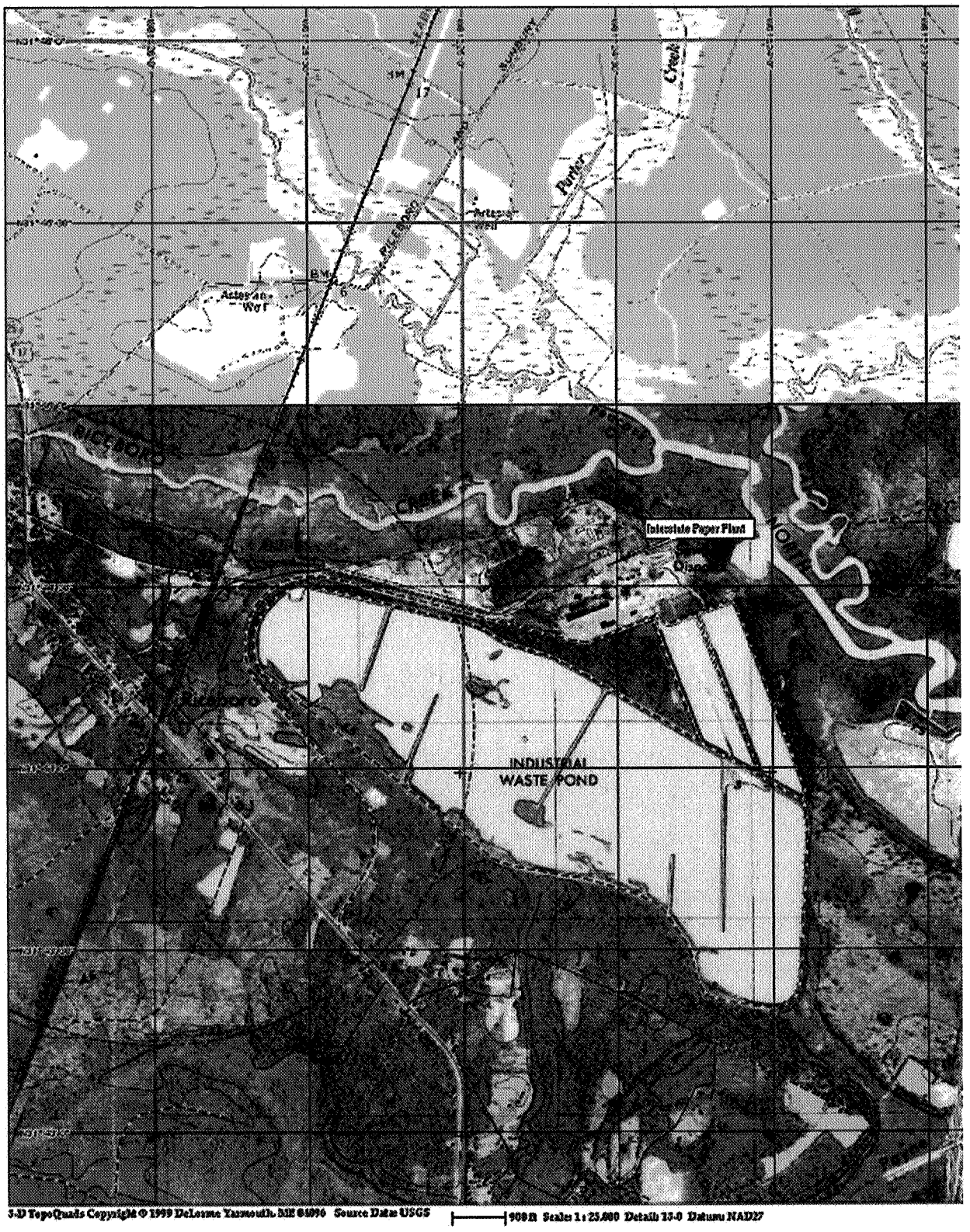


Figure 3-2 Local Topographic Map

3.2 SOURCE CHARACTERISTICS FOR BART-ELIGIBLE EMISSION UNITS

As described above, there are two emission units at Interstate Paper that are BART-eligible: the power boiler and the recovery boiler. The location of these sources is shown in Figure 3-3.

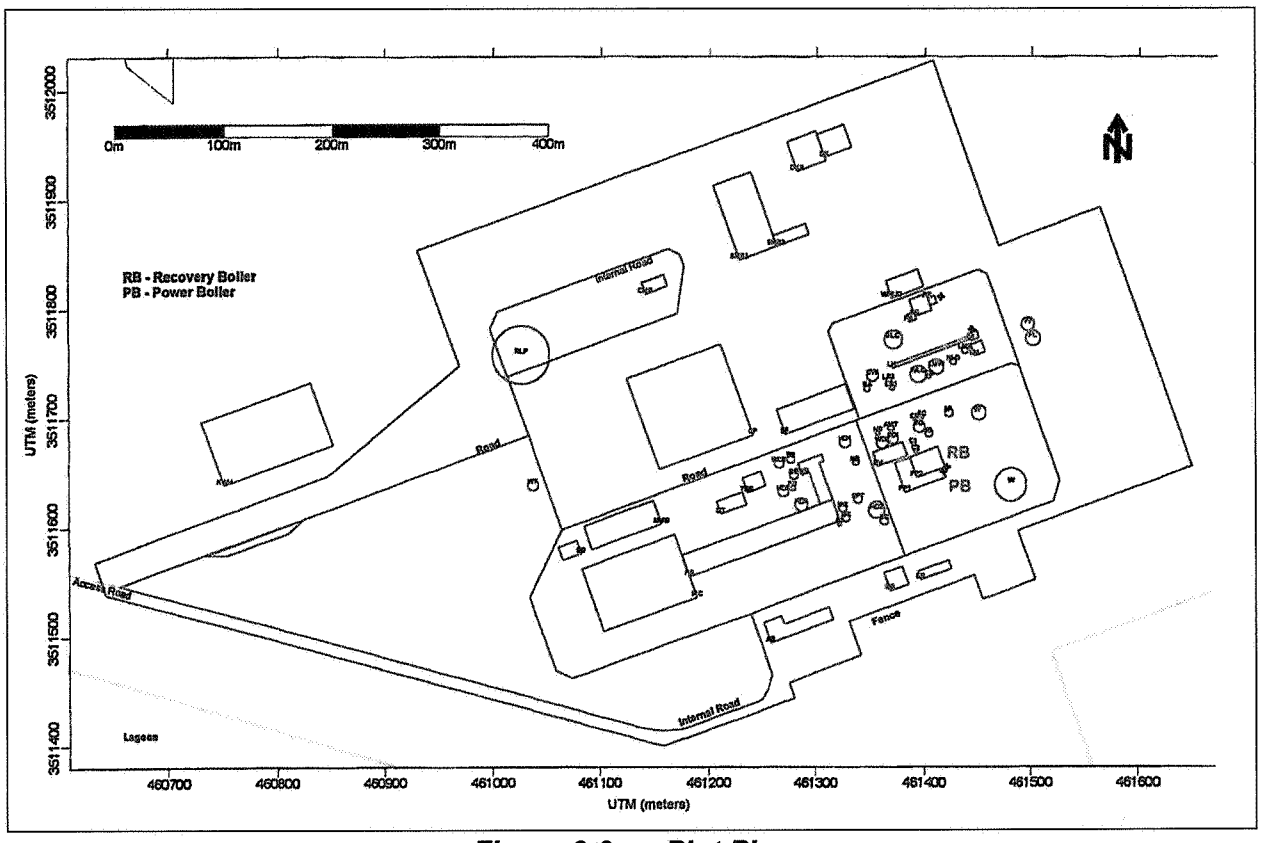


Figure 3-3 Plot Plan

For the purposes of dispersion modeling, the source characteristics, along with emission rates to be modeled, are presented in Tables 3-1 and 3-2, respectively.

Table 3-1 Source characteristics for modeling

Emission Unit	UTM Location (m)		Base Elevation (m)	Stack Height (m)	Exit Velocity (m/s)	Diameter (m)	Exit Temperature (K)
	East	North					
Power Boiler	523043	3478725	50.90	46.02	14.93	1.98	486.48
Recovery Boiler	523043	3478725	50.90	46.02	13.72	2.74	357.64

Table 3-2 Emission rates for modeling

Emission Unit	Maximum 24-hr emissions (g/s)		
	PM_{10}	SO_2	NOx
Power Boiler	2.1	49	7.8
Recovery Boiler	3.2	0.11	7.4

Power boiler emission rates were determined using actual No. 6 fuel oil usage and sulfur content for the period 2002 through 2004 (maximum values occurred in March 2003) and U.S. EPA, AP-42 emissions factors. Recovery boiler emission rates were determined using stack test data and AP-42 emission factors as follows:

- Particulate matter test results dated October 18, 2005
- Sulfur dioxide test results dated April 25, 1996 and actual black liquor solids (BLS) production rate of 32.11 tons/hr (maximum value occurred in February 2002)
- Nitrogen oxide emission factor of 2 lb/air-dried ton pulp (ADTP), February 2002 black liquor solids (BLS) production rate of 32.11 tons/hr, and a conversion factor of 2,182 lb BLS/ADTP.

3.3 CLASS I AREAS WITHIN 300 KM

There are four Class I areas within 300 km of Interstate Paper. In the order of closest to most distant from Interstate Paper, they are the Wolf Island Wilderness within the Wolf Island National Wildlife Refuge (NWR) in Georgia, the Okefenokee Wilderness within the Okefenokee NWR in Georgia, the Cape Romain Wilderness within the Cape Romain NWR in South Carolina, and the St. Marks Wilderness within the St. Marks NWR in Florida.

The location of Interstate Paper relative to each of these Class I areas is depicted in Figure 3-4.

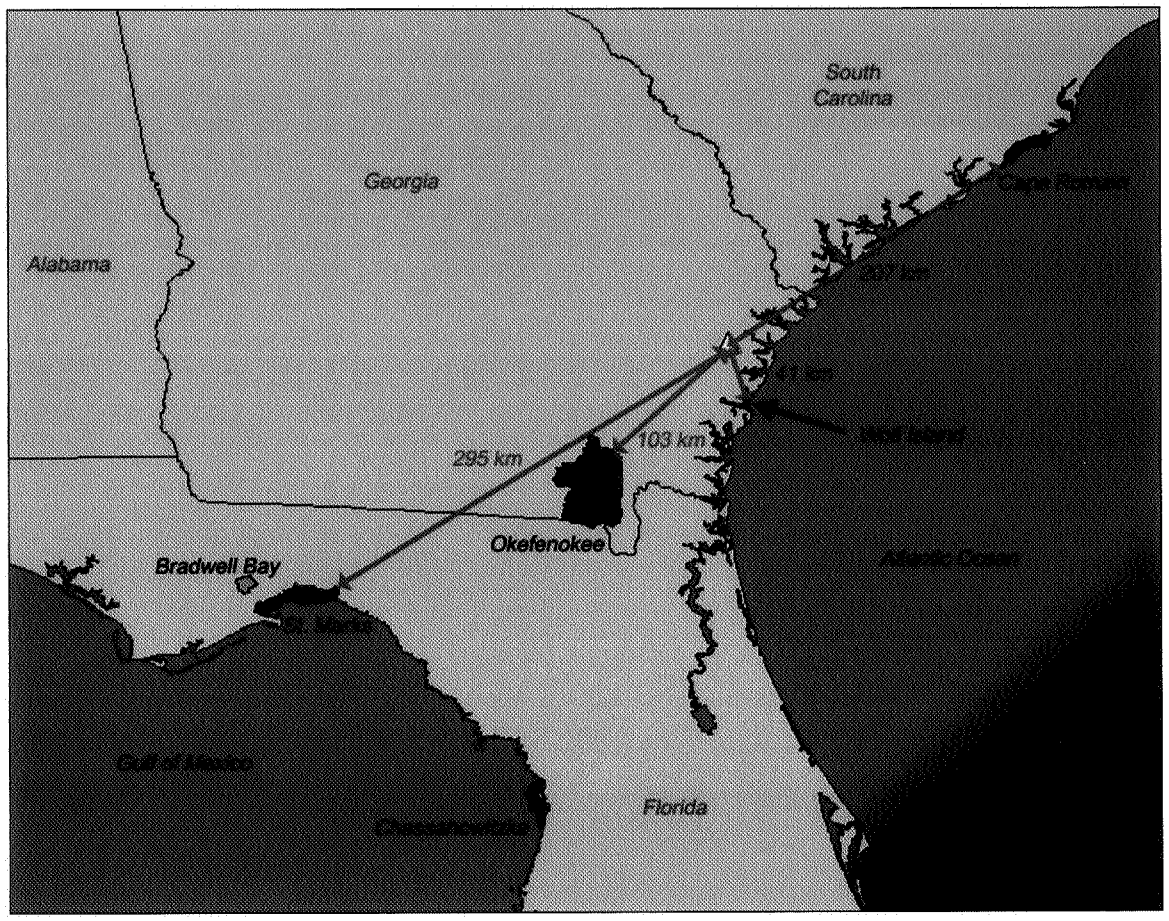


Figure 3-4 Distances from Interstate Paper to nearby Class I Areas

Note that the next two closest Class I areas are more than 300 km from Interstate Paper; the Bradwell Bay Wilderness is 334 km away, and the Chassahowitzka Wilderness within the Chassahowitzka NWR is 343 km away.

In accordance with the VISTAS Guidance, the receptors to be modeled were taken from the National Park Service (found at http://www2.nature.nps.gov/air/maps/Receptors/index.cfm). The specific receptors for the Wolf Island Wilderness, the Okefenokee Wilderness, the Cape Romain Wilderness, and the St. Marks Wilderness are presented in Appendix C.

4.0 INPUT PROVIDED BY VISTAS

In addition to the information presented in this Modeling Protocol specific to Interstate Paper and the two closest Class I areas, VISTAS will provide two specific items for this analysis:

- VISTAS-specific version of CALPUFF; and,
- CALMET meteorological data.

Earth Tech, the authors of CALPUFF, has developed a version of CALPUFF specific to VISTAS: Version 5.754. This version can be downloaded at the following website:

http://www.src.com/verio/download/download.htm#VISTAS_VERSION

VISTAS will also provide meteorological data for this analysis. Specifically, it will provide 12-km CALMET output files for 2001, 2002, and 2003. The 12-km modeling domain is presented in Figure 4-1.

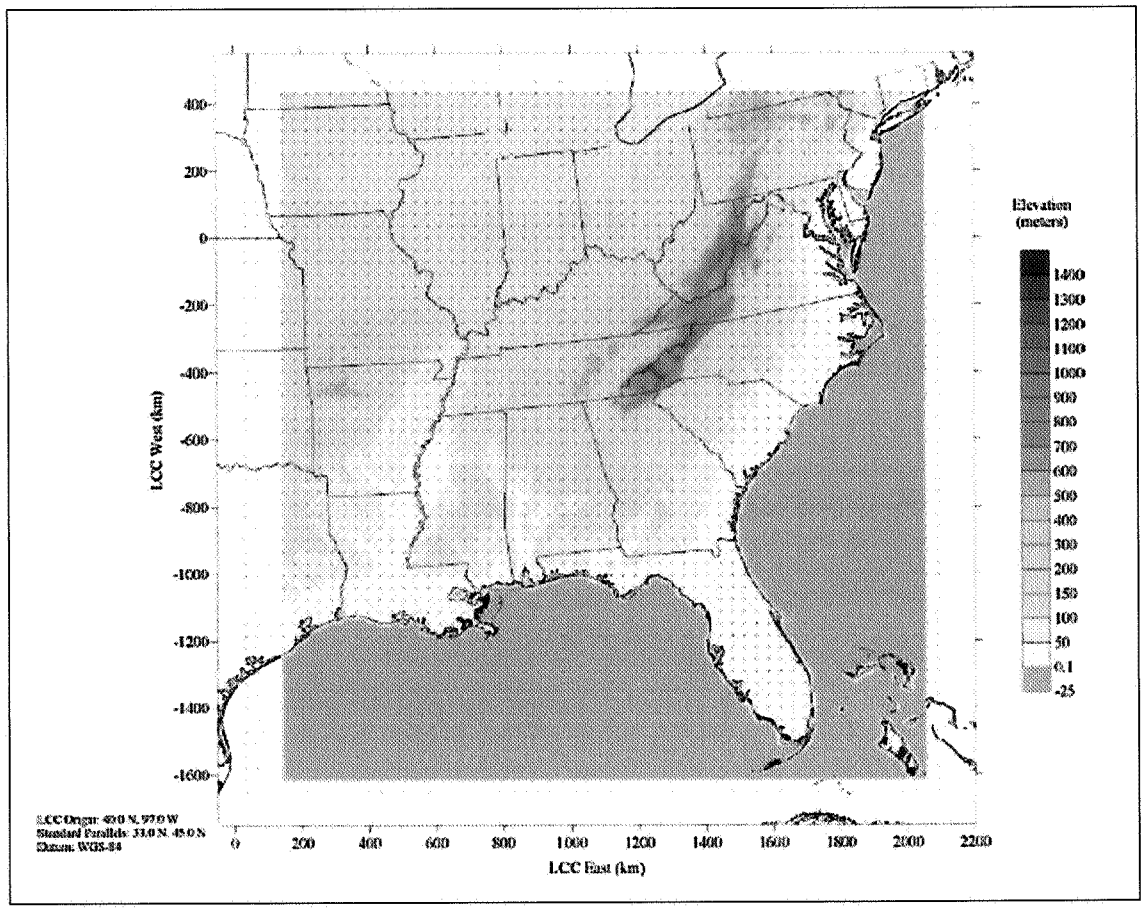


Figure 4-1 VISTAS 12-km CALMET Modeling Domain

These files were developed from MM5 databases developed by EPA for 2001, VISTAS for 2002, and Midwest RPO for 2003. Details related to the derivation of the meteorological dataset are provided in Section 4.3.2 of the VISTAS Guidance.

Finally, VISTAS will provide a CALPUFF model configuration file to replicate CALPUFF modeling done for VISTAS using 12-km CALMET data, including the following:

- Ozone data used to run CALPUFF,
- Ammonia data used to run CALPUFF and to partition NO_3 in POSTUTIL,
- Background concentration files for use in POSTUTIL, and
- All other setup files used in VISTAS 12-km CALPUFF run.

5.0 OVERVIEW OF CALPUFF MODELING SYSTEM

VISTAS has selected the CALPUFF modeling system because CALPUFF, along with its meteorological model CALMET is designed to properly account for complex terrain (i.e., terrain above stack top), large pollutant transport distances, chemical transformation and deposition, and other issues related to Class I visibility assessments.

Brief descriptions of the three main components of the CALPUFF modeling system (CALMET, CALPUFF, and CALPOST) are provided below. For more detailed information, see Section 3 of the VISTAS Guidance.

5.1 CALMET

CALMET is the diagnostic meteorological model in the CALPUFF modeling system. It produces three-dimensional wind and temperature fields along with two-dimensional fields of mixing heights, surface characteristics, and other variables.

For more details concerning CALMET, see the flow diagram presented in Figure 1-2 of "A User's Guide for the CALMET Meteorological Model (Version 5)," Earth Tech, January 2000.

5.2 CALPUFF

Unlike dispersion models such as ISC3 or AERMOD, CALPUFF is a non-steady-state Lagrangian puff transport and dispersion model. CALPUFF is the standard accepted model for long-range transport (i.e., beyond 100 km), and has been adopted by EPA as a Guideline Model (68 FR 18440-18482). Moreover, it has been recommended for Class I impact assessments by the Federal Land Manger's Workgroup (FLAG) and the Interagency Workgroup on Air Quality Modeling (IWAQM).

Specifically, CALPUFF is a dispersion model that simulates releases from sources as "puffs." The puffs are transported based upon the meteorological data fields created by CALMET. The main output files from CALPUFF are hourly concentration/deposition fluxes for the specified receptors; these files are then processed using CALPOST.

For more details concerning CALPUFF, see the flow diagram presented in Figure 1-3 of "A User's Guide for the CALMET Meteorological Model (Version 5)," Earth Tech, January 2000.

5.3 CALPOST

CALPOST is the program that post-processes the output files from CALPUFF according to user specifications. In the context of visibility modeling, CALPOST computes extinction coefficients and other measures of visibility, for the user-specified averaging times and locations.

For more details concerning CALPOST, see the flow diagram presented in Figure 1-4 of "A User's Guide for the CALMET Meteorological Model (Version 5)," Earth Tech, January 2000.

5.4 POSTUTIL

POSTUTIL is another postprocessor that sums the contributions of individual sources or groups to determine total impacts. It can be used to determine the difference between two sets of predicted impacts, a procedure useful in evaluating the effectiveness of BART controls (beyond the scope of this modeling).

For more details concerning POSTUTIL, see Section 3.1.3 of the VISTAS Guidance.

6.0 PRESENTATION OF MODELING RESULTS

In accordance with the VISTAS Guidance, the results of this analysis will contain the following:

- Map of source location and Class I areas within 300 km of Interstate Paper (see Figure 3-4 of this Modeling Protocol) including Wolf Island, Okefenokee, Cape Romain, and St. Marks;
- Table with impacts at the four Class I areas within 300 km of Interstate Paper;
- Discussion of number of Class I areas with visibility impairment from Interstate Paper on 98th percentile days in each year greater than 0.5 dv (total visibility impairment minus impairment on 20% best days for natural background visibility equals delta-dv, the visibility impact attributed to Interstate Paper); and
- For the Class I area with the maximum impact, discussion of number of days below the 98th percentile that Interstate Paper's impact exceeds 0.5 dv, the number of receptors in the Class I area where the impact exceeds 0.5 dv, and the maximum impact.

A sample table for the results from this modeling is presented below.

Table 6-1 Sample table of modeling results

Class I Area	Distance (km) from mill to Class I area boundary	No. of days/receptors with impact > 0.5 dv in Class I area for 2001 run		No. of days/receptors with impact > 0.5 dv in Class I area for 2002 run		No. of days/receptors with impact > 0.5 dv in Class I area for 2003 run		No. of days/receptors with impact > 1.0 dv in Class I area for 3-yr period		Max 24-hr impact over 3-yr period
		Days	Recs.	Days	Recs.	Days	Recs.	Days	Recs.	
Wolf Island	41									
Okefenokee	103									
Cape Romain	207									
St. Marks	295									

The VISTAS Guidance (see Summary/Recommendations/III CALPUFF Application for BART, p. S-5) recommends the following procedure be followed for using these results:

1) Compare the highest single 24-hr value across all receptors in the Class I area against the threshold of 0.5 dv; if all predicted values are below 0.5 dv the source is not subject to BART.
2) If there are 24-hr values greater than 0.5 dv, the source may proceed with finer grid modeling (using a 4-km meteorological grid), or may accept that it is subject to BART and proceed directly with determining BART controls.

APPENDIX B
February 18, 2005 LETTER FROM EPD

Rec. 2-23-05

Georgia Department of Natural Resources
Environmental Protection Division • Air Protection Branch
4244 International Parkway • Suite 120 • Atlanta • Georgia 30354
404/363-7000 • Fax: 404/363-7100
Noel Holcomb, Commissioner
Carol A. Couch, Ph.D., Director

February 18, 2005

Mr. Bob Chestnutt
Environmental Engineer
Interstate Paper LLC
2366 Interstate Paper Rd
Riceboro, GA 31323

RE: BART Eligible Determination and Control Option Information

Dear Mr. Bob Chestnutt:

The Georgia Environmental Protection Division (EPD) has taken into consideration the information submitted by your facility in response EPD's September 27, 2004 letter along with the most recent Best Available Retrofit Technology (BART) guidelines in determining BART eligibility for equipment at your facility. EPD has determined that the equipment listed in Attachment A at your facility is BART eligible. Pending the final promulgation of the BART rule, you may have the option of taking a limit of 250 tons per year for the BART specific pollutant(s) on the affected BART eligible equipment. If you plan to do so, EPD requests that you notify the Division as soon as possible and be prepared to submit a permit application to this effect when the final rule is promulgated this spring.

Additional correspondence will be sent via email requesting those facilities not taking a limit to review a complete list of available control technologies provided to the States by VISTAS. EPD is requesting that you review the control technologies and submit any comments pertaining specifically to the feasibility of these control measures at your facility.

If you have any questions or need more information please contact Elisabeth Munsey at (404) 363-7103 or via e-mail at elisabeth_munsey@dnr.state.ga.us.

Thank you for your timely assistance.

Sincerely,

James P. Johnston, P.E.
Program Manager
Planning and Support Program

cc Heather Abrams,
Program Manager, SSPP

ATTACHMENT A

POTENTIAL BAWT SOURCES LOCATED IN GEORGIA

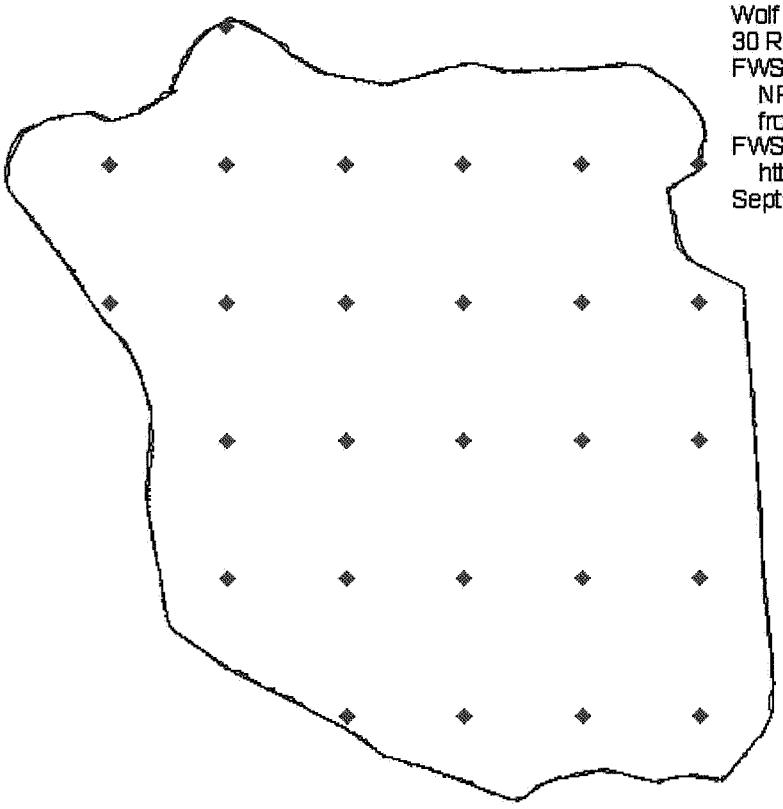
STATIONARY SOURCE NAME/LOCATION	COUNTY NAME OR FIPS COUNTY CODE	STATIONARY SOURCE ID (1)	D-DIST. NO.	EMISSION UNIT ID (2)	EMISSION UNIT DESCRIPTION	PROCESS CODE (3)	SCC CODE	EMISSION PROCESS DESCRIPTION	MAX. HEAT INPUT RATE, FUEL-FIRED BOILERS (MMBtu/hr)	CATEGORY CODE (4)	COLLUTANTS TONS PER YEAR FOR CY2001 (1 TONS) NOX POTENTIAL	NOX ACTUAL	PM10 POTENTIAL	PM10 ACTUAL	SO2 POTENTIAL	SO2 ACTUAL	VOCs POTENTIAL	VOCs ACTUAL
Interstate Paper, LLC	179	0001	03	F4	Lime Kiln	1	30501106	Natural Gas	69.43	B	148.18	48.12	127.66	36.44	0.00	0.00	0.00	0.00
Interstate Paper, LLC	179	0001	03	F4	Lime Kiln	2	30501106	#6 Oil	35.5	B	0.00	0.00	0.00	0.00	3.55	1.05	18.86	7.64
Interstate Paper, LLC	179	0001	03	F1	Power Boiler	1	3990009	Natural Gas	400	B	380.00	173.20	0.00	0.00	0.00	0.00	0.00	0.00
Interstate Paper, LLC	179	0001	03	F1	Power Boiler	2	3990009	#6 Oil	400	B	28.41	14.20	0.00	0.00	340.91	169.58	0.00	0.00
Interstate Paper, LLC	179	0001	03	F2	Power Boiler	3	3990009	HCOs	32	B	0.00	0.00	0.00	0.00	69.00	40.00	0.00	0.00
Interstate Paper, LLC	179	0001	03	F3	Recovery Boiler	1	30703110	BLS	452	B	348.92	286.42	0.00	0.00	2.48	2.00	33.44	22.46
Interstate Paper, LLC	179	0001	03	F3	SLR Boiler	1					250.00				250.00			

ATTACHMENT A (Continued)

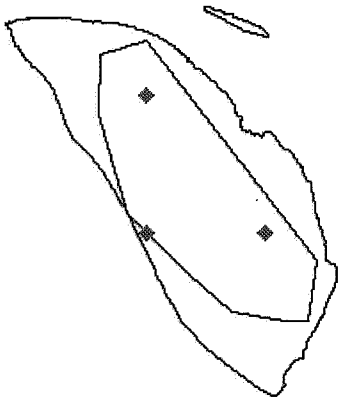
		EMISSION CONTROL DEVICE INFORMATION											DATES			LOCATION				
		NOx		PM10			SO2				VOC									
EMISSION UNIT ID (#)	EMISSION UNIT DESCRIPTION	[redacted]											IN EXISTENCE (yr/mo/dy)	BEGAN OPERATION (yr/mo/dy)	EXPECTED SHUTDOWN (yr/mo/dy)	LATITUDE (Decimal Degrees)	LONGITUDE (Decimal Degrees)	UTMX	UTMY	UTM Zone
F4	Lime Kiln				001	Wet Scrubber	98						Yes	Yes	No	31.443	81.2425	[illegible]	[illegible]	44
F4	Lime Kiln				001	Wet Scrubber	98						Yes	Yes	No	31.443	81.2425	[illegible]	[illegible]	44
F1	Power Boiler												Yes	Yes	Yes	31.443	81.2425	[illegible]	[illegible]	44
F1	Power Boiler												Yes	Yes	Yes	31.443	81.2425	[illegible]	[illegible]	44
F1	Power Boiler												Yes	Yes	Yes	31.443	81.2425	[illegible]	[illegible]	44
F1	Power Boiler												Yes	Yes	Yes	31.443	81.2425	[illegible]	[illegible]	44
F9	Recovery Boiler				001	Wet Scrubber	99.9						Yes	Yes	Yes	31.443	81.2425	[illegible]	[illegible]	44
F9	BF9 Boiler				001	Wet Scrubber	99.9						No	Yes	No	31.443	81.2425	[illegible]	[illegible]	44

APPENDIX C
WOLF ISLAND, OKEFENOKEE, CAPE ROMAIN, AND ST. MARKS RECEPTORS FROM NWS SITE

Wolf Island Wilderness within Wolf Island NWR



Wolf Island Wilderness within Wolf Island NWR
30 Receptors
FWS Wilderness Boundary Source:
NPS ARD files adjusted wilderness boundaries
from http://www.nationalatlas.gov/atlasftp.html
FWS NWR Boundary Source:
http://www.fws.gov/data/r4gis/boundary.html
September 12, 2003

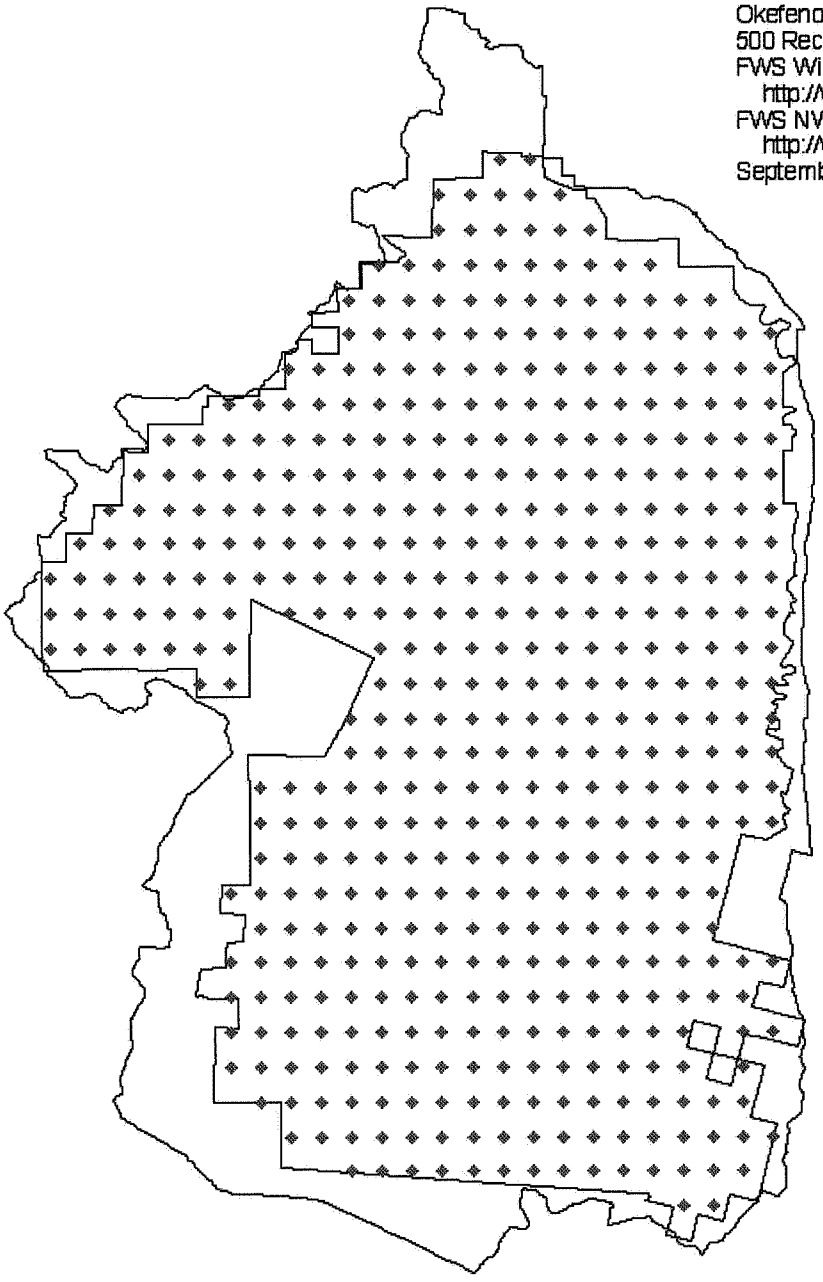


Wolf Island Receptors

(taken from http://www2.nature.nps.gov/air/maps/Receptors/index.cfm)

Longitude (degs)	Latitude (degs)	Elev (m)
-81.304167	31.304167	1
-81.295833	31.304167	1
-81.304167	31.312500	1
-81.312500	31.329167	3
-81.304167	31.329167	2
-81.295833	31.329167	1
-81.287500	31.329167	1
-81.320833	31.337500	1
-81.312500	31.337500	1
-81.304167	31.337500	1
-81.295833	31.337500	1
-81.287500	31.337500	1
-81.320833	31.345833	1
-81.312500	31.345833	1
-81.304167	31.345833	1
-81.295833	31.345833	1
-81.287500	31.345833	1
-81.329167	31.354167	1
-81.320833	31.354167	1
-81.312500	31.354167	1
-81.304167	31.354167	1
-81.295833	31.354167	1
-81.287500	31.354167	1
-81.329167	31.362500	1
-81.320833	31.362500	1
-81.312500	31.362500	1
-81.304167	31.362500	1
-81.295833	31.362500	1
-81.287500	31.362500	1
-81.320833	31.370833	1

Okefenokee Wilderness within Okefenokee NWR



Okefenokee Wilderness within Okefenokee NWR
500 Receptors
FWS Wilderness Boundary Source:
http://www.nationalatlas.gov/atlasftp.html
FWS NWR Boundary Source:
http://www.fws.gov/data/r4gis/boundary.html
September 12, 2003

Okefenokee Receptors

(taken from http://www2.nature.nps.gov/air/maps/Receptors/index.cfm)

Longitude (degs)	Latitude (degs)	Elev (m)
-82.19583333	30.5625	36
-82.17916667	30.5625	36
-82.37916667	30.57916667	27
-82.3625	30.57916667	27
-82.34583333	30.57916667	30
-82.32916667	30.57916667	36
-82.3125	30.57916667	36
-82.29583333	30.57916667	36
-82.27916667	30.57916667	37
-82.2625	30.57916667	36
-82.24583333	30.57916667	36
-82.22916667	30.57916667	36
-82.2125	30.57916667	36
-82.19583333	30.57916667	36
-82.17916667	30.57916667	36
-82.1625	30.57916667	36
-82.4125	30.59583333	27
-82.39583333	30.59583333	27
-82.37916667	30.59583333	30
-82.3625	30.59583333	27
-82.34583333	30.59583333	31
-82.32916667	30.59583333	36
-82.3125	30.59583333	36
-82.29583333	30.59583333	36
-82.27916667	30.59583333	36
-82.2625	30.59583333	36
-82.24583333	30.59583333	36
-82.22916667	30.59583333	36
-82.2125	30.59583333	36
-82.19583333	30.59583333	36
-82.17916667	30.59583333	36
-82.1625	30.59583333	36
-82.14583333	30.59583333	36
-82.42916667	30.6125	27
-82.4125	30.6125	30
-82.39583333	30.6125	31
-82.37916667	30.6125	32
-82.3625	30.6125	27
-82.34583333	30.6125	27
-82.32916667	30.6125	36
-82.3125	30.6125	36

Longitude (degs)	Latitude (degs)	Elev (m)
-82.29583333	30.6125	36
-82.27916667	30.6125	36
-82.2625	30.6125	36
-82.24583333	30.6125	36
-82.22916667	30.6125	36
-82.2125	30.6125	36
-82.19583333	30.6125	36
-82.17916667	30.6125	37
-82.1625	30.6125	36
-82.44583333	30.62916667	27
-82.42916667	30.62916667	27
-82.4125	30.62916667	27
-82.39583333	30.62916667	27
-82.37916667	30.62916667	30
-82.3625	30.62916667	34
-82.34583333	30.62916667	36
-82.32916667	30.62916667	36
-82.3125	30.62916667	36
-82.29583333	30.62916667	36
-82.27916667	30.62916667	36
-82.2625	30.62916667	36
-82.24583333	30.62916667	36
-82.22916667	30.62916667	36
-82.2125	30.62916667	36
-82.19583333	30.62916667	36
-82.1625	30.62916667	36
-82.44583333	30.64583333	33
-82.42916667	30.64583333	38
-82.4125	30.64583333	29
-82.39583333	30.64583333	32
-82.37916667	30.64583333	36
-82.3625	30.64583333	36
-82.34583333	30.64583333	36
-82.32916667	30.64583333	37
-82.3125	30.64583333	38
-82.29583333	30.64583333	37
-82.27916667	30.64583333	37
-82.2625	30.64583333	36
-82.24583333	30.64583333	36
-82.22916667	30.64583333	36
-82.2125	30.64583333	36
-82.19583333	30.64583333	36
-82.1625	30.64583333	36
-82.14583333	30.64583333	36

Longitude (degs)	Latitude (degs)	Elev (m)
-82.44583333	30.6625	38
-82.42916667	30.6625	37
-82.4125	30.6625	38
-82.39583333	30.6625	36
-82.37916667	30.6625	36
-82.3625	30.6625	36
-82.34583333	30.6625	38
-82.32916667	30.6625	38
-82.3125	30.6625	37
-82.29583333	30.6625	37
-82.27916667	30.6625	36
-82.2625	30.6625	36
-82.24583333	30.6625	36
-82.22916667	30.6625	36
-82.2125	30.6625	36
-82.19583333	30.6625	36
-82.17916667	30.6625	36
-82.1625	30.6625	36
-82.44583333	30.67916667	37
-82.42916667	30.67916667	38
-82.4125	30.67916667	38
-82.39583333	30.67916667	38
-82.37916667	30.67916667	36
-82.3625	30.67916667	36
-82.34583333	30.67916667	36
-82.32916667	30.67916667	36
-82.3125	30.67916667	36
-82.29583333	30.67916667	36
-82.27916667	30.67916667	36
-82.2625	30.67916667	36
-82.24583333	30.67916667	36
-82.22916667	30.67916667	36
-82.2125	30.67916667	36
-82.19583333	30.67916667	36
-82.17916667	30.67916667	36
-82.1625	30.67916667	36
-82.14583333	30.67916667	36
-82.42916667	30.69583333	37
-82.4125	30.69583333	36
-82.39583333	30.69583333	36
-82.37916667	30.69583333	36
-82.3625	30.69583333	36
-82.34583333	30.69583333	36
-82.32916667	30.69583333	36

Longitude (degs)	Latitude (degs)	Elev (m)
-82.3125	30.69583333	36
-82.29583333	30.69583333	36
-82.27916667	30.69583333	36
-82.2625	30.69583333	36
-82.24583333	30.69583333	36
-82.22916667	30.69583333	36
-82.2125	30.69583333	36
-82.19583333	30.69583333	36
-82.17916667	30.69583333	36
-82.44583333	30.7125	37
-82.42916667	30.7125	36
-82.4125	30.7125	36
-82.39583333	30.7125	36
-82.37916667	30.7125	36
-82.3625	30.7125	36
-82.34583333	30.7125	36
-82.32916667	30.7125	36
-82.3125	30.7125	36
-82.29583333	30.7125	36
-82.27916667	30.7125	36
-82.2625	30.7125	36
-82.24583333	30.7125	36
-82.22916667	30.7125	36
-82.2125	30.7125	36
-82.19583333	30.7125	36
-82.17916667	30.7125	36
-82.42916667	30.72916667	36
-82.4125	30.72916667	36
-82.39583333	30.72916667	36
-82.37916667	30.72916667	36
-82.3625	30.72916667	36
-82.34583333	30.72916667	36
-82.32916667	30.72916667	36
-82.3125	30.72916667	36
-82.29583333	30.72916667	36
-82.27916667	30.72916667	36
-82.2625	30.72916667	36
-82.24583333	30.72916667	36
-82.22916667	30.72916667	36
-82.2125	30.72916667	36
-82.19583333	30.72916667	36
-82.17916667	30.72916667	36
-82.42916667	30.74583333	36
-82.4125	30.74583333	36

Longitude (degs)	Latitude (degs)	Elev (m)
-82.39583333	30.74583333	36
-82.37916667	30.74583333	36
-82.3625	30.74583333	36
-82.34583333	30.74583333	36
-82.32916667	30.74583333	36
-82.3125	30.74583333	36
-82.29583333	30.74583333	36
-82.27916667	30.74583333	36
-82.2625	30.74583333	36
-82.24583333	30.74583333	36
-82.22916667	30.74583333	36
-82.2125	30.74583333	36
-82.19583333	30.74583333	36
-82.17916667	30.74583333	36
-82.1625	30.74583333	36
-82.14583333	30.74583333	36
-82.42916667	30.7625	36
-82.4125	30.7625	36
-82.39583333	30.7625	36
-82.37916667	30.7625	36
-82.3625	30.7625	36
-82.34583333	30.7625	37
-82.32916667	30.7625	37
-82.3125	30.7625	36
-82.29583333	30.7625	36
-82.27916667	30.7625	36
-82.2625	30.7625	36
-82.24583333	30.7625	36
-82.22916667	30.7625	36
-82.2125	30.7625	36
-82.19583333	30.7625	36
-82.17916667	30.7625	36
-82.1625	30.7625	36
-82.14583333	30.7625	36
-82.37916667	30.77916667	36
-82.3625	30.77916667	37
-82.34583333	30.77916667	36
-82.32916667	30.77916667	37
-82.3125	30.77916667	36
-82.29583333	30.77916667	36
-82.27916667	30.77916667	36
-82.2625	30.77916667	36
-82.24583333	30.77916667	36
-82.22916667	30.77916667	36

Longitude (degs)	Latitude (degs)	Elev (m)
-82.2125	30.77916667	36
-82.19583333	30.77916667	36
-82.17916667	30.77916667	36
-82.1625	30.77916667	36
-82.14583333	30.77916667	36
-82.37916667	30.79583333	37
-82.3625	30.79583333	36
-82.34583333	30.79583333	37
-82.32916667	30.79583333	36
-82.3125	30.79583333	36
-82.29583333	30.79583333	36
-82.27916667	30.79583333	36
-82.2625	30.79583333	36
-82.24583333	30.79583333	36
-82.22916667	30.79583333	36
-82.2125	30.79583333	36
-82.19583333	30.79583333	36
-82.17916667	30.79583333	36
-82.1625	30.79583333	36
-82.14583333	30.79583333	37
-82.4625	30.8125	32
-82.44583333	30.8125	27
-82.3625	30.8125	36
-82.34583333	30.8125	37
-82.32916667	30.8125	37
-82.3125	30.8125	36
-82.29583333	30.8125	36
-82.27916667	30.8125	36
-82.2625	30.8125	36
-82.24583333	30.8125	36
-82.22916667	30.8125	36
-82.2125	30.8125	36
-82.19583333	30.8125	36
-82.17916667	30.8125	36
-82.1625	30.8125	36
-82.14583333	30.8125	36
-82.54583333	30.82916667	36
-82.52916667	30.82916667	36
-82.5125	30.82916667	36
-82.49583333	30.82916667	36
-82.47916667	30.82916667	34
-82.4625	30.82916667	29
-82.44583333	30.82916667	30
-82.3625	30.82916667	36

Longitude (degs)	Latitude (degs)	Elev (m)
-82.34583333	30.82916667	36
-82.32916667	30.82916667	36
-82.3125	30.82916667	36
-82.29583333	30.82916667	36
-82.27916667	30.82916667	36
-82.2625	30.82916667	36
-82.24583333	30.82916667	36
-82.22916667	30.82916667	36
-82.2125	30.82916667	36
-82.19583333	30.82916667	36
-82.17916667	30.82916667	36
-82.1625	30.82916667	36
-82.14583333	30.82916667	36
-82.54583333	30.84583333	36
-82.52916667	30.84583333	36
-82.5125	30.84583333	36
-82.49583333	30.84583333	32
-82.47916667	30.84583333	30
-82.4625	30.84583333	33
-82.44583333	30.84583333	33
-82.4125	30.84583333	30
-82.39583333	30.84583333	36
-82.37916667	30.84583333	36
-82.3625	30.84583333	36
-82.34583333	30.84583333	36
-82.32916667	30.84583333	36
-82.3125	30.84583333	36
-82.29583333	30.84583333	36
-82.27916667	30.84583333	36
-82.2625	30.84583333	36
-82.24583333	30.84583333	36
-82.22916667	30.84583333	36
-82.2125	30.84583333	36
-82.19583333	30.84583333	36
-82.17916667	30.84583333	36
-82.1625	30.84583333	36
-82.14583333	30.84583333	36
-82.54583333	30.8625	36
-82.52916667	30.8625	36
-82.5125	30.8625	34
-82.49583333	30.8625	30
-82.47916667	30.8625	33
-82.4625	30.8625	33
-82.44583333	30.8625	33

Longitude (degs)	Latitude (degs)	Elev (m)
-82.42916667	30.8625	31
-82.4125	30.8625	31
-82.39583333	30.8625	36
-82.37916667	30.8625	36
-82.3625	30.8625	36
-82.34583333	30.8625	36
-82.32916667	30.8625	36
-82.3125	30.8625	36
-82.29583333	30.8625	36
-82.27916667	30.8625	36
-82.2625	30.8625	36
-82.24583333	30.8625	36
-82.22916667	30.8625	36
-82.2125	30.8625	36
-82.19583333	30.8625	36
-82.17916667	30.8625	36
-82.1625	30.8625	36
-82.14583333	30.8625	36
-82.52916667	30.87916667	36
-82.5125	30.87916667	32
-82.49583333	30.87916667	33
-82.47916667	30.87916667	35
-82.4625	30.87916667	35
-82.44583333	30.87916667	33
-82.42916667	30.87916667	31
-82.4125	30.87916667	30
-82.39583333	30.87916667	31
-82.37916667	30.87916667	36
-82.3625	30.87916667	36
-82.34583333	30.87916667	37
-82.32916667	30.87916667	36
-82.3125	30.87916667	36
-82.29583333	30.87916667	36
-82.27916667	30.87916667	36
-82.2625	30.87916667	36
-82.24583333	30.87916667	36
-82.22916667	30.87916667	36
-82.2125	30.87916667	36
-82.19583333	30.87916667	36
-82.17916667	30.87916667	36
-82.1625	30.87916667	36
-82.14583333	30.87916667	36
-82.5125	30.89583333	32
-82.49583333	30.89583333	36

Longitude (degs)	Latitude (degs)	Elev (m)
-82.47916667	30.89583333	36
-82.4625	30.89583333	36
-82.44583333	30.89583333	33
-82.42916667	30.89583333	31
-82.4125	30.89583333	32
-82.39583333	30.89583333	36
-82.37916667	30.89583333	36
-82.3625	30.89583333	36
-82.34583333	30.89583333	36
-82.32916667	30.89583333	36
-82.3125	30.89583333	36
-82.29583333	30.89583333	36
-82.27916667	30.89583333	36
-82.2625	30.89583333	36
-82.24583333	30.89583333	36
-82.22916667	30.89583333	36
-82.2125	30.89583333	36
-82.19583333	30.89583333	36
-82.17916667	30.89583333	36
-82.1625	30.89583333	36
-82.14583333	30.89583333	36
-82.49583333	30.9125	36
-82.47916667	30.9125	36
-82.4625	30.9125	36
-82.44583333	30.9125	33
-82.42916667	30.9125	29
-82.4125	30.9125	36
-82.39583333	30.9125	36
-82.37916667	30.9125	36
-82.3625	30.9125	36
-82.34583333	30.9125	36
-82.32916667	30.9125	36
-82.3125	30.9125	36
-82.29583333	30.9125	36
-82.27916667	30.9125	36
-82.2625	30.9125	36
-82.24583333	30.9125	36
-82.22916667	30.9125	36
-82.2125	30.9125	36
-82.19583333	30.9125	36
-82.17916667	30.9125	36
-82.1625	30.9125	36
-82.14583333	30.9125	36
-82.47916667	30.92916667	37

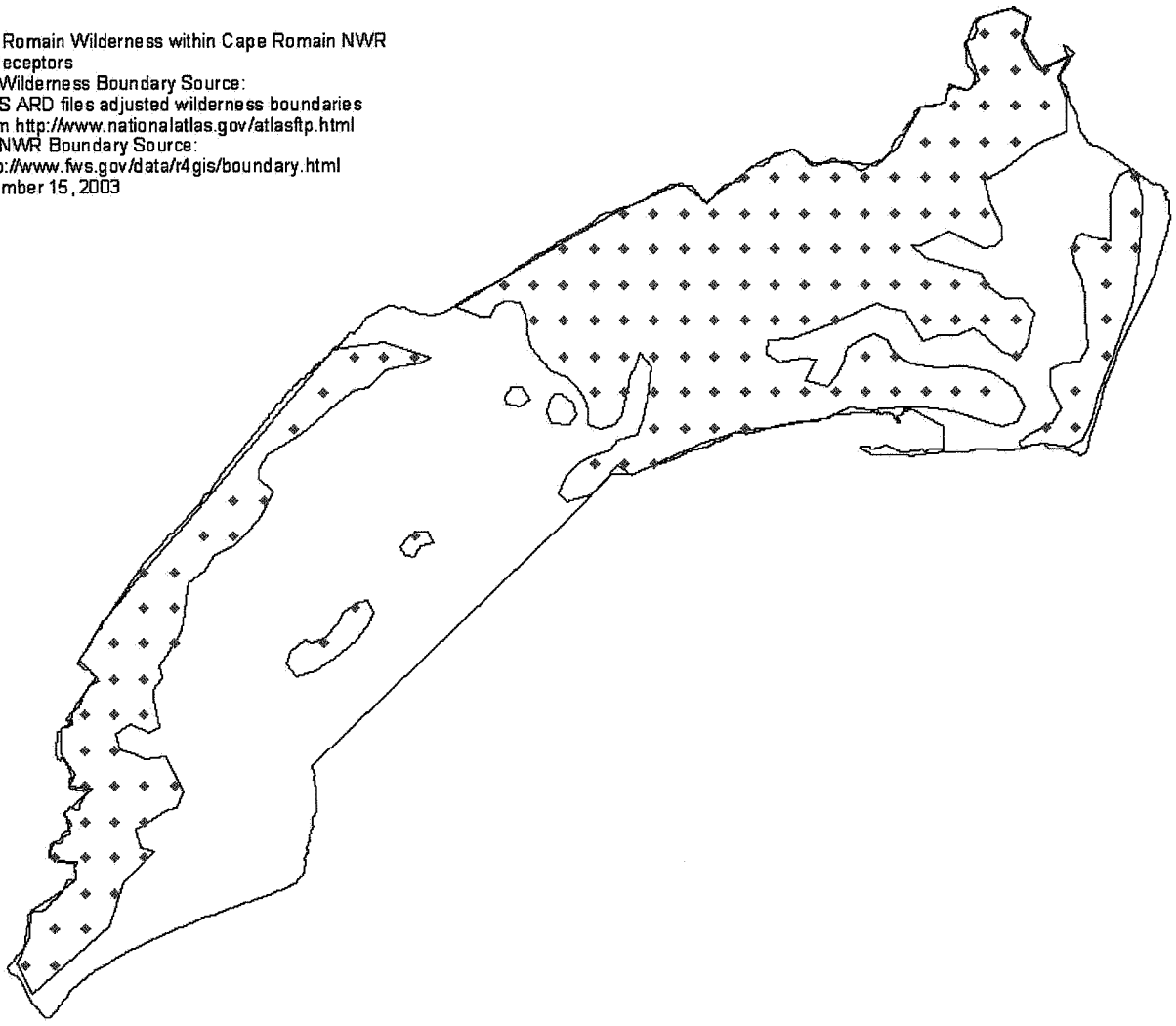
Longitude (degs)	Latitude (degs)	Elev (m)
-82.4625	30.92916667	35
-82.44583333	30.92916667	30
-82.42916667	30.92916667	36
-82.4125	30.92916667	36
-82.39583333	30.92916667	36
-82.37916667	30.92916667	36
-82.3625	30.92916667	36
-82.34583333	30.92916667	36
-82.32916667	30.92916667	36
-82.3125	30.92916667	36
-82.29583333	30.92916667	36
-82.27916667	30.92916667	36
-82.2625	30.92916667	36
-82.24583333	30.92916667	36
-82.22916667	30.92916667	36
-82.2125	30.92916667	36
-82.19583333	30.92916667	36
-82.17916667	30.92916667	36
-82.1625	30.92916667	36
-82.14583333	30.92916667	36
-82.44583333	30.94583333	36
-82.42916667	30.94583333	36
-82.4125	30.94583333	36
-82.39583333	30.94583333	36
-82.37916667	30.94583333	36
-82.3625	30.94583333	36
-82.34583333	30.94583333	36
-82.32916667	30.94583333	36
-82.3125	30.94583333	36
-82.29583333	30.94583333	36
-82.27916667	30.94583333	36
-82.2625	30.94583333	36
-82.24583333	30.94583333	36
-82.22916667	30.94583333	36
-82.2125	30.94583333	36
-82.19583333	30.94583333	36
-82.17916667	30.94583333	36
-82.1625	30.94583333	36
-82.14583333	30.94583333	36
-82.4125	30.9625	41
-82.39583333	30.9625	37
-82.37916667	30.9625	36
-82.3625	30.9625	36
-82.34583333	30.9625	36

Longitude (degs)	Latitude (degs)	Elev (m)
-82.32916667	30.9625	36
-82.3125	30.9625	36
-82.29583333	30.9625	36
-82.27916667	30.9625	36
-82.2625	30.9625	36
-82.24583333	30.9625	36
-82.22916667	30.9625	36
-82.2125	30.9625	36
-82.19583333	30.9625	36
-82.17916667	30.9625	36
-82.1625	30.9625	36
-82.14583333	30.9625	36
-82.37916667	30.97916667	36
-82.3625	30.97916667	36
-82.34583333	30.97916667	36
-82.32916667	30.97916667	36
-82.3125	30.97916667	36
-82.29583333	30.97916667	36
-82.27916667	30.97916667	36
-82.2625	30.97916667	36
-82.24583333	30.97916667	36
-82.22916667	30.97916667	36
-82.2125	30.97916667	36
-82.19583333	30.97916667	36
-82.17916667	30.97916667	36
-82.1625	30.97916667	36
-82.14583333	30.97916667	37
-82.37916667	30.99583333	37
-82.3625	30.99583333	36
-82.34583333	30.99583333	36
-82.32916667	30.99583333	36
-82.3125	30.99583333	36
-82.29583333	30.99583333	36
-82.27916667	30.99583333	36
-82.2625	30.99583333	36
-82.24583333	30.99583333	36
-82.22916667	30.99583333	36
-82.2125	30.99583333	36
-82.19583333	30.99583333	36
-82.17916667	30.99583333	36
-82.3625	31.0125	37
-82.34583333	31.0125	37
-82.32916667	31.0125	37
-82.3125	31.0125	37

Longitude (degs)	Latitude (degs)	Elev (m)
-82.29583333	31.0125	37
-82.27916667	31.0125	37
-82.2625	31.0125	37
-82.24583333	31.0125	37
-82.22916667	31.0125	37
-82.2125	31.0125	37
-82.32916667	31.02916667	37
-82.3125	31.02916667	37
-82.29583333	31.02916667	37
-82.27916667	31.02916667	37
-82.2625	31.02916667	37
-82.24583333	31.02916667	37
-82.32916667	31.04583333	37
-82.3125	31.04583333	37
-82.29583333	31.04583333	37
-82.27916667	31.04583333	37
-82.2625	31.04583333	37
-82.29583333	31.0625	37
-82.27916667	31.0625	37

Cape Romain Wilderness within Cape Romain NWR

Cape Romain Wilderness within Cape Romain NWR
164 Receptors
FWS Wilderness Boundary Source:
NPS ARD files adjusted wilderness boundaries
from http://www.nationalatlas.gov/atlasftp.html
FWS NWR Boundary Source:
http://www.fws.gov/data/r4gis/boundary.html
September 15, 2003



Cape Romain Receptors

(taken from http://www2.nature.nps.gov/air/maps/Receptors/index.cfm)

Longitude (degs)	Latitude (degs)	Elev (m)
-79.65416666	32.8875	0
-79.64583333	32.8875	1
-79.64583333	32.89583333	1
-79.6375	32.89583333	1
-79.6375	32.90416667	1
-79.62916666	32.90416667	1
-79.64583333	32.9125	1
-79.6375	32.9125	1
-79.62916666	32.9125	1
-79.62083333	32.9125	1
-79.6375	32.92083333	1
-79.62916666	32.92083333	1
-79.62083333	32.92083333	1
-79.6375	32.92916667	0
-79.62916666	32.92916667	1
-79.62083333	32.92916667	1
-79.6125	32.92916667	1
-79.6375	32.9375	1
-79.62916666	32.9375	1
-79.6375	32.94583333	1
-79.62916666	32.94583333	1
-79.62083333	32.94583333	1
-79.62916666	32.95416667	1
-79.62083333	32.95416667	1
-79.62916666	32.9625	1
-79.62083333	32.9625	2
-79.6125	32.9625	1
-79.57083333	32.9625	0
-79.62083333	32.97083333	1
-79.6125	32.97083333	1
-79.5625	32.97083333	0
-79.62083333	32.97916667	1
-79.6125	32.97916667	1
-79.60416666	32.9875	1
-79.59583333	32.9875	1
-79.54583333	32.9875	0
-79.59583333	32.99583333	1
-79.5875	32.99583333	1
-79.49583333	33.00416667	0

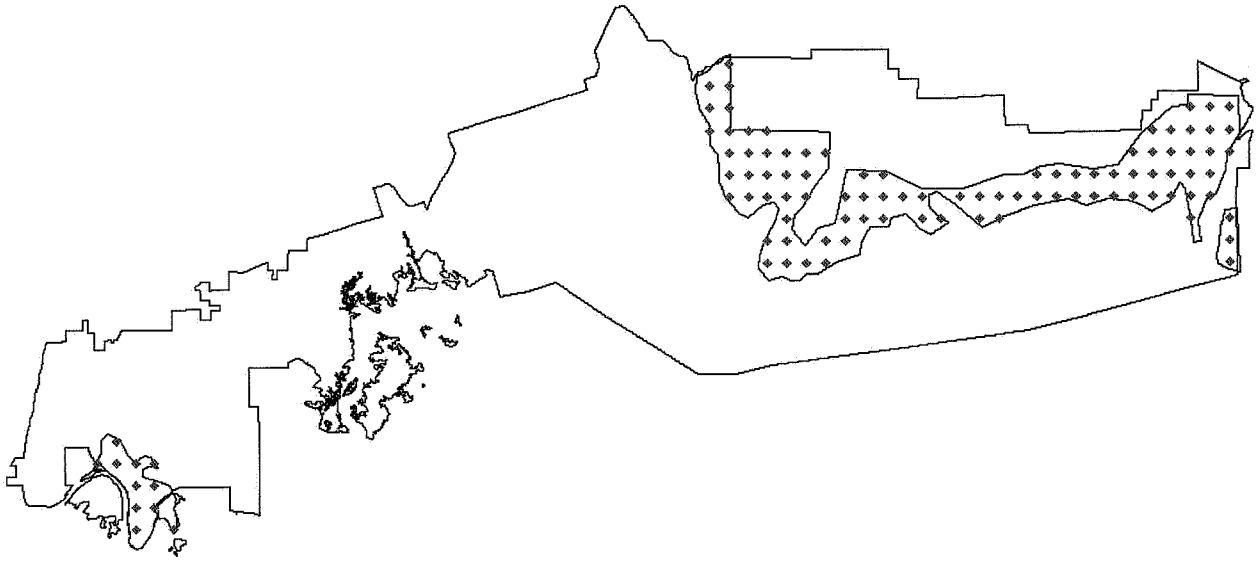
Longitude (degs)	Latitude (degs)	Elev (m)
-79.4875	33.00416667	1
-79.47916666	33.00416667	1
-79.57916666	33.0125	1
-79.47916666	33.0125	1
-79.47083333	33.0125	1
-79.4625	33.0125	1
-79.45416666	33.0125	1
-79.37083333	33.0125	1
-79.3625	33.0125	0
-79.57083333	33.02083333	1
-79.49583333	33.02083333	0
-79.4875	33.02083333	1
-79.47916666	33.02083333	1
-79.47083333	33.02083333	1
-79.4625	33.02083333	1
-79.45416666	33.02083333	1
-79.44583333	33.02083333	1
-79.4375	33.02083333	1
-79.42916666	33.02083333	1
-79.42083333	33.02083333	2
-79.4125	33.02083333	2
-79.40416666	33.02083333	1
-79.39583333	33.02083333	2
-79.3875	33.02083333	1
-79.3625	33.02083333	0
-79.5625	33.02916667	1
-79.55416666	33.02916667	1
-79.54583333	33.02916667	1
-79.50416666	33.02916667	0
-79.49583333	33.02916667	1
-79.4875	33.02916667	1
-79.47916666	33.02916667	1
-79.47083333	33.02916667	1
-79.4625	33.02916667	1
-79.45416666	33.02916667	1
-79.42083333	33.02916667	1
-79.4125	33.02916667	1
-79.37916666	33.02916667	1
-79.35416666	33.02916667	0
-79.5125	33.0375	0
-79.50416666	33.0375	1
-79.49583333	33.0375	1
-79.4875	33.0375	1
-79.47916666	33.0375	1

Longitude (degs)	Latitude (degs)	Elev (m)
-79.47083333	33.0375	1
-79.4625	33.0375	1
-79.45416666	33.0375	1
-79.44583333	33.0375	1
-79.4375	33.0375	1
-79.42916666	33.0375	1
-79.40416666	33.0375	1
-79.39583333	33.0375	1
-79.3875	33.0375	1
-79.37916666	33.0375	1
-79.35416666	33.0375	0
-79.52083333	33.04583333	1
-79.5125	33.04583333	1
-79.50416666	33.04583333	1
-79.49583333	33.04583333	1
-79.4875	33.04583333	1
-79.47916666	33.04583333	1
-79.47083333	33.04583333	1
-79.4625	33.04583333	1
-79.45416666	33.04583333	1
-79.44583333	33.04583333	1
-79.4375	33.04583333	1
-79.42916666	33.04583333	1
-79.42083333	33.04583333	1
-79.4125	33.04583333	1
-79.40416666	33.04583333	1
-79.39583333	33.04583333	1
-79.3875	33.04583333	1
-79.35416666	33.04583333	0
-79.50416666	33.05416667	1
-79.49583333	33.05416667	1
-79.4875	33.05416667	1
-79.47916666	33.05416667	1
-79.47083333	33.05416667	1
-79.4625	33.05416667	1
-79.45416666	33.05416667	1
-79.44583333	33.05416667	1
-79.4375	33.05416667	1
-79.42916666	33.05416667	1
-79.42083333	33.05416667	1
-79.4125	33.05416667	1
-79.3625	33.05416667	0
-79.35416666	33.05416667	1
-79.34583333	33.05416667	1

Longitude (degs)	Latitude (degs)	Elev (m)
-79.4875	33.0625	1
-79.47916666	33.0625	1
-79.47083333	33.0625	1
-79.4625	33.0625	1
-79.45416666	33.0625	1
-79.44583333	33.0625	1
-79.4375	33.0625	1
-79.42916666	33.0625	1
-79.42083333	33.0625	1
-79.4125	33.0625	1
-79.40416666	33.0625	1
-79.39583333	33.0625	1
-79.3875	33.0625	1
-79.34583333	33.0625	0
-79.45416666	33.07083333	1
-79.44583333	33.07083333	1
-79.4375	33.07083333	1
-79.42916666	33.07083333	1
-79.42083333	33.07083333	1
-79.4125	33.07083333	1
-79.40416666	33.07083333	1
-79.39583333	33.07083333	1
-79.3875	33.07083333	1
-79.34583333	33.07083333	0
-79.40416666	33.07916667	1
-79.39583333	33.07916667	1
-79.3875	33.07916667	1
-79.37916666	33.07916667	1
-79.39583333	33.0875	1
-79.3875	33.0875	1
-79.37916666	33.0875	1
-79.37083333	33.0875	1
-79.3875	33.09583333	1
-79.37916666	33.09583333	1
-79.37083333	33.09583333	1
-79.3875	33.10416667	1
-79.37916666	33.10416667	1

St. Marks Wilderness within St. Marks NWR

St. Marks Wilderness within St. Marks NWR
101 Receptors
FWS Wilderness Boundary Source:
NPS ARD files adjusted wilderness boundaries
from http://www.nationalatlas.gov/atlasftp.html
FWS NWR Boundary Source:
http://www.fws.gov/data/r4gis/boundary.html
September 15, 2003



St. Marks Receptors

(taken from http://www2.nature.nps.gov/air/maps/Receptors/index.cfm)

Longitude (degs)	Latitude (degs)	Elev (m)
-84.45416667	29.97916667	1
-84.4375	29.97916667	1
-84.45416667	29.9875	1
-84.44583333	29.9875	1
-84.45416667	29.99583333	1
-84.44583333	29.99583333	1
-84.47083333	30.00416667	1
-84.4625	30.00416667	1
-84.45416667	30.00416667	1
-84.44583333	30.00416667	1
-84.4625	30.0125	1
-84.17916667	30.07916667	1
-84.17083333	30.07916667	1
-84.1625	30.07916667	1
-84.15416667	30.07916667	0
-83.97916667	30.07916667	1
-84.17916667	30.0875	0
-84.17083333	30.0875	1
-84.15416667	30.0875	1
-84.14583333	30.0875	1
-83.97916667	30.0875	1
-84.17083333	30.09583333	1
-84.14583333	30.09583333	1
-84.1375	30.09583333	1
-84.12916667	30.09583333	1
-84.1125	30.09583333	1
-84.10416667	30.09583333	1
-84.0875	30.09583333	0
-84.07916667	30.09583333	0
-83.99583333	30.09583333	1
-83.97916667	30.09583333	1
-84.19583333	30.10416667	0
-84.1875	30.10416667	1
-84.17916667	30.10416667	1
-84.17083333	30.10416667	1
-84.1625	30.10416667	1
-84.14583333	30.10416667	1
-84.1375	30.10416667	1
-84.12916667	30.10416667	1
-84.12083333	30.10416667	1
-84.1125	30.10416667	1

Longitude (degs)	Latitude (degs)	Elev (m)
-84.09583333	30.10416667	1
-84.0875	30.10416667	1
-84.07916667	30.10416667	1
-84.07083333	30.10416667	1
-84.0625	30.10416667	1
-84.05416667	30.10416667	0
-84.04583333	30.10416667	0
-84.0375	30.10416667	0
-84.02916667	30.10416667	0
-84.02083333	30.10416667	0
-84.0125	30.10416667	1
-84.00416667	30.10416667	1
-83.99583333	30.10416667	1
-83.9875	30.10416667	1
-84.19583333	30.1125	1
-84.1875	30.1125	1
-84.17916667	30.1125	1
-84.17083333	30.1125	1
-84.1625	30.1125	1
-84.1375	30.1125	1
-84.12916667	30.1125	2
-84.0625	30.1125	2
-84.05416667	30.1125	1
-84.04583333	30.1125	1
-84.0375	30.1125	1
-84.02916667	30.1125	1
-84.02083333	30.1125	1
-84.0125	30.1125	1
-84.00416667	30.1125	1
-83.99583333	30.1125	1
-83.9875	30.1125	1
-84.19583333	30.12083333	1
-84.1875	30.12083333	2
-84.17916667	30.12083333	3
-84.17083333	30.12083333	2
-84.1625	30.12083333	1
-84.15416667	30.12083333	1
-84.02083333	30.12083333	2
-84.0125	30.12083333	3
-84.00416667	30.12083333	3
-83.99583333	30.12083333	2
-83.9875	30.12083333	2
-83.97916667	30.12083333	3
-84.20416667	30.12916667	1

Longitude (degs)	Latitude (degs)	Elev (m)
-84.19583333	30.12916667	1
-84.1875	30.12916667	2
-84.17916667	30.12916667	2
-84.0125	30.12916667	3
-84.00416667	30.12916667	2
-83.99583333	30.12916667	3
-83.9875	30.12916667	3
-83.97916667	30.12916667	3
-84.20416667	30.1375	1
-84.19583333	30.1375	1
-83.99583333	30.1375	3
-83.9875	30.1375	3
-83.97916667	30.1375	3
-84.20416667	30.14583333	1
-84.19583333	30.14583333	1
-84.19583333	30.15416667	1

Environmental Planning Specialists, Inc.

Environmental Consultants

RECEIVED
MAY 01 2006
By

April 28, 2006

Pete Countney
Data and Modeling Unit/Planning and Support Program
Air Protection Branch
Georgia Environmental Protection Division
4244 International Parkway, Suite 120
Atlanta, Georgia 30354

Re: ***BART Modeling Protocol***
Interstate Paper, LLC
2366 Interstate Paper Road
Riceboro, GA 31323

Dear Mr. Courtney:

On behalf of Interstate Paper, LLC, enclosed please find one copy of the Modeling Protocol for Analyses of Best Available Retrofit Technology (BART) for the referenced facility. The protocol is submitted in response to EPD's electronic mail dated March 9, 2006. EPD notified Interstate Paper that it was eligible for BART exemption modeling assistance from the Visibility Improvement State and Tribal Association of the Southeast (VISTAS). The protocol presents a brief overview of BART, a description of Interstate Paper's facility, what information will be provided by VISTAS, the modeling methodology, an overview of the modeling system, and a summary of the format of the results.

If you have any questions, please call.

Sincerely,

Randy Reynolds

Randal M. Reynolds, P.E.
Engineering Manager

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email: info@envplanning.com • web page: www.envplanning.com