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July 27, 2009

Mr. Peter Courtney
Georgia Department of Natural Resources
Environmental Protection Division
Air Protection Branch
4244 International Parkway, Suite 120
Atlanta, GA 30354

RE: Application No. 17924, dated January 17, 2008
Plant Washington
Sandersville, Georgia
Project No. 6122-07-0007

Dear Mr. Courtney:

On behalf of our client Power4Georgians, LLC (P4G), as you have requested, please find attached a re-submittal of Sections 5-8 of the application for the above referenced application. These revised sections incorporate all of the changes that result from our discussions regarding the air modeling over the past month. This submittal does not provide any new information over what we have previously submitted and or discussed during the past few weeks. The corrected or supplemental information in these sections include:

1. **Ambient Ozone analysis: Pages 5-3 thru 5-10**. This section now includes data from the ozone monitors near the proposed plant.
2. **Met Station location**: Figure 5-3 was modified to reflect a slight correction in the location of the Macon Airport meteorological station location and Figure 5-4 was updated to show the changes in land usage within 3 km of the site as a result of the project.
3. **Auxiliary Boiler: Table 5-3 and Table 6-1.** Table 5-3 and Table 6-1 were updated to reflect an increase in the height of the auxiliary boiler and a slight change in the boiler stack location
4. **Screen and refined modeling update**. The screen and SO_2 refined models were modified for the following changes:
    a. The AERMAP program properly indentifying the UTM coordinates of the receptors used in the models as NAD83 datum and not as NAD27 datum.
    b. The BPIP was rerun to account for an increase in the height of the auxiliary boiler and a slight change in the auxiliary boiler location. The output of the BPIP was inserted in all AERMOD runs.
5. Updated the site layout maps in Exhibit B to reflect a slight change in the auxiliary boiler stack location.

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6. Added Table C-7 to Exhibit C to provide an additional documentation of the detailed review of air permits completed for the SO_2 off site emission inventory. No model changes were required as a result of this review. Page 5-35 was updated to include a discussion of Table C-7.
7. **Toxics Revisions: Table 6-1, Table 6-2, Table 6-3, Table C-6, Table A-7, and Table A-8**. Table C-6, Table 6-2, Table A-7, and Table A-8 were updated to reflect EPD's comments on the development of the Allowable Ambient Concentration (AACs) for several toxics. The modified cells are highlighted in the attached tables. The changes in the auxiliary boiler stack height resulted in a slight change in the EPA SCREEN3 model used for the toxics modeling. This change is shown in the updated Table 6-2. Table 6-3 shows the updated toxics modeling results.
8. **Class I Area Modeling**: An increase in the height of the auxiliary boiler and a slight change in the boiler stack location
9. **Other Impact Analysis**: Page 8-1 was updated with the new AOI distance and Table 8-1 from the other impact analysis was updated with PSD screen modeling results.
10. **Form 7.00**. This form was updated to show the change in the Auxiliary boiler stack height.
11. **SO_2 AOI Update: Pages 5-27, 5-34 thru 5-36**. This section updates the SO_2 AOI to ensure that the AOI was refined so that the farthest receptor was located within a 100 meter receptor spacing. The AOI increased from 5.38 to 5.42 km as a result of this change. The screening table was updated along with the plot that shows the AOI.
12. **Startup Modeling NAAQS and PSD Increment Compliance Demonstration: Page 5-43**: This page was added to provide a worst case evaluation that demonstrates that the project will be in compliance with NAAQS and PSD increment for SO_2 during startup conditions. This is a text change only. No additional model runs were necessary.
13. **PSD NAAQS and Increment Modeling Results: Table 5-15 and 5-16, Table C-1 and C-2.** SO_2 NAAQS and Increment modeling results in Table 5-15 and 5-16 were updated to include the revised NAAQS and PSD Increment Inventories (Table C-1 and C-2).
14. **$PM_{2.5}$ Modeling Update: Pages 5-22 and 5-23**. These pages were added to include an update to the results of the screen models following the updated AERMAP run (Item 4).
15. **Unpaved Roads Calculations: Page 3-2, Page A-30, Form 1.00 (Emission Totals), Form 4.00**. These pages were updated to include a clarification in the emissions estimates from the unpaved roads between the active and inactive coal piles.
16. **Startup Modeling Results: Pages 5-28 thru Page 5-30**. Startup modeling from the facility was updated to include varying of the main boiler stack parameters during the startup cycle.
17. **Class I Area Distances**: **Page 7-1**. The distances to Plant Washington for Okefenokee, Shining Rock, and Wolf Island were transposed in Table 7-1. This has been corrected.
18. **Inclusion of CALPUFF Method 2 Results: Page 7-8**. CALPUFF visibility results for both Method 2 and Method 6 have now been included.
19. **Class I Area Deposition, Increment Evaluation, and Refined SO2 Modeling**: **Pages 7-9 thru 7-13, Table C-3**. These changes were made to reflect inclusion of the auxiliary boiler into the CALPUFF model, as well as changes to the Wolf Island SO_2 Increment analysis.

As we have discussed, the air modeling that MACTEC submitted with the permit application in January 2008, showed that Plant Washington would not cause or exacerbate a violation of any National or Georgia Ambient Air Quality Standard or cause any Class I or Class II PSD increment to be exceeded. All of the information that MACTEC has submitted to the Air Protection Branch during the past month has simply confirmed or supported those initial conclusions. MACTEC also concludes that it has supplied all of the information needed to support the Director of EPD's decision to issue a PSD permit to P4G for Plant Washington.

If you have any questions, please contact me at (770) 421-3335 or Ken Hiltgen at (770) 421-3334.

Sincerely,
MACTEC ENGINEERING AND CONSULTING, INC.

Justin Fickas
Senior Engineer

Ken Hiltgen
Project Manager/Principal

Cc: Purva Prabhu, EPD
Jac Capp
Jim Ussery
C. Dean Alford, Allied

Table 3-1 Facilitywide Emissions Summary

	Stack/Source ID	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	VOC	Pb	HF	H_2SO_4
		Future Emissions (tpy)	Future Emissions (tpy)	Future Emissions (tpy)	Future Emissions (tpy)	Future Emissions (tpy)	Future Emissions (tpy)	Future Emissions (tpy)	Future Emissions (tpy)	Future Emissions (tpy)	Future Emissions (tpy)
Coal-fired Boiler	S1	654	654	449	1890	1818	3635	109	0.58	7.89	145
Auxiliary Boiler	S45	2.52	2.52	1.23	5.26	10.51	4.20	0.32	9.46E-04	3.35E-06	6.31E-03
Emergency Diesel Generator	-	0.26	0.26	0.26	0.15	4.88	2.06	0.26	-	-	-
Emergency Firewater Pump	-	0.19	0.19	0.19	0.18	2.71	0.58	0.22	-	-	-
Cooling Towers	S2-S35	16.28	7.51	3.29E-02	-	-	-	-	-	-	-
Crusher House Dust Collector	S40	4.51	4.51	0.72	-	-	-	-	-	-	-
Tripper Deck	S41	3.38	3.38	0.54	-	-	-	-	-	-	-
Limestone Preparation Building Silo	S42	0.94	0.94	0.25	-	-	-	-	-	-	-
Fly Ash Mechanical Exhausters (Fly Ash Filter Seperator)	S43	0.45	0.45	0.24	-	-	-	-	-	-	-
Fly Ash Silo	S37	0.28	0.28	0.15	-	-	-	-	-	-	-
Bottom Ash Transfer Point to Bottom Ash Bin	A3	2.69E-02	1.27E-02	1.93E-03	-	-	-	-	-	-	-
Bottom Ash Transfer Point from Bin to Truck	A3	2.69E-02	1.27E-02	1.93E-03	-	-	-	-	-	-	-
Mercury Sorbent Silo	S38	7.04E-02	7.04E-02	7.04E-02	-	-	-	-	-	-	-
SO_3 Sorbent Silo	S36	7.04E-02	7.04E-02	7.04E-02	-	-	-	-	-	-	-
Pre-Treatment Soda Ash Silo	S44	3.52E-02	3.52E-02	3.52E-02	-	-	-	-	-	-	-
Pre-Treatment Hydrated Lime Silo	S39	3.52E-02	3.52E-02	9.50E-03	-	-	-	-	-	-	-
PRB Stackout (Insertable Dust Collector)	S46	0.28	0.28	4.51E-02	-	-	-	-	-	-	-
Illinois No. 6 Stackout (Insertable Dust Collector)	S47	0.28	0.28	4.51E-02	-	-	-	-	-	-	-
Limestone Stackout (Insertable Dust Collector)	S48	0.28	0.28	7.60E-02	-	-	-	-	-	-	-
Solid Material Handling - Ash	A1	1.73	0.33	0.18	-	-	-	-	-	-	-
Solid Material Handling - Gypsum	A2	1.73	0.33	0.18							
Limestone Unloading	A5	1.89E-01	8.95E-02	1.35E-02	-	-	-	-	-	-	-
Limestone Transfer Point	A10	3.45E-02	1.63E-02	2.47E-03	-	-	-	-	-	-	-
Limestone Pile (Wind Erosion)	A10	0.36	9.88E-04	1.48E-04	-	-	-	-	-	-	-
Rail Unloading	A4	2.84E-01	1.34E-01	2.03E-02	-	-	-	-	-	-	-
Inactive PRB Coal Pile	A6	0.07	0.03	4.97E-03	-	-	-	-	-	-	-
Inactive Illinois No. 6 Coal Pile	A7	0.32	0.15	2.27E-02	-	-	-	-	-	-	-
Active PRB Coal Pile (Wind Erosion)	A8	1.95	8.79E-03	1.32E-03	-	-	-	-	-	-	-
Transfer Point for Active PRB Coal Pile	A8	0.07	3.28E-02	4.97E-03							
Active Illinois No. 6 Coal Pile (Wind Erosion)	A9	1.95	8.79E-03	1.32E-03	-	-	-	-	-	-	-
Transfer Point for Active Illinois Basin Coal Pile	A9	0.32	1.50E-01	2.27E-02							
Solid Material Handling Haul Road	P1-P21	0.55	0.55	8.19E-02	-	-	-	-	-	-	-
Fugitive Road Sources Between Coal Piles Unpaved Road	U1-U8	1.31	0.35	3.49E-02							
Fugitive Road Sources Between Coal Piles Unpaved Road	U9-U15	1.31	0.35	3.49E-02							
Storage Tank Emissions	-	-	-	-	-	-	-	0.06	-	-	-
Project Totals		696	678	454	1,896	1,836	3,642	110	0.58	8	145
PSD Significance Level		25	15	10	40	40	100	40	0.6	3	7
Significant Emissions Increase (Yes or No)		**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

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5.0 PSD AMBIENT AIR QUALITY ANALYSIS

The proposed project triggers a PSD review for PM, NO_x, CO, SO_2, VOC, Sulfuric Acid Mist (SAM) and Fluorides (as HF) as indicated in Section 3.0. Part of this PSD review is to conduct an air quality modeling analysis for each pollutant except for VOCs and SAM, which is addressed in the air toxics analysis modeling evaluation in Section 6. The first step of the analysis is to run screening models. The Screening analyses indicate that the project will exceed the PSD Significant Impact Levels (SILs) for SO_2 while PM_{10}, NO_x, and CO concentrations will be below their corresponding levels. Since the significance level was exceeded for SO_2, refined modeling was completed. The results of the refined modeling analysis demonstrated that the project will not cause an exceedance of either the National Ambient Air Quality Standards (NAAQS) or PSD Increment consumption levels for SO_2 at any modeled receptor. The results of this analysis are summarized in the following sections. Electronic copies of the input and output files for the model runs are included on a disc in Exhibit D.

5.1 MODELING METHODOLOGY

The first step in air quality modeling is to run a screen model of all emission sources at the proposed facility. The screen model results for the PSD-triggered pollutants are used to determine whether the emission increases from the proposed facility will result in concentrations that exceed their respective SILs. Refined modeling will be required if significant levels are exceeded. Table 5-1 shows the SILs for PM_{10}, $PM_{2.5}$, NO_x, SO_2, and CO. Current USEPA guidelines call for $PM_{2.5}$ to be evaluated as a surrogate for PM_{10}. Currently there are no promulgated significant impact levels for $PM_{2.5}$, however, on September 21, 2007 the USEPA proposed significant impact levels for $PM_{2.5}$. This USEPA proposal includes three different levels being considered for $PM_{2.5}$ SILs. As a worst case evaluation, the modeling results for $PM_{2.5}$ are being compared to the lowest of the three options. This modeling is not a requirement for the permit application under current guidelines; however, the results are being included in order to demonstrate that the plant will have an insignificant impact on $PM_{2.5}$ concentrations in the area. The screen results were also compared to the lowest of the proposed $PM_{2.5}$ significant monitoring concentrations to determine whether a review for preconstruction monitoring will be required.

Table 5-1 Significant Impact Levels and Significant Monitoring Concentrations

Pollutant	Averaging Period	Significant Ambient Impact Level ($\mu g/m^3$)	Significant Monitoring Concentrations ($\mu g/m^3$)
$PM_{2.5}$[1]	24-hour	1.20	-
	Annual	0.30	-
PM_{10}	24-hour	5	10
	Annual	1	-
SO_2	3-hour	25	-
	24-hour	5	13
	Annual	1	-
NO_x	Annual	1	14
CO	8-hour	500	575
	1-hour	2,000	-
HF	24-hour	-	0.25

1. Lowest of the three proposed Significant Impact Levels.

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The concentrations used for comparison to significant levels calculated by the screen models were the highest concentrations predicted at any receptor for all averaging periods for each modeled pollutant. In screening and refined modeling, the maximum concentration predicted by the model was resolved to within the 100-meter receptor grid spacing to obtain a true maximum (if the initial maximum receptor was not already located in the 100-meter spacing portion). The USEPA AERMOD model was used for all pollutants for all averaging periods. The latest version of AERMOD (Version 07026) was downloaded from USEPA's Support Center for Regulatory Air Models (SCRAM) Web site for use in the modeling.

The latest USEPA's Building Profile Input Program for Prime (BPIP-PRIME model -version 04274) was used to calculate flow vectors based on 36 possible wind directions in order to allow for building downwash. A Cartesian receptor grid was used for the model runs. Receptors were spaced 100 meters apart along the fence line/patrolled property line and out to a distance of 2 kilometers from the property boundary. Receptors were spaced at 500 meters apart from 2 kilometers to 10 kilometers out from the property boundary. Figure 5-1 shows the receptors used in the PSD screen modeling. Digital Elevation Model (DEM) data obtained from the U.S. Geological Survey was used to determine receptor heights using USEPA's AERMAP (Version 06341) computer program.

As part of the project, Power4Georgians will be relocating the portion of Mayview road that currently goes through the property where the plant is to be located. With the relocation of this road, this portion of the plant property will not have public access and will not therefore be included in the modeling evaluation.

By federal regulations (40 CFR 52.21(i)(5), "any net emission increase of 100 tons per year or more of VOC or NOx subject to PSD would be required to perform an ambient impact analysis including the gathering of ambient air quality data". There are no existing ozone monitors in Washington County. The Georgia EPD operates ozone monitors at 24 locations across the state. The Quality Assurance Unit that is part of the Georgia EPD conducts quality assurance activities to ensure that data collected by the air quality monitors comply with the procedures and regulations set forth by the U.S. EPA therefore the quality assurance requirements under PSD guidance have been meet.

There are three monitors that are located within 100 km of the proposed site. The ambient impact analysis therefore concentrated on these monitors. This evaluation looked at the fourth maximum ozone monitor values for these monitors as this is the value used for determination of ozone attainment status. Table 5-1A provides the results at these monitors for the three most recent years of available data (2005 through 2007) and the distance to Plant Washington. The Table 5-1A also provides the three year average of these values because a three year average is used when comparing monitor results to determine an areas attainment status.

Table 5-1A Ozone Monitors within 100 km of Plant Washington

Site Name	City	County	Distance to Plant Washington Site (km)	4th Max Ozone Concentration (ppm)			3 Year rolling Average (ppm)
				2005	2006	2007	
Macon S.E - Georgia Forestry Service	Macon	Bibb	80	0.082	0.077	0.080	0.080
Riverside Park	Evans	Columbia	81	0.074	0.074	0.074	0.074
Bungalow Road Elementary School	Augusta	Richmond	79	0.081	0.083	0.080	0.081

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Figure 5-1A shows the location of the Plant Washington site in relation to the three ozone monitors listed in Table 5-1A. In addition, Figure 5-1A shows a wind rose for 5 years of meteorological data (1987-1991) during the ozone season for the Macon Airport station. This is the same 5 year period used for the PSD modeling evaluations. The three monitors included in this evaluation are the Georgia Forestry Service station in Bibb County near Macon, the Riverside park monitor located in Evans, Columbia County, and the Bungalow Road Elementary School located in Richmond County.

Ozone is formed from the combination of NOx and VOCs in a photochemical reaction. Because of the high levels of natural occurring VOCs in the Southeast, the formation of ozone is controlled by NOx emissions. NOx emissions originate from mobile sources (mainly road vehicles) and industrial sources (power plants, manufacturing plants with boilers, etc.). NOx emissions (and therefore ozone concentrations) are therefore largely a reflection of population density/ urbanization (which reflects on the amount of mobile emissions) and the amount of NOx emission from industrial sources in a given county.

Washington County has a much lower population density, NOx density (NOx emissions per square mile), and less vehicle miles traveled than Bibb, Richmond, and Columbia counties. Figures 5-1B, 5-1C, and 5-1D provide maps of the area that identify all three of these variables by county. These maps indicate that Washington County is significantly less urban and industrialized in nature than those counties at which ozone is being monitored.

Figure 5-1A Ozone Monitor Locations and Wind direction

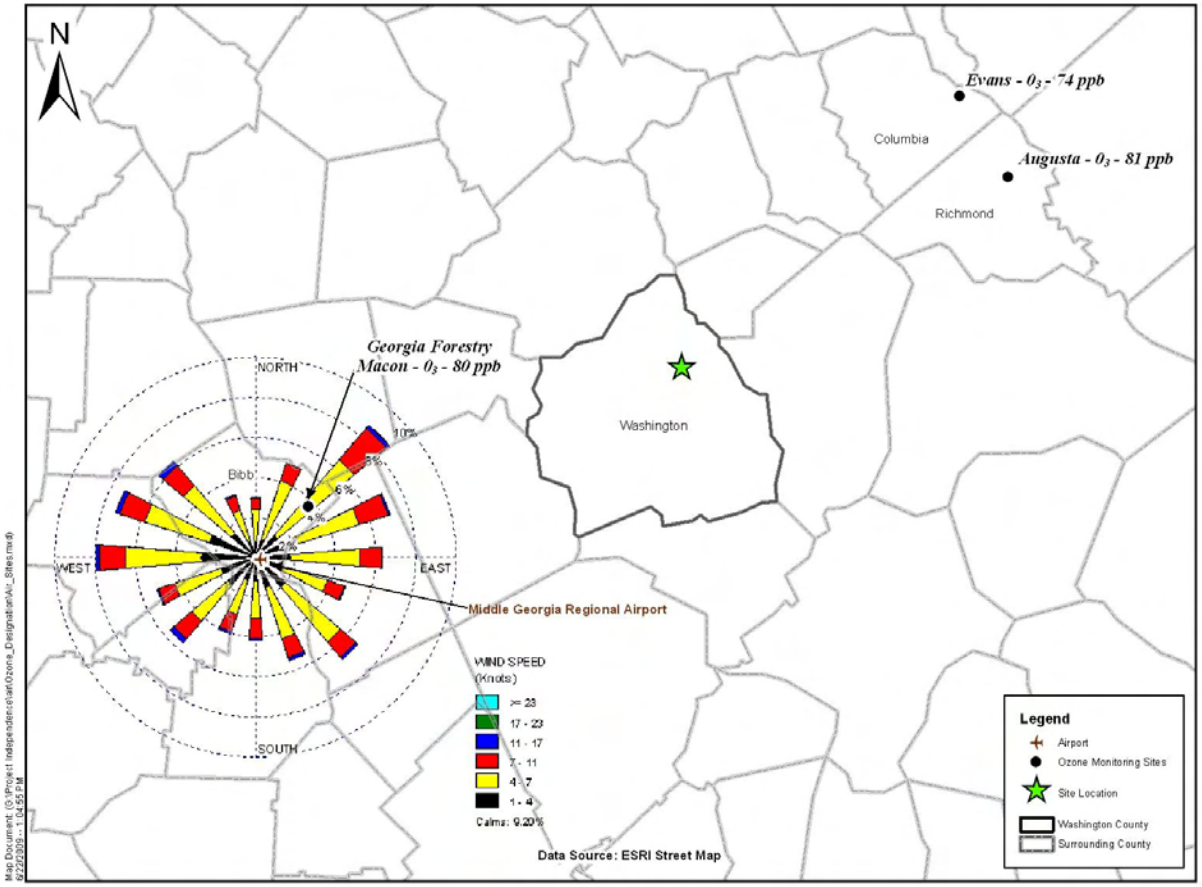

Figure 5-1A shows 3 year (2005-2007) ozone season averages for five ozone monitor stations.

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Figure 5-1B: Population Densities for Counties within 100 km of Plant Washington

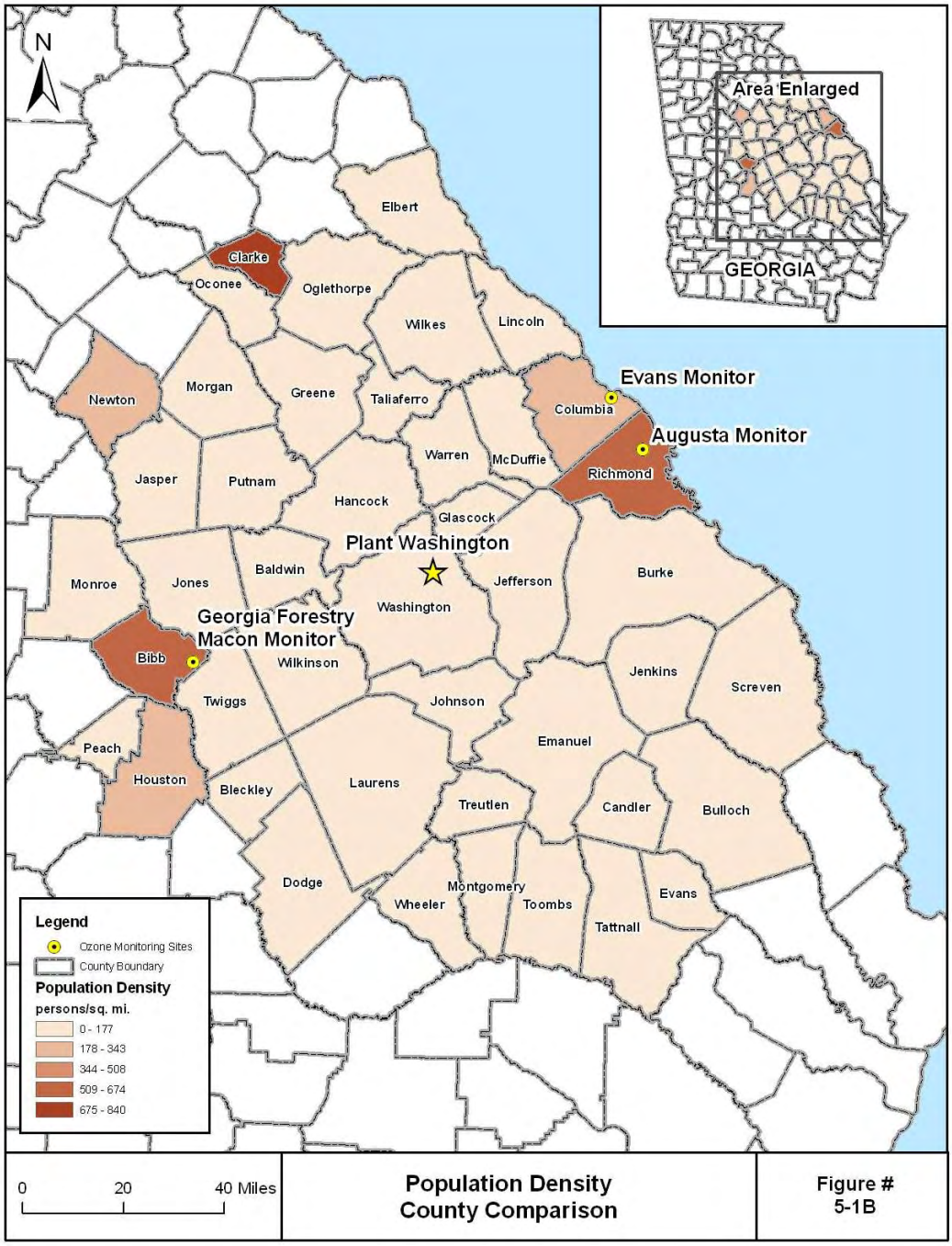

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Figure 5-1C: NOx Densities for Counties within 100 km of Plant Washington

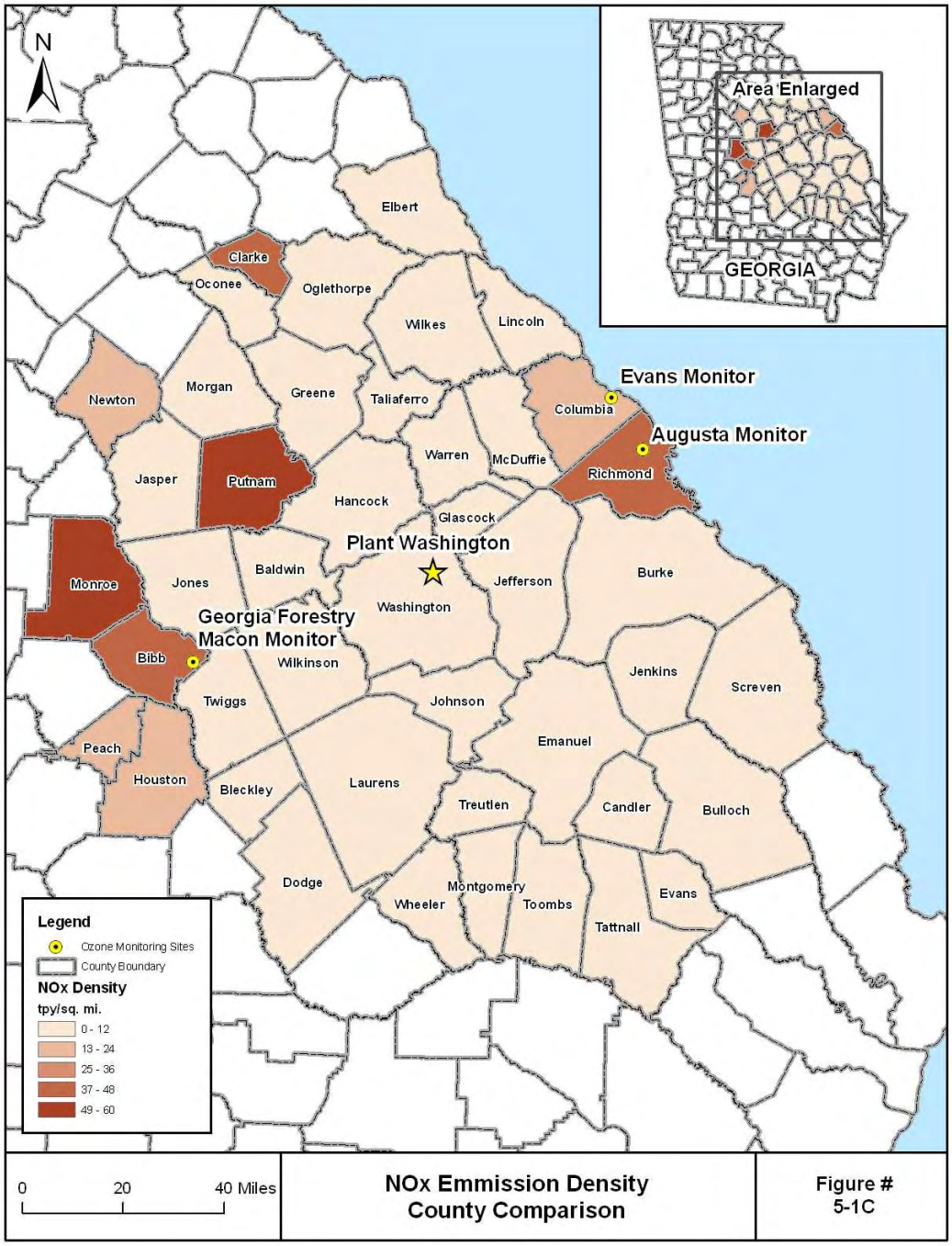

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Figure 5-1D: Vehicle Miles Traveled for Counties within 100 km of Plant Washington

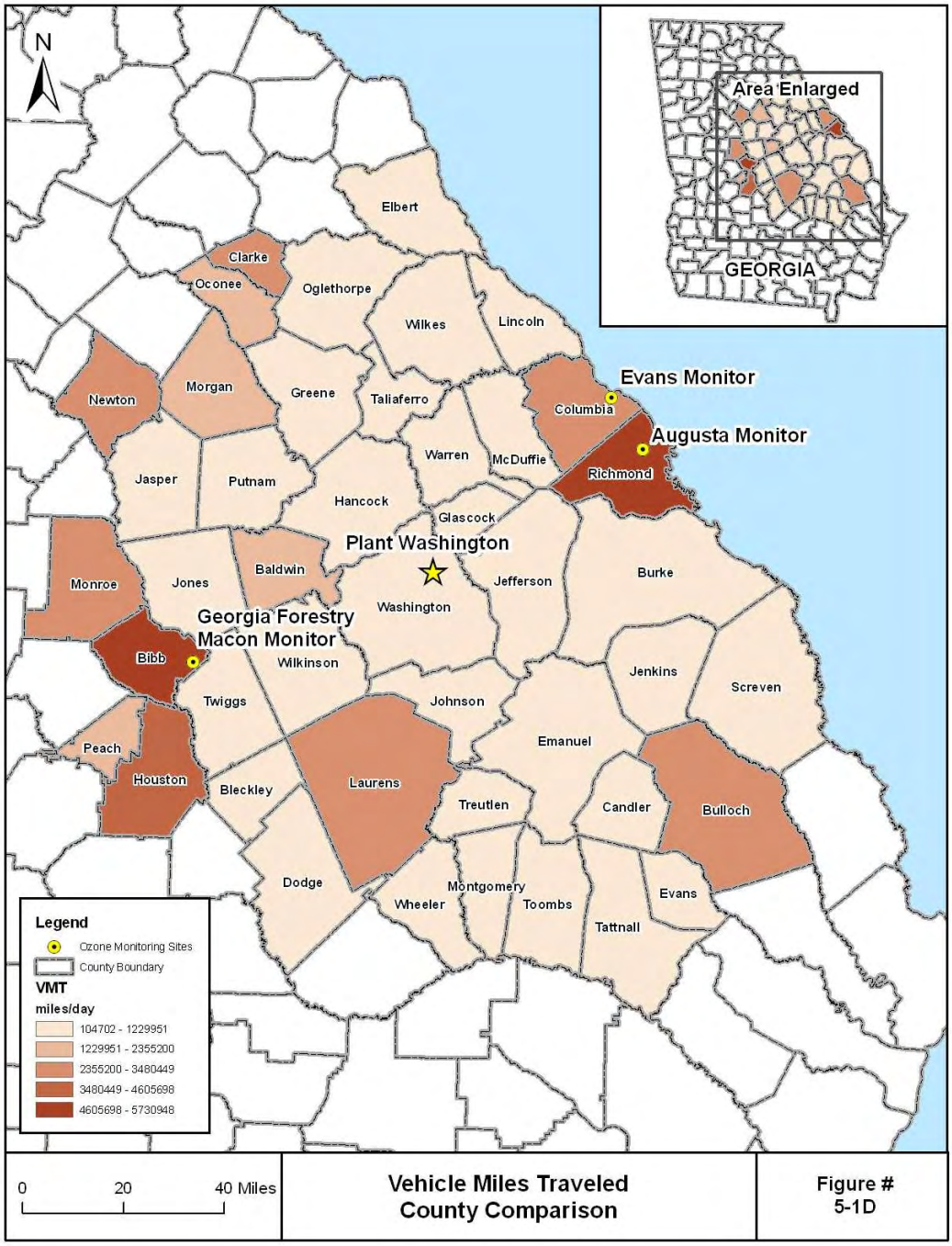

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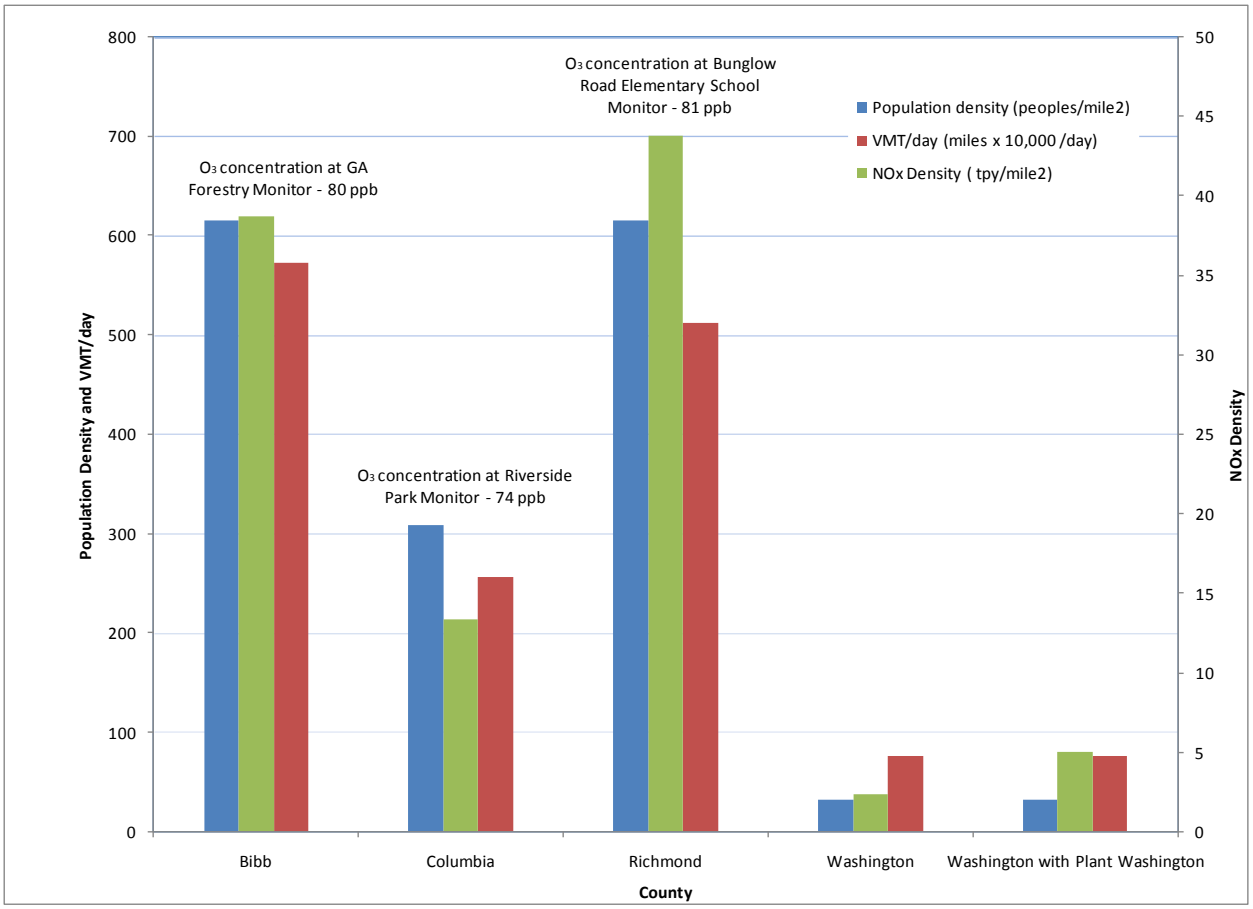
Figure 5-1E provides a bar graph of the actual data (population density, NOx emissions density, and vehicle miles traveled) for the three monitored counties as well as Washington County. Figure 5-1E also shows the 3-year ozone average at each monitor for each listed county. As indicated in the drawing, Richmond and Bibb have similar population density, NOx emission density, and vehicle miles traveled and have similar 3-year average ozone readings (81 and 80 ppb). Columbia has significantly lower population densities, NOx densities, and VMTs and shows a lower ozone reading as compared to these counties (74 ppb). Washington County is significantly more rural than Columbia County, therefore it is expected that Washington County would have an ozone reading of below 74 ppb were its ozone measured and would therefore be in attainment with the 8-hour ozone standard (75 ppb). This general finding that Washington County is an attainment area is consistent with the EPD's recent recommendations to EPA that Washington County not be identified as non-attainment for ground level ozone.

For comparison purposes Figure 5-1E also shows the expected changes to Washington County with the addition of Plant Washington. Plant Washington would not be expected to have a significant impact on population or the vehicle miles traveled, but it would impact NOx emissions. As shown in Figure 5-1E, even when including the potential emissions of NOx from the project, Washington County would still have NOx emissions well below those of the other counties where ozone is monitored.

Figure 5-1E: Urbanization Evaluation of Ozone Monitored Counties vs. Washington County with and without Plant Washington



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The regulatory default option and rural environment were used in the models. The Auer Method, which determines the characteristics of a modeling area, was used to confirm that the land use surrounding the proposed site in Washington County is rural, as shown in Table 5-2. Figure 5-1, an aerial photograph of the area surrounding the proposed plant, denotes land use within 3 kilometers.

Table 5-2 Land Use Analysis - Auer Method

Type	Use and Structure	Vegetation	50% of Land Use? (Y/N)
I1	**Heavy Industrial** Major chemical, steel, and fabrication industries; generally 3- to 5-story buildings with flat roofs	Grass and tree growth extremely rare. Less than 5% vegetation.	**N**
I2	**Light-moderate Industrial** Rail yards, truck depots, warehouses, industrial parks, and minor fabrications; generally 1- to 3-story buildings with flat roofs	Very limited grass; trees almost totally absent. Less than 5% vegetation.	**N**
C1	**Commercial** Office and apartment buildings and hotels; 10 stories and flat roofs	Limited grass and trees. Less than 5% vegetation.	**N**
R2	**Compact Residential** Single and some multiple family dwellings with close spacing; generally 2 stories with pitched roofs; garages (via alley) and ash pits; no driveways	Limited lawn sizes and shade trees. Less than 30% vegetation.	**N**
R3	**Compact Residential** Old multi-family dwellings with close (2-meter) lateral separation; generally 2-story, flat-roof structures; garages (via alley) and ash pits; no driveways	Limited lawn sizes and old, established shade tress. Less than 35% vegetation.	**N**
	Conclusion – Urban or Rural?		**Rural Modeling Area**

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Each emission source was modeled at its maximum hourly emission rate for all modeled pollutants. Table 5-3 summarizes the emission rates and modeling parameters that were used for the on-site modeled emission sources in the screen model runs.

Several point sources at the plant have horizontal discharge stacks. As per the latest AERMOD modeling, these sources were modeled at an exhaust velocity of 0.001 m/s, without adjusting the stack diameter. For those sources which vent ambient air (baghouses, etc.) the exhaust temperature in the model was set at 0 K. When the exhaust temperature is set to 0 K, the AERMOD model uses the ambient temperature from the meteorological data set for the stack's exhaust temperature.

Figure 5-1 Aerial Photograph Showing 3-Kilometer Radius around Proposed Site

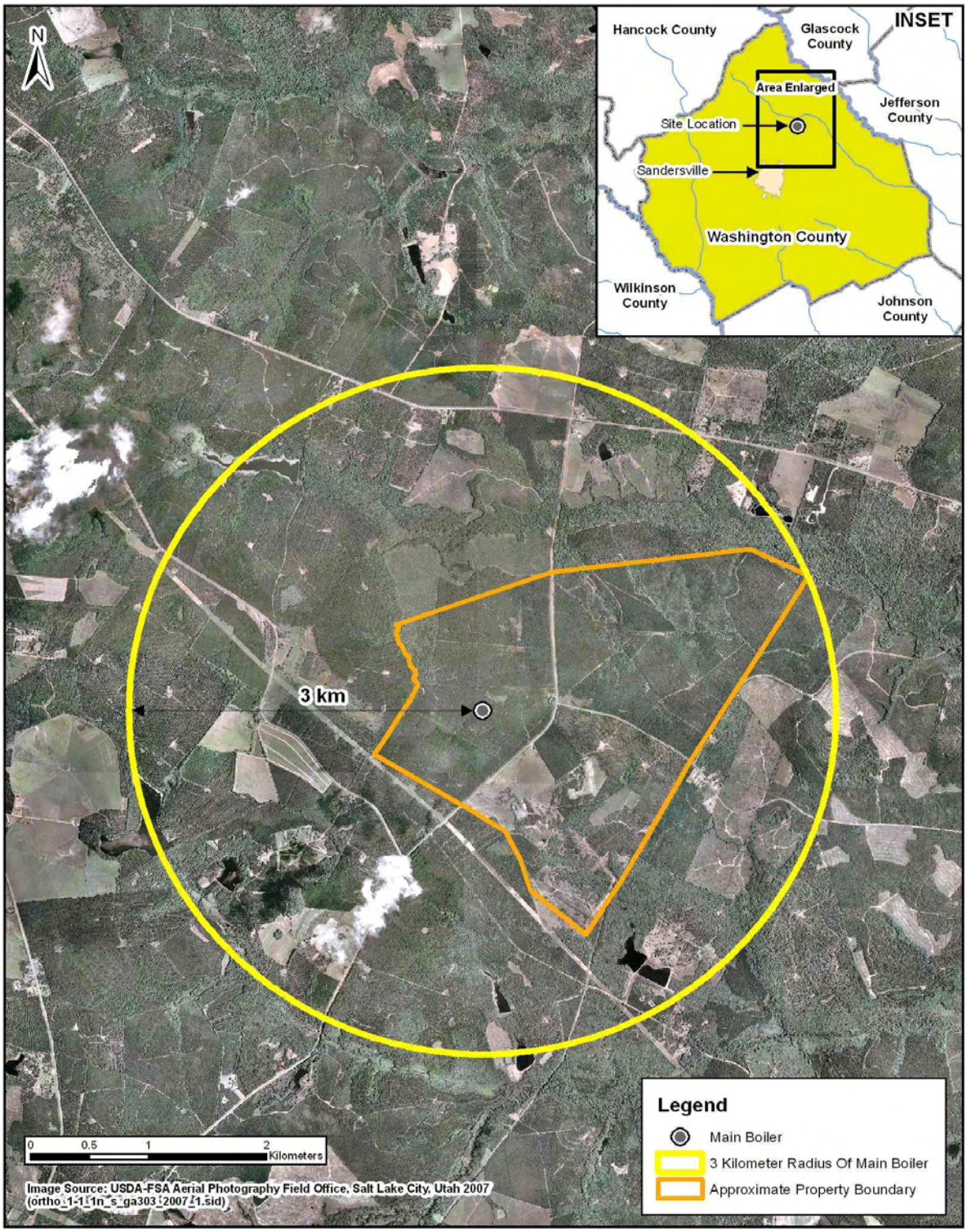

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Figure 5-2 Entire Modeling Receptor Set

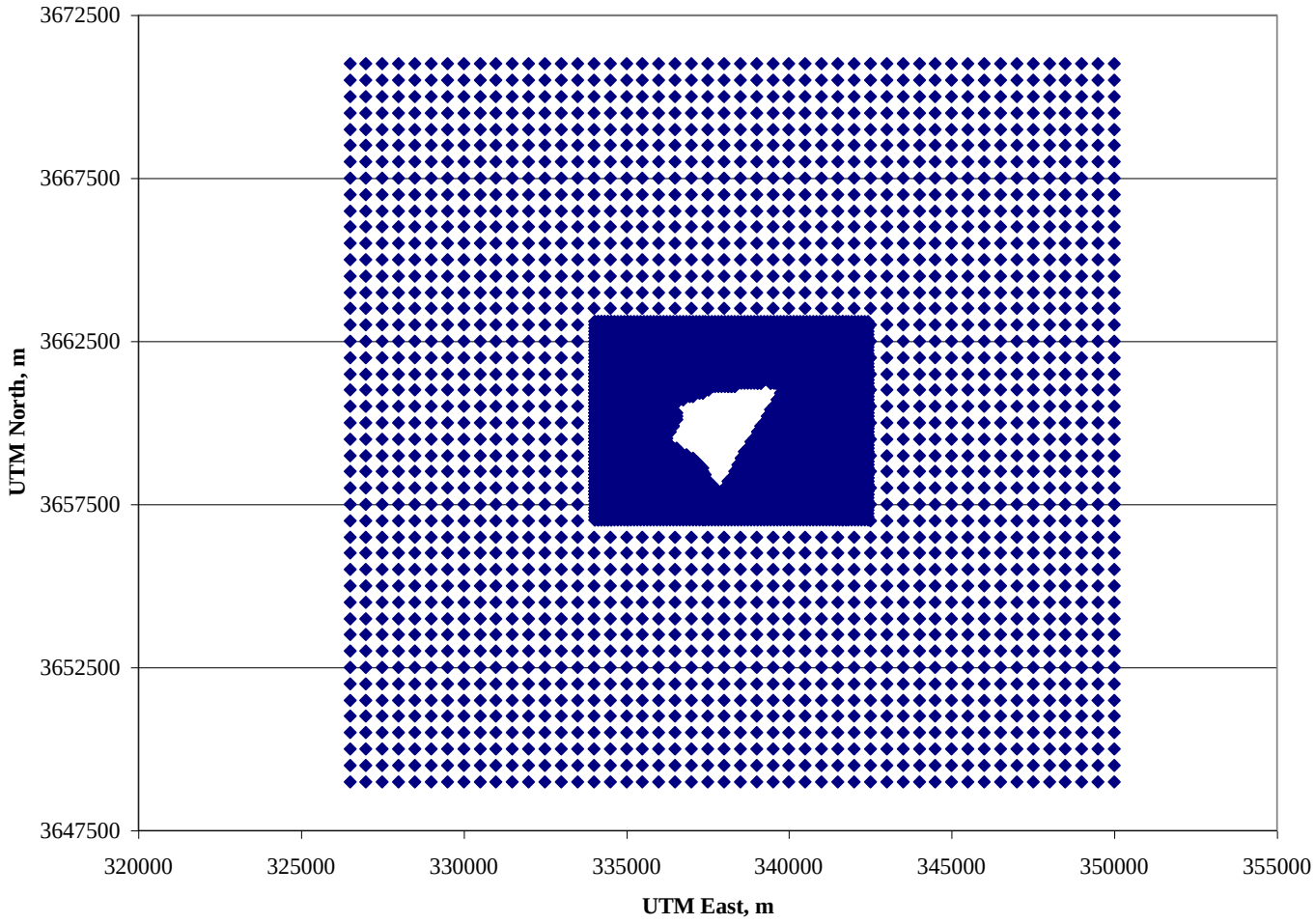

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Table 5-3 Screen Modeling Source Emissions

	UTM Coordinates		$PM_{2.5}$ 24 Hour	PM_{10} 24 Hour	SO_2 3 and 24 Hour	SO_2 Annual	NO_x	CO 1-Hour	CO 8-Hour	HF	H_2SO_4	Pb	Height	Diameter	Velocity	Temp*
	East (m)	North (m)	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	m	m	m/s	K
Coal-fired Boiler	337088.13	3659815.90	12.93	18.82	120.83	54.38	52.29	313.74	313.74	0.23	4.18	1.67E-02	137.16	9.14	18.55	333
Auxiliary Boiler	337408.11	3659768.01	3.53E-01	0.73	1.51	0.151	3.02	1.21E+00	1.21E+00	9.65E-07	1.81E-03	2.72E-04	32.43	1.52	19.81	408
Cooling Tower No. 1	337021.84	3659703.97	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 2	337033.91	3659716.04	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 3	337033.91	3659691.90	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 4	337045.97	3659703.97	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 5	337045.97	3659679.83	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 6	337058.04	3659691.90	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 7	337058.04	3659667.76	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 8	337070.11	3659679.83	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 9	337070.11	3659655.69	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 10	337082.18	3659667.76	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 11	337082.18	3659643.62	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 12	337094.25	3659655.69	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 13	337094.25	3659631.55	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 14	337106.32	3659643.62	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 15	337106.32	3659619.48	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 16	337118.39	3659631.55	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 17	337118.39	3659607.41	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 18	337130.46	3659619.48	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 19	337130.46	3659595.34	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 20	337142.53	3659607.41	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 21	337142.53	3659583.27	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 22	337154.60	3659595.34	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 23	337154.60	3659571.20	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 24	337166.67	3659583.27	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 25	337166.67	3659559.13	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 26	337178.74	3659571.20	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 27	337178.74	3659547.06	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 28	337190.81	3659559.13	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 29	337190.81	3659534.99	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 30	337202.88	3659547.06	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 31	337202.88	3659522.92	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 32	337214.95	3659534.99	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 33	337214.95	3659510.86	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Cooling Tower No. 34	337227.02	3659522.92	2.78E-05	6.35E-03	-	-	-	-	-	-	-	-	15.24	12.19	6.07	0
Crusher House Dust Collector	337335.40	3660114.80	2.07E-02	0.130	-	-	-	-	-	-	-	-	30.48	0.91	17.25	0
Tripper Decker	337350.40	3659853.00	1.56E-02	9.72E-02	-	-	-	-	-	-	-	-	59.13	0.79	17.45	0
Limestone Preparation Building	337101.10	3659891.40	7.29E-03	2.70E-02	-	-	-	-	-	-	-	-	18.29	0.41	0.001	0
Fly Ash Mechanical Exhausters (Fly Ash Filter Seperator)	337222.30	3659877.30	6.89E-03	1.30E-02	-	-	-	-	-	-	-	-	47.24	0.25	0.001	399
Fly Ash Silo	337222.30	3659890.40	4.29E-03	8.10E-03	-	-	-	-	-	-	-	-	47.24	0.41	0.001	354
Mercury Storage and Handling	337237.60	3659870.40	2.03E-03	2.03E-03	-	-	-	-	-	-	-	-	22.86	0.41	0.001	0
SO_3 Storage and Handling	337228.50	3659870.40	2.03E-03	2.03E-03	-	-	-	-	-	-	-	-	22.86	0.41	0.001	0
Soda Ash Storage and Handling	337293.70	3659690.70	1.01E-03	1.01E-03	-	-	-	-	-	-	-	-	22.86	0.41	0.001	0
Hydrated Lime Storage and Handling	337293.70	3659684.60	2.73E-04	1.01E-03	-	-	-	-	-	-	-	-	22.86	0.41	0.001	0
PRB Stackout (Insertable Dust Collector)	337317.75	3660421.69	1.30E-03	8.10E-03	-	-	-	-	-	-	-	-	33.53	0.30	0.001	0
Illinois No. 6 Stackout (Insertable Dust Collector)	337313.30	3660516.57	1.30E-03	8.10E-03	-	-	-	-	-	-	-	-	27.43	0.30	0.001	0
Limestone Stackout (Insertable Dust Collector)	337169.45	3660003.07	2.19E-03	8.10E-03	-	-	-	-	-	-	-	-	21.34	0.30	0.001	0

* 0 indicates ambient temperature used on the model.

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09

`Table 5-3 Screen Modeling Source Emissions (Continued)

	UTM Coordinates		$PM_{2.5}$ 24 Hour	PM_{10} 24 Hour	SO_2 3 and 24 Hour	SO_2 Annual	NO_x	CO 1-Hour	CO 8-Hour	HF	H_2SO_4	Pb	PM_{10} Emission Rate per Unit Area 24HR	$PM_{2.5}$ Emission Rate per Unit Area 24 HR	PM_{10} Emission Rate per Unit Area Annual	$PM_{2.5}$ Emission Rate per Unit Area Annual	Release Height	Number of Vertices or Radius	Release Height	Initial Lateral Dimension	Initial Vertical Dimension
	East (m)	North (m)	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/s	g/m^2-s	g/m^2-s	g/m^2-s	g/m^2-s	m		m	m	m
Bottom Ash Storage and Handling System	337315.58	3659846.66	1.11E-04	7.33E-04	-	-	-	-	-	-	-	-	2.85E-06	4.32E-07	2.85E-06	4.32E-07	3.05	4	-	-	-
Solid Material Handling-Ash	337801.37	3660642.88	5.21E-03	9.48E-03	-	-	-	-	-	-	-	-	1.99E-08	1.09E-08	1.99E-08	1.09E-08	6.86	8	-	-	-
Solid Material Handling-Gypsum	338256.02	3659829.94	5.21E-03	9.48E-03	-	-	-	-	-	-	-	-	8.78E-09	4.82E-09	8.78E-09	4.82E-09	6.86	16			
Limestone Rail Unloading	337262.54	3660047.50	3.90E-04	2.57E-03	-	-	-	-	-	-	-	-	1.53E-05	2.32E-06	1.53E-05	2.32E-06	4.57	4	-	-	-
Coal Rail Unloading	337509.97	3660430.83	5.85E-04	3.86E-03	-	-	-	-	-	-	-	-	2.31E-05	3.50E-06	2.31E-05	3.50E-06	4.57	4	-	-	-
Limestone Storage and Handling	337169.45	3660003.07	8.53E-04	5.68E-03	-	-	-	-	-	-	-	-	1.07E-05	1.61E-06	9.42E-07	1.43E-07	9.08	12.98 m	-	-	-
Inactive PRB Coal Pile Storage and Handling	337143.92	3660318.92	1.43E-04	9.44E-04	-	-	-	-	-	-	-	-	1.94E-08	2.94E-09	1.94E-08	2.94E-09	10.43	4	-	-	-
Inactive Illinois No. 6 Coal Pile Storage and Handling	337143.92	3660554.71	6.53E-04	4.31E-03	-	-	-	-	-	-	-	-	1.44E-07	2.18E-08	1.44E-07	2.18E-08	7.88	4	-	-	-
Active PRB Coal Pile	337317.75	3660421.69	5.33E-04	2.90E-02	-	-	-	-	-	-	-	-	1.96E-05	2.94E-06	8.07E-07	1.22E-07	15.21	21.73 m	-	-	-
Active Illinois No. 6 Coal Pile	337313.30	3660516.57	4.87E-03	3.24E-02	-	-	-	-	-	-	-	-	2.19E-05	3.28E-06	3.08E-06	4.66E-07	15.21	21.73 m	-	-	-
Solid Material Handling Haul Road Node 1	337237.54	3659890.21	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 2	337266.14	3659897.90	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 3	337294.15	3659907.74	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 4	337324.63	3659907.74	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 5	337355.11	3659907.74	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 6	337385.59	3659907.74	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 7	337416.07	3659907.74	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 8	337446.45	3659908.93	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 9	337467.28	3659930.67	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 10	337486.88	3659954.02	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 11	337507.83	3659976.08	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 12	337533.39	3659992.54	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 13	337562.23	3660002.17	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 14	337592.55	3660004.53	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 15	337623.03	3660004.53	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 16	337653.51	3660004.53	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 17	337683.99	3660004.53	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 18	337714.47	3660004.53	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 19	337744.95	3660004.53	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 20	337775.43	3660004.53	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Solid Material Handling Haul Road Node 21	337805.82	3660006.54	1.12E-04	7.48E-04	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 1	337317.75	3660421.69	1.26E-04	1.26E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 2	337291.1	3660406.9	1.26E-04	1.26E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 3	337264.45	3660392.1	1.26E-04	1.26E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 4	337237.81	3660377.31	1.26E-04	1.26E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 5	337211.16	3660362.52	1.26E-04	1.26E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 6	337184.51	3660347.72	1.26E-04	1.26E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 7	337157.86	3660332.93	1.26E-04	1.26E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 8	337131.22	3660318.14	1.26E-04	1.26E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 9	337313.3	3660516.57	1.44E-04	1.44E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 10	337283.88	3660524.53	1.44E-04	1.44E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 11	337254.46	3660532.5	1.44E-04	1.44E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 12	337225.04	3660540.46	1.44E-04	1.44E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 13	337195.62	3660548.42	1.44E-04	1.44E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 14	337166.2	3660556.39	1.44E-04	1.44E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7
Coal Handling Unpaved Road Node 15	337136.78	3660564.35	1.44E-04	1.44E-03	-	-	-	-	-	-	-	-	-	-			-	-	2.44	4.48	1.7

1. Based on Actual Vertical Dimension of 12 ft, Lateral Dimension of 14.70 ft, and Release Height of 8 ft.

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09

5.2 FUGITIVE PARTICULATE MODELING

PM_{10} and $PM_{2.5}$ emissions from the paved Solid Material Handling Facility (SMHF) haul road and from the transport of coal to and from the active and inactive piles were calculated and modeled per the procedures outlined in the Georgia EPD "Guideline for assuring acceptable ambient concentration of PM_{10} in areas impacted by quarry operation producing crushed stones – October 15, 2004". Emissions from the SMHF haul road and from the transportation of coal between the various piles were estimated using AP-42 sections 13.2.1 (paved roads) and 13.2.2 (unpaved roads). Traffic of bulldozers and other equipment used to transport coal between the active and inactive piles will not follow a set path or occur on defined roads. For estimation purposes the typical path for this equipment was estimated as going from the center of each of the active piles (PRB and Illinois #6) to each of their associated inactive piles.

For emission estimation purposes the SMHF haul road was divided into segments and the amount of traffic through Plant Washington was estimated at each segment based on the amount of ash and gypsum generated from coal combustion. The coal transportation routes were similarly divided up and the amount of traffic was estimated based on maximum coal throughput and the maximum expected shifting among the active and inactive piles. The AP-42 calculations utilize average truck weights, number of wheels on the trucks, silt content, and silt moisture content to calculate the lbs of PM_{10}/ $PM_{2.5}$ emissions per vehicle mile traveled. Estimates for the number of trucks trips and the length of the SMHF haul road and typical coal transport distance were then used to calculate the total traveled distance. The total travel distance and PM emission factors were used to calculate emissions for each road segment. Calculations are included in Exhibit A of the permit application.

Once each road segment's PM_{10}/$PM_{2.5}$ emissions were calculated, each segment was divided into the appropriate volume sources as outlined in the EPD guidance referenced above. The site layout found in Exhibit B provides a map of the site, which locates all road segments included in the modeling analysis. The SMHF haul road and coal transportation route were both modeled as groups of 10 foot x 40 foot volume sources. The effective height for all road dust volume sources were estimated at 8 feet in accordance with modeling guidance.

Emissions from the SMHF were calculated based on emission factor equations obtained from AP-42 Table 11.9-1 for bulldozing operations. The emission factor equations utilize silt and moisture contents to calculate PM_{10}/$PM_{2.5}$ emission rates, which were obtained from AP-42 Table 11.9-3. Once emissions were calculated,

each source was modeled as an area poly source as outlined in Section 3.3.2.3 of the AERMOD User Guide (September 2004).

Drop point emissions from Coal Rail Unloading, Limestone Rail Unloading, and Bottom Ash Transfer were calculated using the drop point emission factor equation found in AP-42 Section 13.2.4.3. The equation utilizes the mean wind speed and moisture content of the material being handled to calculate an emission per unit ton of material handled factor. After computing emission rates, each drop point was modeled as an area poly source according to Section 3.3.2.3 of the AERMOD User Guide (September 2004).

Emissions from the Powder River Basin and Illinois No. 6 Active and Inactive Piles were calculated using the Industrial Wind Erosion equations found in AP-42 (Section 13.2.5). In addition to emissions from wind erosion, the emissions from the dropping of coal from the transportation equipment at both the active and inactive piles were also calculated. These drop point emission calculations were based on the AP-42 emission factor from AP-42 section 13.2.4.3 that was also used for unloading operations. Per EPD guidance, the active and inactive piles as well as the lime piles were modeled as area sources in the model. For those piles that are cone shaped (the active coal piles and the lime piles), the modeled area was set at the area of the pile at the mid point height. These sources were modeled as circular areas. The inactive piles are trapezoidal shapes, therefore, their release heights were set to the height of the top of the pile as elevated planes.

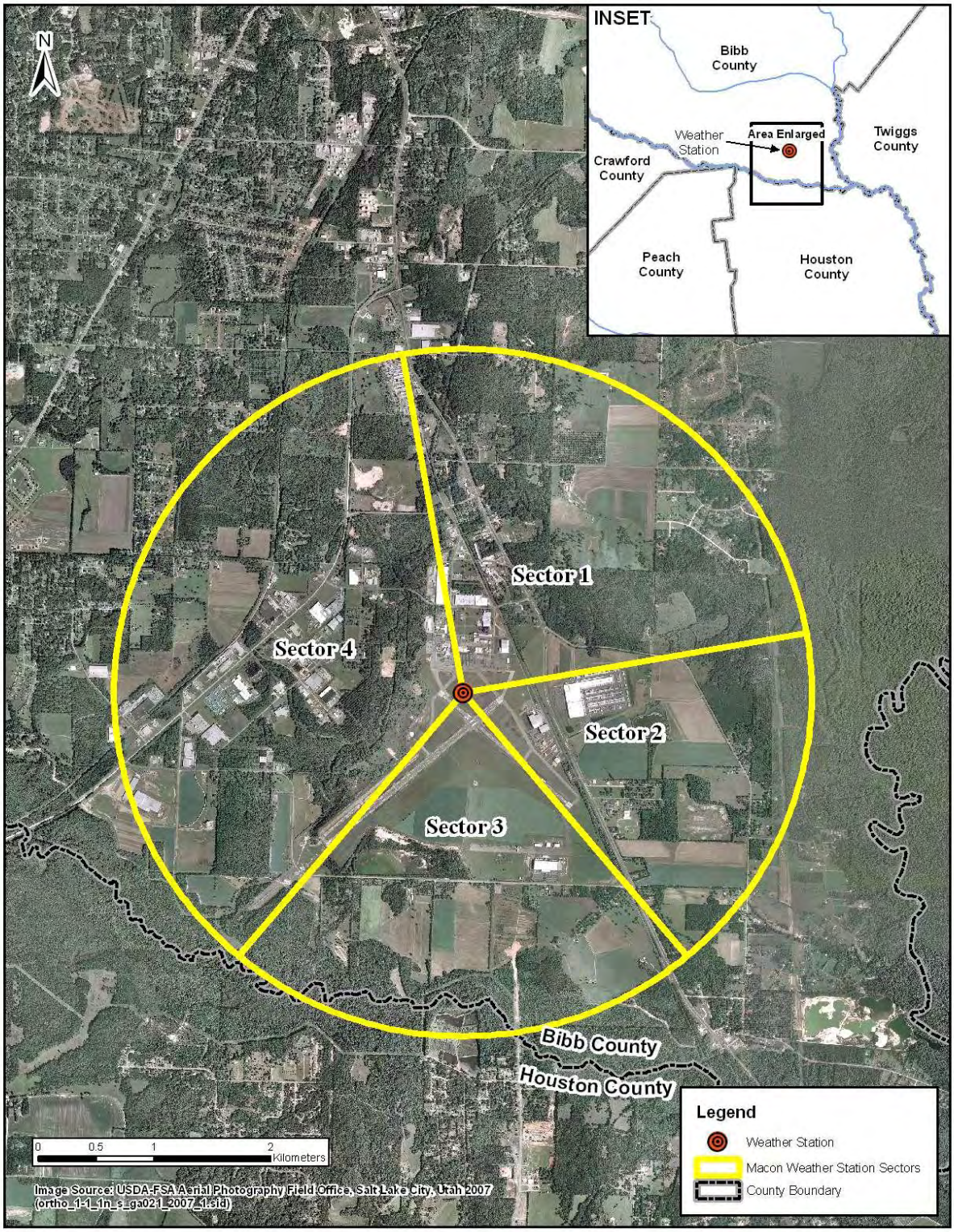
5.3 METEOROLOGICAL DATA

The Georgia EPD provided MACTEC with AERMET (version 06341) pre-processed meteorological data files based on surface data for the Macon Airport meteorological station and upper air data from the Centreville meteorological station for the 1987-1991 five year period. The development of the AERMET data set requires the assessment of surface characteristics of the surface meteorological station. These characteristics include albedo, bowen ratio, and surface roughness. Albedo is the fraction of total incident solar radiation reflected by the surface back to space without absorption, bowen ratio is an indicator of surface moisture, and surface roughness length is related to the height of obstacles in relation to wind flow. The AERMET data was processed using the surface characteristics assessed by Georgia EPD. A comparative analysis of surface characteristics surrounding Plant Washington in Sandersville, Georgia and the surface meteorological station was conducted, according to the AERMOD Interim Guidance document.

A review of the surface characteristics surrounding Plant Washington indicates that they are comparable to the surface characteristics surrounding the surface meteorological station at the Macon Airport. Figure 5-3 is an aerial photo centered on the Macon airport surface meteorological data station during the modeled period (1987 to 1991) and Figure 5-4 is an aerial photo of the Plant Washington site. Each aerial photo was divided into the four sections: Section 1 from 350° to 80°, Section 2 from 80° to 140°, Section 3 from 140° to 220°, and Section 4 from 220° to 350°. These segments corresponded to the segments that were used in the AERMET processing. Figure 5-4 also shows the proposed site layout for Plant Washington as an overlay on the aerial photograph. Table 5-4 shows a qualitative comparison between the surface characteristics at the proposed coal-fired power plant and the Macon Airport. Based on this comparative analysis, the Macon Airport justifiably represents the meteorological conditions at the proposed site.

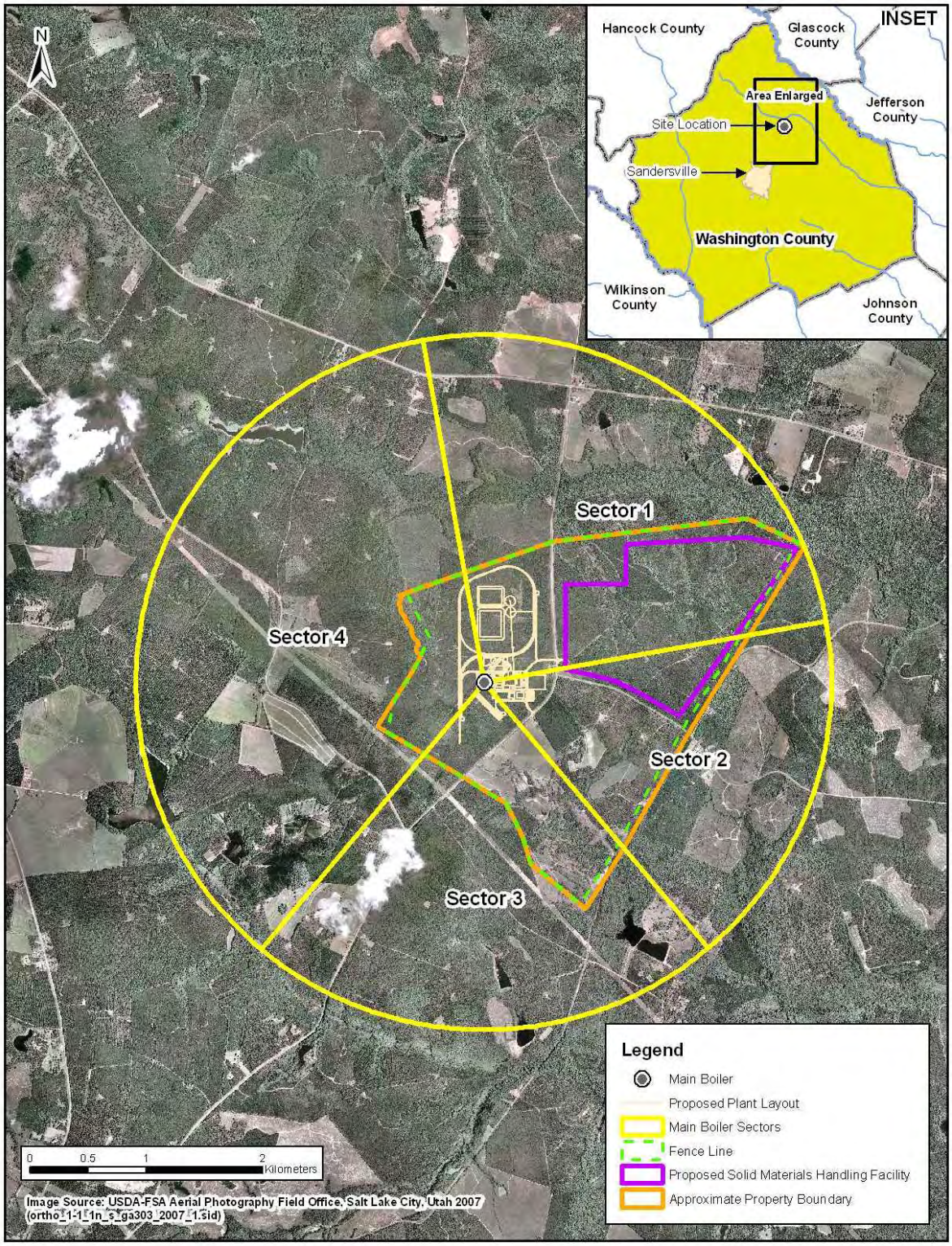
After the construction of Plant Washington, the forested areas where the plant will be located will be cleared. The area of the plant that will include the major operations (boiler, turbine, and emission control equipment) will make up a small amount of the overall area, with the largest portions being cleared/ open areas for the solid material storage handling facilities, coal storage area, and other open area. This largely open flat terrain would make the land use of the area more consistent with the area surrounding the Macon Airport.

Figure 5-3 Aerial View of Macon Surface Meteorological Station in Macon,GA



Prepared by: FC 7/2/09
Checked by: SAK 7/2/09

Figure 5-4 Equivalent Sectors of Plant Washington in Sandersville, Georgia



Prepared by: FC 7/2/09
Checked by: SAK 7/2/09

Table 5-4 Qualitative Comparisons between the Surface Characteristics at Plant Washigton and the Macon Airport

Surface Characteristic	Macon Airport	Plant Washington
Albedo – Total incident radiation reflected back into space. 0.1 – Deciduous Forest 0.9 – White Snow	Green area except for a few buildings and roads 0.1 – 0.2	Green area except for a few buildings and roads 0.1 – 0.2
Bowen Ratio – Indication of surface moisture. 0.10 – Over water 10 – Over Desert	For Sectors 1 and 3 – Elevated surface with excellent surface run-off with little standing water ~2 For Sector 2 – Poor surface run-off due to depression and poor soil permeability due to red clay. < 1 For Sector 4 – Primarily vegetation with good surface run-off ~1	For Sectors 1 and 3 Excellent surface run-off with little standing water ~2 For Sector 2 – Poor infiltration due to concrete surface; therefore, a lot of standing water < 1 For Sector 4- Primarily vegetation with good surface run-off ~1
Surface Roughness Length – Height of obstacles in principal where horizontal wind velocity is zero. 0.001 m – Water >1 m - for Forest or Urban	For Sectors 1 and 4 trees and buildings are at an average height of 30 ft except for airport runway ~1 For Sectors 2 and 3 – areas are predominantly green fields <1	For Sectors 1 and 4 trees, are at an average height of 30 ft except for cultivated areas ~1 For Sectors 2 and 3 – areas are predominantly green fields and cultivated areas <1

Completed by: BSA 11/26/08
Checked by: SAK 11/26/08

5.4 PSD SCREEN MODELING RESULTS

The screen modeling for PM_{10}, $PM_{2.5}$, NO_x, CO, SO_2, VOC, and Fluorides (as HF) were used to determine whether the proposed emission increases result in concentrations that exceed the SILs or the significant monitoring levels. Refined modeling is required if these significant levels are exceeded. There are separate

significance levels to assess whether preconstruction monitoring is required. Tables 5-5 through 5-10 show the results of the screen modeling for each pollutant, which are discussed in more detail below.

5.4.1 $PM_{2.5}$ Screen Model Results

Under current EPA guidance, $PM_{2.5}$ is not required to be modeled under PSD permitting rules, but instead PM_{10} is used as a surrogate for $PM_{2.5}$ because the EPA has not yet finalized SILs for $PM_{2.5}$ or determined how $PM_{2.5}$ should be modeled. The EPA has proposed three possible SIL levels for $PM_{2.5}$ as part of a proposed rule, however, the final level has not yet been set. This permit application does, however, include an evaluation that was completed for $PM_{2.5}$ in order to demonstrate that the project would have a negligible impact on $PM_{2.5}$ concentrations surrounding the plant. This modeling is not included to meet any regulatory requirements. The demonstration was completed using the current regulatory model used for PSD (AERMOD) based on worst case conditions under normal steady state operations. The demonstration modeling results for $PM_{2.5}$, as presented in Table 5-5, do not exceed the lowest of the three recently proposed SILs for the 24-hour and annual averaging periods (option 3 under the USEPA proposal).

Table 5-5 $PM_{2.5}$ Screening Results

$PM_{2.5}$ 24-Hour Screen Results			
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	1.17	338468.69	3658817.75
1988	1.08	336037.00	3659511.00
1989	1.01	336599.99	3660652.75
1990	1.11	336337.00	3659211.00
1991	1.13	338762.72	3659340.75
Significant Impact Level: 1.2 $\mu g/m^3$			
Significant Monitoring Level: 2.3 $\mu g/m^3$			
$PM_{2.5}$ Annual Screen Results			
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	0.15	338468.69	3658817.75
1988	0.15	336977.31	3660784.50
1989	0.16	338762.72	3659340.75
1990	0.15	336237.00	3659111.00
1991	0.15	336237.00	3659211.00
Significant Impact Level: 0.3 $\mu g/m^3$			

$\mu g/m^3$ - micrograms per cubic meter

Completed by: BSA 7/6/09
Checked by: SAK 76/09

5.4.2 PM_{10} Screen Model Results

The screen modeling results for PM_{10}, as presented in Table 5-6, do not exceed the SILs for the 24-hour and annual averaging periods; therefore, refined modeling is not required for the pollutant. The preconstruction monitoring level was also not exceeded.

Table 5-6 PM_{10} Screening Results

PM_{10} 24-Hour Screen Results			
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	3.61	337355.03	3660916.25
1988	3.91	336977.31	3660784.50
1989	4.95	337337.00	3660911.00
1990	3.69	337166.16	3660850.25
1991	4.01	337166.16	3660850.25
Significant Impact Level: 5 $\mu g/m^3$			
Significant Monitoring Level: 10 $\mu g/m^3$			
PM_{10} Annual Screen Results			
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	0.64	336977.31	3660784.50
1988	0.79	336977.31	3660784.50
1989	0.86	336977.31	3660784.50
1990	0.78	336977.31	3660784.50
1991	0.66	336666.31	3659139.75
Significant Impact Level: 1 $\mu g/m^3$			

$\mu g/m^3$ - micrograms per cubic meter

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09

5.4.3 NO_x Screen Model Results

The NO_x screen model results, as presented in Table 5-7 do not exceed the NO_x SIL on an annual averaging period basis; therefore a refined modeling evaluation is not required. The modeled results also did not exceed the significant monitoring concentration.

Table 5-7 NOx Screening Results

NO_x Annual Screen Results			
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	0.60	338468.69	3658817.75
1988	0.57	338566.69	3658992.00
1989	0.61	338762.72	3659340.75
1990	0.58	336237.00	3659111.00
1991	0.58	336137.00	3659111.00
Significant Impact Level: 1 $\mu g/m^3$			
Significant Monitoring Level: 14 $\mu g/m^3$			

$\mu g/m^3$ - micrograms per cubic meter

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09

5.4.4 CO Screen Model Results

As shown in Table 5-8, the modeled emissions do not exceed the CO SILs on a 1-hour or 8-hour averaging period. This result indicates that no further modeling is required. The significant monitoring concentration was also not exceeded; therefore, preconstruction monitoring is not required for CO.

Table 5-8 CO Screening Results

CO 1-Hour Screen Results			
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	127.7	338037.00	3661311.00
1988	125.8	335337.00	3662411.00
1989	112.7	338037.00	3661911.00
1990	105.4	337437.00	3662911.00
1991	97.6	337037.00	3662311.00
Significant Impact Level: 2,000 $\mu g/m^3$			
CO 8-Hour Screen Results			
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	55.4	337166.16	3660850.25
1988	60.0	336037.00	3659511.00
1989	56.1	336337.00	3659211.00
1990	51.6	336037.00	3659611.00
1991	51.9	336237.00	3659311.00
Significant Impact Level: 500 $\mu g/m^3$			
Significant Monitoring Level: 575 $\mu g/m^3$			

$\mu g/m^3$ - micrograms per cubic meter

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09

5.4.5 SO_2 Screen Model Results

The SO_2 screen model results, as presented in Table 5-9, exceed the SO_2 SILs for all averaging periods; therefore, a refined modeling analysis is required. This table includes the Area of Impact (AOI) calculations for the PSD screen modeling. The modeled results do not exceed the significant monitoring concentration.

Table 5-9 SO_2 Screening Result

SO_2 3-Hour Screen Results				**Area of Impact Radius (km)**
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**		
		X	**Y**	
1987	28.40	336257.88	3659405.00	1.85
1988	27.47	336537.00	3659111.00	1.31
1989	30.18	336337.00	3659211.00	1.40
1990	29.11	336337.00	3659211.00	1.47
1991	30.38	336637.00	3659011.00	1.52
Significant Impact Level: 25 $\mu g/m^3$			MAX:	1.85
SO_2 24-Hour Screen Results				**Area of Impact Radius (km)**
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**		
		X	**Y**	
1987	11.31	338468.69	3658817.75	5.42
1988	10.34	336037.00	3659511.00	3.95
1989	9.81	336337.00	3658911.00	4.95
1990	10.76	336337.00	3659111.00	4.89
1991	11.01	338762.72	3659340.75	4.96
Significant Impact Level: 5 $\mu g/m^3$			MAX:	5.42
Significant Monitoring Level: 13 $\mu g/m^3$				
SO_2 Annual Screen Results				**Area of Impact Radius (km)**
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**		
		X	**Y**	
1987	1.56	338517.69	3658904.75	2.62
1988	1.48	338566.69	3658992.00	2.43
1989	1.58	338762.72	3659340.75	2.72
1990	1.48	336337.00	3659111.00	2.51
1991	1.49	338517.69	3658904.75	2.57
Significant Impact Level: 1 $\mu g/m^3$			MAX:	2.72

Completed by: PBS 7/6/09
Checked by: SAK 7/6/09

5.4.6 Hydrogen Fluoride Screen Model Results

The HF screen model results, as presented in Table 5-10, did not exceed the HF significant monitoring concentration on a 24-hour averaging period basis.

Table 5-10 HF Screening Results

HF 24-Hour Screen Results			
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	0.02001	338468.69	3658817.75
1988	0.01789	336037.00	3659511.00
1989	0.01703	336337.00	3659211.00
1990	0.01821	336337.00	3659211.00
1991	0.01931	338762.72	3659340.75
Significant Impact Level: 0.25 $\mu g/m^3$			

$\mu g/m^3$ - micrograms per cubic meter

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09

5.4.7 Additional Modeling Evaluations

The primary goal of the above modeling evaluation was to demonstrate that the proposed plant will achieve compliance with all air quality standards during worst case base load operational conditions, which will occur during the majority of the time. Two additional operational modes (reduced load operation and startup operation) were evaluated for their potential impacts on air quality. The results from these evaluations are discussed in detail in the following sections.

5.4.7.1 Reduced Load Operational Evaluation

The proposed plant will at times operate at reduced loads (estimated at 40% production capacity) during the shoulder months (typically during spring and fall when power demands are below peak levels). The screen models were, therefore, rerun at this reduced operational load to evaluate the impact on air quality. The process (boiler/turbine) is less efficient at this reduced power production load. To produce 40% power the boiler will have to operate at approximately 50% fuel firing rate. This means that emissions and air flow rate from the main boiler stack will be at 50% of the previously modeled levels. The plant will continue to meet all its emission limits on a lb/MMBtu basis during this reduced loading period. Table 5-11 summarizes the results

of this modeling analysis. The results from this analysis found that the maximum impacts for all pollutants are below the significant impact levels, except for SO_2, for which a refined modeling analysis was completed.

Table 5-11 Full Load, 40% Load, and Startup Model Modeling Results

Pollutant	Avg. Period	Significant Impact Level (µg/m^3)	Full Load (µg/m^3)	40% Operational Load Mode (µg/m^3)	Startup Mode (µg/m^3)
PM_{10}	24-hr	5	4.95	4..92	4.80
PM_{10}	Annual	1	0.86	0.85	-
SO_2	3-hr	25	30.38	23.73	65.25
SO_2	24-hr	5	11.31	9.29	19.74
SO_2	Annual	1	1.58	1.34	-
CO	8-hr	500	60.02	45.03	19.74
CO	1-hr	2,000	127.7	82.75	65.25
NOx	Annual	1	0.60	0.51	-
µg/m^3 - micrograms per cubic meter					

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09

5.4.7.2 Startup Modeling Results

In addition to the 40% load conditions a modeling evaluation was also completed for the startup of the main boiler. All pollution control equipment will be operated during the startup of the boiler except for the SCR system. The SCR is ineffective below a certain temperature (approx. 450 degrees F) and therefore would not reduce NO_x if operated. The injection of ammonia into the flue gas during cold conditions can result in the corrosion of the downstream pollution control equipment. For this reason, the SCR will not be operating at maximum capacity until the startup process is complete. The NO_x emissions during the startup will therefore have the potential to be greater than that at normal 100 percent load conditions for brief periods of time.

The wet scrubber will be operated during the startup period, however, the unit will not achieve its maximum control efficiency for SO_2 until the end of the startup period. The wet scrubber is designed to have an optimal liquid to gas ratio. This ratio is difficult to maintain during the significantly varying exhaust flow conditions during startup. For this reason it will take until the end of the startup before the scrubber meets its peak control efficiency.

Table 5-12 provides the firing and emission rates for both the auxiliary boiler and main boiler for a 24-hour period during which a startup would occur. The startup of the main boiler will take an estimated 14 hours to complete. The auxiliary boiler will operate 4 hours prior to the startup and for the first 5 hours of the startup period for the main boiler. The primary purpose of the auxiliary boiler operation is to provide steam to the turbine during the startup and shutdown periods so as to prevent damage to the unit, which could be caused by large swings in steam loading to the turbine.

The hour of day (HROFDY) function in the AERMOD model allows for the modeling of a given 24-hour period during which the emission rates from a source are variable. The maximum emission rates for each pollutant was input into the model and the HROFDY function defines the ratio of the hourly emission rate to the maximum emission rate defined in the model. Table 5-13 provides the hourly emission rate ratio for each of the modeled pollutants for each hour of the modeled 24-hour period. The hour of day (HROFDY) function does not, however, allow for changes in the exhaust parameters (velocity and temperatures) that would occur as the boiler goes through its startup operations. The main boiler was, therefore, modeled as separate sources for each block of individual hours during which the velocities and temperatures from the boiler are constant. This results in the main boiler being modeled as 13 separate time blocks (5 through 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19 through 24). The HROFDY function runs the startup over the meteorological conditions for each day of the year and therefore ensures that a worst case evaluation is completed. Because the startup period is less than 24-hours, startup models for long term periods (annual) are not completed.

The results of the startup modeling are summarized in Table 5-11. As shown in the table the results from the startup models are below the PSD screening levels for all pollutants except SO_2 (refined modeling is already being completed for this pollutant).

Table 5-12 Firing and Emission rates for both the Auxiliary boiler and Main boiler during startup

	Modeled Hours																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	Aux Boiler Only				PC Boiler on Oil			1st Mill On					2nd Mill On				SCR & 3rd Mill On	4th & 5th Mills On						
Operational Status	**4 hours before startup**	**3 hours before startup**	**2 hours before startup**	**1 hour before startup**	**PC Boiler Startup Begns**	**Startup**	**Startup**	**Startup**	**Startup**	**Startup, Auxillary Boiler Goes Down**	**Startup**	**Startup**	**Startup**	**Startup**	**Startup**	**Startup**	**Startup**	**Startup**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**
PC Boiler Exit Velocity (m/s)	0.00	0.00	0.00	0.00	1.98	1.98	1.98	3.95	4.09	4.42	4.54	4.65	5.12	5.67	6.43	7.50	9.81	16.11	18.55	18.55	18.55	18.55	18.55	18.55
PC Boiler Coal Heat Input (MMBtu/hr)	0	0	0	0	0	0	0	972	1,121	1,270	1,322	1,374	1,670	2,007	2,344	2,825	3,917	7,062	8,300	8,300	8,300	8,300	8,300	8,300
PC Boiler Fuel Oil Heat Input (MMBtu/hr)	0	0	0	0	885	885	885	797	708	708	708	708	620	531	531	531	472	148	0	0	0	0	0	0
PC Boiler Total Heat Input (MMBtu/hr)	0	0	0	0	885	885	885	1,769	1,829	1,978	2,030	2,082	2,290	2,538	2,875	3,356	4,389	7,210	8,300	8,300	8,300	8,300	8,300	8,300
Aux Boiler Heat Input	240	240	240	240	240	240	240	240	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM_{10} - PC Boiler (lb/MMBtu)	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
PM_{10} - Aux Boiler (lb/MMBtu)	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024
PM_{10} - PC Boiler (lb/hr)	0	0	0	0	15.93	15.93	15.93	31.84	32.92	35.60	36.54	37.48	41.22	45.68	51.75	60.41	79.00	129.78	149.40	149.40	149.40	149.40	149.40	149.40
PM_{10} - Aux Boiler (lb/hr)	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$PM_{2.5}$ - PC Boiler (lb/MMBtu)	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124	0.0124
$PM_{2.5}$ - Fuel Oil (lb/MMBtu)	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
$PM_{2.5}$ - Aux Boiler (lb/MMBtu)	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
$PM_{2.5}$ - PC Boiler (lb/hr)	0	0	0	0	10.337	10.337	10.337	21.32	22.13	23.97	24.61	25.25	27.88	31.01	35.17	41.12	53.93	89.01	102.6	102.6	102.6	102.6	102.6	102.6
$PM_{2.5}$ - Aux Boiler (lb/hr)	2.803	2.803	2.803	2.803	2.803	2.803	2.803	2.803	2.803	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SO_2 - Uncontrolled Coal Emissions - PC Boiler (lb/MMBtu)	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622	4.622
SO_2 - Uncontrolled Coal Emissions - Fuel Oil (lb/MMBtu)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
SO_2 - Control Efficiency - PC Boiler	-	-	-	-	0.0%	0.0%	0.0%	80.0%	82.0%	84.0%	84.0%	85.0%	88.0%	90.0%	91.0%	93.0%	95.0%	97.0%	97.5%	97.5%	97.5%	97.5%	97.5%	97.5%
SO_2 - Aux Boiler (lb/MMBtu)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
SO_2 - PC Boiler (lb/hr)	0	0	0	0	44.3	44.3	44.3	906	939	945	983	958	930	930	977	916	906	979	959	959	959	959	959	959
SO_2 - Aux Boiler (lb/hr)	12	12	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NOx - PC Boiler (lb/MMBtu)	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NOx - Fuel Oil (lb/MMBtu)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NOx - Aux Boiler (lb/MMBtu)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NOx - PC Boiler (lb/hr)	0	0	0	0	88.5	88.5	88.5	293.54	317.42	350.2	361.64	373.08	429.4	494.64	568.78	674.6	282.22	367.9	415	415	415	415	415	415
NOx - Aux Boiler (lb/hr)	24	24	24	24	24	24	24	24	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CO - PC Boiler (lb/MMBtu)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
CO - Fuel Oil (lb/MMBtu)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
CO - Aux Boiler (lb/MMBtu)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
CO - PC Boiler (lb/hr)	0	0	0	0	35.4	35.4	35.4	323.5	364.6	409.3	424.9	440.5	525.8	623.3	724.4	868.7	1194	2125	2490	2490	2490	2490	2490	2490
CO - Aux Boiler (lb/hr)	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*PC Boiler lb/hr emissions are reflective of both the Coal and Fuel Oil inputs.

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09

Table 5-13 Hourly Emission Rate Ratio for each of the Modeled Pollutants for Main Boiler/Auxiliary Boiler (Fraction of Full Load)

	1	2	3	4	5	6	7	8	9	10	11	12
	Aux Boiler Only				PC Boiler on Oil			1st Mill On				
PC Boiler Ratios	**4 hours before startup**	**3 hours before startup**	**2 hours before startup**	**1 hour before startup**	**PC Boiler Startup Begns**	**Startup**	**Startup**	**Startup**	**Startup**	**Startup, Auxillary Boiler Goes Down**	**Startup**	**Startup**
PM_{10} - PC Boiler Ratio	0.00	0.00	0.00	0.00	0.11	0.11	0.11	0.21	0.22	0.24	0.24	0.25
$PM_{2.5}$ - PC Boiler Ratio	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.21	0.22	0.23	0.24	0.25
SO_2 - PC Boiler Ratio	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.95	0.98	0.99	1.03	1.00
NOx - PC Boiler Ratio	0.00	0.00	0.00	0.00	0.21	0.21	0.21	0.71	0.76	0.84	0.87	0.90
CO - PC Boiler Ratio	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.13	0.15	0.16	0.17	0.18

	13	14	15	16	17	18	19	20	21	22	23	24
	2nd Mill On				SCR & 3rd Mill On	4th & 5th Mills On						
PC Boiler Ratios	**Startup**	**Startup**	**Startup**	**Startup**	**Startup**	**Startup**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**
PM_{10} - PC Boiler Ratio	0.28	0.31	0.35	0.40	0.53	0.87	1.00	1.00	1.00	1.00	1.00	1.00
$PM_{2.5}$ - PC Boiler Ratio	0.27	0.30	0.34	0.40	0.53	0.87	1.00	1.00	1.00	1.00	1.00	1.00
SO_2 - PC Boiler Ratio	0.97	0.97	1.02	0.95	0.95	1.02	1.00	1.00	1.00	1.00	1.00	1.00
NOx - PC Boiler Ratio	1.03	1.19	1.37	1.63	0.68	0.89	1.00	1.00	1.00	1.00	1.00	1.00
CO - PC Boiler Ratio	0.21	0.25	0.29	0.35	0.48	0.85	1.00	1.00	1.00	1.00	1.00	1.00

Completed by: BSA 11/26/08
Checked by: SAK 11/26/08

Table 5-13 Hourly Emission Rate Ratio for each of the Modeled Pollutants for Main Boiler/Auxiliary Boiler (Continued)

	1	2	3	4	5	6	7	8	9	10	11	12
	Aux Boiler Only				PC Boiler on Oil			1st Mill On				
Auxiliary Boiler Ratios	**4 hours before startup**	**3 hours before startup**	**2 hours before startup**	**1 hour before startup**	**PC Boiler Startup Begns**	**Startup**	**Startup**	**Startup**	**Startup**	**Startup, Auxillary Boiler Goes Down**	**Startup**	**Startup**
PM_{10} - AUX Boiler Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
$PM_{2.5}$ - AUX Boiler Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
SO_2 - AUX Boiler Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
NOx - AUX Boiler Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
CO - AUX Boiler Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00

	13	14	15	16	17	18	19	20	21	22	23	24
	2nd Mill On				SCR & 3rd Mill On	4th & 5th Mills On						
Auxiliary Boiler Ratios	**Startup**	**Startup**	**Startup**	**Startup**	**Startup**	**Startup**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**	**Boiler Reaches Full Load**
PM_{10} - AUX Boiler Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
$PM_{2.5}$ - AUX Boiler Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO_2 - AUX Boiler Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NOx - AUX Boiler Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO - AUX Boiler Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Completed by: BSA 11/26/08
Checked by: SAK 11/26/08

5.5 SIGNIFICANT IMPACT AREA DETERMINATION AND DETERMINATION OF OFF-SITE EMISSIONS DATA FOR REFINED SO2 MODELING

The Area of Impact (AOI) was determined to be a circular area with the radius extending from the center of Plant Washington to the farthest point that exceeds the applicable SIL as predicted by the screen model. For the 3-hr and annual modeling concentration the farthest point was within the 100 meter grid receptor spacing. However for the 24-hour average run the farthest point extended beyond this into the 500 meter receptor spacing at a distance of 5.38 km. This distance was therefore further refined by running a group of 100 meter receptors outward for 500 meters from the 500 meter spaced receptor to ensure that the model result for the farthest point was established within the 100 meter spacing. With the addition of these receptors the final AOI for the 24-hour average model was 5.42 km. Refined modeling is required for all receptors within the AOI. Five years of meteorological data were used to determine the worst-case AOI for SO_2 and each averaging period.

USEPA guidance states that 50 kilometers must be added to the impact radius to complete the off-site emission source retrieval. A list of sources emitting SO_2 within 56 kilometers of the proposed site was requested from GA EPD to determine the off-site sources that would be required to be included in the modeling. GA EPD provided spreadsheets that identified all sources within the SIA, along with their corresponding emission rates and stack parameters. These spreadsheets also identified the sources' status as "PSD increment consuming," or "PSD increment expander" for increment-modeling purposes. The PSD-increment-consuming sources were modeled as positive emission rates and the PSD-expanding sources were modeled as negative emission rates for the PSD increment models. Table C-2 in Exhibit C provides the modeled sources included in the PSD increment modeling. For each modeled parameter in the table a reference number is provided. These reference numbers identify the basis for each parameter, which is noted on the last page of the table.

For the purposes of completing the NAAQS modeling, the Georgia EPD provided the 2005 emission inventory database. All sources of SO_2 emissions in the database that are within 56 km of the proposed site were included in the modeling evaluation. The stack parameters from the database were used in the modeling analysis. The emission rates were based on a review of each plant's Title V permit applications and Title V permits. This data review was completed to determine the maximum allowable SO_2 emissions rate for each source being modeled. All NAAQS models included the increment consumers. Table C-1 in Exhibit C provides the modeled data for all off site sources included in the NAAQS SO_2 modeling. This table also provides reference notes that identify the basis for all modeled parameters. In some cases individual sources do

not have SO_2 emission limits. In those cases the maximum allowed SO_2 emission rate was calculated based on the maximum fuel feed rate and the maximum sulfur content of the fuel being burned.

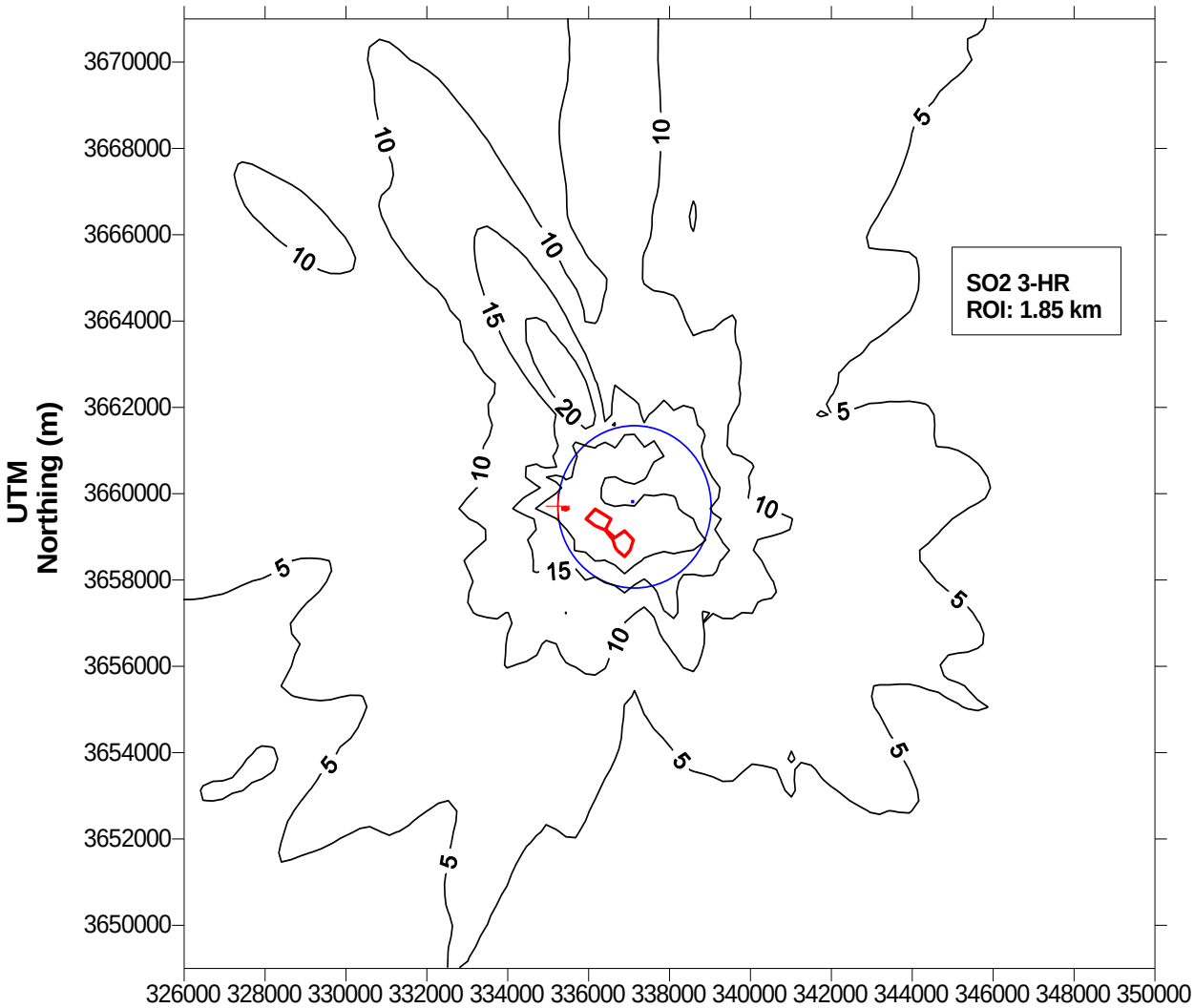
In addition to the spreadsheets, a review of PSD permits and other construction permits issued within 56 km of the proposed site was also completed to ensure that all new sources were included in the modeling. The EPA's Envirofacts Data Warehouse (EDW) database was used to identify these permits. The impact of these off site sources on the air quality models is largely determined by the emission rates and the distance between the emission source and the proposed Plant Washington. In order to reduce the large number of SO_2 emission sources identified by the EDW database to those could potentially impact the proposed Plant Washington; the "20D" screening technique was used.

The "20D Rule" allows for the elimination of any sources for which plant wide allowable emissions, measured in tons per year, are less than 20 times the mean distance (expressed in kilometers) from the source being modeled. For the annual averaging period, the distance is taken from the source to the outer edge of the significant impact area (SIA). For the short term averaging period, the distance is taken from the source to the center of the proposed site location.

A large number of these permits were SIP permits, which by definition have a Potential to Emit (PTE) of SO_2 emission of less than 100 tpy. Therefore if a location of SIP permit source is greater than 10.4 km from the proposed site (5 km beyond the AOI), it will be screened out using the "20D" rule. Any source outside Washington County is greater than 10 km away from the projects AOI, therefore only SIP permits within Washington County underwent a "20D" review.

Table C-7 in Exhibit C provides a listing of facilities in counties within 55.4 km of the proposed site, including their "20D" applicability analysis where applicable. The emission rates for these facilities were based on a review of each plant's Title V permit applications and Title V permits. The results of the "20D" applicability analysis show that all the facilities within the 56 km of the proposed facility that are not screened out are included in the modeling.

Figure 5-5 Significant Impact Area: 1987 SO_2 Modeling Results, 3-hour



Key:

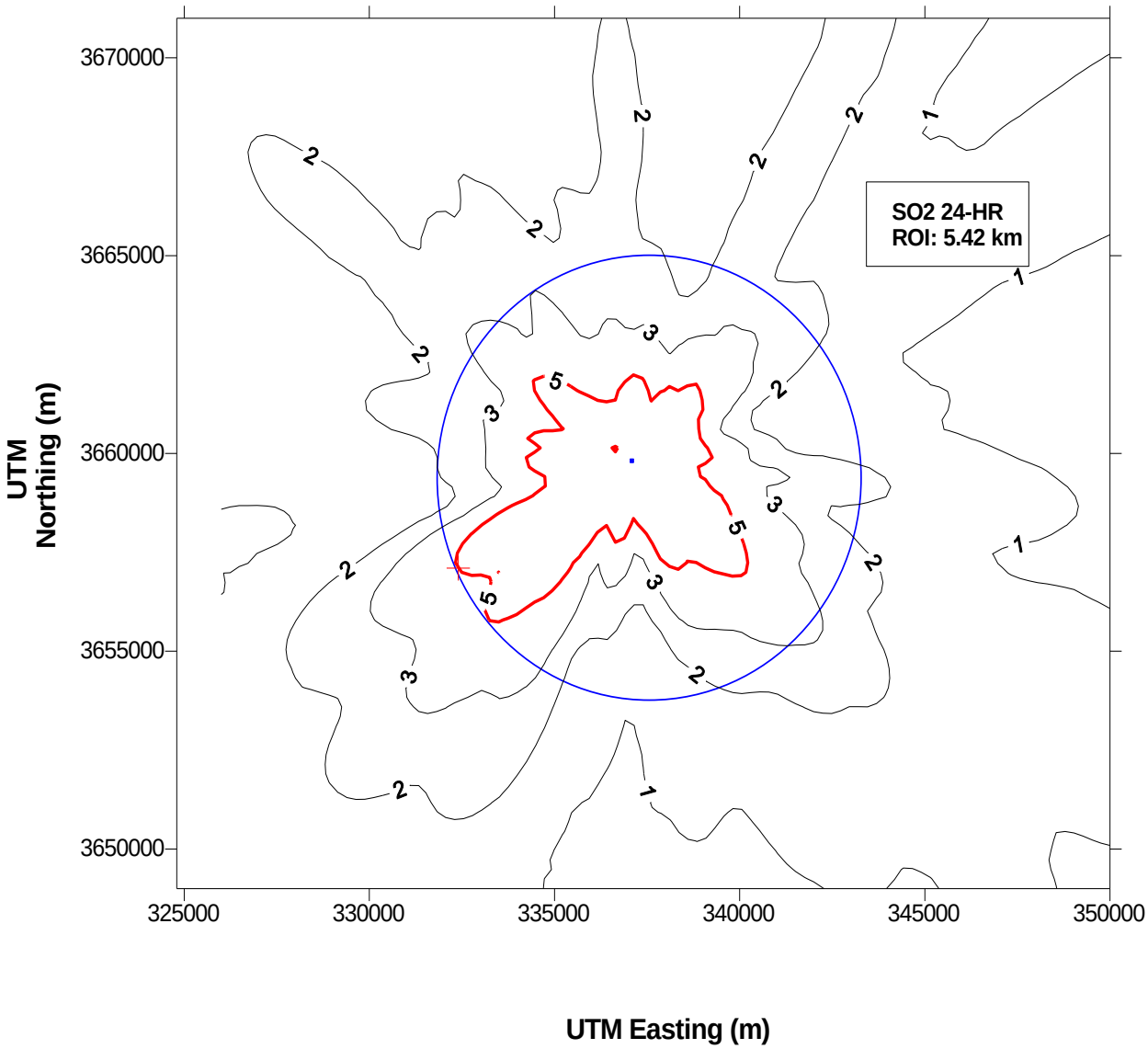
+ **Farthest receptor above the 3-hr average significant impact level (25 µg/m3).**

SO2 Concentration Contours
Main Stack
25 µg/m3 SO2 Concentration Contour

ROI: Radius Of Impact, the distance from the center of the facility to the furthest point exceeding the significant impact level.

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09

Figure 5-6 Significant Impact Analysis: 1987 SO_2 Modeling Results, 24-hour



Key:

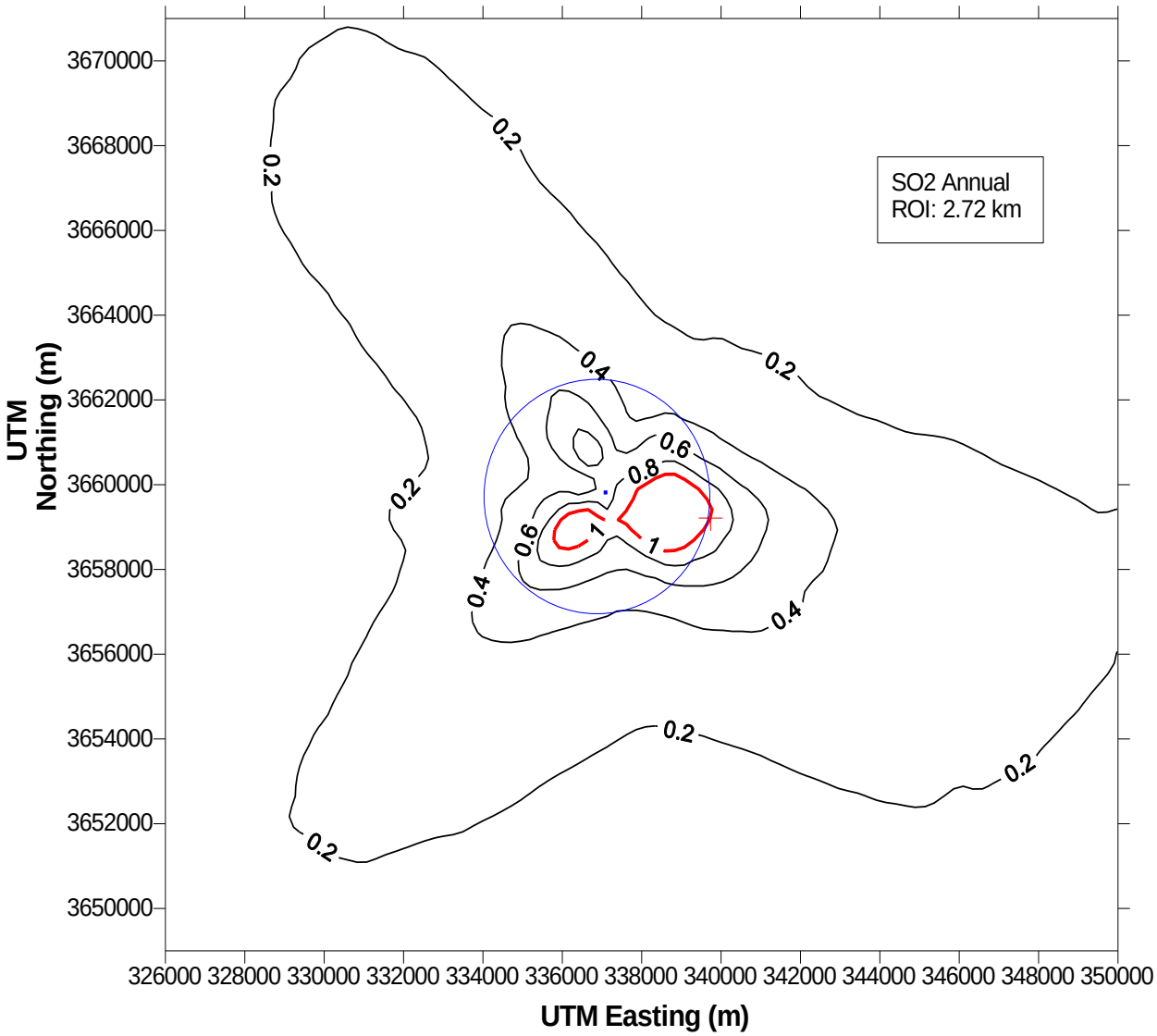
+ **Farthest receptor above the 24-hr average significant impact level (5 µg/m3).**

SO2 Concentration Contours
Main Stack
5 µg/m3 SO2 Concentration Contour

ROI: Radius Of Impact, the distance from the center of the facility to the furthest point exceeding the significant impact level.

Completed by: PBS 7/6/09
Checked by: SAK 7/6/09

Figure 5-7 Significant Impact Area: 1989 SO_2 Modeling Results, Annual



Key:

+ Farthest receptor above the annual average significant impact level (1 µg/m3).

SO2 Concentration Contours
Main Stack
1 µg/m3 SO2 Concentration Contour

ROI: Radius Of Impact, the distance from the center of the facility to the furthest point exceeding the significant impact level.

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09

5.6 REFINED MODELING ANALYSIS

Refined modeling was required for SO_2 based on the screen model results; therefore, modeling was performed to demonstrate compliance with the PSD increment and NAAQS standards, which are listed in Table 5-14. A background ambient concentration was obtained to determine compliance with the NAAQS standards for SO_2. This background concentration must be added to the NAAQS modeling results before a comparison to the standards can be made. The same meteorological data and receptor data used for the screen modeling was used for the refined modeling.

Table 5-14 Background, NAAQS, and PSD Increment Standards

Pollutant	Averaging Period	Background Concentration (µg/m^3)[1]	NAAQS (µg/m^3)	PSD Increment Standard (µg/m^3)
SO_2	3-hour	187	1,300	512
	24-hour	41	365	91
	Annual	8	80	20

µg/m^3 = micrograms per cubic meter

1. As provided by Georgia EPD

Completed by: BSA 11/26/08
Checked by: SAK 11/26/08

5.7 NATIONAL AMBIENT AIR QUALITY STANDARD MODELING RESULTS

The high-second-high modeled concentration was used for comparison to the standard for the SO_2 24-hour and 3-hour averaging periods. The high-second-high concentration is the highest of the second high results from each of the five years of modeled meteorological data. For the annual standards, each year of meteorological data was modeled and the highest value from all five models was compared to the annual standard. The NAAQS modeling included all proposed emission sources at their maximum hourly emission rates, as well as the off-site sources that are within the AOI. The refined SO_2 modeling (NAAQS and PSD Increment) included only those receptors that were within the largest calculated SIA for SO_2.

Table 5-15 presents the results for SO_2 and demonstrates compliance with the 3-hr, 24-hr, and annual standards. If the maximum result from all five years of models for each averaging period was located at a receptor which was not in the 100 meter spacing area, four additional receptors at 100 meter spacing were added around the maximum in order to ensure that the real maximum had been identified. The maximum result from all five of these receptors (the original plus the four additional receptors) is reported in the table.

Table 5-15 SO_2 NAAQS Modeling Summary

SO_2 3-Hour Results			
Year of Model Run	**2nd Highest Concentration (µg/m³)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	101.71	334500.00	3655000.00
1988	113.09	332000.00	3660000.00
1989	117.44	332000.00	3661600.00
1990	105.19	334000.00	3655500.00
1991	106.09	333500.00	3663500.00
Maximum Concentration: 117.44 µg/m³			
Background Concentration: 187 µg/m³			
Combined Concentration: 304.44 µg/m³			
NAAQS Level: 1,300 µg/m³			
SO_2 24-Hour Results			
Year of Model Run	**2nd Highest Concentration (µg/m³)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	28.67	338419.66	3658730.50
1988	38.56	335500.00	3665000.00
1989	42.47	334400.00	3664500.00
1990	35.00	332000.00	3659500.00
1991	31.29	338566.69	3658992.00
Maximum Concentration: 42.47 µg/m³			
Background Concentration: 41 µg/m³			
Combined Concentration: 83.47 µg/m³			
NAAQS Level: 365 µg/m³			
SO_2 Annual Results			
Year of Model Run	**Maximum Concentration (µg/m³)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	5.97	336037.00	3659111.00
1988	6.78	336237.00	3659211.00
1989	7.23	338811.97	3659427.75
1990	5.82	336337.00	3659111.00
1991	5.98	336237.00	3659111.00
Maximum Concentration: 7.23 µg/m³			
Background Concentration: 8 µg/m³			
Combined Concentration: 15.23 µg/m³			
NAAQS Level: 80 µg/m³			

µg/m³ - micrograms per cubic meter

Completed by: BSA 7/6/09
Checked by: SAK 7/6/09

5.8 PSD INCREMENT MODELING RESULTS

PSD increment modeling was completed in addition to NAAQS modeling. One goal of the PSD increment modeling is to determine the increase in ground-level concentrations of SO_2 since its established baseline date (1975). Another goal is to determine whether the increases exceed the allowable PSD increments for the corresponding pollutants. The proposed power plant is a green-field facility; therefore, all emission sources are new and consume PSD increment.

The PSD increment model also includes off-site emission sources, which are increment consumers or expanders. As discussed previously, the Georgia sources were identified as consumers or expanders in the spreadsheets provided by GA EPD. The consumers were modeled as positive sources, while the expanders were modeled as negative sources. The receptor grid and meteorological data used for the NAAQS modeling were used for the PSD increment consumption modeling. The refined SO_2 modeling (NAAQS and PSD Increment) included only those receptors that were within the largest calculated SIA for SO_2.

Table 5-16 compares the highest modeling results for the annual averaging period and the highest second high for the 3-hour and 24-hour to the PSD SO_2 increment standards. Compliance with all standards is demonstrated.

Table 5-16 SO_2 PSD Increment Modeling Summary

SO_2 3-Hour Results			
Year of Model Run	**2nd Highest Concentration (µg/m³)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	26.99	336937.00	365811.00
1988	26.48	336237.00	365911.00
1989	27.70	336408.75	3659293.50
1990	28.43	336408.75	3659293.50
1991	24.84	336637.00	3659111.00
PSD Increment Level: 28.43 µg/m³			
PSD Increment Standard: 512 µg/m³			
SO_2 24-Hour Results			
Year of Model Run	**2nd Highest Concentration (µg/m³)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	10.15	338468.69	3658817.75
1988	9.41	336337.00	3659211.00
1989	9.49	336337.00	3659211.00
1990	9.62	336337.00	3659011.00
1991	10.30	338468.69	3658817.75
PSD Increment Level: 10.30 µg/m³			
PSD Increment Standard: 91 µg/m³			
SO_2 Annual Results			
Year of Model Run	**Maximum Concentration (µg/m³)**	**Location of Receptors (UTM)**	
		X	**Y**
1987	1.92	338517.69	3658904.75
1988	1.76	338566.69	3658992.00
1989	1.86	338762.72	3659340.75
1990	1.76	336337.00	3659111.00
1991	1.81	336237.00	3659111.00
PSD Increment Level: 1.92 µg/m³			
PSD Increment Standard: 20 µg/m³			

µg/m³ - micrograms per cubic meter

Completed by: PBS 7/6/09
Checked by: SAK 7/6/09

5.9 STARTUP MODELING NAAQS/PSD INCREMENT EVALUATION

The startup modeling evaluation showed that all pollutants modeled below their corresponding SILs, except for SO_2.The refined modeling analysis presented in the previous sections demonstrated that the project's maximum impact would be well below both the NAAQS and PSD Increment levels for SO_2. An evaluation was also completed to demonstrate that plant would be in compliance with NAAQS and PSD increment during startup conditions. As a worst case evaluation, the maximum modeled concentration during startup conditions (from Table 5-11) was added separately to the results from the NAAQS in Table 5-15 (including background) and PSD increment models (5-16) and compared to the standards. Table 5-17 and 5-18 presents these results, which demonstrate that the project would not cause an exceedance of either NAAQS or PSD increment during startup conditions. This evaluation is extremely conservative because it includes the boiler operating under steady state conditions as well as during startup conditions simultaneously and assumes that the maximum modeled concentrations from both these operations would occur at the same location.

Table 5-17 SO_2 NAAQS-Startup Modeling Summary

Pollutant	Avg. Period	Maximum Concentration (Startup Models) (µg/m^3)	Maximum Concentration (SO_2 NAAQS Models) (µg/m^3)	Background Concentration (µg/m^3)	Total Concentration (µg/m^3)	NAAQS (µg/m^3)
SO_2	3-hr	65.25	117.44	187	370	1,300
SO_2	24-hr	19.74	42.47	41	103	365

Completed by: PBS 7/6/09
Checked by: SAK 7/6/09

Table 5-18 SO_2 PSD Increment-Startup Modeling Summary

Pollutant	Avg. Period	Maximum Concentration (Startup Models) (µg/m^3)	Maximum Concentration (SO_2 PSD Increment Models) (µg/m^3)	Total Concentration (µg/m^3)	PSD Increment Standard (µg/m^3)
SO_2	3-hr	65.25	28.43	94	512
SO_2	24-hr	19.74	10.30	30	91

Completed by: PBS 7/6/09
Checked by: SAK 7/6/09

6.0 AIR TOXICS MODELING

The proposed project was evaluated for compliance with the Georgia Air Toxics program using the "Guideline for Ambient Impact Assessment of Toxic Air Pollutant Emissions" dated June 21, 1998. The first step was to calculate the potential emissions of all toxic pollutants from Plant Washington. The calculations are based on USEPA AP-42 emission factors for sub-bituminous coal and fuel oil (distillate) combustion and test report data from the study of Hazardous Air Pollutant emissions from Electric utility Steam Generating Units- Final report to congress. Exhibit A provides the toxic emission calculations and Exhibit C provides the development of the Allowable Ambient Concentrations (AACs) for the project.

For each toxic pollutant identified, an AAC was developed by following the Georgia guidelines. The Georgia guidelines prioritize the available resources for toxicity data. First priority is given to inhalation reference concentrations (RfC) and Risk Based Air Concentrations (RBAC), which are identified in the USEPA's Integrated Risk Information System (IRIS) database, followed by OSHA PEL standards, ACGIH TLVs, NIOSH RELs, and LD50 toxicity data. AACs developed from worker exposure levels are based on 40 hours/week of exposure and must be adjusted to account for the potential exposure of the public (7 days/week, 24 hours/day). This correction along with the application of a safety factor of 300 for known carcinogenic compounds and 100 for all others is utilized in the development of AACs from worker exposure standards. The safety factor is applied to account for persons who may be sensitive to exposure to these pollutants. Toxicity data taken from the IRIS database does not require any adjustments because exposures to persons with respiratory maladies, young children, or the elderly were taken into account in the determination of these values. Short-term exposures are addressed using OSHA, NIOSH, and ACGIH Short Term Exposure Limits (STEL), and ceiling limits. A safety factor of 10 is universally applied to all short-term standards.

The next step was a dispersion analysis. Each source of pollutants (main boiler and auxiliary boiler) was modeled using the USEPA SCREEN3 model assuming an emission rate of 1 g/s. Table 6-1 below shows the results of this modeling for each of the sources.

Table 6-1 SCREEN3 Modeling Results Summary

Source ID	Source	Stack Height (m)	Stack Dia. (m)	Stack Velocity (m/s)	Stack Temp. (K)	1-Hour MGLC from SCREEN3 Analysis ($\mu g/m^3$)
MAIN	Coal Fired Boiler	137.16	9.14	18.55	333	0.698
AUX	Auxiliary Boiler	32.43	1.52	19.81	408	5.962

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09

The SCREEN3 model result for each boiler was multiplied by its corresponding emission rate to determine the Maximum Ground Level Concentration (MGLC) for each. The MGLC for each boiler was then added together in order to determine the project's overall MGLC. It is likely that each boiler's MGLC would occur at a different location downwind because of the differing stack heights. Assuming the two MGLCs occur at the same location will, therefore, conservatively over estimates the overall MGLC.This analysis is additionally conservative because it assumes that the auxiliary boiler will be operating at the same time as the main boiler on a continuous basis. The auxiliary boiler will only operate up to 10% of the time on an annual basis.

Following the Georgia guidelines, the 1-hour concentration for the actual emission rate from each toxic was determined by a direct ratio of emission rates. The 1-hour MGLC from the SCREEN3 model was adjusted to an annual, 24-hr continuous, and short-term (15-min) concentration using the correction factors 0.08, 0.40, and 1.32, respectively. These annual and short-term MGLC's were then compared to the derived AACs and short-term limits. The results of this analysis are summarized in Table 6-2. A few of the evaluated toxics (arsenic, hexavalent chromium, manganese, and nickel) were near or above their corresponding AACs. As per the Georgia guidelines, ISCST3 modeling was completed for these pollutants. The results of the analysis for the ISCST3 models are shown below in Table 6-3. The results of these models demonstrate compliance with the Georgia air toxics program.

Table 6-2 Toxic Emission Summary

Pollutant	Main Boiler (lb/hr)	Main Boiler (g/s)	Auxiliary Boiler (lb/hr)	Auxiliary Boiler (g/s)	Main Boiler 1-Hr MGLC (mg/m^3)	Auxiliary Boiler 1-Hr MGLC (mg/m^3)	Total 1-Hr MGLC (mg/m^3)	Annual MGLC (mg/m^3)[2]	AAC Annual (mg/m^3)	% of allowable AAC[1]	24-Hr MGLC (mg/m^3)[1]	AAC 24-hour (mg/m^3)	% of allowable AAC[1]	15-Min MGLC (mg/m^3)	Short (15-min) Term Limit (mg/m^3)	% of allowable Short Term Limit
Organics																
Acenaphthene	2.49E-04	3.14E-05	3.62E-05	4.56E-06	2.19E-08	2.72E-08	4.91E-08	3.93E-09	-	-	1.96E-08	0.04	0.00005%	6.48E-08	-	-
Acenaphthylene	1.22E-04	1.54E-05	4.34E-07	5.47E-08	1.07E-08	3.26E-10	1.11E-08	8.85E-10	-	-	4.42E-09	0.12	0.000004%	1.46E-08	-	-
Acetaldehyde	2.78E-01	3.50E-02	1.97E-03	2.48E-04	2.45E-05	1.48E-06	2.59E-05	2.08E-06	4.55E-03	0.05%	1.04E-05	-	-	3.42E-05	4.50	0.0008%
Acetophenone	7.32E-03	9.22E-04		-	6.44E-07		6.44E-07	5.15E-08		-	2.58E-07	0.12	0.0002%	8.50E-07	-	-
Acrolein	1.42E-01	1.78E-02		-	1.24E-05		1.24E-05	9.96E-07	2.00E-05	4.98%	4.98E-06	-	-	1.64E-05	0.02	0.07%
Ammonia	51.07	6.43E+00		-	4.49E-03		4.49E-03	3.59E-04	1.00E-01	0.36%	1.80E-03	-	-	5.93E-03	2.44	0.2432%
Anthracene	1.02E-04	1.29E-05	2.09E-06	2.64E-07	9.01E-09	1.57E-09	1.06E-08	8.47E-10		-	4.23E-09	4.76E-04	0.0009%	1.40E-08	-	-
Benzene	6.34E-01	7.99E-02	3.67E-04	4.63E-05	5.58E-05	2.76E-07	5.61E-05	4.49E-06	4.55E-04	0.99%	2.24E-05	-	-	7.40E-05	0.80	0.009%
Benzo(a)anthracene	3.90E-05	4.92E-06	6.87E-06	8.67E-07	3.43E-09	5.17E-09	8.60E-09	6.88E-10	-	-	3.44E-09	4.76E-04	0.001%	1.14E-08	-	-
Benzo(a)pyrene	1.85E-05	2.34E-06		-	1.63E-09		1.63E-09	1.30E-10	-	-	6.52E-10	4.76E-04	0.0001%	2.15E-09	-	-
Benzo(b)fluoranthene	6.64E-05	8.37E-06		-	5.84E-09		5.84E-09	4.67E-10	-	-	2.34E-09	4.76E-04	0.0005%	7.71E-09	-	-
Benzo(e)pyrene	8.30E-06	1.05E-06		-	7.30E-10		7.30E-10	5.84E-11	-	-	2.92E-10	6.21E-04	0.00005%	9.64E-10	-	-
Benzo(g,h,i)perylene	2.10E-05	2.64E-06	3.87E-06	4.89E-07	1.85E-09	2.91E-09	4.76E-09	3.81E-10	-	-	1.90E-09	6.21E-04	0.0003%	6.28E-09	-	-
Benzo(g,h,i)pyrene	1.32E-05	1.66E-06		-	1.16E-09		1.16E-09	9.27E-11	-	-	4.64E-10	6.21E-04	0.0001%	1.53E-09	-	-
Benzo(b,k)fluoranthene	5.37E-05	6.76E-06	2.54E-06	3.20E-07	4.72E-09	1.91E-09	6.63E-09	5.30E-10	-	-	2.65E-09	4.76E-04	0.001%	8.75E-09	-	-
Benzo(k)fluoranthene	3.32E-05	4.18E-06		-	2.92E-09		2.92E-09	2.34E-10	-	-	1.17E-09	4.76E-04	0.0002%	3.85E-09	-	-
Benzyl chloride	3.42E-01	4.30E-02		-	3.00E-05		3.00E-05	2.40E-06	-	-	1.20E-05	1.19E-02	0.101%	3.97E-05	0.50	0.008%
Biphenyl	1.49E-03	1.88E-04		-	1.31E-07		1.31E-07	1.05E-08	-	-	5.26E-08	2.38E-03	0.002%	1.73E-07	-	-
bis(2-Ethylhexyl)phthalate	3.56E-02	4.49E-03		-	3.13E-06		3.13E-06	2.51E-07	-	-	1.25E-06	1.19E-02	0.01%	4.14E-06	1.00	0.0004%
Bromoform	5.48E-02	6.90E-03		-	4.82E-06		4.82E-06	3.85E-07	9.09E-03	0.004%	1.93E-06	-	-	6.36E-06	-	-
2-Butanone (MEK)	1.90E-01	2.40E-02		-	1.67E-05		1.67E-05	1.34E-06	5.00	0.00003%	6.70E-06	-	-	2.21E-05	88.47	0.00002%
Carbon tetrachloride	2.70E-02	3.40E-03		-	2.37E-06		2.37E-06	1.90E-07	6.67E-04	0.03%	9.49E-07	-	-	3.13E-06	15.73	0.00002%
Carbon disulfide	6.34E-02	7.99E-03		-	5.58E-06		5.58E-06	4.46E-07	0.70	0.0001%	2.23E-06	-	-	7.37E-06	9.33	0.0001%
Chlorobenzene	2.64E-02	3.33E-03		-	2.32E-06		2.32E-06	1.86E-07	-	-	9.29E-07	0.83	0.0001%	3.06E-06	-	-
Chloroform	2.88E-02	3.63E-03		-	2.53E-06		2.53E-06	2.03E-07	4.35E-04	0.05%	1.01E-06	-	-	3.34E-06	24.00	0.00001%
Chloromethane	2.59E-01	3.26E-02		-	2.28E-05		2.28E-05	1.82E-06	0.09	0.002%	9.10E-06	-		3.00E-05	41.40	0.0001%
2-Chloronaphthalene	3.32E-04	4.18E-05		-	2.92E-08		2.92E-08	2.34E-09	3.01E-03	0.0001%	1.17E-08	-	-	3.85E-08	7.86	0.0000005%
2-Chloroacetophenone	3.42E-03	4.30E-04		-	3.00E-07		3.00E-07	2.40E-08	3.00E-05	0.08%	1.20E-07	-	-	3.97E-07	-	-
Chrysene	4.88E-05	6.15E-06	4.08E-06	5.15E-07	4.29E-09	3.07E-09	7.36E-09	5.89E-10	-	-	2.94E-09	4.76E-04	0.001%	9.72E-09	-	-
Cumene	2.59E-03	3.26E-04		-	2.28E-07		2.28E-07	1.82E-08	0.40	0.000005%	9.10E-08	-	-	3.00E-07	-	-
Cyanide	1.22E+00	1.54E-01		-	1.07E-04		1.07E-04	8.58E-06		-	4.29E-05	1.19E-02	0.3606%	1.42E-04		-
Dibenzo(a,h)anthracene	1.55E-05	1.95E-06	2.86E-06	3.61E-07	1.36E-09	2.15E-09	3.52E-09	2.81E-10	-	-	1.41E-09	4.76E-04	0.0003%	4.64E-09	-	-
Di-nbutylphthalate	2.32E-02	2.93E-03		-	2.04E-06		2.04E-06	1.64E-07	-		8.18E-07	0.01	0.007%	2.70E-06	-	-
Dimethyl sulfate	2.34E-02	2.95E-03		-	2.06E-06		2.06E-06	1.65E-07	-	-	8.24E-07	1.19E-02	0.01%	2.72E-06	-	-
7,12-Dimethylbenz(a)anthracene	4.88E-06	6.15E-07		-	4.29E-10		4.29E-10	3.44E-11	-	-	1.72E-10	4.76E-04	0.00004%	5.67E-10	-	-
2,4-Dinitrotoluene	1.37E-04	1.72E-05		-	1.20E-08		1.20E-08	9.62E-10	-	-	4.81E-09	3.57E-03	0.0001%	1.59E-08	-	-
Ethylbenzene	4.59E-02	5.78E-03	1.09E-04	1.37E-05	4.03E-06	8.20E-08	4.12E-06	3.29E-07	1.00	0.00003%	1.65E-06	-	-	5.43E-06	54.27	0.00001%
Ethyl Chloride	2.05E-02	2.58E-03		-	1.80E-06		1.80E-06	1.44E-07	10.00	0.000001%	7.21E-07	-	-	2.38E-06	-	-
Ethylene dichloride	2.57E-02	3.24E-03		-	2.26E-06		2.26E-06	1.81E-07	3.85E-04	0.05%	9.05E-07	-		2.99E-06	40.48	0.00001%
Ethylene dibromide	5.86E-04	7.38E-05		-	5.15E-08		5.15E-08	4.12E-09	1.67E-06	0.25%	2.06E-08	-		6.80E-08	23.06	0.0000003%
Fluoranthene	3.46E-04	4.37E-05	8.30E-06	1.05E-06	3.05E-08	6.24E-09	3.67E-08	2.94E-09	-	-	1.47E-08	0.01	0.0002%	4.85E-08	-	-
Fluorene	4.44E-04	5.60E-05	7.66E-06	9.66E-07	3.91E-08	5.76E-09	4.48E-08	3.59E-09	-	-	1.79E-08	4.76E-04	0.0038%	5.92E-08	-	-
Formaldehyde	3.06E-01	3.86E-02	5.66E-02	7.13E-03	2.70E-05	4.25E-05	6.95E-05	5.56E-06	7.69E-04	0.72%	2.78E-05	-	-	9.17E-05	0.25	0.04%
Hexane	3.27E-02	4.12E-03		-	2.88E-06		2.88E-06	2.30E-07	0.70	0.00003%	1.15E-06	-	-	3.80E-06	-	
Hydrogen chloride	2.40E+01	3.03E+00		-	2.11E-03		2.11E-03	1.69E-04	2.00E-02	0.84%	8.45E-04	-	-	2.79E-03	0.70	0.40%
Indeno(1,2,3,c,d)pyrene	2.98E-05	3.75E-06	3.67E-06	4.63E-07	2.62E-09	2.76E-09	5.38E-09	4.30E-10	-	-	2.15E-09	4.76E-04	0.0005%	7.10E-09	-	-
Isophorone	2.83E-01	3.57E-02		-	2.49E-05		2.49E-05	1.99E-06	-	-	9.96E-06	0.33	0.003%	3.29E-05	2.83	0.001%

Completed by : PBS 7/2/2009
Checked by :SAK 7/2/2009

Table 6-2 Toxic Emission Summary

Pollutant	Main Boiler (lb/hr)	Main Boiler (g/s)	Auxiliary Boiler (lb/hr)	Auxiliary Boiler (g/s)	Main Boiler 1-Hr MGLC (mg/m^3)	Auxiliary Boiler 1-Hr MGLC (mg/m^3)	Total 1-Hr MGLC (mg/m^3)	Annual MGLC (mg/m^3)[2]	AAC Annual (mg/m^3)	% of allowable AAC[1]	24-Hr MGLC (mg/m^3)[1]	AAC 24-hour (mg/m^3)	% of allowable AAC[1]	15-Min MGLC (mg/m^3)	Short (15-min) Term Limit (mg/m^3)	% of allowable Short Term Limit
Methyl Bromide	7.81E-02	9.84E-03		-	6.87E-06		6.87E-06	5.49E-07	0.005	0.01%	2.75E-06	-		9.07E-06	8.00	0.0001%
Methyl hydrazine	8.30E-02	1.05E-02		-	7.30E-06		7.30E-06	5.84E-07	-	-	2.92E-06	4.52E-05	6.45%	9.63E-06	0.04	0.03%
MIBK	4.07E-02	5.12E-03		-	3.58E-06		3.58E-06	2.86E-07	3.00	0.00001%	1.43E-06	-	-	4.72E-06	30.72	0.00002%
MMA	9.76E-03	1.23E-03		-	8.58E-07		8.58E-07	6.87E-08	0.70	0.00001%	3.43E-07	-	-	1.13E-06	40.95	0.000003%
2-Methylnaphthalene	2.66E-04	3.35E-05	4.08E-06	5.15E-07	2.34E-08	3.07E-09	2.64E-08	2.11E-09	-	-	1.06E-08	0.01	0.0002%	3.49E-08	-	-
3-Methylchloranthrene	5.49E-07	6.92E-08		-	4.83E-11		4.83E-11	3.87E-12	-	-	1.93E-11	6.90E-03	0.0000003%	6.38E-11	-	-
MTBE	1.71E-02	2.15E-03		-	1.50E-06		1.50E-06	1.20E-07	3.00	0.000004%	6.01E-07	-	-	1.98E-06	-	-
Methylene chloride	1.42E-01	1.78E-02	7.74E-03	9.76E-04	1.24E-05	5.82E-06	1.83E-05	1.46E-06	2.13E-02	0.01%	7.31E-06	-	-	2.41E-05	43.42	0.0001%
Naphthalene	1.05E-02	1.32E-03	1.94E-03	2.44E-04	9.23E-07	1.46E-06	2.38E-06	1.90E-07	3.00E-03	0.01%	9.52E-07	-	-	3.14E-06	7.86	0.00004%
5-Methyl chrysene	1.07E-05	1.35E-06		-	9.44E-10		9.44E-10	7.55E-11	-	-	3.78E-10	4.76E-04	0.0001%	1.25E-09	-	-
OCDD	2.88E-08	3.63E-09		-	2.53E-12		2.53E-12	2.03E-13		-	1.01E-12	6.90E-02	0.000000001%	3.34E-12	-	-
Phenanthrene	1.32E-03	1.66E-04	1.80E-05	2.27E-06	1.16E-07	1.35E-08	1.29E-07	1.04E-08	-	-	5.18E-08	4.76E-04	0.01%	1.71E-07	-	-
Phenol	5.06E-02	6.38E-03	5.83E-03	7.35E-04	4.45E-06	4.38E-06	8.84E-06	7.07E-07	-	-	3.54E-06	4.52E-02	0.01%	1.17E-05	6.00	0.0002%
Propionaldehyde	1.85E-01	2.34E-02		-	1.63E-05		1.63E-05	1.30E-06	8.00E-03	0.02%	6.52E-06		-	2.15E-05	-	-
Pyrene	1.61E-04	2.03E-05	7.29E-06	9.19E-07	1.42E-08	5.48E-09	1.96E-08	1.57E-09	-	-	7.86E-09	4.76E-04	0.002%	2.59E-08	-	-
Styrene	2.57E-02	3.24E-03		-	2.26E-06		2.26E-06	1.81E-07	1.00	0.00002%	9.05E-07	-	-	2.99E-06	85.20	0.000004%
Sulfuric Acid (H_2SO_4) [1]	3.32E+01	4.18E+00	1.44E-02	1.82E-03	2.92E-03	1.08E-05	2.93E-03	2.34E-04	-	-	1.17E-03	2.38E-03	49.243%	3.87E-03	**0.30**	1.2897%
Tetrachloroethylene	2.57E-02	3.24E-03	1.32E-04	1.66E-05	2.26E-06	9.92E-08	2.36E-06	1.89E-07	-	-	9.45E-07	1.61	0.0001%	3.12E-06	135.60	0.000002%
Toluene	1.17E-01	1.48E-02	1.06E-02	1.34E-03	1.03E-05	7.99E-06	1.83E-05	1.46E-06	5.00	0.00003%	7.32E-06	-	-	2.41E-05	113.00	0.00002%
1,1,1-Trichloroethane	2.84E-02	3.58E-03	1.82E-03	2.30E-04	2.50E-06	1.37E-06	3.87E-06	3.09E-07	-		1.55E-06	4.52	0.00003%	5.11E-06	246.00	0.000002%
1,1,2-Trichloroethane	3.90E-02	4.92E-03		-	3.43E-06		3.43E-06	2.75E-07	6.25E-03	0.004%	1.37E-06	-	-	4.53E-06	-	-
1,2.4-Trichlorobenzene	1.25E-02	1.58E-03		-	1.10E-06		1.10E-06	8.81E-08		-	4.40E-07	-	-	1.45E-06	3.70	0.00004%
Trichloroethylene	2.57E-02	3.24E-03		-	2.26E-06		2.26E-06	1.81E-07	-	-	9.05E-07	1.28	0.0001%	2.99E-06	107.50	0.000003%
Vinyl acetate	3.71E-03	4.67E-04	1.24E-03	1.56E-04	3.26E-07	9.29E-07	1.26E-06	1.00E-07	0.20	0.00005%	5.02E-07	-	-	1.66E-06	5.28	0.00003%
Xylene	3.86E-02	4.86E-03	3.26E-04	4.11E-05	3.39E-06	2.45E-07	3.64E-06	2.91E-07	0.10	0.00029%	1.46E-06	-	-	4.80E-06	65.10	0.00001%
m-Xylene	1.20E-02	1.52E-03		-	1.06E-06		1.06E-06	8.47E-08	0.10	0.00008%	4.23E-07		-	1.40E-06	65.10	0.000002%
o-Xylene	6.72E-03	8.47E-04		-	5.91E-07		5.91E-07	4.73E-08	0.10	0.00005%	2.37E-07		-	7.81E-07	65.10	0.000001%
p-Xylene	1.20E-02	1.52E-03		-	1.06E-06		1.06E-06	8.47E-08	0.10	0.00008%	4.23E-07		-	1.40E-06	65.10	0.000002%
P-cresol	7.89E-03	9.94E-04		-	6.94E-07		6.94E-07	5.55E-08		-	2.77E-07	0.05	0.0005%	9.16E-07		-
Pentachlorophenol	6.64E-05	8.37E-06		-	5.84E-09		5.84E-09	4.67E-10	-		2.34E-09	1.19E-03	0.0002%	7.71E-09		-
Hexachlorobenzene	6.64E-04	8.37E-05		-	5.84E-08		5.84E-08	4.67E-09	2.17E-05	0.02%	2.34E-08		-	7.71E-08		-
Methyl iodide	3.32E-03	4.18E-04		-	2.92E-07		2.92E-07	2.34E-08		-	1.17E-07	0.07	0.0002%	3.85E-07		-
1,3-Butadiene	3.08E-03	3.88E-04		-	2.71E-07		2.71E-07	2.17E-08	3.33E-05	0.07%	1.08E-07		-	3.58E-07	1.10	0.00003%
1,3-Dichloropropene	5.48E-03	6.91E-04		-	4.82E-07		4.82E-07	3.86E-08	2.50E-03	0.002%	1.93E-07		-	6.37E-07		-
1,4-Dichlorobenzene	8.76E-03	1.10E-03		-	7.71E-07		7.71E-07	6.16E-08	0.80	0.00001%	3.08E-07		-	1.02E-06		-
2,4,6-Trichlorophenol	6.64E-06	8.37E-07		-	5.84E-10		5.84E-10	4.68E-11	3.23E-03	0.000001%	2.34E-10		-	7.71E-10		-
2,4-Dinitrophenol	8.92E-05	1.12E-05		-	7.85E-09		7.85E-09	6.28E-10		-	3.14E-09	8.98E-04	0.0003%	1.04E-08		-
4-Nitrophenol	3.32E-05	4.19E-06		-	2.92E-09		2.92E-09	2.34E-10		-	1.17E-09	5.18E-03	0.00002%	3.86E-09		-
Allyl Chloride	6.66E-02	8.40E-03		-	5.86E-06		5.86E-06	4.69E-07	1.00E-03	0.05%	2.34E-06		-	7.74E-06	0.60	0.0013%
Calcium Cyanamide	2.81E-02	3.54E-03		-	2.47E-06		2.47E-06	1.98E-07	-		9.89E-07	1.19E-03	0.0831%	3.26E-06		-
Dibenzo[a,j]Acridine	4.25E-03	5.35E-04		-	3.74E-07		3.74E-07	2.99E-08		-	1.49E-07	0.03	0.0004%	4.93E-07		-
Dibenzofuran	4.75E-03	5.99E-04		-	4.18E-07		4.18E-07	3.34E-08		-	1.67E-07		-	5.52E-07		-
Diethyl Sulfate	1.94E-02	2.44E-03		-	1.70E-06		1.70E-06	1.36E-07		-	6.81E-07	0.04	0.002%	2.25E-06		-
Dimethyl Phthalate	8.00E-04	1.01E-04		-	7.04E-08		7.04E-08	5.63E-09		-	2.82E-08	0.01	0.0002%	9.29E-08		-
Polychlorinated Biphenyls	1.14E-04	1.44E-05		-	1.00E-08		1.00E-08	8.02E-10	1.00E-04	0.0008%	4.01E-09		-	1.32E-08		-
Propylene Dichloride	9.97E-03	1.26E-03		-	8.77E-07		8.77E-07	7.01E-08	4.00E-03	0.002%	3.51E-07		-	1.16E-06	50.80	0.000002%
Sodium Cyanide	6.71E-01	8.46E-02		-	5.90E-05		5.90E-05	4.72E-06	-		2.36E-05	0.012	0.1984%	7.79E-05	0.50	0.02%
Toluene-2,4-Diamine	1.14E-04	1.44E-05		-	1.00E-08		1.00E-08	8.04E-10		-	4.02E-09	5.52E-03	0.0001%	1.33E-08		-

Completed by : PBS 7/2/2009
Checked by :SAK 7/2/2009

Table 6-2 Toxic Emission Summary

Pollutant	Main Boiler (lb/hr)	Main Boiler (g/s)	Auxiliary Boiler (lb/hr)	Auxiliary Boiler (g/s)	Main Boiler 1-Hr MGLC (mg/m^3)	Auxiliary Boiler 1-Hr MGLC (mg/m^3)	Total 1-Hr MGLC (mg/m^3)	Annual MGLC (mg/m^3)[2]	AAC Annual (mg/m^3)	% of allowable AAC[1]	24-Hr MGLC (mg/m^3)[1]	AAC 24-hour (mg/m^3)	% of allowable AAC[1]	15-Min MGLC (mg/m^3)	Short (15-min) Term Limit (mg/m^3)	% of allowable Short Term Limit
Vinyl Chloride	5.92E-03	7.46E-04		-	5.21E-07		5.21E-07	4.17E-08	2.27E-04	0.02%	2.08E-07		-	6.88E-07	1.28	0.0001%
Dioxins (Total)	8.03E-08	1.01E-08	2.11E-09	2.66E-10	7.07E-12	1.59E-12	8.66E-12	6.92E-13	4.00E-08	0.0017%	3.46E-12		-	1.14E-11		-
Metals																
Antimony	1.46E-02	1.83E-03		-	1.28E-06		1.28E-06	1.02E-07	2.00E-04	0.05%	5.12E-07		-	1.69E-06	-	-
Arsenic	3.13E-01	3.94E-02	9.60E-04	1.21E-04	2.75E-05	7.22E-07	2.82E-05	1.00E-07	2.33E-07	**970.64 % / 43.00%**	1.13E-05	-	-	3.72E-05	2.00E-04	18.62%
Beryllium	2.85E-02	3.59E-03	7.20E-04	9.08E-05	2.50E-06	5.41E-07	3.04E-06	2.44E-07	4.17E-06	5.85%	1.22E-06	-	-	4.02E-06	5.00E-04	0.80%
Cadmium	5.35E-02	6.74E-03	7.20E-04	9.08E-05	4.71E-06	5.41E-07	5.25E-06	4.20E-07	5.56E-06	7.56%	2.10E-06	-	-	6.93E-06	3.00E-02	0.02%
Chromium (II,III)	2.02E-01	2.55E-02	7.20E-04	9.08E-05	1.78E-05	5.41E-07	1.83E-05	1.47E-06	-	-	7.33E-06	1.19E-03	0.62%	2.42E-05	-	-
Chromium (VI)	6.91E-02	8.70E-03		-	6.08E-06		6.08E-06	2.00E-08	8.33E-08	**583.26 % / 24.00%**	2.43E-06	-	-	8.02E-06	0.01	0.08%
Cobalt	4.88E-02	6.15E-03		-	4.29E-06		4.29E-06	3.43E-07	-	-	1.72E-06	2.38E-04	0.72%	5.67E-06	-	-
Copper	7.80E-03	9.83E-04	1.44E-03	1.82E-04	6.86E-07	1.08E-06	1.77E-06	1.42E-07	-	-	7.08E-07	2.38E-04	0.30%	2.33E-06	-	-
Lead	1.33E-01	1.67E-02	2.16E-03	2.72E-04	1.17E-05	1.62E-06	1.33E-05	1.06E-06	-	-	5.32E-06	1.19E-04	4.47%	1.76E-05	-	-
Mercury	1.39E-02	1.75E-03	7.20E-04	9.08E-05	1.22E-06	5.41E-07	1.77E-06	1.41E-07	3.00E-04	0.05%	7.06E-07	-	-	2.33E-06	0.01	0.02%
Magnesium	5.37E+00	6.76E-01		-	4.72E-04		4.72E-04	3.78E-05	-	-	1.89E-04	0.0357	0.53%	6.23E-04	-	-
Manganese	9.35E-01	1.18E-01	1.44E-03	1.82E-04	8.22E-05	1.08E-06	8.33E-05	2.90E-07	5.00E-05	**13.33 % / 0.58%**	3.33E-05	-	-	1.10E-04	0.50	0.02%
Nickel	1.64E-01	2.07E-02	7.20E-04	9.08E-05	1.45E-05	5.41E-07	1.50E-05	5.00E-08	4.17E-06	**28.81 % / 1.20%**	6.00E-06	-		1.98E-05	-	-
Phosphorus	2.61E-01	3.29E-02	2.68E-02	3.39E-03	2.30E-05	2.02E-05	4.32E-05	3.45E-06	-	-	1.73E-05	2.38E-04	7.25%	5.70E-05	-	-
Selenium	6.34E-01	7.99E-02	3.60E-03	4.54E-04	5.58E-05	2.71E-06	5.85E-05	4.68E-06	-	-	2.34E-05	4.76E-04	4.91%	7.72E-05	-	-
Zinc	5.20E-03	6.55E-04	9.60E-04	1.21E-04	4.57E-07	7.22E-07	1.18E-06	9.43E-08	-	-	4.72E-07	1.19E-02	3.96E-03 %	1.56E-06	1.00	0.0002%
Additional Evaluations																
Hydrogen Fluoride, as F	1.80E+00	2.27E-01	2.23E-03	2.82E-04	1.58E-04	1.68E-06	1.60E-04	1.28E-05	-	-	6.40E-05	5.95E-03	1.08%	2.11E-04	2.30E-01	0.09%
Cumulative Impact										**90.88%**			**76.78%**			**21.77%**

1. The model results in the highlighted cells are based on ISCST modeling and not the Screen3 results.The corresponding % of allowable ACC values for each of these concentrations shows the % of AAC when using the Screen3 model (1st) and % of AAC when using the ISCST model (2nd). See Table 6-3 for ISCST modeling results.

Sample1-hr MGLC Calculations for Acenaphthene

Main Boiler Emission	3.14E-05	g/s
Auxiliary Boiler Emission	4.56E-06	g/s
Main Boiler Screen 3 Modeling result	6.98E-04	mg/m^3
Auxiliary Boiler Screen 3 Modeling result	5.96E-03	mg/m^3

1-Hr MGLC Calculations

3.14E-5 g/s * 6.98E-04 mg/m3 + 4.56E-6 g/s * 6.02E-03 mg/m3 = 4.91E-08 mg/m3

Completed by : PBS 7/2/2009
Checked by :SAK 7/2/2009

Table 6-3 ISCST3 Toxics Modeling Results

Arsenic : Annual Average Period			
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**	
1974	1.00E-04	340137.00	3658011.00
1975	8.00E-05	333000.00	3660000.00
1976	9.00E-05	340137.00	3658011.00
1977	1.00E-04	333000.00	3660000.00
1978	1.00E-04	333000.00	3660000.00
Maximum Concentration: 1.00E-04 $\mu g/m^3$			
Allowable Concentration : 2.33E-04 $\mu g/m^3$			
% of Allowable AAC: 43 %			
Hexavalent Chromium : Annual Average Period			
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**	
1974	2.00E-05	340137.00	3658011.00
1975	2.00E-05	333000.00	3660000.00
1976	2.00E-05	340137.00	3658011.00
1977	2.00E-05	333000.00	3660000.00
1978	2.00E-05	333000.00	3660000.00
Maximum Concentration: 2.00E-05 $\mu g/m^3$			
Allowable Concentration : 8.33E-05 $\mu g/m^3$			
% of Allowable AAC: 24 %			
Manganese : Annual Average Period			
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**	
1974	2.80E-04	340137.00	3658011.00
1975	2.40E-04	333000.00	3660000.00
1976	2.60E-04	340137.00	3658011.00
1977	2.90E-04	333000.00	3660000.00
1978	2.90E-04	333000.00	3660000.00
Maximum Concentration: 2.90E-04 $\mu g/m^3$			
Allowable Concentration : 5.00E-02 $\mu g/m^3$			
% of Allowable AAC: 0.58 %			
Nickel : Annual Average Period			
Year of Model Run	**Maximum Concentration ($\mu g/m^3$)**	**Location of Receptors (UTM)**	
1974	5.00E-05	340137.00	3658011.00
1975	4.00E-05	333000.00	3660000.00
1976	5.00E-05	340137.00	3658011.00
1977	5.00E-05	333000.00	3660000.00
1978	5.00E-05	333000.00	3660000.00
Maximum Concentration: 5.00E-05 $\mu g/m^3$			
Allowable Concentration : 4.17E-03 $\mu g/m^3$			
% of Allowable AAC: 1.20 %			

$\mu g/m^3$ - micrograms per cubic meter

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09

The Georgia Air Toxics program also requires an evaluation to ensure that the cumulative/ synergistic impacts from all toxics combined does not exceed safe levels. This is to ensure that a group of toxics that impact the same organ system do not have an accumulative or synergistic impact above safe levels. To evaluate the potential synergistic impacts from a group of toxics, the guideline requires summing the percent of each individual AAC that is consumed (i.e. the MGLC divided by the AAC) for each emitted toxic, which impacts the same organ system. As long as the combined total is less than 100%, the combined impact is considered acceptable. For this evaluation the percent of the AAC was summed for each averaging period for all pollutants regardless of which organ it affects and the results are shown at the bottom of Table 6-2. As shown the cumulative impact from all toxics emitted for the annual, 24-hour, and 15-minute average are all below 100% (90.88%, 76.78%, and 21.77% respectively). It should be noted that various toxics compounds affect different organ systems, therefore, the above analysis is very conservative in that it assumes all toxics would be impacting the same system.

7.0 CLASS I AREA MODELING

A Class I modeling evaluation was completed in order to assess the projects impact on Class I areas within 300 km of the site. The PSD permit coordinator with the Federal Land Manager (FLM) was contacted to determine what analyses should be completed in order to assess the project's impact on these Class I areas. The PSD coordinator indicated that a visibility impairment analysis, a deposition analysis, and an initial screening analysis should be completed per the FLM Air Quality Related Values Workgroup (FLAG) Phase I document. The latest version of this documented dated July 2008 was used to evaluate the proposed facility's impact on each of the Class I areas.

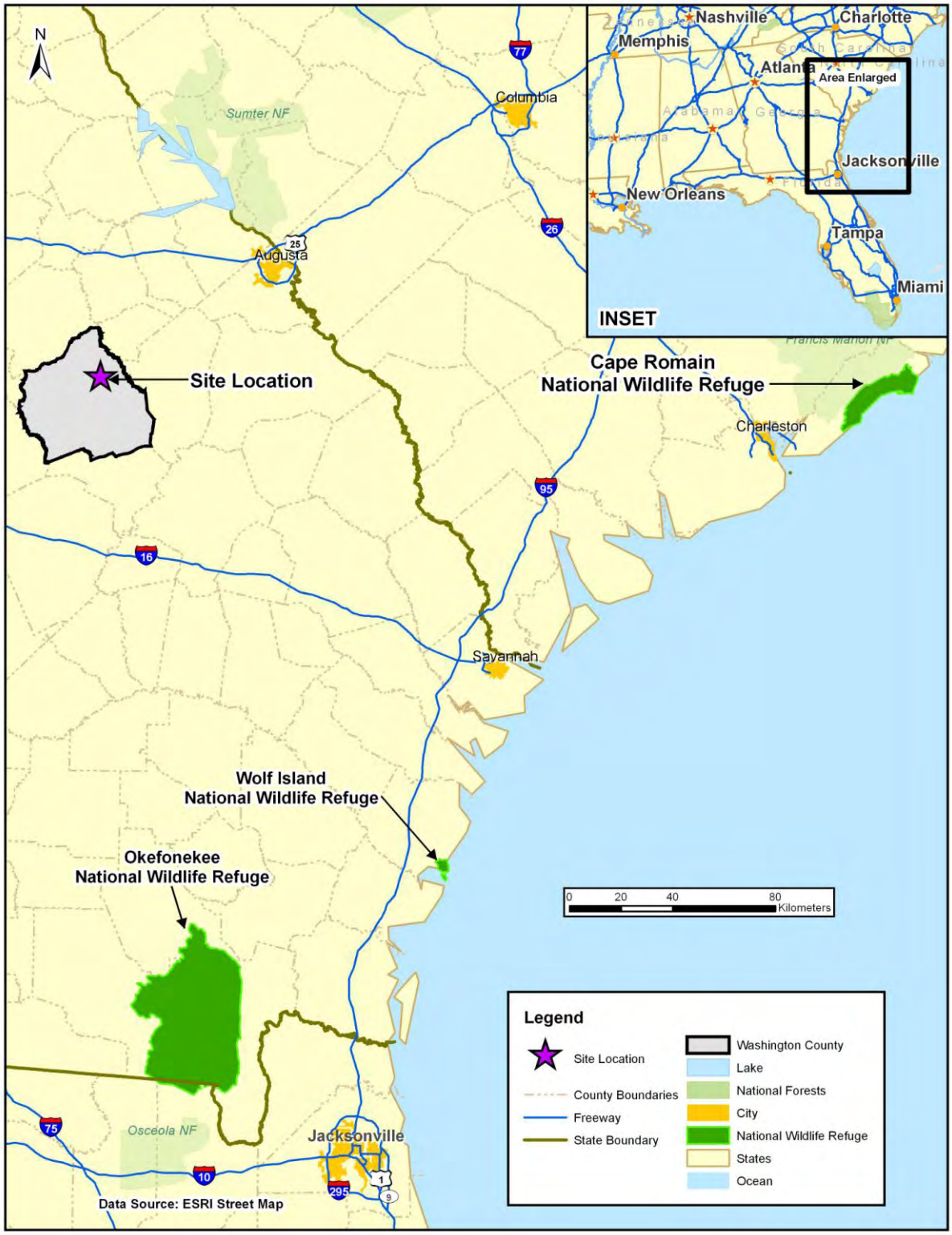
Plant Washington is located near several Class I areas. Table 7-1 below lists each Class I area and the distance to the point closest to Plant Washington. Figures 7-1 and 7-2 show the location of the Class I areas in relation to Plant Washington.

Table 7-1 Class I Areas within 300 km Plant Washington

Class I Area	Distance to Plant Washington (km)
Cape Romain	289
Cohutta Wilderness	261
Great Smokey Mountains	273
Joyce Kilmer-Slickrock Wilderness	276
Okefenokee	227
Shining Rock	252
Wolf Island	231

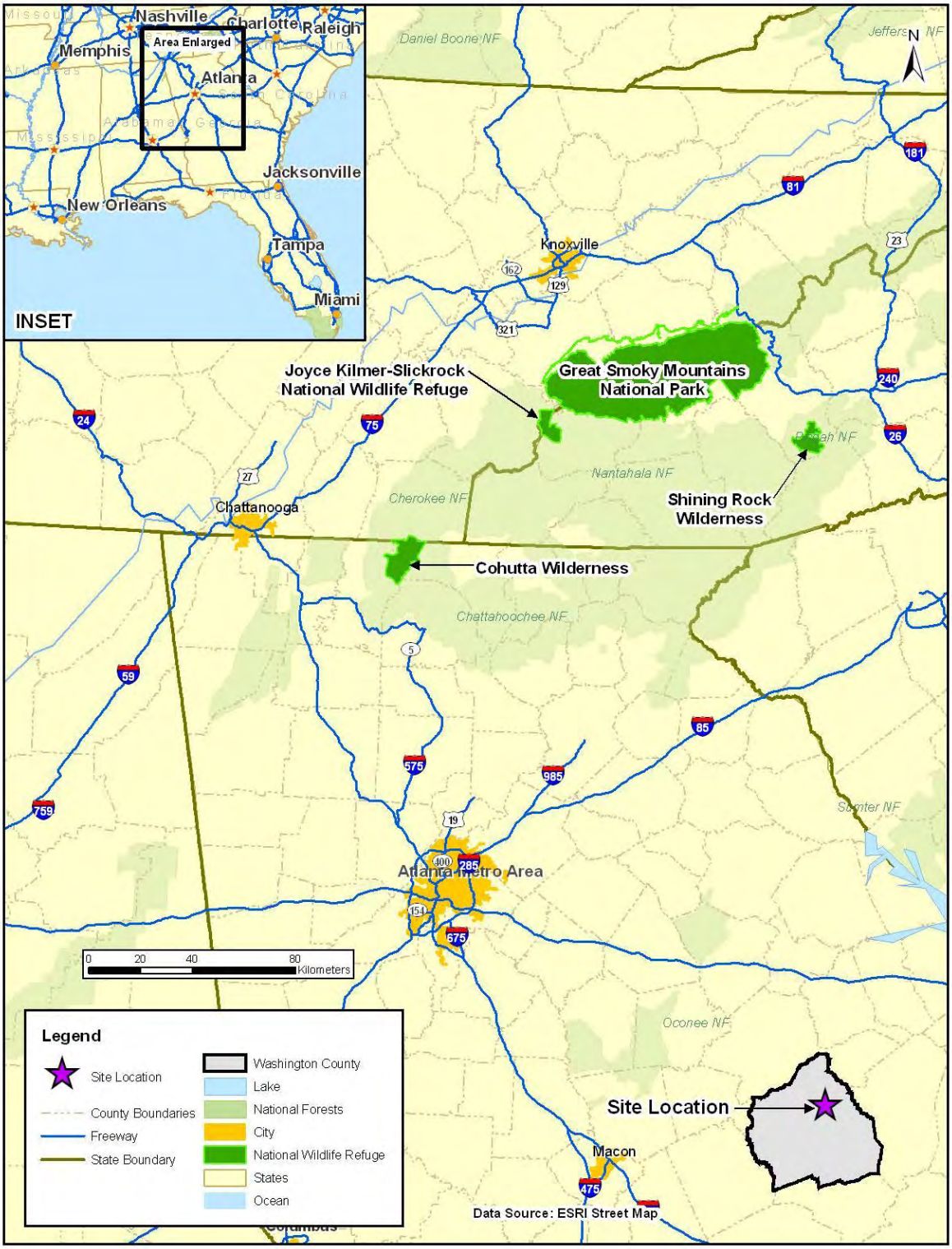
Completed by: BSA 7/209
Checked by: SAK 7/2/09

Figure 7-1 Relative Location Map of Site to the Class I Area



Prepared by: FC 11/26/08
Checked by: SAK 11/26/08

Figure 7-2 Relative Location Map of Site to the Class I Area



Prepared by: FC 11/26/08
Checked by: SAK 11/26/08

In April 2003, EPA designated the CALPUFF model as a preferred model for Long Range Transport (LRT) (i.e., beyond 50km). Because the seven sites being evaluated for Class I air quality assessments for Plant Washington are all greater than 50 km away from the proposed plant site, the refined modeling is considered to be Long Range Transport. Therefore the CALPUFF (version 5.8, level 070623) POSTUTIL (version 1.52, level 060412) and CALPOST (version 5.6394, level 070622) models were used to complete this analysis

The CALPUFF modeling was completed using three years (2001 – 2003) of 4-kilometer grid meteorological data, which was provided by the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) via South Carolina Department of Health and Environmental Control (SC DHEC). VISTAS generated the meteorological data in July 2007 using CALMET version 5.7. The receptor sets for the Class I areas were downloaded from the U.S. National Park Service (USNPS) web site and converted to the Lambert Conformal Conic (LCC) coordinate system, which is the coordinate system used by the VISTAS meteorological dataset. The National Park Service Convert Class 1 Areas program downloaded from the USNPS website was used to convert Plant Washington emission source UTM coordinates into the LCC coordinate system. In accordance with FLAG modeling documents, the modeling evaluation did not include building downwash because the Class I areas being evaluated are greater than 50 kilometers from the site.

7.1 CLASS I AREAS: VISIBILITY

The most recent FLAG guidance document indicates that if the modeled impact from the proposed project results in a change in β-extinction below the visibility threshold of 5% then it is presumed by the FLM that the project will have no adverse impact. The visibility modeling was completing using the CALPUFF model. As per the latest FLAG guidance the change in β-extinction was calculated using the Interagency Monitoring of Protected Visual Environments (IMPROVE) equation. The new IMPROVE equation takes into account the difference in the light scattering from large and small particles of sulfates, nitrates, and organics; as well visibility impacts from sea salt contributions and changes in Rayleigh Scattering from site to site. The current EPA approved version of CALPOST does not utilize the new IMPROVE equation, so a spreadsheet was developed to process the CALPOST output. The previous FLAG guidance utilized a method which used hour by hour relative humidity adjustment factors. The latest guidance is to use a monthly f(RH) values for each of the Class I areas. A copy of the IMPROVE equation spreadsheet used to calculate β-extinction for each modeled year for each Class I area is included in Exhibit D.

The modeled species included in computing light extinction were small and large sulfate particles, small and large nitrate particles, small and large organic mass, sea salt, and fine particulate, which were identified as PM_{10} in the model runs. The FLAG document dated July 2008 requires the use of monthly relative humidity adjustment factors (for small, large, and sea salt particles).

In the CALPOST post processor, the MISBK parameter was set to 6 and the background hygroscopic and non-hygroscopic aerosol levels take from FLAG (2008) are entered for the corresponding Class I area. Table 7-2 shows the background levels of the seven calculated background species, as well as the Rayleigh Scattering number for each site. The background concentration of ammonia was set to 0.5 ppb as per the designation of this use by FLAG (2008) for forested land.

Table 7-2 Background Concentration for the Modeled Class I Areas

Class I Area	$(NH_4)_2SO_4$ µg/m^3	NH_4NO_3 µg/m^3	Organic Matter µg/m^3	Elemental Carbon µg/m^3	Soil µg/m^3	Coarse Matter µg/m^3	Sea Salt µg/m^3	Rayleigh Mm^{-1}	Type
Cape Romain	0.23	0.10	1.80	0.02	0.45	3.00	0.20	12	Annual
Cohutta Wilderness	0.23	0.10	1.71	0.02	0.50	2.45	0.02	11	Annual
Great Smokey Mountains	0.23	0.10	1.80	0.02	0.48	2.92	0.02	11	Annual
Joyce Kilmer-Slickrock Wilderness	0.23	0.10	1.80	0.02	0.48	2.92	0.02	11	Annual
Okefenokee	0.23	0.10	1.80	0.02	0.50	3.00	0.08	11	Annual
Shining Rock	0.23	0.10	1.76	0.02	0.50	1.76	0.02	10	Annual
Wolf Island	0.23	0.10	1.80	0.02	0.50	3.00	0.08	11	Annual

Completed by: BSA 11/26/08
Checked by: SAK 11/26/08

In order to use this equation with the current generated output of the EPA approved model of CALPUFF, the output of the CALPOST post processor was refined by using the monthly f(RH) values for small, large, and sea salt particles for each site. Tables 7-2, 7-3, and 7-4 show the monthly $f_L(RH)$, $f_S(RH)$, and $f_{SS}(RH)$ relative humidity adjustment factors respectively for the seven Class I areas evaluated.

Table 7-3 Monthly $f_L(RH)$ – Large $(NH_4)_2SO_4$ and NH_4NO_3 Relative Humidity Adjustment Factors

Class I Area	January	February	March	April	May	June
Cape Romain	2.66	2.47	2.42	2.32	2.56	2.80
Cohutta Wilderness	2.84	2.61	2.49	2.36	2.72	2.97
Great Smokey Mountains	2.85	2.57	2.51	2.35	2.72	2.98
Joyce Kilmer-Slickrock Wilderness	2.86	2.58	2.51	2.36	2.71	2.97
Okefenokee	2.94	2.73	2.73	2.65	2.74	3.11
Shining Rock	2.78	2.56	2.48	2.33	2.72	2.98
Wolf Island	2.86	2.67	2.61	2.54	2.63	2.96
	July	**August**	**September**	**October**	**November**	**December**
Cape Romain	2.82	3.04	3.03	2.86	2.65	2.70
Cohutta Wilderness	3.00	3.07	3.08	2.89	2.72	2.85
Great Smokey Mountains	2.98	3.08	3.10	2.87	2.71	2.85
Joyce Kilmer-Slickrock Wilderness	2.98	3.06	3.08	2.87	2.72	2.85
Okefenokee	3.00	3.17	3.16	3.05	2.96	3.03
Shining Rock	3.02	3.17	3.15	2.91	2.68	2.79
Wolf Island	2.94	3.13	3.12	2.99	2.88	2.95

Completed by: BSA 11/26/08
Checked by: SAK 11/26/08

Table 7-4 Monthly $f_S(RH)$ –Small $(NH_4)_2SO_4$ and NH_4NO_3 Relative Humidity Adjustment Factors

Class I Area	January	February	March	April	May	June
Cape Romain	3.66	3.33	3.24	3.07	3.46	3.88
Cohutta Wilderness	3.99	3.59	3.38	3.16	3.76	4.19
Great Smokey Mountains	4.01	3.52	3.43	3.14	3.76	4.20
Joyce Kilmer-Slickrock Wilderness	4.02	3.54	3.42	3.15	3.74	4.19
Okefenokee	4.16	3.79	3.80	3.65	3.79	4.46
Shining Rock	3.89	3.51	3.37	3.11	3.77	4.22
Wolf Island	4.02	3.68	3.58	3.45	3.59	4.17
	July	**August**	**September**	**October**	**November**	**December**
Cape Romain	3.91	4.31	4.30	4.00	3.62	3.73
Cohutta Wilderness	4.24	4.37	4.41	4.09	3.77	4.00
Great Smokey Mountains	4.21	4.39	4.45	4.05	3.79	3.99
Joyce Kilmer-Slickrock Wilderness	4.21	4.35	4.41	4.04	3.77	4.00
Okefenokee	4.24	4.55	4.55	4.35	4.18	4.33
Shining Rock	4.29	4.58	4.60	4.12	3.69	3.88
Wolf Island	4.13	4.47	4.46	4.23	4.05	4.18

Completed by: BSA 11/26/08
Checked by: SAK 11/26/08

Table 7-5 Monthly $f_L(RH)$ – Sea Salt Relative Humidity Adjustment Factors

Class I Area	**January**	**February**	**March**	**April**	**May**	**June**
Cape Romain	3.74	3.44	3.37	3.23	3.62	3.99
Cohutta Wilderness	3.97	3.62	3.44	3.26	3.82	4.20
Great Smokey Mountains	4.01	3.57	3.47	3.22	3.82	4.23
Joyce Kilmer-Slickrock Wilderness	4.01	3.58	3.46	3.24	3.81	4.22
Okefenokee	4.13	3.83	3.82	3.69	3.85	4.38
Shining Rock	3.90	3.55	3.43	3.21	3.82	4.22
Wolf Island	4.03	3.74	3.66	3.55	3.72	4.20
	July	**August**	**September**	**October**	**November**	**December**
Cape Romain	4.04	4.32	4.29	4.03	3.74	3.81
Cohutta Wilderness	4.24	4.35	4.35	4.05	3.82	4.02
Great Smokey Mountains	4.24	4.37	4.38	4.03	3.81	4.02
Joyce Kilmer-Slickrock Wilderness	4.23	4.35	4.35	4.03	3.82	4.02
Okefenokee	4.28	4.51	4.48	4.31	4.18	4.27
Shining Rock	4.28	4.48	4.48	4.06	3.76	3.92
Wolf Island	4.20	4.46	4.42	4.22	4.08	4.15

Completed by: BSA 11/26/08
Checked by: SAK 11/26/08

In the CALPUFF model, an emission rate for elemental carbon was estimated as 1% of the total PM, based on a report published by Pacific Environmental Services, Inc. dated September 29, 2003, and available on the USEPA Technology Transfer Network web site. This report evaluates speciation data of $PM_{2.5}$ emissions from coal fired boilers. The value of 1% is conservative since the value of 1% was derived from the total PM emissions, not the $PM_{2.5}$ emissions. The sulfate (SO_4) emission rate for the main boiler was calculated from the maximum 3-hour emission rate for sulfuric acid test and the molecular weight ratio of sulfates to sulfuric acid mist (H_2SO_4) -96/98. This assumes all sulfuric acid mist will form SO_4 after exiting the stack.

The CALPUFF model also has an input parameter for organic carbon (OC), processed as secondary organic aerosols (SOA) using the SOA module of CALPUFF. However, as discussed in the *Protocol for the Application of the CALPUFF Model for Analyses of Best Available Retrofit Technology (BART) (8/31/06)*, the developers (of CALPUFF) "view the SOA module as needing more testing and evaluation." The SOA module relies on the fact that only hydrocarbons with more than 6 carbon atoms can form significant SOA, and is best suited for evaluation of biogenic organics. This BART guidance document also discusses the default RH value of 98% of the CALPUFF model, and that the most common user selected value is 95% RH. The value of 95% RH was also selected for the Method 2 assessment.

The visibility threshold for the project (5%) is not exceeded if the 98th percentile change in light extinction is less than 5% for each modeled year. The 98th percentile value translates to the 8th highest daily value for each modeled year. Table 7-6 provides 8th highest values for each site and each year and as shown all values are below the 5% screening threshold.

Table 7-6 CALPUFF Method 6 Modeling Results for Class I Areas near Plant Washington

Class I Area	8th Highest Bext % Change - Model Year			Max Result	Screen Level	Below Screen Level?
	2001	2002	2003			
Cape Romain	1.21%	1.44%	1.31%	1.44%	5%	Yes
Cohutta Wilderness	1.17%	1.26%	1.39%	1.39%	5%	Yes
Great Smokey Mountains	0.94%	0.92%	1.06%	1.06%	5%	Yes
Joyce Kilmer-Slickrock Wilderness	0.92%	0.76%	1.00%	1.00%	5%	Yes
Okefenokee	1.03%	1.40%	0.86%	1.40%	5%	Yes
Shining Rock	1.28%	1.10%	1.42%	1.42%	5%	Yes
Wolf Island	1.07%	1.19%	1.23%	1.23%	5%	Yes

Completed by: BSA 7/2/09
Checked by: SAK 7/2/09

To assess visibility impacts, a "method two" analysis was also conducted. This method utilizes hourly relative humidity values generated from the CALMET data to calculate 24-hour average extinction. In the CALPOST post processor, the MISBK parameter is set to 2, and the maximum relative humidity (RHMAX) is set to 95.0. Table 7-7 provides the 8th highest daily value for each modeled year, and as shown all values are below the 5% screening threshold.

Table 7-7 CALPUFF Method 2 Modeling Results for Class I Areas near Plant Washington

Class I Area	8th Highest Bext % Change - Model Year			Max Result	Screen Level	Below Screen Level?
	2001	2002	2003			
Cape Romain	1.64%	2.93%	1.94%	2.93%	5%	Yes
Cohutta Wilderness	1.76%	1.62%	2.27%	2.27%	5%	Yes
Great Smokey Mountains	1.36%	1.09%	1.88%	1.88%	5%	Yes
Joyce Kilmer-Slickrock Wilderness	1.08%	0.66%	1.25%	1.25%	5%	Yes
Okefenokee	1.54%	1.80%	1.26%	1.80%	5%	Yes
Shining Rock	1.50%	1.12%	1.83%	1.83%	5%	Yes
Wolf Island	1.83%	1.63%	1.90%	1.90%	5%	Yes

Completed by: BSA 7/2/09
Checked by: SAK 7/2/09

7.2 CLASS I AREAS: DEPOSITION

The SO_2 and NO_x emissions increases from the project were used to estimate sulfur and nitrogen deposition impacts on the Class I modeling areas under review. The CALPUFF model was used to create the wet and dry flux data files, which were processed further using the POSTUTIL program to generate a deposition flux file. The flux file is processed using the CALPOST post processor in order to determine total nitrogen (N) and sulfur (S) deposition. The units of the fluxes are in $g/m^2/s$. The modeling results were compared to the Class I Deposition Analysis Thresholds (DATs) recommended by the Federal Land Manager of 0.01 kg/ha/yr N or S as specified in the "Guidance on Nitrogen and Sulfur Deposition Analysis Thresholds" document posted on the National Park Service website dated August 2001. Exceedance of DAT does not necessarily indicate an adverse impact, but rather that additional analyses of deposition impacts may be requested. Values below the DAT indicate a level of impact that is considered insignificant. Table 7-8 presents the results from all three modeled years. As indicated the modeling results for the nitrogen and sulfur deposition analysis are below the thresholds except for a few that are slightly above the DAT levels.

Table 7-8 Class I Increment Deposition Results

Class I Area	N Increment Results kg/ha/yr			S Increment Results kg/ha/yr		
	2001	2002	2003	2001	2002	2003
Cape Romain	3.17E-03	2.42E-03	1.90E-03	1.17E-02	1.04E-02	8.33E-03
Cohutta Wilderness	2.93E-03	4.16E-03	3.98E-03	8.62E-03	1.35E-02	1.17E-02
Great Smokey Mountains	2.74E-03	2.75E-03	3.83E-03	8.79E-03	8.56E-03	1.10E-02
Joyce Kilmer Slickrock	2.73E-03	3.02E-03	3.33E-03	8.24E-03	8.99E-03	1.01E-02
Okefenokee	1.44E-03	1.47E-03	7.38E-04	5.22E-03	5.05E-03	2.75E-03
Shining Rock	2.88E-03	2.81E-03	4.49E-03	8.69E-03	8.81E-03	1.16E-02
Wolf Island	2.56E-03	1.66E-03	7.34E-04	9.48E-03	7.18E-03	4.69E-03

Completed by: BSA 7/2/09
Checked by: SAK 7/2/09

7.3 CLASS I AREAS: CLASS I INCREMENT EVALUATION

An initial screening analysis was done to determine whether Plant Washington will have a significant impact on the concentration of pollutants in the ambient air at the seven Class I areas under evaluation. The CALPUFF model included all emission sources at the proposed Plant Washington site (point and fugitive sources). The CALPUFF model created concentration data files, which were processed using the CALPOST post processor to determine the maximum concentration at all receptors within the Class I areas. Tables 7-9, 7-10, and 7-11 present the Class I screening analysis results for PM_{10}, SO_2 and NO_x respectively, for all

averaging periods and for all three years of meteorological data. Each of the computed maximum concentrations for each pollutant's averaging periods was below their respective significant impact levels currently established by USEPA, except for the 24-hr concentration for SO_2 at Wolf Island. A refined SO_2 PSD increment modeling analysis for Wolf Island was therefore completed.

Currently, there is not an official Class I screening level for $PM_{2.5}$. The EPA has, however, proposed three options for $PM_{2.5}$ Class I screening levels under its rule proposed on September 21, 2007. Under this proposed rule, the lowest option would be a Class I significance level of 0.04 $\mu g/m^3$ and 0.08 $\mu g/m^3$ for the annual and 24-hour averaging period. The modeled concentrations for PM_{10} are below these levels, therefore, because $PM_{2.5}$ is a subset of PM_{10}, the modeled $PM_{2.5}$ concentrations would also be below these levels. No additional modeling for $PM_{2.5}$ was therefore required.

7.4 WOLF ISLAND: REFINED SO_2 MODELING

In accordance with FLM guidelines an emission database of all SO_2 increment consuming sources within 300 km of Wolf Island was created with data received from Florida Department of Environmental Protection, South Carolina Department of Health and Environmental Control and Georgia Environmental Protection Division. As is allowed for PSD increment modeling, some of the sources were modeled at their actual emissions based on their emission rates in the Georgia and National Emission Inventories (NEI). Because the CALPUFF model is unable to run with more than 200 emission sources at a time the emission sources were split into six groups of 200 or less. All of the individual models were then combined using the CALSUM utility. These results are summarized in Table 7-12 and as indicated the results are below the Class I PSD SO_2 increment levels.

Table 7-9 CALPUFF Class I PM_{10} Screening Analysis

Annual PM_{10} Screening Results						
	Model Year			Max. Conc.	Level	Below Screening
Class I Area	2001	2002	2003	(µg/m^3)	(µg/m^3)	Level?
Cape Romain	2.32E-03	2.54E-03	2.41E-03	2.54E-03	0.2	Yes
Cohutta Wilderness	1.35E-03	1.81E-03	1.84E-03	1.84E-03	0.2	Yes
Great Smokey Mountains	1.02E-03	1.12E-03	1.56E-03	1.56E-03	0.2	Yes
Joyce Kilmer Slickrock	9.85E-04	1.18E-03	1.43E-03	1.43E-03	0.2	Yes
Okefenokee	1.43E-03	3.36E-02	1.01E-03	3.36E-02	0.2	Yes
Shining Rock	1.35E-03	1.53E-03	1.87E-03	1.87E-03	0.2	Yes
Wolf Island	1.98E-03	2.10E-03	1.85E-03	2.10E-03	0.2	Yes
24-Hour PM_{10} Screening Results						
	Model Year			Max. Conc.	Level	Below Screening
Class I Area	2001	2002	2003	(µg/m^3)	(µg/m^3)	Level?
Cape Romain	2.78E-02	3.85E-02	4.23E-02	4.23E-02	0.3	Yes
Cohutta Wilderness	2.93E-02	2.90E-02	3.56E-02	3.56E-02	0.3	Yes
Great Smokey Mountains	2.42E-02	1.95E-02	4.06E-02	4.06E-02	0.3	Yes
Joyce Kilmer Slickrock	2.14E-02	1.81E-02	4.29E-02	4.29E-02	0.3	Yes
Okefenokee	3.63E-02	3.36E-02	2.61E-02	3.63E-02	0.3	Yes
Shining Rock	3.35E-02	3.17E-02	3.81E-02	3.81E-02	0.3	Yes
Wolf Island	3.45E-02	3.47E-02	5.70E-02	5.70E-02	0.3	Yes

Prepared by: BSA 7/2/09
Checked by: SAK 7/2/09

Table 7-10 CALPUFF Class I SO_2 Screening Analysis

Annual SO_2 Results						
Class I Area	Model Year 2001	Model Year 2002	Model Year 2003	Max. Conc. (µg/m^3)	Screening Level (µg/m^3)	Below Screening Level?
Cape Romain	7.68E-03	7.67E-03	7.65E-03	7.68E-03	0.1	Yes
Cohutta Wilderness	3.87E-03	4.71E-03	4.44E-03	4.71E-03	0.1	Yes
Great Smokey Mountains	2.34E-03	2.31E-03	2.83E-03	2.83E-03	0.1	Yes
Joyce Kilmer Slickrock	2.34E-03	2.46E-03	2.70E-03	2.70E-03	0.1	Yes
Okefenokee	4.56E-03	4.98E-03	2.94E-03	4.98E-03	0.1	Yes
Shining Rock	3.57E-03	3.27E-03	4.31E-03	4.31E-03	0.1	Yes
Wolf Island	7.21E-03	7.90E-03	7.36E-03	7.90E-03	0.1	Yes
24-Hour SO_2 Results						
Class I Area	Model Year 2001	Model Year 2002	Model Year 2003	Max. Conc. (µg/m^3)	Screening Level (µg/m^3)	Below Screening Level?
Cape Romain	0.1062	0.1596	0.1402	0.16	0.2	Yes
Cohutta Wilderness	0.1215	0.1095	0.1321	0.13	0.2	Yes
Great Smokey Mountains	0.0959	0.0739	0.0804	0.10	0.2	Yes
Joyce Kilmer Slickrock	0.0715	0.0610	0.0636	0.07	0.2	Yes
Okefenokee	0.1079	0.1076	0.0975	0.11	0.2	Yes
Shining Rock	0.1591	0.1193	0.1506	0.16	0.2	Yes
Wolf Island	0.1751	0.1702	0.2886	0.29	0.2	No
3-Hour SO_2 Results						
Class I Area	Model Year 2001	Model Year 2002	Model Year 2003	Max. Conc. (µg/m^3)	Screening Level (µg/m^3)	Below Screening Level?
Cape Romain	0.32	0.43	0.49	0.49	1	Yes
Cohutta Wilderness	0.55	0.71	0.49	0.71	1	Yes
Great Smokey Mountains	0.27	0.30	0.53	0.53	1	Yes
Joyce Kilmer Slickrock	0.27	0.25	0.29	0.29	1	Yes
Okefenokee	0.65	0.41	0.36	0.65	1	Yes
Shining Rock	0.41	0.35	0.58	0.58	1	Yes
Wolf Island	0.42	0.55	0.60	0.60	1	Yes

Prepared by: BSA 7/2/09
Checked by: SAK 7/2/09

Table 7-11 CALPUFF Class I NO_x Screening Analysis

Class I Area	Model Year 2001	Model Year 2002	Model Year 2003	Max. Conc. (µg/m^3)	Screening Level (µg/m^3)	Below Screening Level?
Cape Romain	1.05E-03	1.33E-03	1.20E-03	1.33E-03	0.1	Yes
Cohutta Wilderness	6.18E-04	1.12E-03	9.54E-04	1.12E-03	0.1	Yes
Great Smokey Mountains	3.93E-04	4.03E-04	5.97E-04	5.97E-04	0.1	Yes
Joyce Kilmer Slickrock	3.16E-04	4.59E-04	6.06E-04	6.06E-04	0.1	Yes
Okefenokee	8.57E-04	8.02E-04	5.33E-04	8.57E-04	0.1	Yes
Shining Rock	7.60E-04	6.39E-04	9.82E-04	9.82E-04	0.1	Yes
Wolf Island	1.38E-03	1.93E-03	1.71E-03	1.93E-03	0.1	Yes

Completed by: BSA 7/2/09
Checked by: SAK 7/2/09

Table 7-12 CALPUFF SO_2 PSD Increment Modeling Results for Wolf Island Class I Area

Averaging Period	2nd High Concentrations (Except For Annual) 2001 (µg/m^3)	2002 (µg/m^3)	2003 (µg/m^3)	Class 1 PSD Increment (µg/m^3)
3-hr	10.52	10.04	11.58	25
24-hr	3.349	3.452	3.448	5
Annual	0	0	0	2

Completed by: BSA 7/2/09
Checked by: SAK 7/2/09

8.0 OTHER IMPACT ANALYSIS

In addition to evaluating the project's air quality impacts, the permit application addresses other potential impacts. This included impacts on local Class II visibility, secondary impacts on soils and vegetation, demographic impacts, and construction impacts as required by the PSD guidelines. In addition, this evaluation includes an evaluation of the projects impact on water consumption as well as on green house gas (GHG) emissions.

8.1 CLASS II VISIBILITY

The proposed project's impacts on Class II visibility were evaluated as part of the permit application. Per EPD guidance, Class II visibility analyses only have to be performed for airports, state or national parks, or state historical sites located within the project's largest calculated Area of Impact (AOI) as determined by the PSD modeling evaluation. As indicated in Section 5, only one pollutant exceeded its significant impact levels (SO_2). The largest AOI for SO_2 was 5.42 km. A review of the area around the plant found that there are no airports, state or national parks, or historical sites located within 5.42 km, therefore a Class II Visibility analysis is not required for the proposed project.

8.2 SECONDARY IMPACTS ON SOIL AND VEGETATION

PSD regulations require an assessment of other possible impacts, including any secondary impacts on soils and vegetation. An analysis was completed to assess the potential impact of vegetative stress in the area of the proposed plant as outlined in the USEPA document "A Screening Procedure for the Impact of Air Pollution sources on Plants, Soils, and Animals". This document provides ambient concentration levels of SO_2, NOx, CO, Fluorine, Beryllium and Lead which can be used for screening levels to determine if there is a potential for vegetative stress.

As a first step an intensive surveillance of the area surrounding the proposed plant site was conducted. The proposed plant is located in a rural area which is surrounded by wooded tracts and small farms. The vegetation present was identified and compared to the listing presented in the guidance document as being potentially sensitive to the compounds of concern (Tables B.1 through B.4 of the USEPA Screening document). No plant species were identified as being sensitive to nitrogen dioxide, however, there were species identified that are sensitive to sulfur dioxide and ozone. The area is in attainment with the ozone air quality standard and the proposed

plant is not expected to change the attainment status of the area so the only species that could potentially be impacted are those identified as being sensitive for SO_2. The following is a listing of the sensitive vegetation found:

Crop Species sensitive to Sulfur Dioxide:

Blackberry (not a planted crop, only present as wild species)

Natural Vegetation sensitive to Sulfur Dioxide:

Ash
Tulip Tree (Tulip Poplar a.k.a. Yellow Poplar (liriodendeon tulipifera))
Black Willow

Some Natural Vegetation with Intermediate sensitivity to Sulfur Dioxide:

Boxelder
American Elm
White Oak

Some Natural Vegetation Resistant to Sulfur Dioxide:

Black gum
Dogwood
Red Oak
American Sycamore

Because vegetation is present that could potentially be stressed, an evaluation was completed using the modeled emissions calculated in the previous sections. Table 8-1 below summarizes the modeled concentrations for each pollutant and compares them to the screening level as taken from Table 3.1 of the USEPA screening procedure document. As indicated in Table 8-1, the maximum ground level concentrations for all pollutants for all averaging periods are well below the screening levels. With this demonstration it is apparent that not only is existing vegetation

safe from potential vegetative stress but also any potential new crops that may be planted in the area will be as well.

Table 8-1 Screening Concentrations for Exposure to Ambient Air Concentrations

Pollutant	Averaging Period	Basis	Modeled Result (µg/m^3) 1987	1988	1989	1990	1991	Maximum Modeled Result (µg/m^3)	Background Concentration (µg/m^3)	Maximum Modeled Concentration plus Background (µg/m^3)[6]	Screening Level (µg/m^3)	Below Screening Level?
SO_2	1 hr[1]	PSD Screening Modeling	50.09	49.36	44.21	41.63	38.25	50.09	314	363.7	917	Yes
	3 hr[1]	PSD Screening Modeling	28.40	27.47	30.18	29.11	30.38	30.38	127.9	158.3	786	Yes
	Annual hr[1]	PSD Screening Modeling	1.564	1.478	1.580	1.484	1.490	1.580	11.87	13.5	18	Yes
NO_x	4 hr[6]	PSD Screening Modeling	18.66	20.15	19.79	22.76	22.83	22.83	67	89.8	3,760	Yes
	8 hr[6]	PSD Screening Modeling	12.378	14.665	14.226	11.767	12.604	14.665	67	81.7	3,760	Yes
	1 month[6]	PSD Screening Modeling	12.378	14.665	14.226	11.767	12.604	14.665	67	81.67	564	Yes
	Annual[6]	PSD Screening Modeling	0.6014	0.5660	0.6102	0.5818	0.5836	0.6102	11.3	11.91	94	Yes
CO	1 week[3]	PSD Screening Modeling (1-hour average)	127.7	125.8	112.7	105.4	97.6	127.7	2436	2,564	1,800,000	Yes
Fluorine[5]	10 days[4]	PSD Screening Modeling (24-hour average)	0.020	0.018	0.017	0.018	0.019	0.0200	see note 5	0.02	0.5	Yes
Beryllium[7]	1 month[2]	Other Impacts Analysis Modeling	1.50E-03	1.50E-03	1.40E-03	1.30E-03	1.20E-03	1.50E-03	3.00E-05	1.53E-03	1.00E-02	Yes
Lead[8]	3 months[9]	Other Impacts Analysis Modeling	7.00E-03	6.90E-03	6.20E-03	5.90E-03	5.40E-03	7.00E-03	8.00E-03	0.015	1.5	Yes

1. The 1-hour and 3-hour background concentration for SO_2 is based on the maximum value from the nearest SO_2 monitor (Bibb County) for the last 5 years (0.055 ppm/ 146 µg/m3 and 0.024 ppm/ 63.8 µg/m3 for 1-hour and 3-hour average respectively) and the annual background is based on 8 µg/m3 as provided by EPD. The background concentration for SO_2 also includes the maximum modeled impact from off site sources from the NAAQS modeling completed for the project. The maximum concentration value is based on the modeled results at the plants maximum impact receptor. The results for this modeling for 1-hr, 3-hr, and annual are 167.3 , 64.1, and 3.87 µg/m3 respectively.

2. The AERMOD model does not allow for 1 month averaging modeling, therefore the 1-hour maximum model was used to be conservative.

3. The AERMOD model does not allow for 1 week averaging modeling, therefore the 1-hour modeling results from the PSD screen models were used as a worst case. The background was based on the maximum CO reading of all 3 monitors in the state for 2007 (2.1 ppm/ 2,564 µg/m3).

4. The AERMOD model does not allow for 10 day averaging modeling, therefore the 24-hour modeling results from the PSD screen models were used as a worst case.

5. No data was available for the Fluorine background concentration.

6. The AERMOD model does not allow for a 1 month average, therefore, the 8-hour average results were used as a worst case. The NOx background concentration for the 4-hour, 8-hour, and 1 month averaging periods was conservatively based on the maximum 1-hour average reading from the Yorkville NOx monitor (0.035 ppm/ 67 µg/m^3) for 2008 as provided by EPD. The maximum annual (11.3 µg/m3) was provided by EPD.

7. Background concentration for beryllium was based on the maximum result for all beryllium monitors in the state of Georgia for 2006.

8. Background concentration for lead is based on the maximum result for the closest lead monitor to the site (Milledgeville) for 2006.

9. The AERMOD model does not allow for 3-month averaging modeling. The results from the 1-hour averaging modeling were used.

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Checked by: SAK 7/2/09

The USEPA Screening documents also outlines an evaluation for metals impacts. All these metals along with all other known toxics being emitted from the boiler were evaluated as part of the Georgia Air Toxics program in Section 6 of the permit application. The conclusion of that evaluation was that the plant demonstrates compliance with the Georgia toxics program, therefore, no further evaluation is being conducted in this section.

8.3 DEMOGRAPHICS

The proposed plant is expected to employ an estimated 100 to 150 people during operation. This workforce is expected to come from local communities, therefore, growth impacts are expected to be minimal and should not adversely affect the ambient air quality in the surrounding area. No additional automobile roadways are planned for the project.

8.4 CONSTRUCTION IMPACTS

During the construction phase of the proposed plant, there will be two primary sources of air emissions: 1) pollutants emitted from construction equipment and 2) fugitive dust emissions associated with the construction activities.

Typically, large gasoline and diesel powered construction equipment emit small amounts of VOCs, CO, SO_2, NO_x, and PM. Emissions due to the operation of this equipment are expected to cause only localized increases in pollutant levels. These increases will be only temporary and are not expected to cause any long-term adverse impacts on the construction area or the surrounding communities.

The fugitive dust emissions created from the construction activities will be more visible than the other pollutant emissions from the equipment. Site grading and preparation activities will create dust emissions. The greatest impact of the fugitive dust emissions will be confined to the construction site, and the effects on the surrounding properties are expected to be minimal. The extent of fugitive emissions will vary day to day, depending on the amount of construction activity and the weather. Standard engineering and construction practices will be implemented in order to minimize fugitive dust emissions (such as watering haul roads).

8.5 MINIMIZATION OF WATER USE

A coal-fired power plant like any other power generating facility burns fuel to produce electricity. This is accomplished by producing steam in a boiler and then having that steam pass through turbines which in turn generates electricity.

The plant will have three main uses of water: 1) boiler makeup and non-contact cooling tower blowdown; 2) the flue gas desulfuring units (wet scrubbers); and 3) non-contact cooling. The water used to feed the boiler to produce steam is actually the smallest demand in the plant since most of the steam is collected, condensed, and re-circulated back into the boiler. The water required for this purpose is a relatively small amount of make-up water necessary to replace the water lost in the steam handling process and for boiler blowdown. The second highest demand for water will befor operation of the wet scrubber that is used to remove SO_2 from the flue gases (wet flue gas desulfurization). There is a constant feed of water into this control device that replenishes the scrubant (pulverized slurried limestone) in the flue gas desulfuring units. Here, SO_2 reacts with the limestone to form gypsum ($CaSO_4$ 2HO). The third (and largest) use will be for non-contact cooling water supplied to the cooling towers. Steam is condensed in the power generation process. The resulting condensate will be recirculated (recycled) back into the boiler to conserve heat and water. Steam itself cannot be injected back into the boiler so it needs to be condensed back into water for that purpose. The heat generated from the condensing steam is dissipated in the cooling towers by evaporation of water. The cooling towers will use, on average, approximately 12.6 MGD of water, of which approximately 10.8 MGD of water will be evaporated in the cooling towers with the remainder being discharged to the river.

It should be noted that typical existing power plants use more water per unit of power generated than what is being proposed for this plant, which has a much more efficient design. The process of producing power does not convert all of the energy from burning the coal into electrical energy. The remainder portion of the heat is either vented out the stack or lost in the cooling tower. Plant Washington will be a supercritical unit that operates at much higher temperatures and pressures and consequently will be more efficient. This means that this plant will use approximately 15 percent less water than a comparable existing plant. Also consequently 15% less pollutants will be generated including green house gases on a per unit of power basis.

A potential technology exists that could further reduce water consumption called “dry cooling”. In dry cooling, steam is condensed by passing it through a finned heat exchanger similar to a

radiator used in automobiles. Rather than cooling by evaporation, the steam is condensed in heat exchangers which are cooled by blowing ambient air across the fins and exhausting the sensible heat directly to the atmosphere. Dry cooling technology is not common and only a few such operations for coal fired generation plants are either being planned or under construction. None are currently operational in the southeastern United States, so it is a technology yet to be demonstrated in this area for this application. One such facility being planned is the Touquop Power Plant which is proposed to be built in Lincoln County Nevada. The proposed project consists of a supercritical unit similar to this project but of slightly smaller design (750 MW). A hybrid dry and wet cooling system is being proposed which would consist of a large hyperbolic cooling tower that encloses the fin radiators and air blowers. Due to the high temperature in the southwest during the summer months, the ambient air must be pre-cooled prior to being introduced into the cooling tower in order for the system to be effective. This cooling is accomplished using water sprays and consequently cools the air by evaporation. In this case 'dry cooling' means a reduction in water use, but not its elimination.

Dry cooling comes at a cost however. An engineering study was conducted to determine its feasibility for Plant Washington. The results of this study indicate that the use of a dry cooling system would result in a 41 to 44 MW reduction in the net output of the plant (due to the fact that the system would cause back pressure on the turbines essentially de-rating their capabilities). In addition, these systems would add $142 to $148 million in capital system cost additions and $45 to $51 million in incremental operational and maintenance (O&M) cost. If installed this cost would have to be passed on to the customer, increasing the power rate; and the additional power lost by operating the system would be unavailable to customers and have to be generated elsewhere. If this 41 to 44 MW "lost power" were to be provided by another power plant or by increasing the size of Plant Washington even more air emissions would result (roughly equivalent to 34 TPY PM_{10}, 95 TPY SO_2, 92 TPY NO_x and 182 TPY CO).

Power4Georgians takes seriously the need to conserve water in any operation. To that end a water conservation plan has been developed. The current water management strategy involves an integrated approach combining surface water and groundwater to provide a sustainable water supply. If river flow drops below a certain level, operation of the surface water intake will cease and Plant Washington will switch to groundwater withdrawal or on-site storage. Groundwater withdrawal will continue until a sustained flow above the minimum level in the river is expected.

Using this approach, surface water will be used when there is adequate availability and groundwater will be used intermittently to avoid depleting this resource.

8.6 GREENHOUSE GAS (GHG) MINIMIZATION

Coal fired power plants are major producers of GHG's primarily in the form of carbon dioxide. There is no proven technology that prevents this. The Department of Energy is currently funding a project that will attempt to inject the carbon dioxide back into the earth. This project called "Future Gen" is still undergoing permitting (www.futuregenalliance.org) but if given the permission to proceed is scheduled to be on line in 2012. The pilot testing is expected to take another 5 years before conclusive results are found regarding the feasibility of this technology. Until this occurs other methods must be found to minimize the formation of GHG's.

No current commercially demonstrated technologies are available for carbon capture and sequestration from a coal fired utility boiler. However, the Plant Washington facility will be designed to be "carbon capture ready" should these technologies become available and/or required.

Power4Georgians, being comprised of a consortium of member Georgia EMCs, already have in place programs for their customers to conserve energy and in that way promote reduction of GHGs. These programs are ongoing and will become even more innovative as opportunities present themselves. The member companies see this opportunity to construct a new state-of-the-art power plant as being a part of a solution to the GHG problem by constructing a more efficient plant that will produce power that will emit less GHG on a per unit basis then existing comparable units. However, other options are also being developed. These options include: Carbon Footprint Reduction Program (CFRP), Home Energy Efficiency Program (HEEP), Solar Photovoltaic Program (SPVP), Keeping Forests in Forests (KFIF) and others that are described below:

Carbon Footprint Reduction Program (CFRP)

Power4Georgians EMC will begin working with its customers to develop and implement a carbon footprint reduction program. The CFRP will be designed to help residential customers quantify their household carbon footprint and then provide those customers with the opportunity to reduce their carbon footprint through a number of programs, services and activities. The quantification of a customer's household carbon footprint will take into account the number of people living in the household, the amount of electricity, natural gas and fuel oil consumed in the house, the amount of waste produced within the house and the vehicular miles driven by members of the household and the average fuel economy of the vehicles. Once a customer quantifies their household carbon footprint, the CFRP program will offer a number of avenues to help the customer either reduce or possibly even eliminate their carbon footprint. These mechanisms include participating in Power4Georgians Carbon Sequestering Program (CSP), Power4Georgians EMC's Solar Photovoltaic Program (SPP), and/or Power4Georgians EMC's Carbon Sequestering Program (CSP).

Home Energy Efficiency Program (HEEP)

Customers can reduce the carbon footprint of their household energy consumption by implementing various energy efficiency projects in and around their home. Power4Georgians will develop informational sheets for the following energy efficiency measures: ceiling insulation, energy efficient windows, window film, caulking and weather-stripping, compact fluorescent lamps, programmable thermostats and high efficiency air conditioning and heat pump systems. Each measure will be quantified as its estimated reduction of carbon footprint. In addition, the customer's local EMC may offer or provide access to programs that provide financing for selected energy efficiency measures, including: ceiling insulation, energy efficient windows and high efficiency air conditioning and heat pump systems.

Solar Photovoltaic Program (SPP)

Customers can reduce the carbon footprint of their household energy consumption by satisfying a portion of their electrical usage with renewable solar energy. Power4Georgians EMC will work with the customer's local EMC to develop an incentive program for solar photovoltaic cells. The

solar photovoltaic system will reduce consumption of electricity and thereby, reduce the home's carbon footprint.

Keeping Forests In Forests (KFIF)

(KFIF) is a program that provides a way for Georgia EMCs and their members to offset their carbon footprints by using Georgia's forests to capture and store carbon.

Carbon sequestration is the process of capturing and storing atmospheric carbon into plants, soils, and water so that the buildup of carbon dioxide concentration in the atmosphere will reduce or slow. One of the primary plants used in the sequestration process is trees. Especially effective are evergreen trees like those found here in Georgia's forests.

The carbon offset program provides funding to preserve, protect and manage Georgia's pine forests, thereby helping to sequester atmospheric carbon. To be sure there is a sound, viable and realistic program, we have collaborated with the forestry experts at Duke University and the University of Georgia to provide scientific background and validation of our methodology and measurability tools.

Each year an independent auditing firm along with forest professionals at Duke University and the University of Georgia will review the program to verify that carbon offset contributions match with grants to our forest partners, the related acres of forests under management and resulting carbon sequestration. These findings will be reported annually.

Wells Timberland, a forest real estate investment firm, has initially designated 50,000 acres for the program while Carbon Treebank, LLC, will act as a middleman for the EMCs, distributing consumers' offset payments to participating timberland owners as incentive to preserve and manage their forests.

Beneficial Reuse of Fly Ash and Gypsum will reduce GHG from Cement and Wallboard Plant use

The Power4Georgians supports reuse of waste materials from our processes. Fly ash is a prominent component in the making of cement. Power4Georgians will retain and store fly ash on site for use by cement manufactures. Additionally, our process produces a gypsum product that

can be used in the manufacture of wallboard or dry wall. We will retain these materials on site until a suitable partner can be found. Both of these efforts could reduce cement and gypsum manufactures from producing GHG in the production of like materials.

Reduction of Open Burning:

Power4Georgians will work with the Washington County Economic Development Authority and County Officials on the issue of open burning which contributes to particulate emissions in the area as well as GHG's. Potential ideas include spraying versus burning for forest brush clearing, landfill collection versus burning of leaves and other creative ideas.

Providing SE Georgia Firefighting Support to avert Wildfires

During 2007 wildfires in the Okefenokee national forest and other areas of southeast Georgia contributed immense quantities of particulate and GHG's to Georgia's air quality. Power4Georgians will contribute fire fighting equipment to the appropriate fire fighting departments for use in containing future fires in attempts to prevent such disasters from re-occurring.

Participation in Available Bio-Mass Projects

Some members of Power4Georgians will participate in the Yellow Pine Bio-Mass project that is expected to be built near Ft. Gaines, Georgia. When in commercial operation, this plant will produce approximately 110 MW of power using wood chips as the primary fuel source.

Develop Improvements in Technical Training and Emission Control

Power4Georgians will work with local technical schools to develop training programs that focus on environmental and emissions technology. In addition, Power4Georgians will work with Georgia's University System to establish a research program on improving emissions control technology.

11. If confidential information is being submitted in this application, were the guidelines followed in the "Procedures for Requesting that Submitted Information be treated as Confidential"?

☐ No ☐ Yes **N/A**

12. New Facility Emissions Summary

Criteria Pollutant	New Facility	
	Potential (tpy)	Actual (tpy)
Carbon monoxide (CO)	3,642	3,642
Nitrogen oxides (NOx)	1,836	1,836
Particulate Matter (PM)	696	696
PM <10 microns (PM10)	678	678
PM <2.5 microns (PM2.5)	454	454
Sulfur dioxide (SO_2)	1,896	1,896
Volatile Organic Compounds (VOC)	110	110
Total Hazardous Air Pollutants (HAPs)	See Attachment (Exhibit) A	See Attachment (Exhibit) A
Individual HAPs Listed Below:		
See Attachment (Exhibit) A		

13. Existing Facility Emissions Summary

Criteria Pollutant	Current Facility		After Modification	
	Potential (tpy)	Actual (tpy)	Potential (tpy)	Actual (tpy)
Carbon monoxide (CO)				
Nitrogen oxides (NOx)				
Particulate Matter (PM)				
PM <10 microns (PM10)				
PM <2.5 microns (PM2.5)				
Sulfur dioxide (SO_2)				
Volatile Organic Compounds (VOC)				
Total Hazardous Air Pollutants (HAPs)				
Individual HAPs Listed Below:				

Facility Name: Plant Washington **Date of Application:** July 2, 2009 – Supplemental Data

FORM 4.00 – EMISSION INFORMATION

Emission Unit ID	Air Pollution Control Device ID	Stack ID	Pollutant Emitted	Emission Rates				
				Hourly Actual Emissions (lb/hr)	Hourly Potential Emissions (lb/hr)	Actual Annual Emission (tpy)	Potential Annual Emission (tpy)	Method of Determination
COALRAIL	--	A4	PM	6.48E-02	6.48E-02	2.84E-01	2.84E-01	AP-42
COALRAIL	--	A4	PM_{10}	3.06E-02	3.06E-02	1.34E-01	1.34E-01	AP-42
LIMEPILE	--	A10	PM	9.09E-02	9.09E-02	3.98E-01	3.98E-01	AP-42
LIMEPILE	--	A10	PM_{10}	4.08E-03	4.08E-03	1.79E-02	1.79E-02	AP-42
PRBINAC	--	A6	PM	1.64E-02	1.64E-02	0.07	0.07	AP-42
PRBINAC	--	A6	PM_{10}	7.74E-03	7.74E-03	0.03	0.03	AP-42
IL6INAC	--	A7	PM	7.48E-02	7.48E-02	0.33	0.33	AP-42
IL6INAC	--	A7	PM_{10}	3.54E-02	3.54E-02	0.15	0.15	AP-42
PRBACTIV	--	A8	PM	4.62E-01	4.62E-01	2.02	2.02	AP-42
PRBACTIV	--	A8	PM_{10}	9.75E-03	9.75E-03	4.27E-02	4.27E-02	AP-42
IL6ACTIV	--	A9	PM	5.21E-01	5.21E-01	2.28	2.28	AP-42
IL6ACTIV	--	A9	PM_{10}	3.74E-02	3.74E-02	1.64E-01	1.64E-01	AP-42
PAVED	--	P1-P21	PM	0.12	0.12	0.55	0.55	AP-42
PAVED	--	P1-P21	PM_{10}	0.12	0.12	0.55	0.55	AP-42
UPAVED	--	U1-U8	PM	0.3	0.3	1.31	1.31	AP-42
UPAVED	--	U1-U8	PM_{10}	0.08	0.08	0.349	0.349	AP-42
UPAVED	--	U9-U15	PM	0.3	0.3	1.31	1.31	AP-42
UPAVED	--	U9-U15	PM_{10}	0.08	0.08	0.349	0.349	AP-42

Facility Name: Plant Washington **Date of Application:** July 2, 2009 – Supplemental Data

FORM 7.00 – AIR MODELING INFORMATION: Stack Data

Stack ID	Emission Unit ID(s)	Stack Information			Dimensions of largest Structure Near Stack		Exit Gas Conditions at Maximum Emission Rate			
		Height Above Grade (ft)	Inside Diameter (ft)	Exhaust Direction	Height (ft)	Longest Side (ft)	Velocity (ft/sec)	Temperature (°F)	Flow Rate (acfm)	
									Average	Maximum
S1	MAIN	450	30	VERT	292	203	60.84	140	2,580,200	2,580,200
S2-S35	COOL1-COOL34	50	40	VERT	292	203	19.92	68	1,501,171	1,501,171
S36	SO3SILO	75	1.35	HORZ	292	203	0.00328	68	1500	1500
S37	FLYASH	155	1.35	HORZ	292	203	0.00328	177	1500	1500
S38	HGSILO	75	1.35	HORZ	292	203	0.00328	68	1500	1500
S39	LSILO	75	1.35	HORZ	292	203	0.00328	68	1500	1500
S40	CRUSH	100	3	VERT	292	203	56.59	68	24000	24000
S41	TRIP	194	2.583	VERT	292	203	57.25	68	18000	18000
S42	LIMEPR	60	1.35	HORZ	292	203	0.00328	68	5000	5000
S43	ASHEXH	155	0.833	HORZ	292	203	73.6	258	4814	4814
S44	SODAASH	75	1.35	HORZ	292	203	0.00328	68	1500	1500
S45	AUXBOIL	106	5	VERT	292	203	65	275	76,560	76,560
S46	CINSERT 1	110	1.00	HORZ	292	203	0.00328	68	1500	1500

NOTE: If emissions are not vented through a stack, describe point of discharge below and, if necessary, include an attachment. List the attachment in Form 1.00 *General Information*, Item 16.

- Horizontal sources were modeled with a velocity of 0.00328 ft/sec per modeling guidance.
- Ambient temperature conditions listed above (68° F) modeled at 0° K.

15 Fugitive Emission Calculations for Unpaved Road - Source U1-U8 and U9-U15 each

Basis	Value	Units	Reference
Mean Vehicle Weight (W)	50	tons	Average Weight of vehicles, Project Specification
Surface Material Silt Content (s)	6	%	AP-42, Table 11.9-3 Bulldozers (Coal)
k (empircal constant) - TSP	4.9	lb/VMT	AP-42 constant for unpaved road
k (empircal constant) - PM_{10}	1.5	lb/VMT	AP-42 constant for unpaved road
k (empircal constant) - $PM_{2.5}$	0.15	lb/VMT	AP-42 constant for unpaved road
a (empircal constant) - TSP	0.7		AP-42 constant for unpaved road
a (empircal constant) - PM_{10}	0.9		AP-42 constant for unpaved road
a (empircal constant) - $PM_{2.5}$	0.9		AP-42 constant for unpaved road
b (empircal constant) - TSP	0.45		AP-42 constant for unpaved road
b (empircal constant) - PM_{10}	0.45		AP-42 constant for unpaved road
b (empircal constant) - $PM_{2.5}$	0.45		AP-42 constant for unpaved road
Number of wet days in a year (P)	120	days/year	AP-42 table (number of days in a year with at least 0.01 inch of precipitation)
Total Miles traveled on a road segment	730 miles/year		Project Specification
Control Efficiency	50	%	Projected Control Efficiency

TSP Emission Factor (E)

$$k * \frac{s}{12} \wedge a * \frac{W}{3} \wedge b * 1\text{-}f * \frac{(365\text{-}P)}{365} = E$$

$$4.9 * \frac{6}{12} \wedge 0.7 * \frac{50}{3} \wedge 0.45 * 0.5 * \frac{245}{365} = 3.59 \text{ lb/VMT}$$

TSP Emissions

$$3.59 \text{ lb/VMT} * 730 \text{ miles/year} * \frac{1 \text{ ton}}{2000 \text{ lb}} = \boxed{1.31 \text{ ton/yr}}$$

PM_{10} Emission Factor (E)

$$k * \frac{s}{12} \wedge a * \frac{W}{3} \wedge b * 1\text{-}f * \frac{(365\text{-}P)}{365} = E$$

$$1.5 * \frac{6}{12} \wedge 0.9 * \frac{50}{3} \wedge 0.45 * 0.5 * \frac{245}{365} = 0.96 \text{ lb/VMT}$$

PM_{10} Emissions

$$0.96 \text{ lb/VMT} * 730 \text{ miles/year} * \frac{1 \text{ ton}}{2000 \text{ lb}} = \boxed{0.35 \text{ ton/yr}}$$

$PM_{2.5}$ Emission Factor (E)

$$k * \frac{s}{12} \wedge a * \frac{W}{3} \wedge b * 1\text{-}f * \frac{(365\text{-}P)}{365} = E$$

$$0.15 * \frac{6}{12} \wedge 0.9 * \frac{50}{3} \wedge 0.45 * 0.5 * \frac{245}{365} = 9.57\text{E-}02 \text{ lb/VMT}$$

$PM_{2.5}$ Emissions

$$9.57\text{E-}02 \text{ lb/VMT} * 730 \text{ miles/year} * \frac{1 \text{ ton}}{2000 \text{ lb}} = \boxed{3.49\text{E-}2 \text{ ton/yr}}$$

Completed by: PBS 7/2/2009
Checked by: SAK 7/2/2009

Table A-7: Toxic Emission Calculations: Main Boiler

Basis:

PRB Coal Consumption Rate	488	ton Coal/hr
50-50 Blend Coal Consumption rate	417	ton Coal/hr
Fuel Oil Consumption Rate	9286	gal/hr
Maximum heat Input	8.30E-03	Trillion Btu/hr

Compound	Pulverized Coal [1] -AP-42				Fuel Oil [2]-AP-42			Pulverized Coal [3]-Utility report to Congress, NEI Database, TRI Database			Pulverized Coal[4] -MACT Analysis						Worst Case Emissions (lb/hr)	Worst Case Emissions (tpy)[5]
	Emission Factor	Units	Hourly Emissions (lb/hr) (PRB Coal)	Hourly Emissions (lb/hr) 50-50 Blend	Emission Factor	Units	Hourly Emissions (lb/hr)	Emission Factor	Units	Hourly Emissions (lb/hr)	Emission Factor (PRB Coal)	Units	Hourly Emissions (lb/hr) (PRB Coal)	Emission Factor (50-50 Blend Coal)	Units	Hourly Emissions (lb/hr) 50-50 Blend		
Organics																		
Acenaphthene	5.10E-07	lb/ton	2.49E-04	2.13E-04	2.1E-05	lb/1,000 gal	2.0E-04	0.013	lb/trillion btu	1.08E-04							2.49E-04	1.1E-03
Acenaphthylene	2.50E-07	lb/ton	1.22E-04	1.04E-04	2.5E-07	lb/1,000 gal	2.3E-06	0.004	lb/trillion btu	3.32E-05							1.22E-04	5.3E-04
Acetaldehyde	5.70E-04	lb/ton	2.78E-01	2.38E-01				6.75	lb/trillion btu	5.60E-02							2.78E-01	1.2E+00
Acetophenone	1.50E-05	lb/ton	7.32E-03	6.26E-03				0.68	lb/trillion btu	5.64E-03							7.32E-03	3.2E-02
Acrolein	2.90E-04	lb/ton	1.42E-01	1.21E-01				3.25	lb/trillion btu	2.70E-02							1.42E-01	6.2E-01
Anthracene	2.10E-07	lb/ton	1.02E-04	8.76E-05	1.2E-06	lb/1,000 gal	1.1E-05	0.004	lb/trillion btu	3.32E-05							1.02E-04	4.5E-04
Benzene	1.30E-03	lb/ton	6.34E-01	5.42E-01	2.14E-04	lb/1,000 gal	2.0E-03	2.5	lb/trillion btu	2.08E-02							6.34E-01	2.8E+00
Benzo(a)anthracene	8.00E-08	lb/ton	3.90E-05	3.34E-05	4.0E-06	lb/1,000 gal	3.7E-05	0.002	lb/trillion btu	1.66E-05							3.90E-05	1.7E-04
Benzo(a)pyrene	3.80E-08	lb/ton	1.85E-05	1.58E-05				0.001	lb/trillion btu	8.30E-06							1.85E-05	8.1E-05
Benzo(b)fluoranthene			-	-				0.008	lb/trillion btu	6.64E-05							6.64E-05	2.9E-04
Benzo(e)pyrene			-	-				0.001	lb/trillion btu	8.30E-06							8.30E-06	3.6E-05
Benzo(g,h,i)perylene			-	-	2.26E-06	lb/1,000 gal	2.1E-05	0.002	lb/trillion btu	1.66E-05							2.10E-05	9.2E-05
Benzo(g,h,i)pyrene	2.70E-08	lb/ton	1.32E-05	1.13E-05													1.32E-05	5.8E-05
Benzo(b,k)fluoranthene	1.10E-07	lb/ton	5.37E-05	4.59E-05	1.48E-06	lb/1,000 gal	1.4E-05	0.004	lb/trillion btu	3.32E-05							5.37E-05	2.4E-04
Benzo(k)fluoranthene			-	-				0.004	lb/trillion btu	3.32E-05							3.32E-05	1.5E-04
Benzyl chloride	7.00E-04	lb/ton	3.42E-01	2.92E-01				0.006	lb/trillion btu	4.98E-05							3.42E-01	1.5E+00
Biphenyl	1.70E-06	lb/ton	8.30E-04	7.09E-04				0.18	lb/trillion btu	1.49E-03							1.49E-03	6.5E-03
bis(2-Ethylhexyl)phthalate	7.30E-05	lb/ton	3.56E-02	3.04E-02				4.1	lb/trillion btu	3.40E-02							3.56E-02	1.6E-01
Bromoform	3.90E-05	lb/ton	1.90E-02	1.63E-02				6.6	lb/trillion btu	5.48E-02							5.48E-02	2.4E-01
2-Butanone (MEK)	3.90E-04	lb/ton	1.90E-01	1.63E-01													1.90E-01	
Carbon tetrachloride			-	-				3.25	lb/trillion btu	2.70E-02							2.70E-02	1.2E-01
Carbon disulfide	1.30E-04	lb/ton	6.34E-02	5.42E-02				4.3	lb/trillion btu	3.57E-02							6.34E-02	2.8E-01
Chlorobenzene	2.20E-05	lb/ton	1.07E-02	9.17E-03				3.18	lb/trillion btu	2.64E-02							2.64E-02	1.2E-01
Chloroform	5.90E-05	lb/ton	2.88E-02	2.46E-02				3.2	lb/trillion btu	2.66E-02							2.88E-02	1.3E-01
Chloromethane	5.30E-04	lb/ton	2.59E-01	2.21E-01				5.9	lb/trillion btu	4.90E-02							2.59E-01	1.1E+00
2-Chloronaphthalene			-					0.04	lb/trillion btu	3.32E-04							3.32E-04	1.5E-03
2-Chloroacetophenone	7.00E-06	lb/ton	3.42E-03	2.92E-03				0.29	lb/trillion btu	2.41E-03							3.42E-03	1.5E-02
Chrysene	1.00E-07	lb/ton	4.88E-05	4.17E-05	2.4E-06	lb/1,000 gal	2.2E-05	0.003	lb/trillion btu	2.49E-05							4.88E-05	2.1E-04
Cumene	5.30E-06	lb/ton	2.59E-03	2.21E-03				0.29	lb/trillion btu	2.41E-03							2.59E-03	1.1E-02
Cyanide	2.50E-03	lb/ton	1.22E+00	1.04E+00				28.00	lb/trillion btu	2.32E-01							1.22E+00	5.3E+00
Dibenzo(a,h)anthracene			-	-	1.7E-06	lb/1,000 gal	1.6E-05	0.001	lb/trillion btu	8.30E-06							1.55E-05	6.8E-05
Dibutyl phthalate				-				2.8	lb/trillion btu	2.32E-02							2.32E-02	1.0E-01
Dimethyl sulfate	4.80E-05	lb/ton	2.34E-02	2.00E-02													2.34E-02	1.0E-01
2,4-Dinitrotoluene	2.80E-07	lb/ton	1.37E-04	1.17E-04				0.015	lb/trillion btu	1.25E-04							1.37E-04	6.0E-04
Ethylbenzene	9.40E-05	lb/ton	4.59E-02	3.92E-02	6.36E-05	lb/1,000 gal	5.9E-04	0.41	lb/trillion btu	3.40E-03							4.59E-02	2.0E-01
Ethyl Chloride	4.20E-05	lb/ton	2.05E-02	1.75E-02				2.4	lb/trillion btu	1.99E-02							2.05E-02	9.0E-02
Ethylene dichloride	4.00E-05	lb/ton	1.95E-02	1.67E-02				3.1	lb/trillion btu	2.57E-02							2.57E-02	1.1E-01
Ethylene dibromide	1.20E-06	lb/ton	5.86E-04	5.00E-04													5.86E-04	2.6E-03
Fluoranthene	7.10E-07	lb/ton	3.46E-04	2.96E-04	4.8E-06	lb/1,000 gal	4.5E-05	0.016	lb/trillion btu	1.33E-04							3.46E-04	1.5E-03
Fluorene	9.10E-07	lb/ton	4.44E-04	3.79E-04	4.5E-06	lb/1,000 gal	4.2E-05	0.013	lb/trillion btu	1.08E-04							4.44E-04	1.9E-03
Formaldehyde	2.40E-04	lb/ton	1.17E-01	1.00E-01	3.3E-02	lb/1,000 gal	3.1E-01	4.0	lb/trillion btu	3.32E-02							3.06E-01	1.3E+00
Hexane	6.70E-05	lb/ton	3.27E-02	2.79E-02				0.83	lb/trillion btu	6.89E-03							3.27E-02	1.4E-01
Hydrogen chloride	1.20E+00	lb/ton	5.86E+02	5.00E+02				13634.6623	lb/trillion btu	1.13E+02	3.22E-04	lb/MMBtu	2.68E+00	2.89E-03	lb/MMBtu	2.40E+01	2.40E+01	1.1E+02
Hydrogen Fluoride	1.50E-01	lb/ton	7.32E+01	6.26E+01				2260.714975	lb/trillion btu	1.88E+01	2.17E-04	lb/MMBtu	1.80E+00	2.17E-04	lb/MMBtu	1.80E+00	1.80E+00	7.9E+00
Indeno(1,2,3,c,d)pyrene	6.10E-08	lb/ton	2.98E-05	2.54E-05	2.1E-06	lb/1,000 gal	2.0E-05	0.003	lb/trillion btu	2.49E-05							2.98E-05	1.3E-04
Isophorone	5.80E-04	lb/ton	2.83E-01	2.42E-01				24	lb/trillion btu	1.99E-01							2.83E-01	1.2E+00
Methyl Bromide	1.60E-04	lb/ton	7.81E-02	6.67E-02				0.89	lb/trillion btu	7.39E-03							7.81E-02	3.4E-01
Methyl hydrazine	1.70E-04	lb/ton	8.30E-02	7.09E-02													8.30E-02	3.6E-01
MMA	2.00E-05	lb/ton	9.76E-03	8.34E-03				1.1	lb/trillion btu	9.13E-03							9.76E-03	4.3E-02
2-Methylnaphthalene			-	-				0.032	lb/trillion btu	2.66E-04							2.66E-04	1.2E-03
MTBE	3.50E-05	lb/ton	1.71E-02	1.46E-02				1.4	lb/trillion btu	1.16E-02							1.71E-02	7.5E-02
Methylene chloride	2.90E-04	lb/ton	1.42E-01	1.21E-01				13	lb/trillion btu	1.08E-01							1.42E-01	6.2E-01
Naphthalene	1.30E-05	lb/ton	6.34E-03	5.42E-03	1.13E-03	lb/1,000 gal	1.0E-02	0.77	lb/trillion btu	6.39E-03							1.05E-02	4.6E-02
5-Methyl chrysene	2.20E-08	lb/ton	1.07E-05	9.17E-06													1.07E-05	4.7E-05
OCDD					3.10E-09	lb/1,000 gal	2.9E-08										2.88E-08	1.3E-07
Phenanthrene	2.70E-06	lb/ton	1.32E-03	1.13E-03	1.1E-05	lb/1,000 gal	9.8E-05	0.032	lb/trillion btu	2.66E-04							1.32E-03	5.8E-03
Phenol	1.60E-05	lb/ton	7.81E-03	6.67E-03				6.1	lb/trillion btu	5.06E-02							5.06E-02	2.2E-01
Propionaldehyde	3.80E-04	lb/ton	1.85E-01	1.58E-01				10.35	lb/trillion btu	8.59E-02							1.85E-01	8.1E-01
Pyrene	3.30E-07	lb/ton	1.61E-04	1.38E-04	4.3E-06	lb/1,000 gal	3.9E-05	0.012	lb/trillion btu	9.96E-05							1.61E-04	7.1E-04
Styrene	2.50E-05	lb/ton	1.22E-02	1.04E-02				3.1	lb/trillion btu	2.57E-02							2.57E-02	1.1E-01
Tetrachloroethylene	4.30E-05	lb/ton	2.10E-02	1.79E-02				3.1	lb/trillion btu	2.57E-02							2.57E-02	1.1E-01
Toluene	2.40E-04	lb/ton	1.17E-01	1.00E-01	6.20E-03	lb/1,000 gal	5.8E-02	3.6	lb/trillion btu	2.99E-02							1.17E-01	5.1E-01
1,1,1-Trichloroethane	2.00E-05	lb/ton	9.76E-03	8.34E-03	2.36E-04	lb/1,000 gal	2.2E-03	3.42	lb/trillion btu	2.84E-02							2.84E-02	1.2E-01
1,1,2-Trichloroethane			-	-				4.7	lb/trillion btu	3.90E-02							3.90E-02	1.7E-01
Trichloroethylene			-	-				3.1	lb/trillion btu	2.57E-02							2.57E-02	1.1E-01
Vinyl acetate	7.60E-06	lb/ton	3.71E-03	3.17E-03				0.42	lb/trillion btu	3.49E-03							3.71E-03	1.6E-02

Completed by: PBS7/2/09
Checked by: SAK 7/2/09

Table A-7: Toxic Emission Calculations: Main Boiler

Basis:

PRB Coal Consumption Rate	488	ton Coal/hr
50-50 Blend Coal Consumption rate	417	ton Coal/hr
Fuel Oil Consumption Rate	9286	gal/hr
Maximum heat Input	8.30E-03	Trillion Btu/hr

Compound	Pulverized Coal [1] -AP-42				Fuel Oil [2]-AP-42			Pulverized Coal [3]-Utility report to Congress, NEI Database, TRI Database			Pulverized Coal[4] -MACT Analysis						Worst Case Emissions (lb/hr)	Worst Case Emissions (tpy)[5]
	Emission Factor	Units	Hourly Emissions (lb/hr) (PRB Coal)	Hourly Emissions (lb/hr) 50-50 Blend	Emission Factor	Units	Hourly Emissions (lb/hr)	Emission Factor	Units	Hourly Emissions (lb/hr)	Emission Factor (PRB Coal)	Units	Hourly Emissions (lb/hr) (PRB Coal)	Emission Factor (50-50 Blend Coal)	Units	Hourly Emissions (lb/hr) 50-50 Blend		
Xylene	3.70E-05	lb/ton	1.81E-02	1.54E-02	1.09E-04	lb/1,000 gal	1.0E-03	4.65	lb/trillion btu	3.86E-02							3.86E-02	1.7E-01
m-xylene	-	-	-	-	-	-	-	1.45	lb/trillion btu	1.20E-02							1.20E-02	5.3E-02
o-xylene	-	-	-	-	1.09E-04	lb/1,000 gal	1.0E-03	0.81	lb/trillion btu	6.72E-03							6.72E-03	2.9E-02
p-xylene	-	-	-	-	-	-	-	1.45	lb/trillion btu	1.20E-02							1.20E-02	5.3E-02
Dioxins (Total)	-	-	-	-	-	-	-	9.68E-06	lb/trillion btu	8.03E-08							8.03E-08	3.5E-07
P-Cresol	-	-	-	-	-	-	-	0.95	lb/trillion btu	7.89E-03							7.89E-03	3.5E-02
Pentachlorophenol	-	-	-	-	-	-	-	0.008	lb/trillion btu	6.64E-05							6.64E-05	2.9E-04
Hexachlorobenzene	-	-	-	-	-	-	-	0.08	lb/trillion btu	6.64E-04							6.64E-04	2.9E-03
Methyl iodine	-	-	-	-	-	-	-	0.4	lb/trillion btu	3.32E-03							3.32E-03	1.5E-02
Methyl isobutyl ketone	-	-	-	-	-	-	-	4.9	lb/trillion btu	4.07E-02							4.07E-02	1.8E-01
1,2,4-Trichlorobenzene	-	-	-	-	-	-	-	1.51E-06	lb/MMBtu	1.25E-02							1.25E-02	5.5E-02
1,3-Butadiene	-	-	-	-	-	-	-	3.71E-07	lb/MMBtu	3.08E-03							3.08E-03	1.3E-02
1,3-Dichloropropene	-	-	-	-	-	-	-	6.61E-07	lb/MMBtu	5.48E-03							5.48E-03	2.4E-02
1,4-Dichlorobenzene	-	-	-	-	-	-	-	1.06E-06	lb/MMBtu	8.76E-03							8.76E-03	3.8E-02
2,4,6-Trichlorophenol	-	-	-	-	-	-	-	8.01E-10	lb/MMBtu	6.64E-06							6.64E-06	2.9E-05
2,4-Dinitrophenol	-	-	-	-	-	-	-	1.08E-08	lb/MMBtu	8.92E-05							8.92E-05	3.9E-04
3-Methylcholanthrene	-	-	-	-	-	-	-	6.62E-11	lb/MMBtu	5.49E-07							5.49E-07	2.4E-06
4-Nitrophenol	-	-	-	-	-	-	-	4.00E-09	lb/MMBtu	3.32E-05							3.32E-05	1.5E-04
7,12-Dimethylbenz[a]Anthracene	-	-	-	-	-	-	-	5.88E-10	lb/MMBtu	4.88E-06							4.88E-06	2.1E-05
Allyl Chloride	-	-	-	-	-	-	-	8.03E-06	lb/MMBtu	6.66E-02							6.66E-02	2.9E-01
Calcium Cyanamide	-	-	-	-	-	-	-	3.39E-06	lb/MMBtu	2.81E-02							2.81E-02	1.2E-01
Dibenzo[a,j]Acridine	-	-	-	-	-	-	-	5.12E-07	lb/MMBtu	4.25E-03							4.25E-03	1.9E-02
Dibenzofuran	-	-	-	-	-	-	-	5.73E-07	lb/MMBtu	4.75E-03							4.75E-03	2.1E-02
Diethyl Sulfate	-	-	-	-	-	-	-	2.33E-06	lb/MMBtu	1.94E-02							1.94E-02	8.5E-02
Dimethyl Phthalate	-	-	-	-	-	-	-	9.64E-08	lb/MMBtu	8.00E-04							8.00E-04	3.5E-03
Polychlorinated Biphenyls	-	-	-	-	-	-	-	1.37E-08	lb/MMBtu	1.14E-04							1.14E-04	5.0E-04
Propylene Dichloride	-	-	-	-	-	-	-	1.20E-06	lb/MMBtu	9.97E-03							9.97E-03	4.4E-02
Sodium Cyanide	-	-	-	-	-	-	-	8.09E-05	lb/MMBtu	6.71E-01							6.71E-01	2.9E+00
Toluene-2,4-Diamine	-	-	-	-	-	-	-	1.38E-08	lb/MMBtu	1.14E-04							1.14E-04	5.0E-04
Vinyl Chloride	-	-	-	-	-	-	-	7.14E-07	lb/MMBtu	5.92E-03							5.92E-03	2.6E-02
Metals																		
Antimony	1.80E-05	lb/ton	8.78E-03	7.51E-03				0.87	lb/trillion btu	7.25E-03	1.71E-06	lb/MMBtu	1.42E-02	1.75E-06	lb/MMBtu	1.46E-02	1.46E-02	6.4E-02
Arsenic	4.10E-04	lb/ton	2.00E-01	1.71E-01	5.6E-04	lb/1,000 gal	5.2E-03	29.76	lb/trillion btu	2.47E-01	3.77E-05	lb/MMBtu	3.13E-01	2.71E-05	lb/MMBtu	2.25E-01	3.13E-01	1.4E+00
Beryllium	2.10E-05	lb/ton	1.02E-02	8.76E-03	4.2E-04	lb/1,000 gal	3.9E-03	0.72	lb/trillion btu	5.99E-03	2.11E-06	lb/MMBtu	1.75E-02	3.43E-06	lb/MMBtu	2.85E-02	2.85E-02	1.2E-01
Cadmium	5.10E-05	lb/ton	2.49E-02	2.13E-02	4.2E-04	lb/1,000 gal	3.9E-03	3.20	lb/trillion btu	2.66E-02	3.53E-07	lb/MMBtu	2.93E-03	6.45E-06	lb/MMBtu	5.35E-02	5.35E-02	2.3E-01
Chromium (II,III)	2.60E-04	lb/ton	1.27E-01	1.08E-01	4.2E-04	lb/1,000 gal	3.9E-03	24.37	lb/trillion btu	2.02E-01	1.53E-05	lb/MMBtu	1.27E-01	1.89E-05	lb/MMBtu	1.57E-01	2.02E-01	8.9E-01
Chromium (VI)	7.90E-05	lb/ton	3.86E-02	3.29E-02				8.32E-06	lb/MMBtu	6.91E-02							6.91E-02	3.0E-01
Cobalt	1.00E-04	lb/ton	4.88E-02	4.17E-02				2.38	lb/trillion btu	1.98E-02	4.86E-06	lb/MMBtu	4.04E-02	4.62E-06	lb/MMBtu	3.83E-02	4.88E-02	2.1E-01
Copper			-	-	8.4E-04	lb/1,000 gal	7.8E-03										7.80E-03	
Lead	4.20E-04	lb/ton	2.05E-01	1.75E-01	1.3E-03	lb/1,000 gal	1.2E-02	7.64	lb/trillion btu	6.34E-02	1.01E-05	lb/MMBtu	8.38E-02	1.60E-05	lb/MMBtu	1.33E-01	1.33E-01	5.8E-01
Mercury	8.30E-05	lb/ton	4.05E-02	3.46E-02	4.2E-04	lb/1,000 gal	3.9E-03	5.26	lb/trillion btu	4.36E-02	1.68E-06	lb/MMBtu	1.39E-02				1.39E-02	6.E-02
Magnesium	1.10E-02	lb/ton	5.37E+00	4.59E+00													5.37E+00	
Manganese	4.90E-04	lb/ton	2.39E-01	2.04E-01	8.4E-04	lb/1,000 gal	7.8E-03	42.63	lb/trillion btu	3.54E-01	1.13E-04	lb/MMBtu	9.35E-01	9.70E-05	lb/MMBtu	8.05E-01	9.35E-01	4.1E+00
Nickel	2.80E-04	lb/ton	1.37E-01	1.17E-01	4.2E-04	lb/1,000 gal		6.04	lb/trillion btu	5.01E-02	1.46E-05	lb/MMBtu	1.21E-01	1.98E-05	lb/MMBtu	1.64E-01	1.64E-01	7.2E-01
Phosphorus			-	-				31.50	lb/trillion btu	2.61E-01							2.61E-01	1.1E+00
Selenium	1.30E-03	lb/ton	6.34E-01	5.42E-01	2.1E-03	lb/1,000 gal	2.0E-02	18.76	lb/trillion btu	1.56E-01	2.15E-06	lb/MMBtu	1.79E-02	2.65E-06	lb/MMBtu	2.20E-02	6.34E-01	2.8E+00
Zinc			-		5.6E-04	lb/1,000 gal	5.2E-03										5.20E-03	

1)AP-42 Table 1.1-13, 1.1-14, & 1.1-18

2)AP-42 Tables 1.3-9 & 1.3-10

3) Test Report Data Table A-1 and A-4 from the study of Hazardous Air Pollutant emissions from Electric Utility Steam Generating Units- Final report to Congress (1998) and Data derived from EPA NEI HAP emissions inventory data - 2002 NEI V3 last updated September 2007 and 2006 TRI Database. In these calculations, the following assumption were made : Arsenic Trioxide same as Arsenic, Cadmium Oxide same as Cadmium, Chromic Oxide same as Chromium, Chromic Oxide same as Chromium hexavalent, and Manganese Oxide same as Manganese. The worst case emission factor indicated for these compounds were used in the calculations.

4) MACT Analysis HAP Emissions rate data derived from USGS COALQUAL Data as indicated in Sections 17, 18, and 19 of calculations.

5) Worst case ton/yr emissions indicated for HAPs. Emissions indicated worst case value of emission estimate resources reviewed with four exceptions. Value indicated for HF, HCl, mercury, and lead representative of emission limits proposed for Plant Washington.

6. For Calculations based on

Completed by: PBS7/2/09
Checked by: SAK 7/2/09

Table A-8: Toxic Emission Calculations: Auxiliary Boiler

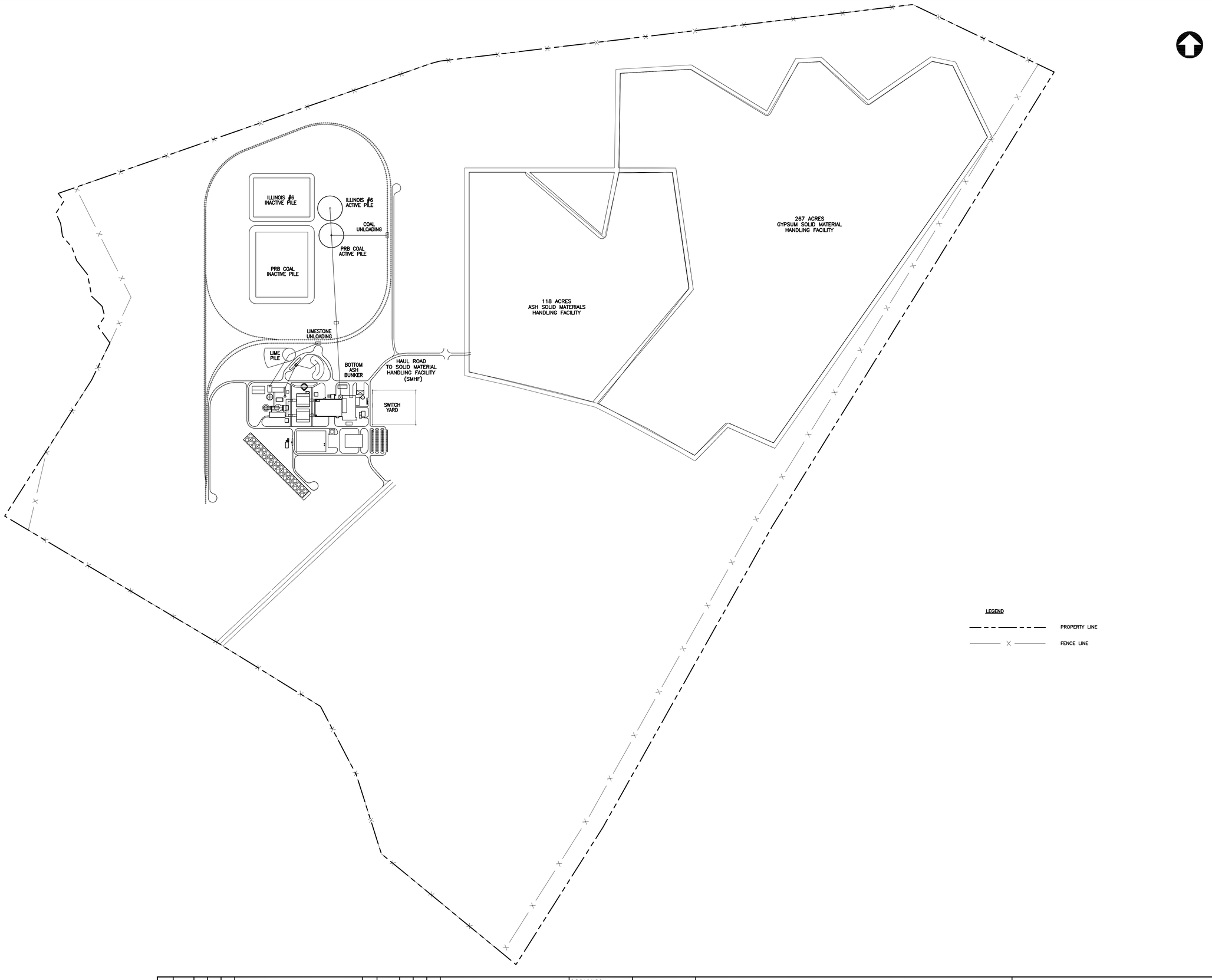
Basis:

Fuel Oil Consumption	1,714	gal/hr
Auxiliary Boiler Capacity	240	MMBtu/hr
Annual Operating Hours	876	hrs/yr

Compound	Fuel Oil [1]			
	Emission Factor	Units	Hourly Emissions (lb/hr)	Total Emissions (tpy)2
Organics				
Acenaphthene	2.1E-05	lb/1,000 gal	3.62E-05	1.58E-05
Acenaphthylene	2.5E-07	lb/1,000 gal	4.34E-07	1.90E-07
Anthracene	1.2E-06	lb/1,000 gal	2.09E-06	9.16E-07
Benzene	2.14E-04	lb/1,000 gal	3.67E-04	1.61E-04
Benzo(a)anthracene	4.0E-06	lb/1,000 gal	6.87E-06	3.01E-06
Benzo(g,h,i)perylene	2.26E-06	lb/1,000 gal	3.87E-06	1.70E-06
Benzo(b,k)fluoranthene	1.48E-06	lb/1,000 gal	2.54E-06	1.11E-06
Chrysene	2.4E-06	lb/1,000 gal	4.08E-06	1.79E-06
Dibenzo(a,h)anthracene	1.7E-06	lb/1,000 gal	2.86E-06	1.25E-06
Ethylbenzene	6.36E-05	lb/1,000 gal	1.09E-04	4.78E-05
Fluoranthene	4.8E-06	lb/1,000 gal	8.30E-06	3.63E-06
Fluorene	4.5E-06	lb/1,000 gal	7.66E-06	3.36E-06
Formaldehyde	3.3E-02	lb/1,000 gal	5.66E-02	2.48E-02
Indeno(1,2,3,c,d)pyrene	2.1E-06	lb/1,000 gal	3.67E-06	1.61E-06
Naphthalene	1.13E-03	lb/1,000 gal	1.94E-03	8.48E-04
Phenanthrene	1.1E-05	lb/1,000 gal	1.80E-05	7.88E-06
Pyrene	4.3E-06	lb/1,000 gal	7.29E-06	3.19E-06
Toluene	6.20E-03	lb/1,000 gal	1.06E-02	4.66E-03
1,1,1-Trichloroethane	7.60E+00	lb/TBtu	1.82E-03	7.99E-04
Xylene	1.90E-04	lb/1,000 gal	3.26E-04	1.43E-04
Hydrogen fluoride	9.31E-06	lb/MMBtu	2.23E-03	9.79E-04
Phosphorous	1.12E+02	lb/TBtu	2.68E-02	1.18E-02
Acetaldehyde	8.20E+00	lb/TBtu	1.97E-03	8.62E-04
Methylene chloride	3.23E+01	lb/TBtu	7.74E-03	3.39E-03
Phenol	2.43E+01	lb/TBtu	5.83E-03	2.55E-03
Tetrachloroethylene	5.50E-01	lb/TBtu	1.32E-04	5.78E-05
Vinyl acetate	5.15E+00	lb/TBtu	1.24E-03	5.41E-04
Dioxins (Total)	8.80E-06	lb/TBtu	2.11E-09	9.25E-10
2-Methylnaphthalene	1.70E-02	lb/TBtu	4.08E-06	1.79E-06
Metals				
Arsenic	5.6E-04	lb/1,000 gal	9.60E-04	4.20E-04
Beryllium	4.2E-04	lb/1,000 gal	7.20E-04	3.15E-04
Cadmium	4.2E-04	lb/1,000 gal	7.20E-04	3.15E-04
Chromium (II,III)	4.2E-04	lb/1,000 gal	7.20E-04	3.15E-04
Copper	8.4E-04	lb/1,000 gal	1.44E-03	
Lead	1.3E-03	lb/1,000 gal	2.16E-03	9.46E-04
Mercury	4.2E-04	lb/1,000 gal	7.20E-04	3.15E-04
Manganese	8.4E-04	lb/1,000 gal	1.44E-03	6.31E-04
Nickel	4.2E-04	lb/1,000 gal	7.20E-04	3.15E-04
Selenium	2.1E-03	lb/1,000 gal	3.60E-03	1.58E-03
Zinc	5.6E-04	lb/1,000 gal	9.60E-04	4.20E-04

Notes:
1) AP-42 Table 1.3-9 and 1.3-10 and USEPA Utility Report To Congress
2) Total ton/yr emissions indicated for HAPs

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09



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DRAWN T. GLADSTONE
CHECKED A. KEELEY
IN CHARGE K. HILTGEN
DATE 11/11/2008

PLANT WASHINGTON
SANDERSVILLE, GEORGIA

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SITE LAYOUT MAP

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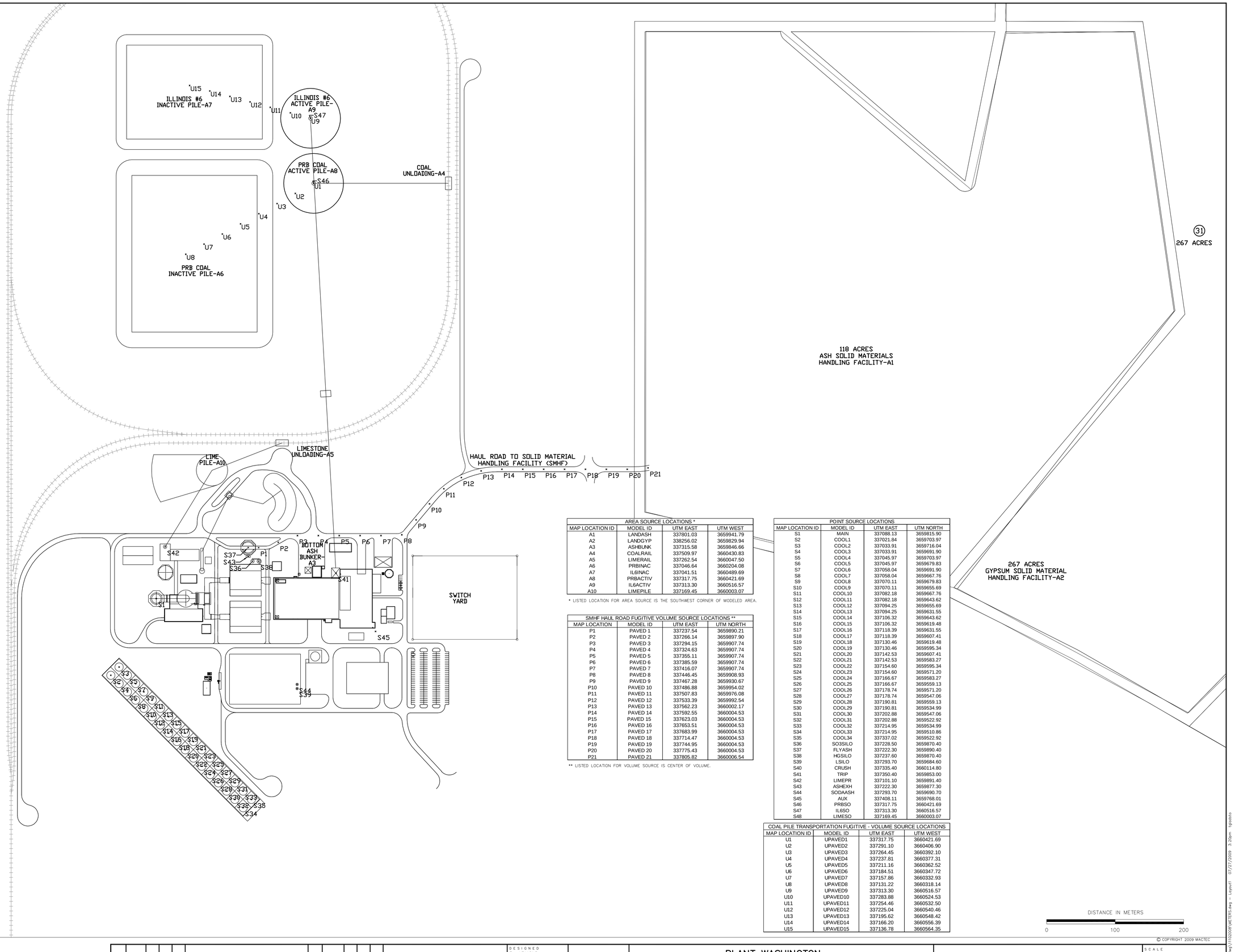

AREA SOURCE LOCATIONS *			
MAP LOCATION ID	MODEL ID	UTM EAST	UTM WEST
A1	LANDASH	337801.03	3659941.79
A2	LANDGYP	338256.02	3659829.94
A3	ASHBUNK	337315.58	3659846.66
A4	COALRAIL	337509.97	3660430.83
A5	LIMERAIL	337262.54	3660047.50
A6	PRBINAC	337046.64	3660204.08
A7	IL6INAC	337041.51	3660489.69
A8	PRBACTIV	337317.75	3660421.69
A9	IL6ACTIV	337313.30	3660516.57
A10	LIMEPILE	337169.45	3660003.07

* LISTED LOCATION FOR AREA SOURCE IS THE SOUTHWEST CORNER OF MODELED AREA.

SMHF HAUL ROAD FUGITIVE VOLUME SOURCE LOCATIONS **			
MAP LOCATION	MODEL ID	UTM EAST	UTM NORTH
P1	PAVED 1	337237.54	3659890.21
P2	PAVED 2	337266.14	3659897.90
P3	PAVED 3	337294.15	3659907.74
P4	PAVED 4	337324.63	3659907.74
P5	PAVED 5	337355.11	3659907.74
P6	PAVED 6	337385.59	3659907.74
P7	PAVED 7	337416.07	3659907.74
P8	PAVED 8	337446.45	3659908.93
P9	PAVED 9	337467.28	3659930.67
P10	PAVED 10	337486.88	3659954.02
P11	PAVED 11	337507.83	3659976.08
P12	PAVED 12	337533.39	3659992.54
P13	PAVED 13	337562.23	3660002.17
P14	PAVED 14	337592.55	3660004.53
P15	PAVED 15	337623.03	3660004.53
P16	PAVED 16	337653.51	3660004.53
P17	PAVED 17	337683.99	3660004.53
P18	PAVED 18	337714.47	3660004.53
P19	PAVED 19	337744.95	3660004.53
P20	PAVED 20	337775.43	3660004.53
P21	PAVED 21	337805.82	3660006.54

** LISTED LOCATION FOR VOLUME SOURCE IS CENTER OF VOLUME.

POINT SOURCE LOCATIONS			
MAP LOCATION ID	MODEL ID	UTM EAST	UTM NORTH
S1	MAIN	337088.13	3659815.90
S2	COOL1	337021.84	3659703.97
S3	COOL2	337033.91	3659716.04
S4	COOL3	337033.91	3659691.90
S5	COOL4	337045.97	3659703.97
S6	COOL5	337045.97	3659679.83
S7	COOL6	337058.04	3659691.90
S8	COOL7	337058.04	3659667.76
S9	COOL8	337070.11	3659679.83
S10	COOL9	337070.11	3659655.69
S11	COOL10	337082.18	3659667.76
S12	COOL11	337082.18	3659643.62
S13	COOL12	337094.25	3659655.69
S14	COOL13	337094.25	3659631.55
S15	COOL14	337106.32	3659643.62
S16	COOL15	337106.32	3659619.48
S17	COOL16	337118.39	3659631.55
S18	COOL17	337118.39	3659607.41
S19	COOL18	337130.46	3659619.48
S20	COOL19	337130.46	3659595.34
S21	COOL20	337142.53	3659607.41
S22	COOL21	337142.53	3659583.27
S23	COOL22	337154.60	3659595.34
S24	COOL23	337154.60	3659571.20
S25	COOL24	337166.67	3659583.27
S26	COOL25	337166.67	3659559.13
S27	COOL26	337178.74	3659571.20
S28	COOL27	337178.74	3659547.06
S29	COOL28	337190.81	3659559.13
S30	COOL29	337190.81	3659534.99
S31	COOL30	337202.88	3659547.06
S32	COOL31	337202.88	3659522.92
S33	COOL32	337214.95	3659534.99
S34	COOL33	337214.95	3659510.86
S35	COOL34	337337.02	3659522.92
S36	SO3SILO	337228.50	3659870.40
S37	FLYASH	337222.30	3659890.40
S38	HGSILO	337237.60	3659870.40
S39	LSILO	337293.70	3659684.60
S40	CRUSH	337335.40	3660114.80
S41	TRIP	337350.40	3659853.00
S42	LIMEPR	337101.10	3659891.40
S43	ASHEXH	337222.30	3659877.30
S44	SODAASH	337293.70	3659690.70
S45	AUX	337408.11	3659768.01
S46	PRBSO	337317.75	3660421.69
S47	IL6SO	337313.30	3660516.57
S48	LIMESO	337169.45	3660003.07

COAL PILE TRANSPORTATION FUGITIVE - VOLUME SOURCE LOCATIONS			
MAP LOCATION ID	MODEL ID	UTM EAST	UTM WEST
U1	UPAVED1	337317.75	3660421.69
U2	UPAVED2	337291.10	3660406.90
U3	UPAVED3	337264.45	3660392.10
U4	UPAVED4	337237.81	3660377.31
U5	UPAVED5	337211.16	3660362.52
U6	UPAVED6	337184.51	3660347.72
U7	UPAVED7	337157.86	3660332.93
U8	UPAVED8	337131.22	3660318.14
U9	UPAVED9	337313.30	3660516.57
U10	UPAVED10	337283.88	3660524.53
U11	UPAVED11	337254.46	3660532.50
U12	UPAVED12	337225.04	3660540.46
U13	UPAVED13	337195.62	3660548.42
U14	UPAVED14	337166.20	3660556.39
U15	UPAVED15	337136.78	3660564.35

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REV	DATE	BY	SUB	APP	DESCRIPTION	REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED B. ARNOLD
DRAWN T. GLADSTONE
CHECKED A. KEELEY
IN CHARGE K. HILTGEN
DATE 11/11/2008

PLANT WASHINGTON

SANDERSVILLE, GEORGIA

MACTEC Engineering and Consulting, Inc.
3200 TOWN POINT DRIVE, SUITE 100
KENNESAW, GEORGIA 30144 (770) 421-3400

SITE LOCATION MAP
STACK IDs AND HAUL ROAD

SCALE 1:2000

CONTRACT 6122-07-0007

DWG. NO. | REV | PAGE NO.

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ITEM	BPIP ID	DESCRIPTION	Height (m)
1	BOILER	Coal Fired Boiler	89.91
2	TURBINE	Steam Turbine	17.07
3	SCR	Selective Catalytic Reduction	47.24
4	FUELTANK	Fuel Oil Tank	12.19
5	BAG1	No. 1 Baghouse	22.56
6	BAG2	No. 2 Baghouse	22.56
7	WETFGD	Wet Flue Gas Desulfurization Support Building	6.40
8	NH3STORE	Ammonia Storage	4.57
9	GYPSUM	Gypsum Pile	10.67
10	SO3SILO	SO_3 Sorbent Silo	22.87
11	HGSILO	Mercury Silo	22.87
12	FLYASH	Fly Ash Silo	47.24
13	LANDASH	Ash Solid Material Handling Facility	13.72
14	DIESEL	Emergency Diesel Generator	12.19
15	STORAGE	Pretreatment Belt Presses, Diesel Fire Pump, Lime and Soda Ash Silos	22.87
16	LIMEPREP	Limestone Preparation and Gypsum Dewater Building	18.29
17	LIMETANK	Limestone Slurry Tank	22.87
18	AUXBOIL	Auxiliary Boiler	27.40
19	CONDSTOR	Condensate Storage	7.31
20	ADMIN	Administration and Control Building	9.14
21	MAINWARE	Maintenance Warehouse	10.37
22	COOL	Cooling Towers	15.24
23	FGDBELT	Flue Gas Desulfurization Wastewater Building Belt Press	9.15
24	IL6ACTIV	Illinois No. 6 Active Pile	30.42
25	PRBACTIV	Powder River Basin Coal Active Pile	30.42
26	IL6INACT	Illinois No. 6 Inactive Pile	7.88
27	PRBINACT	Powder River Basin Coal Inactive Pile	10.43
28	RAIL	Coal Rail Unloading	9.14
29	LIMERAIL	Limestone Rail Unloading	9.14
30	LIMEPILE	Limestone Pile	18.17
31	LANDGYP	Gypsum-Solid Material Handling Facility	13.72
32	SCRUBBER TOWER	Wet Scrubber Tower	53.03

BPIP Building/Structure Corner UTM Coordinates

1- Coal Fired Boiler

UTM East	UTM North
337294.04	3659846.66
337343.92	3659846.66
337343.92	3659860.62
337356.11	3659860.62
337356.07	3659785.11
337344.49	3659785.11
337344.49	3659780.54
337334.58	3659780.54
337334.58	3659785.11
337294.04	3659785.11

2- Steam Turbine

UTM East	UTM North
337407.66	3659781.39
337407.66	3659772.55
337356.07	3659772.55
337356.07	3659859.02
337403.73	3659859.02
337403.73	3659781.39

3- Selective Catalytic Reduction

UTM East	UTM North
337259.14	3659785.11
337259.14	3659846.66
337288.56	3659846.66
337288.56	3659848.48
337294.04	3659848.48
337294.04	3659846.66
337294.04	3659785.11

4 - Fuel Oil Tank

UTM East	UTM North
337310.72	3659740.78
337329.43	3659740.78
337329.43	3659721.87
337310.72	3659721.87

5 - No. 1 Baghouse

UTM East	UTM North
337195.48	3659766.15
337241.20	3659766.15
337241.20	3659812.24
337195.48	3659812.24

6 - No. 2 Baghouse

UTM East	UTM North
337195.48	3659865.61
337241.20	3659865.64
337241.20	3659819.55
337195.48	3659819.55

7 - Wet Flue Gas Desulfurization Support Bldg.

UTM East	UTM North
337099.96	3659782.19
337156.27	3659782.19
337156.27	3659801.33
337099.96	3659801.33

8 - Ammonia Storage

UTM East	UTM North
337156.53	3659674.81
337166.89	3659674.81
337166.89	3659695.54
337168.72	3659702.57
337158.51	3659702.57
337158.51	3659697.84
337156.53	3659695.54

9 - Gypsum Pile

UTM East	UTM North	UTM East	UTM North
337248.94	3660000.91	337277.99	3659926.64
337257.03	3660005.87	337266.96	3659921.31
337267.51	3660004.40	337255.56	3659926.27
337275.04	3659998.89	337251.88	3659935.46
337283.32	3659990.98	337254.82	3659945.76
337289.02	3659981.05	337261.26	3659954.76
337292.69	3659969.47	337262.18	3659965.98
337292.88	3659957.89	337256.85	3659974.99
337290.30	3659944.65	337250.23	3659979.40
337285.16	3659935.09	337245.08	3659989.88

10 - SO_3 Sorbent Silo

UTM East	UTM North
337225.94	3659870.40
337228.50	3659867.57
337231.06	3659870.40
337228.50	3659872.96

11 - Mercury Silo

UTM East	UTM North
337237.65	3659872.96
337240.21	3659870.40
337237.65	3659867.84
337235.09	3659870.40

12 - Fly Ash Silo

UTM East	UTM North
337217.91	3659901.05
337226.75	3659901.05
337233.00	3659894.81
337233.00	3659885.97
337226.75	3659879.72
337217.91	3659879.72
337211.66	3659885.97
337211.66	3659894.81

13 - Ash Solid Material Handling Facility

UTM East	UTM North
337801.37	3660642.88
337999.27	3660642.88
338276.03	3660411.92
338327.06	3660639.99
338514.69	3660642.55
338573.29	3660235.31
338256.02	3659829.94
337801.03	3659941.79

14 - Emergency Diesel Generator

UTM East	UTM North
337416.05	3659800.42
337424.07	3659800.42
337424.07	3659804.34
337436.44	3659804.34
337436.44	3659786.12
337424.38	3659786.12
337424.38	3659779.59
337416.05	3659779.59

15 - Pretreatment Belt Presses, Diesel Fire Pump, Lime and Soda Ash Silos

UTM East	UTM North
337194.97	3659661.86
337298.60	3659661.86
337298.60	3659735.02
337194.97	3659735.02

16 - Limestone Preparation and Gypsum Dewater Building

UTM East	UTM North
337093.64	3659895.57
337108.60	3659895.57
337108.60	3659887.64
337150.93	3659887.64
337150.93	3659871.10
337108.60	3659871.10
337093.64	3659871.10

17 - Limestone Slurry Tank

UTM East	UTM North
337097.16	3659864.95
337106.25	3659864.95
337112.68	3659858.52
337112.68	3659849.43
337106.25	3659843.00
337097.16	3659843.00
337090.73	3659849.43
337090.73	3659858.52

18 - Auxiliary Boiler

UTM East	UTM North
337368.86	3659765.91
337391.11	3659765.91
337391.11	3659755.24
337368.86	3659755.24

19 - Condensate Storage

UTM East	UTM North
337425.46	3659858.46
337430.51	3659858.46
337434.08	3659854.89
337434.08	3659849.84
337430.51	3659846.27
337425.46	3659846.27
337421.89	3659849.84
337421.89	3659854.89

20 - Administration and Control Building

UTM East	UTM North
337403.73	3659851.40
337415.92	3659851.40
337415.92	3659823.97
337403.73	3659823.97

21 - Maintenance Warehouse

UTM East	UTM North
337365.93	3659722.82
337426.89	3659722.82
337426.89	3659677.10
337365.93	3659677.10

22 - Cooling Towers

UTM East	UTM North
337034.01	3659729.29
337130.46	3659632.84
337143.39	3659645.77
337156.32	3659632.84
337143.39	3659619.91
337239.84	3659523.46
337214.41	3659498.03
337008.58	3659703.86

23 - Flue Gas Desulfurization Wastewater Building belt Press

UTM East	UTM North
337039.49	3659891.86
337083.48	3659891.86
337083.48	3659865.39
337039.49	3659865.39

24 - Illinois No. 6 Active Pile

UTM East	UTM North
337313.30	3660560.16
337344.12	3660547.39
337356.89	3660516.57
337344.12	3660485.74
337313.30	3660472.98
337282.48	3660485.74
337269.71	3660516.57
337282.48	3660547.39

25 - Powder River Basin Coal Active Pile

UTM East	UTM North
337317.75	3660465.28
337348.58	3660452.51
337361.34	3660421.69
337348.58	3660390.86
337317.75	3660378.10
337286.93	3660390.86
337274.16	3660421.69
337286.93	3660452.51

26 - Illinois No. 6 Inactive Pile

UTM East	UTM North
337044.86	3660623.29
337242.98	3660623.29
337242.98	3660486.13
337044.86	3660486.13

27 - Powder River Basin Coal Inactive Pile

UTM East	UTM North
337052.48	3660433.22
337235.36	3660433.22
337235.36	3660204.62
337052.48	3660204.62

28 - Coal Rail Unloading

UTM East	UTM North
337509.97	3660430.83
337519.11	3660430.83
337519.11	3660412.54
337509.97	3660412.54

29 - Limestone Rail Unloading

UTM East	UTM North
337262.54	3660047.50
337280.83	3660047.50
337280.83	3660038.35
337262.54	3660038.35

30 - Limestone Pile

UTM East	UTM North
337169.18	3660033.28
337185.05	3660027.33
337192.76	3660011.02
337185.49	3659993.62
337170.94	3659987.45
337154.20	3659994.06
337147.36	3660009.26
337153.31	3660025.79

31 - Gypsum-Solid Material Handling Facility

UTM East	UTM North	UTM East	UTM North
338256.02	3659829.94	339034.22	3661031.31
338573.29	3660235.31	339204.12	3660880.77
338514.69	3660642.55	339427.42	3661032.15
338327.06	3660639.99	339500.02	3661016.84
338332.24	3660990.23	339621.72	3660766.41
338578.55	3661004.65	338870.34	3659692.55
338848.44	3660842.65	338709.47	3659762.47
338957.86	3661026.84	338593.08	3659648.78

32 - Wet Scrubber Tower

UTM East	UTM North
337121.12	3659823.53
337129.53	3659828.40
337138.87	3659825.94
337143.74	3659817.60
337141.28	3659808.26
337132.94	3659803.39
337123.60	3659805.85
337118.73	3659814.19

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REV	DATE	BY	SUB	APP	DESCRIPTION	REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED B. ARNOLD
DRAWN T. GLADSTONE
CHECKED A. KEELEY
IN CHARGE K. HILTGEN
DATE 11/11/2008

PLANT WASHINGTON

SANDERSVILLE, GEORGIA

MACTEC
MACTEC Engineering and Consulting, Inc.
3200 TOWN POINT DRIVE, SUITE 100
KENNESAW, GEORGIA 30144 (770) 421-3400

BUILDING HEIGHTS AND DIMENSIONS

SCALE AS SHOWN
CONTRACT 6122-07-0007
DWG. NO. | REV | PAGE NO

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Table C-1: Offsite Data Used For SO_2 NAAQS Modeling

Stack Description	Modeled Source ID	UTM Easting (km)		UTM Northing (km)		Base Elev. (m)	SO_2 Emission Rate (g/s)		Stack Height (m)		Temp. (K)		Exit Vel. (m/s)		Stack Diam. (m)	
DUKE ENERGY SANDERSVILLE, L.L.C, SANDERSVILLE (WASHINGTON COUNTY)																
Turbine No. 1	DES01	326.449	1	3665.732	1	138.0	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 2	DES02	326.421	1	3665.768	1	136.9	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 3	DES03	326.408	1	3665.785	1	136.3	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 4	DES04	326.379	1	3665.821	1	134.2	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 5	DES05	326.366	1	3665.838	1	135.2	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 6	DES06	326.338	1	3665.874	1	135.6	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 7	DES07	326.325	1	3665.891	1	135.3	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 8	DES08	326.297	1	3665.927	1	134.0	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
PROGRESS ENERGY, WASHINGTON COUNTY POWER SANDERSVILLE (WASHINGTON COUNTY)																
Turbines T1-T5	PES01	322.784	1	3663.077	1	119.2	16.6	1	27.43	1	877.4	1	48.46	1	5.64	1
Heater H1	PES02	322.784	1	3663.077	1	119.2	0.01	1	3.05	1	688.6	1	4.88	1	0.40	1
Heater H2	PES03	322.784	7	3663.077	7	119.2	0.01	7	3.05	7	688.6	7	4.88	7	0.40	7
ENGELHARD CORPORATION, EDGAR'S PLANT, McINTYRE (WILKINSON COUNTY)																
4S	EHS01	292.8614	9	3636.4593	9	88.0	1.72	8	36.57	9	377.4	9	36.61	9	0.81	9
6S	EHS02	292.8614	9	3636.4593	9	88.0	3.31	8	25.91	9	377.4	9	17.06	9	1.68	9
10	EHS03	292.8614	9	3636.4593	9	88.0	2.07	8	45.72	9	349.7	9	19.56	9	0.61	9
30S	EHS04	292.8614	9	3636.4593	9	88.0	2.74	8	22.86	9	349.7	9	14.33	9	0.84	9
50S	EHS05	292.8614	9	3636.4593	9	88.0	2.74	8	45.72	9	355.2	9	14.01	9	0.91	9
70S	EHS06	292.8614	9	3636.4593	9	88.0	2.76	8	32.00	9	344.1	9	21.56	9	0.91	9
90	EHS07	292.8614	9	3636.4593	9	88.0	1.15	8	47.24	9	341.3	9	18.94	9	0.76	9
110S	EHS08	292.8614	9	3636.4593	9	88.0	1.27	9	60.96	9	343.0	9	14.54	9	0.76	9
120	EHS09	292.475	1	3636.497	1	91.0	4.04	1	60.35	1	394.1	1	21.82	1	1.22	1
130S	EHS10	292.8614	9	3636.4593	9	88.0	1.32	9	60.35	9	349.7	9	33.20	9	0.91	9
140	EHS11	292.446	1	3636.449	1	91.1	4.04	1	60.35	1	394.1	1	33.16	1	1.22	1
170	EHS12	292.8614	9	3636.4593	9	88.0	0.61	8	15.24	9	291.9	9	17.87	9	0.71	9
171S	EHS13	292.8614	9	3636.4593	9	88.0	0.61	8	15.24	9	291.9	9	17.87	9	0.71	9
210S	EHS14	292.8614	9	3636.4593	9	88.0	3.11	8	30.48	9	344.1	9	7.33	9	0.91	9
218	EHS15	292.8614	9	3636.4593	9	88.0	0.98	8	28.65	9	291.9	9	9.80	9	1.22	9
230	EHS16	292.779	1	3636.389	1	91.1	1.45	1	36.57	1	344.1	1	40.54	1	0.76	1
15B Spray Dryer (242)	EHS17	292.752	1	3636.377	1	90.9	1.64	1	22.86	1	394.1	1	26.27	1	1.22	1
248	EHS18	292.440	1	3636.521	1	91.0	0.31	2	48.77	1	343.6	1	29.05	1	0.91	1
GEORGIA POWER																
Stack 1 (SG01+ SG02)	GPS01	285.5874	9	3674.9538	9	116.0	3855.60	10	148.40	9	394.1	9	24.99	9	6.86	9
Stack 2 (SG03 + SG04)	GPS03	285.5874	9	3674.9538	9	116.0	7015.68	10	148.40	9	399.7	9	23.47	9	8.84	9
SOUTHERN NATURAL GAS COMPANY, HIGHWAY 17 NORTH, WRENS (JEFFERSON CO.)																
Compressor No. 1	SNS01	368.459	11	3679.751	11	140.5	5.76E-04	8	5.18	8	731.9	11	12.80	11	1.07	11
Compressor No. 2	SNS02	368.449	11	3679.751	11	140.8	5.76E-04	8	5.18	8	731.9	11	12.80	11	1.07	11
Compressor No. 3	SNS03	368.449	11	3679.751	11	140.8	8.63E-04	8	4.88	8	731.9	11	12.80	11	1.07	11
Compressor No. 5	SNS04	368.449	1	3679.751	1	140.8	2.02E-03	8	11.28	8	731.9	1	12.80	1	1.07	1
SOUTHERN NATURAL GAS COMPANY, 180 J.M. WALKER ROAD, MILLEGEVILLE (BALDWIN CO.)																
Compresser No. 1	SNS05	308.135	12	3659.791	12	127.9	3.73E-03	8	12.19	8	731.9	12	17.43	12	0.91	12
Compresser No.2	SNS06	308.135	12	3659.791	12	127.9	3.73E-03	8	12.19	8	731.9	12	17.43	12	0.91	12
Compresser No. 3	SNS07	308.135	1	3659.791	1	127.9	2.58E-03	8	6.10	8	731.9	1	17.43	1	0.91	1

Table C-1: Offsite Data Used For SO_2 NAAQS Modeling

Stack Description	Modeled Source ID	UTM Easting (km)		UTM Northing (km)		Base Elev. (m)	SO_2 Emission Rate (g/s)		Stack Height (m)		Temp. (K)		Exit Vel. (m/s)		Stack Diam. (m)	
THIELE KAOLIN CO., REEDY CREEK, GA 296 N, WRENS (GLASCOCK COUNTY)																
Spray Dryer	TKS01	366.50	1	3682.50	1	147.2	4.12	20	27.43	1	383.0	1	17.74	1	1.68	1
Boiler SB2	TKS02	366.500	1	3682.500	1	147.2	2.00	20	9.14	1	488.6	1	11.89	1	0.70	1
Spray Dryer No. 2	TKS03	364.956	1	3681.604	1	153.7	4.12	20	38.10	1	366.3	1	19.23	1	1.68	1
Roller Mill System No. 1 Stack	TKS04	365.99	18	3682.20	18	140.0	0.44	20	13.56	9	340.8	9	14.26	9	0.67	9
Roller Mill System No. 2 Stack	TKS05	365.99	18	3682.20	18	140.0	0.44	20	13.56	9	340.8	9	14.26	9	0.67	9
ACM 200 Mill Stack	TKS06	365.99	18	3682.20	18	140.0	1.10E-01	2	10.97	9	327.4	9	6.58	9	0.67	9
HUBER ENGINEERED PRODUCT																
Mine Boiler	HES01	369.3611	9	3682.6517	9	137.4	0.75	13	4.88	9	327.4	9	4.57	9	0.26	9
Plant/Mine Generators	HES02	369.3611	9	3682.6517	9	137.4	6.15	13	3.35	9	327.4	9	4.57	9	0.26	9
Structured Pigment Boiler	HES03	369.3611	9	3682.6517	9	137.4	5.51	13	15.85	9	327.4	9	3.66	9	1.07	9
No. 2 Spray Dryer Stack	HES04	369.3611	9	3682.6517	9	137.4	4.79	13	23.16	9	371.9	9	63.09	9	0.72	9
No. 3 Spray Dryer Stack	HES05	369.3611	9	3682.6517	9	137.4	6.05	13	29.56	9	386.3	9	10.06	9	1.83	9
Evaporator Boiler	HES06	369.3611	9	3682.6517	9	137.4	1.81	13	11.58	9	327.4	9	0.91	9	0.61	9
No. 1 Spray Dryer Stack	HES07	369.3611	9	3682.6517	9	137.4	4.18	13	22.86	9	371.9	9	60.96	9	0.70	9
J. M. HUBER, HUBER WRENS CALCINE PILANT, WRENS																
Spray Dryer Stack	JMS01	366.4064	9	3680.4122	9	145.3	1.51E-03	9	45.72	9	399.7	9	18.29	9	1.22	9
Spray Dryer #3	JMS02	367.366	3	3682.487	3	144.4	2.7	3	29.56	3	388.6	3	11.83	3	1.92	3
SAMS Boiler	JMS03	367.366	3	3682.487	3	144.4	0.3	3	15.85	3	546.9	3	14.63	3	1.07	3
Evap. Boiler	JMS04	367.366	3	3682.487	3	144.4	1.6	3	11.58	3	463.0	3	12.80	3	0.61	3
TIN, INC., dba TEMPLE-INLAND, THOMSON																
Four Dryers with RTO	TIS06	362.185	1	3703.674	1	160.7	7.2E-01	1	15.24	1	374.8	1	17.11	1	1.68	1
Boiler SB-1 (Projected)	TIS07	362.200	1	3703.760	1	163.7	4.3E-01	1	12.19	1	421.8	1	4.28	1	1.68	1
ESP stack	TIS08	362.5466	9	3703.879	9	170.0	2.27E-02	9	18.29	9	471.9	9	4.57	9	1.07	9
4 Multiclones & RTO	TIS09	362.5466	9	3703.879	9	170.0	3.40E-02	9	24.77	9	338.6	9	12.19	9	2.54	9
ENGELHARD CORPORATION, TODDSVILLE PLANT, VINSON ROAD, MCINTYRE (WILKINSON COUNTY)																
2A SPRAY DRYER (1)	EHS19	291.3935	9	3637.1682	9	87.0	1.79E+00	8	22.86	9	371.9	9	30.77	9	0.97	9
2B SPRAY DRYER (2)	EHS20	291.3935	9	3637.1682	9	87.0	1.79E+00	8	19.81	9	371.9	9	30.77	9	0.97	9
2C SPRAY DRYER (3)	EHS21	291.3935	9	3637.1682	9	87.0	1.79E+00	8	19.81	9	371.9	9	30.77	9	0.97	9
2D SPRAY DRYER (4)	EHS22	291.3935	9	3637.1682	9	87.0	2.88E+00	8	23.47	9	380.2	9	21.46	9	1.27	9
2F SPRAY DRYER (5)	EHS23	291.3935	9	3637.1682	9	87.0	4.70E+00	8	39.62	9	383.0	9	26.52	9	1.52	9
SARGENT DRYER (9)	EHS24	291.3935	9	3637.1682	9	87.0	3.45E-01	8	12.19	9	371.9	9	28.16	9	0.36	9
8D BOILER (98)	EHS25	291.3935	9	3637.1682	9	87.0	5.73E-01	8	7.01	9	377.4	9	17.25	9	0.46	9
8C BOILER (99)	EHS26	291.3935	9	3637.1682	9	87.0	5.73E-01	8	5.79	9	377.4	9	17.25	9	0.46	9
8B BOILER (104)	EHS27	291.3935	9	3637.1682	9	87.0	7.25E-01	8	6.10	9	377.4	9	17.25	9	0.46	9
TODDVILLE BOILER (105)	EHS28	291.3935	9	3637.1682	9	87.0	5.51E-01	8	6.10	9	377.4	9	8.62	9	0.46	9
ENGELHARD CORPORATION, GORDON																
#4 SPRAY DRYER	EHS32	281.1903	9	3640.4092	9	107.1	3.34	14	41.15	9	377.4	9	16.46	9	1.68	9
#6 CALCINER	EHS33	281.1903	9	3640.4092	9	107.1	1.04	14	30.48	9	344.1	9	27.08	9	0.52	9
BOILER	EHS34	281.1903	9	3640.4092	9	107.1	1.16	14	9.75	9	394.1	9	11.32	9	0.61	9
SLIP HEATER #2	EHS35	281.1903	9	3640.4092	9	107.1	0.46	14	9.14	9	338.6	9	7.42	9	1.01	9
SLIP HEATER #1	EHS36	281.1903	9	3640.4092	9	107.1	0.46	14	9.14	9	338.6	9	7.42	9	1.01	9
THERMAL #3	EHS37	281.1903	9	3640.4092	9	107.1	0.75	14	13.11	9	338.6	9	7.42	9	1.01	9
THERMAL #2	EHS38	281.1903	9	3640.4092	9	107.1	0.75	14	13.11	9	338.6	9	7.42	9	1.01	9
#3 SPRAY DRYER	EHS39	281.1903	9	3640.4092	9	107.1	2.59	14	23.77	9	377.4	9	20.90	9	1.28	9
#2 SPRAY DRYER	EHS40	281.1903	9	3640.4092	9	107.1	2.59	14	23.77	9	377.4	9	20.90	9	1.28	9

Table C-1: Offsite Data Used For SO_2 NAAQS Modeling

Stack Description	Modeled Source ID	UTM Easting (km)		UTM Northing (km)		Base Elev. (m)	SO_2 Emission Rate (g/s)		Stack Height (m)		Temp. (K)		Exit Vel. (m/s)		Stack Diam. (m)	
#1 SPRAY DRYER	EHS41	281.1903	9	3640.4092	9	107.1	1.71	14	24.38	9	377.4	9	19.54	9	1.07	9
#2 CALCINER	EHS42	281.1903	9	3640.4092	9	107.1	0.58	14	17.68	9	338.6	9	13.39	9	0.40	9
#1 CALCINER	EHS43	281.1903	9	3640.4092	9	107.1	0.46	14	17.68	9	338.6	9	13.39	9	0.40	9
#3 CALCINER	EHS44	281.1903	9	3640.4092	9	107.1	0.75	14	21.03	9	344.1	9	6.50	9	0.84	9
#4 CALCINER	EHS45	281.1903	9	3640.4092	9	107.1	0.86	14	21.03	9	344.1	9	6.50	9	0.84	9
#5 CALCINER	EHS46	281.1903	9	3640.4092	9	107.1	0.86	14	21.03	9	344.1	9	6.50	9	0.84	9
BURGESS PIGMENT COMPANY, BECK BOULEVARD, SANDERSVILLE																
# 1 Calciner stack	BPS01	329.7873	9	3649.6186	9	132.8	0.77	8	13.72	9	305.8	9	20.73	9	0.38	9
# 2 Calciner stack	BPS02	329.7873	9	3649.6186	9	132.8	1.48	8	20.73	9	328.6	9	20.42	9	0.55	9
# 4 Calciner stack	BPS03	329.7873	9	3649.6186	9	132.8	1.44	8	19.81	9	348.0	9	32.00	9	0.73	9
# 5 Calciner stack	BPS04	329.7873	9	3649.6186	9	132.8	1.08	8	31.09	9	356.9	9	14.39	9	0.70	9
# 6 Calciner stack	BPS05	329.7873	9	3649.6186	9	132.8	0.28	9	40.54	9	389.1	9	25.91	9	0.91	9
# 7 Calciner stack	BPS06	329.7873	9	3649.6186	9	132.8	0.75	9	30.48	9	396.9	9	20.54	9	0.70	9
Boiler stack	BPS07	329.7873	9	3649.6186	9	132.8	0.00	9	9.45	9	588.6	9	3.23	9	0.30	9
IMERYS PIGMENTS, INC., PLANT 2, SANSERSVILLE (ECC # 2)																
SPRAY DRYER NO. 1 (WITH HEAT RECOVERY) (D1)	ECS01	324.3895	9	3655.7	9	127.5	1.78	8	24.69	9	335.8	9	15.85	9	1.07	9
SPRAY DRYER NO. 2 (WITH HEAT RECOVERY) (D2)	ECS02	324.3895	9	3655.7	9	127.5	2.03	8	27.43	9	335.8	9	15.54	9	1.58	9
SPRAY DRYER NO. 3 (WITH HEAT RECOVERY) (D3)	ECS03	324.3895	9	3655.7	9	127.5	2.03	8	27.43	9	335.8	9	15.54	9	1.58	9
SPRAY DRYER NO. 4 (WITH HEAT RECOVERY) (D4)	ECS04	324.3895	9	3655.7	9	127.5	2.03	8	27.43	9	335.8	9	15.54	9	1.58	9
APRON DRYER - NORTH STACK NO. 1 (D5)	ECS05	324.3895	9	3655.7	9	127.5	0.42	15	9.14	9	418.0	9	10.64	9	0.76	9
APRON DRYER - NORTH STACK NO. 2 (D5)	ECS06	324.3895	9	3655.7	9	127.5	0.42	15	9.14	9	418.0	9	10.64	9	0.76	9
APRON DRYER - SOUTH STACK (D5)	ECS07	324.3895	9	3655.7	9	127.5	0.42	15	9.14	9	377.4	9	11.31	9	0.91	9
BOILER NO. 3 (BL3)	ECS08	324.3895	9	3655.7	9	127.5	0.80	8	10.97	16	449.7	16	13.08	16	0.61	16
BOILER NO.4 (BL4)	ECS09	324.3895	9	3655.7	9	127.5	0.80	8	10.97	9	449.7	9	13.08	9	0.61	9
BOILER NO. 5 (BL5)	ECS10	324.3895	9	3655.7	9	127.5	0.93	8	10.97	16	449.7	16	13.08	16	0.61	16
THIELE KAOLINE, SANDERSVILLE																
DC1 on SD1 Stack (15)	TK07	330.1428	9	3649.1503	9	142.1	1.90	8	19.81	9	391.9	9	31.58	9	0.91	9
Stack for DC2 (Dust Collector for SD2) (16)	TK08	330.1428	9	3649.1503	9	142.1	1.90	8	17.07	9	381.9	9	17.98	9	0.91	9
Stack for DC3 (Dust Collector for SD3) (17)	TK09	330.1428	9	3649.1503	9	142.1	1.90	8	18.90	9	362.4	9	14.86	9	1.01	9
Stack for DC4 (Dust Collector for SD4) (18)	TK10	330.1428	9	3649.1503	9	142.1	1.15	2	48.77	9	365.8	9	17.31	9	1.68	9
No. 5 Stack for DC5 (dust collector for SD5) (1)	TK11	330.1428	9	3649.1503	9	142.1	1.15	8	53.34	9	366.3	9	16.61	9	1.68	9
Calciner Nos 1& 2, Spray Dryer Nos 6 & 7 (8)	TK12	330.1428	9	3649.1503	9	142.1	1.15	2	53.34	9	324.7	9	8.63	9	1.52	9
Stack for Old Boiler (30)	TK13	330.1428	9	3649.1503	9	142.1	1.27	8	9.14	9	460.8	9	7.38	9	0.70	9
Stack for New Boiler (36)	TK14	330.1428	9	3649.1503	9	142.1	1.60	8	9.14	9	460.8	9	7.38	9	0.70	9
							0.13									
IMERYS CLAYS, INC. - SANDERSVILLE CALCINE PLANT, SANDERSVILLE (ECC # 1)																
CALCINER NO. 1 (C1)	ECS11	329.7253	9	3649.0343	9	136.0	1.27	20	42.67	9	344.1	9	11.40	9	0.61	9
CALCINER NO. 2 (C2)	ECS12	329.7253	9	3649.0343	9	136.0	1.27	20	45.72	9	339.1	9	12.59	9	0.61	9
CALCINER NO. 3 (C3)	ECS13	329.7253	9	3649.0343	9	136.0	1.27	20	45.72	9	339.1	9	12.59	9	0.61	9
CALCINER NO. 4 (C4)	ECS14	329.7253	9	3649.0343	9	136.0	2.28	20	61.57	9	339.1	9	12.01	9	0.84	9
SPRAY DRYER NO. 3 (SD3)	ECS15	329.7253	9	3649.0343	9	136.0	2.54	20	41.15	9	365.8	9	27.43	9	1.01	9
SPRAY DRYER NO. 4 (SD4)	ECS16	329.7253	9	3649.0343	9	136.0	2.54	20	41.15	9	365.8	9	27.43	9	1.01	9
GEORGIA -PACIFIC WOOD PRODUCTS LLC - WARRENTON																
Boiler Electrostatic Precipitator	GPS01	346.9569	9	3697.7667	9	170.3	0.27	8	22.86	9	533.0	9	17.98	9	1.30	9
SANDERSVILLE ETHANOL, LLC, SANDERSVILLE, GEORGIA																
DDGS Dryer System	S10	334.40811	5	3648.94283	5	134.2	2.34	5	38.10	5	421.9	5	14.00	5	3.07	5

Table C-1: Offsite Data Used For SO_2 NAAQS Modeling

Stack Description	Modeled Source ID	UTM Easting (km)		UTM Northing (km)		Base Elev. (m)	SO_2 Emission Rate (g/s)		Stack Height (m)		Temp. (K)		Exit Vel. (m/s)		Stack Diam. (m)	
GRIFFIN INDUSTRIES, INC., HIGHWAY 80, EAST DUBLIN																
Boiler F2	GISO1	326.063	4	3603.064	4	73.9	6.6	4	9.60	4	477.4	4	10.97	4	0.61	4
Boiler F3	GISO2	326.063	4	3603.064	4	73.9	9.9	4	10.97	4	444.1	4	10.55	4	1.01	4
FORSTMANN & COMPANY, INC., NATHANIEL DRIVE, E. DUBLIN (LAURENS CO.)																
Nos. 2 & 3 Boilers	FTS01	327.890	1	3602.690	1	79.0	33.64	20	38.10	1	510.8	1	2.41	1	2.13	1
No. 4 Boiler	FTS02	327.890	1	3602.690	1	79.0	25.22	20	28.95	1	460.2	1	8.99	1	1.22	1
COBB EMC - ROBINS SPRIN																
Emergency Generator # 1	COBB1	324.397	19	3653.277	19	126.9	0.36	19	7.62	19	750.4	19	91.46	19	0.31	19
Emergency Generator # 2	COBB2	324.403	19	3653.277	19	127.4	0.36	19	7.62	19	750.4	19	91.46	19	0.31	19
Emergency Generator # 3	COBB3	324.409	19	3653.277	19	128.0	0.36	19	7.62	19	750.4	19	91.46	19	0.31	19
Emergency Generator # 4	COBB4	324.442	19	3653.238	19	129.8	0.36	19	7.62	19	750.4	19	91.46	19	0.31	19
Emergency Generator # 5	COBB5	32.444	19	3653.248	19	130.1	0.36	19	7.62	19	750.4	19	91.46	19	0.31	19
Emergency Generator # 6	COBB6	324.442	19	3653.258	19	130.2	0.36	19	7.62	19	750.4	19	91.46	19	0.31	19
Emergency Generator # 7	COBB7	324.442	19	3653.268	19	130.3	0.36	19	7.62	19	750.4	19	91.46	19	0.31	19
Emergency Generator # 8	COBB8	324.442	19	3653.278	19	130.4	0.36	19	7.62	19	750.4	19	91.46	19	0.31	19
KENTUCKY-TENNESSEE CLAY COMPANY																
KTSD1	KTSD1	324.984	19	3653.988	19	134.1	0.58	19	12.19	19	371.5	19	0.00	19	1.00	19
KTSM1	KTSM1	325.016	19	3653.953	19	134.1	0.58	19	10.36	19	358.2	19	35.41	19	0.48	19
KTSD2	KTSD2	324.982	19	3653.927	19	134.1	0.58	19	2.44	19	337.0	19	18.02	19	0.83	19
KTSM2	KTSM2	325.004	19	3653.931	19	134.1	0.58	19	13.72	19	347.6	19	0.00	19	0.50	19
KTSM3	KTSM3	325.022	19	3653.961	19	134.1	0.58	19	16.46	19	340.4	19	24.75	19	0.89	19

1. PSD Increment Inventory Database
2. Based on a Title V Permit Limit of 40 tpy
3. Major Source Database
4. Minor Source Database
5. Permit Application forms for newly proposed Etanol plant as provided by EPD
6. Stack diameter and Exit Velocity for Baseline Dryer Stacks based on EPA Region II method for horizontal stack
7. Emission rate and Stack parameters for Heater 2 are considered same as of Heater 1
8.Title V Permit Application Forms
9. NEI Database
10. Calculations based on 3% S and Maximum Hourly Coal Consumption rate of 118 tons, 137 tons, 220 tons, and 244 tons for Steam Generators SG01-SG04 respectively. Stack ST1 is for SG01 and SG02 and ST2 for SG03 and SG04
11. Locations and Temperature, Velocity and Diameter for Compressors 1, 2, and 3 are considered same as of Compressor 5
12. Locations and Temperature, Velocity and Diameter for Compressors 1, and 2 are considered same as of Compressor 3
13. Calculations based on fuel oil being used with 0.5% S at a Maximum Hourly Oil consumption of 74.5 gallons, 610 gallons, 547 gallons, 475 gallons, 600 gallons, 180 gallons, 415 gallons for the seven listed sources.
14. Calculations based on fuel oil being used with 0.5% S and Maximum Hourly Oil consumption for each unit, which is based on the maximum design capacity for each unit.
15. 43.5 ton/yr emission rate from Title V permit application divided equally among three stacks.
16. Stack parameters for Boiler # 3 and Boiler # 5 are considered same as of Boiler # 3
17. Temple-Inland Forest Products Corporation PSD Review (May 1997)
18. Average of Increment Locations
19. Provided by EPD
20. Based on maximum burner heat capacity and maximum allowable sulfur content of fuel.

Table C-2: Off-Site SO_2 Sources Used in PSD Increment Modeling

Stack Description	Modeled Source ID	UTM Easting (km)		UTM Northing (km)		Base Elev. (m)	SO_2 Emission Rate (g/s)		Stack Height (m)		Temp. (K)		Exit Vel. (m/s)		Stack Diam. (m)	
DUKE ENERGY SANDERSVILLE, L.L.C, SANDERSVILLE (WASHINGTON COUNTY)																
Turbine No. 1	DES01	326.449	1	3665.732	1	138.0	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 2	DES02	326.421	1	3665.768	1	136.9	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 3	DES03	326.408	1	3665.785	1	136.3	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 4	DES04	326.379	1	3665.821	1	134.2	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 5	DES05	326.366	1	3665.838	1	135.2	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 6	DES06	326.338	1	3665.874	1	135.6	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 7	DES07	326.325	1	3665.891	1	135.3	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
Turbine No. 8	DES08	326.297	1	3665.927	1	134.0	7.7	1	28.04	1	783.6	1	29.56	1	4.57	1
PROGRESS ENERGY, WASHINGTON COUNTY POWER SANDERSVILLE (WASHINGTON COUNTY)																
Turbines T1-T5	PES01	322.784	1	3663.077	1	119.2	16.6	1	27.43	1	877.4	1	48.46	1	5.64	1
Heater H1	PES02	322.784	1	3663.077	1	119.2	0.01	1	3.05	1	688.6	1	4.88	1	0.40	1
ENGELHARD CORPORATION, EDGAR'S PLANT, McINTYRE (WILKINSON COUNTY)																
120	EHE09	292.475	1	3636.497	1	91.0	4.0	1	60.35	1	394.1	1	21.82	1	1.22	1
140	EHE11	292.446	1	3636.449	1	91.1	4.0	1	60.35	1	394.1	1	33.16	1	1.22	1
230	EHE16	292.779	1	3636.389	1	91.1	1.4	1	36.57	1	344.1	1	40.54	1	0.76	1
242	EHE17	292.752	1	3636.377	1	90.9	1.6	1	22.86	1	394.1	1	26.27	1	1.22	1
248	EHE18	292.440	1	3636.521	1	91.0	1.15E+00	2	48.77	1	343.6	1	29.05	1	0.91	1
TEMPLE-INLAND FOREST PRODUCTS CORP., 1241 HARRISON ROAD, THOMSON (McDUFFIE CO.)																
Dryer #1 (Baseline)	TIS01	362.197	1	3703.709	1	162.4	-1.26E-02	1	19.05	1	343.8	1	1.00E-03	6	0.76	6
Dryer #2 (Baseline)	TIS02	362.205	1	3703.710	1	162.7	-1.26E-02	1	19.05	1	343.8	1	1.00E-03	6	0.76	6
Dryer #3 (Baseline)	TIS03	362.209	1	3703.711	1	162.9	-1.26E-02	1	19.81	1	349.8	1	1.00E-03	6	0.91	6
Dryer #4 (Baseline)	TIS04	362.214	1	3703.713	1	163.0	-1.26E-02	1	19.81	1	349.8	1	1.00E-03	6	0.91	6
Boiler SB-1 (Baseline)	TIS05	362.200	1	3703.760	1	163.7	-3.53E-02	1	12.19	1	421.8	1	4.28	1	1.68	1
Four Dryers with RTO	TIS06	362.185	1	3703.674	1	160.7	7.2E-01	1	15.24	1	374.8	1	17.11	1	1.68	1
Boiler SB-1 (Projected)	TIS07	362.200	1	3703.760	1	163.7	4.3E-01	1	12.19	1	421.8	1	4.28	1	1.68	1
J.M. HUBER CORPORATION, HIGHWAY 17, WRENS (JEFFERSON COUNTY)																
Spray Dryer #3	JMS02	367.366	3	3682.487	3	144.4	2.7	3	29.56	3	388.6	3	11.83	3	1.92	3
SAMS Boiler	JMS03	367.366	3	3682.487	3	144.4	0.3	3	15.85	3	546.9	3	14.63	3	1.07	3
Evap. Boiler	JMS04	367.366	3	3682.487	3	144.4	1.6	3	11.58	3	463.0	3	12.80	3	0.61	3
GRIFFIN INDUSTRIES, INC., HIGHWAY 80, EAST DUBLIN																
Boiler F2	GISO1	326.063	4	3603.064	4	73.9	6.6	4	9.60	4	477.4	4	10.97	4	0.61	4
Boiler F3	GISO2	326.063	4	3603.064	4	73.9	9.9	4	10.97	4	444.1	4	10.55	4	1.01	4

Table C-2: Off-Site SO_2 Sources Used in PSD Increment Modeling

Stack Description	Modeled Source ID	UTM Easting (km)		UTM Northing (km)		Base Elev. (m)	SO_2 Emission Rate (g/s)		Stack Height (m)		Temp. (K)		Exit Vel. (m/s)		Stack Diam. (m)	
THIELE KAOLIN CO., REEDY CREEK, GA 296 N, WRENS (GLASCOCK COUNTY)																
Boiler SB2	TKS02	366.500	1	3682.500	1	147.2	2.0	8	9.14	1	488.6	1	11.89	1	0.70	1
Spray Dryer No. 2	TKS03	364.956	1	3681.604	1	153.7	4.12	8	38.10	1	366.3	1	19.23	1	1.68	1
FORSTMANN & COMPANY, INC., NATHANIEL DRIVE, E. DUBLIN (LAURENS CO.)																
Nos. 2 & 3 Boilers	FTS01	327.890	1	3602.690	1	79.0	33.64	8	38.10	1	510.8	1	2.41	1	2.13	1
No. 4 Boiler	FTS02	327.890	1	3602.690	1	79.0	25.22	8	28.95	1	460.2	1	8.99	1	1.22	1
SANDERSVILLE ETHANOL, LLC, SANDERSVILLE, GEORGIA																
DDGS Dryer System	S10	334.40811	5	3648.94283	5	134.2	2.34	5	38.10	5	421.9	5	14.00	5	3.07	5
COBB EMC - ROBINS SPRIN																
Emergency Generator # 1	COBB1	324.397	7	3653.277	7	126.9	0.36	7	7.62	7	750.4	7	91.46	7	0.31	7
Emergency Generator # 2	COBB2	324.403	7	3653.277	7	127.4	0.36	7	7.62	7	750.4	7	91.46	7	0.31	7
Emergency Generator # 3	COBB3	324.409	7	3653.277	7	128.0	0.36	7	7.62	7	750.4	7	91.46	7	0.31	7
Emergency Generator # 4	COBB4	324.442	7	3653.238	7	129.8	0.36	7	7.62	7	750.4	7	91.46	7	0.31	7
Emergency Generator # 5	COBB5	32.444	7	3653.248	7	130.1	0.36	7	7.62	7	750.4	7	91.46	7	0.31	7
Emergency Generator # 6	COBB6	324.442	7	3653.258	7	130.2	0.36	7	7.62	7	750.4	7	91.46	7	0.31	7
Emergency Generator # 7	COBB7	324.442	7	3653.268	7	130.3	0.36	7	7.62	7	750.4	7	91.46	7	0.31	7
Emergency Generator # 8	COBB8	324.442	7	3653.278	7	130.4	0.36	7	7.62	7	750.4	7	91.46	7	0.31	7
KENTUCKY-TENNESSEE CLAY COMPANY																
KTSD1	KTSD1	324.984	7	3653.988	7	134.1	0.58	7	12.19	7	371.5	7	0.00	7	1.00	7
KTSM1	KTSM1	325.016	7	3653.953	7	134.1	0.58	7	10.36	7	358.2	7	35.41	7	0.48	7
KTSD2	KTSD2	324.982	7	3653.927	7	134.1	0.58	7	2.44	7	337.0	7	18.02	7	0.83	7
KTSM2	KTSM2	325.004	7	3653.931	7	134.1	0.58	7	13.72	7	347.6	7	0.00	7	0.50	7
KTSM3	KTSM3	325.022	7	3653.961	7	134.1	0.58	7	16.46	7	340.4	7	24.75	7	0.89	7

1. PSD Increment Inventory Database
2. Based on Title V Permit Limit of 39.9 tpy
3. Major Source Database
4. Minor Source Database
5. Permit Application forms for newly proposed Etanol plant as provided by EPD
6. Stack diameter and Exit Velocity for Baseline Dryer Stacks based on EPA Region II method for horizontal stack
7. Provided by EPD
8. Based on maximum burner heat capacity and maximum allowable sulfur content of fuel.

Table C-3 Georgia Off-Site Sources Used in Class I Area Modeling

Company Name	Emission Source	Modeled Source ID	LCC East (km)	LCC North (km)	Stack Height (m)	Base Elev. (m)	Stack Diam. (m)	Exit Vel. (m/s)	Exit Temp. (K)	SO_2 Emission Rate (g/s)	SO_2 rate Citation	Bin Group
OGLETHORPE POWER CORP.	Heaters SH1 & SH2	GA001	1222.462	-688.549	3.7	162	0.5	26.0	811	1.26E-02	1	A
OGLETHORPE POWER CORP.	Turbines T1 & T2	GA002	1222.462	-688.549	27.4	162	5.5	33.5	807	1.94E+00	1	A
OGLETHORPE POWER CORP.	Turbines T3 & T4	GA003	1222.462	-688.549	27.4	162	6.3	29.9	810	2.34E+00	1	A
MASONITE CORPORATION	Oven (S23)	GA004	1242.938	-799.898	22.0	90	0.5	14.0	422	2.52E-04	1	A
MASONITE CORPORATION	Oven (S24)	GA005	1242.936	-799.889	22.0	90	0.8	10.5	533	3.78E-04	1	A
MASONITE CORPORATION	Cooler (S29)	GA006	1242.933	-799.874	22.0	90	0.6	12.9	533	5.04E-04	1	A
MASONITE CORPORATION	Cooler (S30)	GA007	1242.933	-799.874	22.3	90	0.6	11.6	533	2.52E-04	1	A
MASONITE CORPORATION	Cooler (S31)	GA008	1242.931	-799.855	23.8	90	0.8	12.4	533	5.04E-04	1	A
MASONITE CORPORATION	Cooler (S32)	GA009	1242.931	-799.855	22.1	90	0.6	11.6	533	2.52E-04	1	A
MASONITE CORPORATION	Cooler (S33)	GA010	1242.947	-799.878	23.2	90	0.6	11.6	533	2.52E-04	1	A
MASONITE CORPORATION	Cooler (S35)	GA011	1242.946	-799.866	24.1	90	1.1	11.6	422	5.04E-04	1	A
MASONITE CORPORATION	Oven (S25)	GA012	1242.952	-799.887	22.0	90	0.6	11.6	533	2.52E-04	1	A
MASONITE CORPORATION	Oven (S26)	GA013	1242.951	-799.883	22.0	90	0.6	11.6	533	2.52E-04	1	A
MASONITE CORPORATION	Cooler (S36)	GA014	1242.951	-799.865	23.8	90	0.8	13.4	422	5.04E-04	1	A
MASONITE CORPORATION	Cooler (S37)	GA015	1242.960	-799.876	23.8	90	0.8	13.4	422	5.04E-04	1	A
MASONITE CORPORATION	Oven (S27)	GA016	1242.965	-799.885	22.0	90	0.6	11.6	533	2.52E-04	1	A
MASONITE CORPORATION	Oven (S28)	GA017	1242.964	-799.882	22.0	90	0.8	12.4	533	3.78E-04	1	A
MASONITE CORPORATION	Oven (S22)	GA018	1242.998	-799.892	22.0	90	0.3	8.1	533	1.26E-04	1	A
MASONITE CORPORATION	Oven (S21)	GA019	1243.039	-799.886	22.0	90	0.6	8.1	533	1.26E-04	1	A
MASONITE CORPORATION	Cooler (S34)	GA020	1243.052	-799.860	22.1	90	0.6	11.6	533	2.52E-04	1	A
MASONITE CORPORATION	Oven (S20)	GA021	1243.081	-799.899	22.0	90	0.8	12.4	533	3.78E-04	1	A
MASONITE CORPORATION	Oven (S19)	GA022	1243.119	-799.909	22.0	91	0.5	14.0	422	2.52E-04	1	A
MASONITE CORPORATION	Oven (S18)	GA023	1243.166	-799.902	22.0	91	0.8	12.4	533	3.78E-04	1	A
MASONITE CORPORATION	Oven (S17)	GA024	1243.162	-799.878	22.0	90	0.5	11.2	422	2.52E-04	1	A
MASONITE CORPORATION	Oven (S16)	GA025	1243.217	-799.870	22.0	91	0.5	11.2	422	2.52E-04	1	A
VOUGHT AIRCRAFT INDUSTRIES	Boilers B1-B3	GA026	1239.723	-741.168	10.7	118	0.6	8.2	450	3.29E+00	1	A
TOLLESON LUMBER COMPANY	New Boilers 1-3	GA027	1241.372	-745.393	10.7	98	0.8	13.6	440	8.82E-02	1	A
TOLLESON LUMBER COMPANY	Retired Boilers B1 & B2	GA028	1241.372	-745.393	10.7	98	0.6	10.4	505	0.00E+00	1	A
COASTAL ASPHALT & CONSTRUCTION	Drum Dryer	GA029	1243.235	-717.128	8.2	107	1.1	15.9	347	0.00E+00	1	A
DYKA	Fugitive	GA030	1244.116	-716.686	1.0	110	1.0	0.001	0.001	0.00E+00	1	A
CERMEX	Kiln System	GA031	1251.975	-748.066	63.7	91	2.1	34.8	366	7.77E+01	1	A
RIVERWOOD INTERNATIONAL CORP.	Paper Machine 1	GA032	1245.897	-708.947	18.1	94	1.0	0.001	0.001	2.07E-02	1	A
RIVERWOOD INTERNATIONAL CORP.	Paper Machine 2	GA033	1245.893	-708.923	18.1	94	1.0	0.001	0.001	4.91E-02	1	A
RIVERWOOD INTERNATIONAL CORP.	Bark Boiler 2	GA034	1245.963	-708.991	91.5	92	3.0	15.8	325	1.54E+01	1	A
RIVERWOOD INTERNATIONAL CORP.	No. 3 Smelt Dissolv. Tank	GA035	1245.969	-709.021	67.1	89	1.5	11.3	339	2.21E-01	1	A
RIVERWOOD INTERNATIONAL CORP.	No. 3 Recovery Boiler	GA036	1245.980	-709.036	91.5	88	3.4	20.0	456	2.47E+01	1	A
RIVERWOOD INTERNATIONAL CORP.	No.2 Power Boiler	GA037	1245.996	-708.988	91.5	93	3.2	12.2	325	9.52E+00	1	A
RIVERWOOD INTERNATIONAL CORP.	No. 1 Power Boiler	GA038	1245.995	-708.982	91.5	93	3.2	12.2	325	8.11E+00	1	A
RIVERWOOD INTERNATIONAL CORP.	No. 1 Recovery Boiler	GA039	1246.000	-709.006	91.5	92	2.8	11.3	411	-1.53E+01	1	F
RIVERWOOD INTERNATIONAL CORP.	No. 2 Recovery Boiler	GA040	1246.000	-709.006	91.5	92	2.8	9.5	415	-1.55E+01	1	F
RIVERWOOD INTERNATIONAL CORP.	Bark Boiler 1	GA041	1246.000	-709.005	91.5	92	3.0	15.8	325	-1.13E-04	1	F
Armstrong World Industries Inc	FF Fluid Heater	GA042	1245.086	-703.488	12.2	99	0.2	16.3	505	1.26E-01	1	A
Armstrong World Industries Inc	FF Process Boiler	GA043	1245.086	-703.488	45.7	99	1.0	16.3	484	1.19E+01	1	A
Armstrong World Industries Inc	SF Fluid Heater	GA044	1245.086	-703.488	12.2	99	0.2	16.3	505	1.26E-01	1	A
Armstrong World Industries Inc	SF Process Boiler	GA045	1245.086	-703.488	45.7	99	1.0	16.3	484	1.19E+01	1	A

Table C-3 Georgia Off-Site Sources Used in Class I Area Modeling

Company Name	Emission Source	Modeled Source ID	LCC East (km)	LCC North (km)	Stack Height (m)	Base Elev. (m)	Stack Diam. (m)	Exit Vel. (m/s)	Exit Temp. (K)	SO_2 Emission Rate (g/s)	SO_2 rate Citation	Bin Group
RIVERWOOD INTERNATIONAL CORP.	No. 2 Smelt Dissolv. Tank	GA046	1246.063	-708.971	33.5	94	1.2	5.5	350	-5.92E-02	1	F
RIVERWOOD INTERNATIONAL CORP.	No. 1 Smelt Dissolv. Tank	GA047	1246.060	-708.953	33.5	94	1.2	5.2	349	-5.29E-02	1	F
SHEPHERD CONSTRUCTION CO.	Feed Hopper ES1	GA048	1253.467	-751.544	7.1	124	1.1	22.6	411	2.43E+01	1	A
RIVERWOOD INTERNATIONAL CORP.	Lime Kiln No. 2	GA049	1246.112	-709.060	15.5	94	1.0	10.5	345	5.24E+00	1	A
RIVERWOOD INTERNATIONAL CORP.	Lime Kiln No. 1	GA050	1246.110	-709.052	15.5	94	1.0	10.4	340	5.24E+00	1	A
BORAL BRICKS	Tunnel Kiln	GA051	1245.912	-703.271	10.4	91	0.9	56.7	478	8.06E-01	1	A
FRITO-LAY	Boiler #1(based on fuel oil)	GA052	1252.554	-740.677	18.3	97	1.0	16.9	547	5.04E+00	1	A
BIBB YARNS	Boilers 1,3, & 4	GA053	1245.707	-701.178	45.7	91	2.0	1.5	505	7.96E+00	1	A
FRITO-LAY	Baked Potato Chips (BLLl2)	GA054	1252.562	-740.675	1.0	97	1.0	0.001	0.001	2.02E-03	1	A
FRITO-LAY	Baked Tortilla Chips (BL1)	GA055	1252.562	-740.675	1.0	97	1.0	0.001	0.001	1.89E-03	1	A
FRITO-LAY	Boiler #2(based on fuel oil)	GA056	1252.562	-740.675	18.3	97	1.0	16.9	547	5.04E+00	1	A
FRITO-LAY	Pretzel Line #1 (PL1)	GA057	1252.562	-740.675	1.0	97	1.0	0.001	0.001	6.30E-04	1	A
FRITO-LAY	Pretzel Line #2 (PL2)	GA058	1252.562	-740.675	1.0	97	1.0	0.001	0.001	6.30E-04	1	A
FRITO-LAY	ROTC 1 (10/11/95)	GA059	1252.562	-740.675	1.0	97	1.0	0.001	0.001	1.26E-03	1	A
FRITO-LAY	ROTC 2 (10/11/95)	GA060	1252.562	-740.675	1.0	97	1.0	0.001	0.001	1.26E-03	1	A
GANDY'S INDUSTRIES	Fugitive	GA061	1246.366	-702.797	1.0	88	1.0	0.001	0.001	0.00E+00	1	A
MID-GEORGIA COGEN	Aux. Boiler (B1)	GA062	1252.981	-740.173	48.8	95	0.9	17.1	439	5.62E-01	1	A
MID-GEORGIA COGEN	Turbine (T1)	GA063	1252.981	-740.173	48.8	95	4.9	16.7	434	9.32E+00	1	A
MID-GEORGIA COGEN	Turbine (T2)	GA064	1252.981	-740.173	48.8	95	4.9	16.7	434	9.32E+00	1	A
ROBBINS AIR FORCE BASE	Generators G13S-G16S	GA065	1251.320	-725.364	36.6	93	0.3	54.3	731	3.73E+00	1	A
DUKE ENERGY TIFT	Auxiliary Boiler	GA066	1273.851	-849.949	15.2	99	0.8	12.2	476	2.52E-02	1	A
DUKE ENERGY TIFT	CCCT No. 1	GA067	1273.893	-849.989	49.1	99	5.5	21.1	366	1.80E+00	1	A
DUKE ENERGY TIFT	CCCT No. 2	GA068	1273.929	-850.014	49.1	98	5.5	21.1	366	1.80E+00	1	A
GEORGIA POWER CO.	Combustion Turbine #1	GA069	1253.441	-729.526	17.1	81	4.3	56.7	779	7.71E+01	1	A
GEORGIA POWER CO.	Combustion Turbine #2	GA070	1253.436	-729.493	17.1	81	4.3	56.7	779	7.71E+01	1	A
TEXPRINT	Boiler B3	GA071	1251.293	-704.158	23.8	98	0.6	13.1	505	3.28E+00	1	A
J.M. HUBER CORPORATION	No. 3 Spray Dryer	GA072	1253.910	-715.732	12.2	82	1.5	18.3	394	0.00E+00	1	A
J.M. HUBER CORPORATION	No. 4 Spray Dryer	GA073	1253.910	-715.732	33.5	82	1.8	18.4	339	3.28E+00	1	A
R J Reynolds Tobacco Co.	BOILER3	GA074	1251.908	-703.629	45.7	105	2.2	3.3	450	-4.28E+01	1	F
R J Reynolds Tobacco Co.	BOILER345	GA075	1251.908	-703.629	45.7	105	2.2	10.1	443	1.07E+02	1	A
R J Reynolds Tobacco Co.	BOILER12	GA076	1251.946	-703.627	65.2	103	1.7	8.7	522	-2.91E+01	1	F
DRY BRANCH KAOLIN CO.	CDPP (Pilot Plant Dryer)	GA077	1260.115	-703.723	22.9	141	0.3	18.6	394	3.53E-01	1	A
DRY BRANCH KAOLIN CO.	D15 (Impact Mill)	GA078	1260.115	-703.723	22.9	141	1.2	12.1	358	6.98E-01	1	A
DRY BRANCH KAOLIN CO.	FD9 (Flash Dryer No. 9)	GA079	1260.115	-703.723	21.3	141	0.6	29.0	394	3.93E-01	1	A
DRY BRANCH KAOLIN CO.	SD14 (Spray Dryer No. 14)	GA080	1260.115	-703.723	41.2	141	1.7	19.8	319	2.08E+00	1	A
DRY BRANCH KAOLIN CO.	CA4 (Calciner No. 4)	GA081	1260.142	-703.325	45.7	128	1.1	21.1	589	2.38E+00	1	A
DRY BRANCH KAOLIN CO.	BL2 (Boiler No. 2)	GA082	1260.223	-703.426	8.8	140	0.6	16.8	455	8.28E-01	1	A
SCRUGGS COMPANY	Drum Mixer	GA083	1302.393	-908.029	11.6	61	1.2	18.4	394	5.62E+00	1	A
PACKAGING CORPORATION OF AMERICA	CBSS	GA084	1310.630	-933.389	67.1	60	3.4	12.2	342	8.44E-01	1	A
PACKAGING CORPORATION OF AMERICA	No. 2 lime Kiln	GA085	1310.630	-933.389	24.1	60	1.3	6.7	328	-2.52E-01	1	F
PACKAGING CORPORATION OF AMERICA	No. 3 Lime Kiln	GA086	1310.630	-933.389	18.3	60	1.1	17.7	333	-1.95E+00	1	F
PACKAGING CORPORATION OF AMERICA	No. 4 Lime Kiln	GA087	1310.630	-933.389	61.0	60	1.5	14.8	464	2.52E+00	1	A
PACKAGING CORPORATION OF AMERICA	TRS Incinerator	GA088	1310.630	-933.389	45.7	60	0.6	30.1	355	1.15E+00	1	A
SHAW INDUSTRIES	Boiler B02	GA089	1311.206	-921.030	8.2	61	0.8	3.8	408	7.94E-01	1	A
HOOVER	Dryer	GA090	1312.715	-916.595	6.3	61	0.7	0.0	361	4.41E+00	1	A

Table C-3 Georgia Off-Site Sources Used in Class I Area Modeling

Company Name	Emission Source	Modeled Source ID	LCC East (km)	LCC North (km)	Stack Height (m)	Base Elev. (m)	Stack Diam. (m)	Exit Vel. (m/s)	Exit Temp. (K)	SO_2 Emission Rate (g/s)	SO_2 rate Citation	Bin Group
ARCHER DANIELS MIDLAND CO.	Backup Boiler?	GA091	1313.733	-917.441	16.8	61	1.5	19.6	478	7.06E-01	1	A
ARCHER DANIELS MIDLAND CO.	Refinery Boiler?	GA092	1313.733	-917.441	24.4	61	0.8	0.244	0.001	4.16E-01	1	A
ARCHER DANIELS MIDLAND CO.	Wood Waste Boiler	GA093	1313.733	-917.441	17.7	61	1.4	12.4	355	8.57E+00	1	A
Engelhard Corp. - Edgar Plant	248.000	GA097	1282.713	-694.766	48.8	91	0.9	29.1	344	1.26E-03	1	A
Engelhard Corp. - Edgar Plant	11G Spray Dryer (140)	GA098	1282.731	-694.836	60.4	91	1.2	33.2	394	4.04E+00	1	A
Engelhard Corp. - Edgar Plant	11F Spray Dryer (120)	GA099	1282.751	-694.783	60.4	91	1.2	21.8	394	4.04E+00	1	A
Engelhard Corp. - Edgar Plant	15B Spray Dryer (242)	GA100	1283.044	-694.854	22.9	91	1.2	26.3	394	1.64E+00	1	A
Engelhard Corp. - Edgar Plant	230	GA101	1283.069	-694.838	36.6	91	0.8	40.5	344	1.45E+00	1	A
DUKE ENERGY BUFFALO CREEK	CCCT 1	GA102	1300.828	-663.808	49.1	111	5.5	21.1	369	1.83E+00	1	A
DUKE ENERGY BUFFALO CREEK	CCCT 2	GA103	1300.874	-663.805	49.1	110	5.5	21.1	369	1.83E+00	1	A
DUKE ENERGY BUFFALO CREEK	Auxiliary Boiler	GA104	1300.931	-663.779	9.8	110	0.8	13.7	483	3.28E-02	1	A
PROGRESS ENERGY	Heater H1	GA105	1307.957	-663.328	3.0	119	0.4	4.9	689	1.26E-02	1	A
PROGRESS ENERGY	Turbines T1-T5	GA106	1307.957	-663.328	27.4	119	5.6	48.5	878	1.66E+01	1	A
GRIFFIN INDUSTRIES	Boiler F2	GA107	1321.545	-722.047	9.6	74	0.6	11.0	478	6.63E+00	1	A
GRIFFIN INDUSTRIES	Boiler F3	GA108	1321.545	-722.047	11.0	74	1.0	10.5	444	9.93E+00	1	A
DUKE ENERGY SANDERSVILLE	Turbine No. 8	GA109	1310.916	-659.909	28.0	134	4.6	29.6	784	7.69E+00	1	A
DUKE ENERGY SANDERSVILLE	Turbine No. 7	GA110	1310.950	-659.940	28.0	135	4.6	29.6	784	7.69E+00	1	A
DUKE ENERGY SANDERSVILLE	Turbine No. 6	GA111	1310.966	-659.955	28.0	136	4.6	29.6	784	7.69E+00	1	A
DUKE ENERGY SANDERSVILLE	Turbine No. 5	GA112	1310.999	-659.985	28.0	135	4.6	29.6	784	7.69E+00	1	A
DUKE ENERGY SANDERSVILLE	Turbine No. 4	GA113	1311.015	-660.000	28.0	134	4.6	29.6	784	7.69E+00	1	A
DUKE ENERGY SANDERSVILLE	Turbine No. 3	GA114	1311.050	-660.030	28.0	136	4.6	29.6	784	7.69E+00	1	A
DUKE ENERGY SANDERSVILLE	Turbine No. 2	GA115	1311.066	-660.045	28.0	137	4.6	29.6	784	7.69E+00	1	A
DUKE ENERGY SANDERSVILLE	Turbine No. 1	GA116	1311.099	-660.076	28.0	138	4.6	29.6	784	7.69E+00	1	A
SP NEWSPRINT COMPANY	Gas Turbine/Heat Boiler	GA117	1322.954	-727.571	21.3	55	3.6	19.4	416	4.25E-01	2	A
SP NEWSPRINT COMPANY	No. 1 Power Boiler	GA118	1322.954	-727.571	47.3	55	3.0	7.0	436	5.04E+01	2	A
SP NEWSPRINT COMPANY	No. 2 Power Boiler	GA119	1322.954	-727.571	54.9	55	2.7	17.6	416	1.99E+01	2	A
FORSTMANN & COMPANY	No. 4 Boiler	GA120	1323.407	-722.103	29.0	79	1.2	9.0	460	2.52E+01	4	A
FORSTMANN & COMPANY	Nos. 2 & 3 Boilers	GA121	1323.407	-722.103	38.1	79	2.1	2.4	511	3.36E+01	4	A
TEMPLE-INLAND FOREST PRODUCTS CORP.	Four Dryers with RTO	GA122	1339.636	-616.467	15.2	161	1.7	17.1	375	7.18E-01	1	A
TEMPLE-INLAND FOREST PRODUCTS CORP.	Dryer #1 (Baseline)	GA123	1339.641	-616.431	19.1	162	0.76	0.001	344	-1.26E-02	3	F
TEMPLE-INLAND FOREST PRODUCTS CORP.	Boiler SB-1 (Baseline)	GA124	1339.635	-616.380	12.2	164	1.7	4.3	422	-3.53E-02	1	F
TEMPLE-INLAND FOREST PRODUCTS CORP.	Boiler SB-1 (Projected)	GA125	1339.635	-616.380	12.2	164	1.7	4.3	422	4.31E-01	1	A
TEMPLE-INLAND FOREST PRODUCTS CORP.	Dryer #2 (Baseline)	GA126	1339.649	-616.428	19.1	163	0.76	0.001	344	-1.26E-02	3	F
TEMPLE-INLAND FOREST PRODUCTS CORP.	Dryer #3 (Baseline)	GA127	1339.653	-616.427	19.8	163	0.91	0.001	350	-1.26E-02	3	F
TEMPLE-INLAND FOREST PRODUCTS CORP.	Dryer #4 (Baseline)	GA128	1339.657	-616.424	19.8	163	0.91	0.001	350	-1.26E-02	3	F
THIELE KAOLIN CO.	Boiler SB2	GA129	1346.184	-637.768	9.1	154	0.7	11.9	489	2.00E+00	4	A
THIELE KAOLIN CO.	Spray Dryer No. 2	GA130	1346.184	-637.768	38.1	154	1.7	19.2	366	4.12E+00	4	A
J.M. HUBER CORPORATION	Evap. Boiler	GA131	1348.398	-636.480	11.6	144	0.6	12.8	463	1.63E+00	1	A
J.M. HUBER CORPORATION	SAMS Boiler	GA132	1348.398	-636.480	15.9	144	1.1	14.6	547	2.90E-01	1	A
J.M. HUBER CORPORATION	Spray Dryer #3	GA133	1348.398	-636.480	29.6	144	1.9	11.8	389	2.70E+00	1	A
APAC-GEORGIA	Dryer	GA134	1358.767	-609.217	9.4	110	1.2	26.2	394	6.44E+00	1	A
REEVES CONSTRUCTION COMPAY	Drum Mixer	GA135	1360.341	-607.365	11.6	115	0.9	17.6	422	1.46E+01	1	A
UNITED CATALYSTS	Cage Mill	GA136	1375.263	-627.616	4.3	109	1.2	18.3	328	5.42E-01	1	A
UNITED CATALYSTS	Roller Mill	GA137	1375.263	-627.616	15.5	109	0.8	16.2	355	2.02E-01	1	A
RINGIER AMERICA	Boilers (2)	GA138	1371.510	-602.486	28.7	114	1.1	63.0	584	3.10E+01	1	A

Table C-3 Georgia Off-Site Sources Used in Class I Area Modeling

Company Name	Emission Source	Modeled Source ID	LCC East (km)	LCC North (km)	Stack Height (m)	Base Elev. (m)	Stack Diam. (m)	Exit Vel. (m/s)	Exit Temp. (K)	SO_2 Emission Rate (g/s)	SO_2 rate Citation	Bin Group
AMOCO PERFORMANCE PRODUCTS	Boiler A21	GA139	1384.057	-620.120	15.2	71	0.8	27.4	550	3.83E+00	1	A
AMOCO PERFORMANCE PRODUCTS	Heaters S1 & S2	GA140	1384.057	-620.120	19.2	71	1.2	4.0	450	4.30E+00	1	A
AMOCO PERFORMANCE PRODUCTS	Hot Oil Heater	GA141	1384.057	-620.120	36.6	71	1.2	3.6	478	1.31E+00	1	A
AMOCO PERFORMANCE PRODUCTS	S8A, S12, S74, & S5	GA142	1384.057	-620.120	15.2	71	0.8	0.001	0.001	2.21E+00	1	A
AMOCO PERFORMANCE PRODUCTS	Waste Fuel Boiler	GA143	1384.057	-620.120	24.4	71	0.6	18.3	478	1.26E+00	1	A
AMITY DYEING & FINISHING CO.	Boilers	GA144	1384.797	-609.204	29.0	45	1.4	0.0	505	1.69E+00	1	A
AMITY DYEING & FINISHING CO.	Dryers	GA145	1384.797	-609.204	10.7	45	0.6	0.0	433	0.00E+00	1	A
AMITY DYEING & FINISHING CO.	Heaters	GA146	1384.797	-609.204	29.0	45	1.4	0.0	533	3.15E-01	1	A
KENDALL HEALTHCARE CORPORATION	No. 2 Boiler	GA147	1386.498	-616.742	15.2	42	0.6	20.2	450	2.14E+00	1	A
CSR-KNOX RIVERS	Dryer	GA148	1386.529	-611.449	11.6	36	1.1	23.0	394	1.19E+00	1	A
AUGUSTA RECYCLING ASSOCIATES	Boilers B1 & B2	GA149	1388.861	-620.884	45.7	41	1.3	13.4	450	1.51E+01	1	A
PEACHTREE GENERATING CORPORATION	Boiler IIA	GA150	1389.950	-623.800	60.7	37	2.5	11.0	339	-4.69E+01	1	F
PEACHTREE GENERATING CORPORATION	Boiler IIB	GA151	1389.950	-623.800	60.7	37	5.3	4.1	422	-9.65E+01	1	F
INTERNATIONAL FLAVORS & FRAGANCES	P11	GA152	1389.823	-622.726	9.5	45	0.9	1.3	293	3.53E-01	1	A
PQ (PHILADELPHIA QUARTZ) CORPORATION	Dryer	GA153	1390.164	-622.575	27.4	42	0.6	12.9	350	1.26E-02	1	A
PQ (PHILADELPHIA QUARTZ) CORPORATION	Small Boilers	GA154	1390.164	-622.575	6.1	42	0.8	9.6	478	7.56E-02	1	A
INTERNATIONAL PAPER CO.	No. 1 Smelt tank	GA155	1390.586	-623.511	60.7	49	1.1	6.9	354	-2.65E-01	1	F
Augusta Newsprint Co	Package Boiler	GA156	1390.510	-622.941	36.6	47	2.1	22.6	637	3.89E+00	1	A
Augusta Newsprint Co	Woodwaste Boiler, B1	GA157	1390.510	-622.941	42.7	47	3.0	8.8	341	3.75E+01	1	A
INTERNATIONAL PAPER CO.	No. 1 Recovery Boiler	GA158	1390.609	-623.475	39.6	49	2.1	12.6	433	-1.31E+01	1	F
INTERNATIONAL PAPER CO.	No. 1 Power Boiler	GA159	1390.585	-623.292	61.0	49	2.5	17.5	330	2.71E+01	1	A
INTERNATIONAL PAPER CO.	No. 2 Power Boiler	GA160	1390.582	-623.258	61.0	49	2.7	20.5	519	5.48E+01	1	A
INTERNATIONAL PAPER CO.	# 3 Power Boil.(was #1 RB)	GA161	1390.608	-623.294	61.0	49	3.0	17.9	450	1.80E+01	1	A
DEERFIELD SPECIALTY PAPERS	Package Boiler	GA162	1390.805	-624.377	33.5	35	1.1	13.2	422	2.46E+01	1	A
INTERNATIONAL PAPER CO.	Calciner	GA163	1390.691	-623.623	21.1	46	1.2	9.6	349	-1.35E+00	1	F
INTERNATIONAL PAPER CO.	No. 3 Recovery Boiler	GA164	1390.637	-623.314	64.0	49	3.0	32.0	469	8.96E+01	1	A
INTERNATIONAL PAPER CO.	No. 3 Smelt Tank	GA165	1390.654	-623.336	64.0	49	1.8	5.2	352	8.19E-01	1	A
INTERNATIONAL PAPER CO.	No. 2 RB (modified)	GA166	1390.648	-623.294	61.0	49	2.4	21.8	431	2.82E+01	1	A
INTERNATIONAL PAPER CO.	No. 2 Recovery Boiler	GA167	1390.648	-623.294	39.6	49	2.1	14.4	448	-1.40E+01	1	F
INTERNATIONAL PAPER CO.	No. 3 Lime Kiln	GA168	1390.790	-623.626	30.5	45	2.1	10.7	349	1.71E+00	1	A
INTERNATIONAL PAPER CO.	No. 1 Lime Kiln	GA169	1390.786	-623.411	20.3	48	1.1	10.0	349	-1.12E+00	1	F
INTERNATIONAL PAPER CO.	No. 1 LK (modified)	GA170	1390.786	-623.411	59.8	48	1.2	10.1	346	7.06E-01	1	A
INTERNATIONAL PAPER CO.	No. 2 Lime Kiln	GA171	1390.801	-623.392	62.9	48	1.6	15.4	345	1.76E+00	1	A
MONSANTO COMPANY DAIRY	Boiler B1	GA172	1389.629	-613.903	30.5	35	0.9	17.8	461	4.66E+00	1	A
Nutrasweet Kelco Co	Waste boiler (173)	GA173	1390.010	-612.650	30.5	37	0.6	12.2	344	3.59E-01	1	A
Nutrasweet Kelco Co	Waste boiler (192)	GA174	1390.010	-612.650	30.5	37	1.0	14.6	347	5.04E-02	1	A
Nutrasweet Kelco Co	Zurn boiler (101)	GA175	1390.010	-612.650	45.7	37	1.7	9.1	408	2.68E+01	1	A
AUGUSTA ENERGY	3 Combustion Turbine Sets	GA176	1389.968	-610.892	53.4	38	5.8	13.0	370	3.74E+01	1	A
GENERAL CHEMICAL CORPORATION	New Sulfur Burner	GA177	1390.182	-611.590	45.7	39	1.2	15.8	344	1.83E+01	1	A
GENERAL CHEMICAL CORPORATION	Old Burner	GA178	1390.182	-611.590	53.4	39	1.8	9.6	347	0.00E+00	1	A
DSM CHEMICALS NORTH AMERICA	Auxiliary Boiler	GA179	1390.425	-610.391	67.1	37	3.6	7.9	589	8.88E+00	1	A
DSM CHEMICALS NORTH AMERICA	Furncace & Flaker	GA180	1390.425	-610.391	10.7	37	0.8	6.6	616	3.78E-01	1	A
PCS NITROGEN FERTILIZER	Boiler	GA181	1390.420	-610.205	31.7	38	1.5	22.0	643	7.36E+00	1	A
RAYONIER SPECIALTY PULP PRODUCTS	Recovery Furnace No. 6	GA182	1431.545	-805.374	91.5	28	4.9	12.8	451	3.35E-01	1	A
RAYONIER SPECIALTY PULP PRODUCTS	NCG Incinerator	GA183	1431.641	-805.121	41.2	27	1.2	4.6	351	1.01E-02	1	A

Table C-3 Georgia Off-Site Sources Used in Class I Area Modeling

Company Name	Emission Source	Modeled Source ID	LCC East (km)	LCC North (km)	Stack Height (m)	Base Elev. (m)	Stack Diam. (m)	Exit Vel. (m/s)	Exit Temp. (K)	SO_2 Emission Rate (g/s)	SO_2 rate Citation	Bin Group
RAYONIER SPECIALTY PULP PRODUCTS	Package Boiler	GA184	1431.641	-805.037	76.2	27	4.3	11.8	426	2.73E-01	1	A
KING FINISHING COMPANY	Coal-Fired Boiler	GA185	1423.696	-699.822	44.2	44	1.4	23.5	450	4.41E+01	1	A
KING FINISHING COMPANY	Oil-Fired Boiler No. 1	GA186	1423.964	-699.595	24.4	45	1.2	10.1	505	2.38E+01	1	A
KING FINISHING COMPANY	Oil-Fired Boiler No. 2	GA187	1423.964	-699.595	44.5	45	1.5	13.4	533	4.64E+01	1	A
APAC-GEORGIA	Dryer	GA188	1456.587	-881.013	9.4	6	1.2	26.2	394	7.47E+00	1	A
UNDERGROUND UTILITY CONTRACTORS	Dryer	GA189	1460.538	-893.461	6.2	1	1.5	9.4	400	5.17E-01	1	A
J. F. CLECKLEY & COMPANY	Burner	GA190	1430.372	-675.720	6.7	37	1.0	29.0	438	7.18E+00	1	A
LIVE OAK COMPANY	Gas Heater	GA191	1464.932	-841.556	18.3	5	0.6	21.3	644	5.04E-03	1	A
LIVE OAK COMPANY	HRSG No. 1	GA192	1465.095	-841.569	47.3	5	5.9	18.1	359	1.63E+00	1	A
LIVE OAK COMPANY	HRSG No. 2	GA193	1465.119	-841.607	47.3	5	5.9	18.1	359	1.63E+00	1	A
MILLENNIUM SPECIALTY CHEMICALS	Boiler No. 1	GA194	1469.135	-860.721	13.7	3	1.1	11.1	589	1.84E-03	2	A
MILLENNIUM SPECIALTY CHEMICALS	Boiler No. 2	GA195	1469.135	-860.721	30.5	3	2.1	3.9	455	6.50E+00	1	A
APAC-GEORGIA	Burner	GA197	1469.789	-860.293	9.3	3	1.2	24.9	394	2.47E+00	1	A
NAVAL SUBMARINE SUPPORT BASE	Boiler B4	GA200	1476.138	-894.604	19.5	4	0.5	11.0	533	3.91E-01	1	A
NAVAL SUBMARINE SUPPORT BASE	Boiler G4	GA201	1476.138	-894.604	19.5	4	0.5	11.0	533	4.16E-01	1	A
NAVAL SUBMARINE SUPPORT BASE	Boilers G1-G3	GA202	1476.138	-894.604	19.5	4	1.2	9.1	478	5.67E+00	1	A
NAVAL SUBMARINE SUPPORT BASE	Diesel Generator G6	GA203	1476.138	-894.604	5.5	4	0.5	39.9	611	1.26E-02	1	A
NAVAL SUBMARINE SUPPORT BASE	Diesel Generators D1-D11	GA204	1476.138	-894.604	5.2	4	0.5	42.7	616	2.22E+01	1	A
RHONE POULENCE AG CO.	Boiler	GA205	1474.751	-878.119	45.0	4	1.2	8.0	463	3.24E+01	1	A
RHONE POULENCE AG CO.	Process?	GA206	1474.751	-878.119	15.0	4	1.2	7.0	303	2.14E-01	1	A
UNION CARBIDE AG. PRODUCTS CO.	UNION CARBIDE	GA207	1475.393	-880.662	14.9	3	1.2	7.0	303	2.14E-01	1	A
UNION CARBIDE AG. PRODUCTS CO.	UNION CARBIDE	GA208	1475.393	-880.662	45.1	3	1.2	8.0	463	3.24E+01	1	A
BRUNSWICK PULP & PAPER COMPANY	No. 4 Lime Kiln	GA209	1470.878	-853.336	30.8	1	1.5	12.9	348	-1.51E-01	1	F
BRUNSWICK PULP & PAPER COMPANY	No. 4 Recovery Boiler	GA210	1470.878	-853.336	80.5	1	3.7	13.5	444	-2.52E+01	1	F
BRUNSWICK PULP & PAPER COMPANY	No. 4 Smelt Tank	GA211	1470.878	-853.336	80.5	1	1.4	5.8	339	-9.45E-01	1	F
BRUNSWICK PULP & PAPER COMPANY	No. 5 Lime Kiln (86)	GA212	1470.878	-853.336	64.9	1	2.4	10.6	347	2.90E-01	1	A
BRUNSWICK PULP & PAPER COMPANY	No. 5 Power Boiler	GA213	1470.878	-853.336	1.0	1	1.0	0.001	0.001	2.87E+00	1	A
BRUNSWICK PULP & PAPER COMPANY	No. 6 Recovery Boiler	GA214	1470.878	-853.336	83.5	1	4.3	16.8	461	6.17E-01	1	A
BRUNSWICK PULP & PAPER COMPANY	No. 6 Smelt Tank	GA215	1470.878	-853.336	83.5	1	2.3	6.0	339	7.18E-01	1	A
BRUNSWICK PULP & PAPER COMPANY	TRS Control System	GA216	1470.878	-853.336	1.0	1	1.0	0.001	0.001	2.65E-01	1	A
HERCULES	Boiler B-10	GA217	1474.884	-853.548	53.7	2	3.7	4.5	692	2.88E-02	2	A
HERCULES	Boiler No. 9	GA218	1474.884	-853.548	45.7	2	1.8	14.0	338	1.24E+00	2	A
HERCULES	Heater and B-1	GA219	1474.884	-853.548	6.1	2	0.6	2.5	533	3.40E-01	1	A
HERCULES	Vaporizer	GA220	1474.884	-853.548	18.3	2	0.6	3.9	644	2.14E-01	1	A
FEDERAL LAW ENFORECEMENT TRAINING CENTER	Boilers B1 and B2	GA221	1474.094	-846.532	10.7	6	0.5	6.3	450	2.52E-03	1	A
INTERSTATE PAPER CORPORATION	Multi-fuel Boiler	GA222	1470.681	-788.873	38.7	4	1.7	17.1	338	3.45E+00	1	A
INTERSTATE PAPER CORPORATION	Power Boiler	GA223	1470.712	-789.031	46.0	4	2.0	10.7	457	7.94E+00	1	A
INTERSTATE PAPER CORPORATION	Recovery Boiler	GA224	1470.714	-789.026	46.0	4	2.7	8.3	353	1.01E-01	1	A
INTERSTATE PAPER CORPORATION	Lime Kiln	GA225	1470.714	-788.897	15.2	4	1.5	3.6	348	8.82E-02	1	A
PEACH STATE ASPHALT	Dryer	GA226	1465.100	-716.835	9.1	23	1.0	32.0	391	9.83E-01	1	A
EFFINGHAM COUNTY POWER LLC	Preheater	GA227	1471.683	-727.921	5.9	23	0.6	2.8	714	3.78E-03	1	B
EFFINGHAM COUNTY POWER LLC	Auxiliary Boiler	GA228	1471.885	-728.026	36.6	23	0.7	2.3	499	7.56E-03	1	B
EFFINGHAM COUNTY POWER LLC	Combined-Cycle CTGs	GA229	1471.890	-728.001	50.3	23	5.8	13.4	355	1.66E+00	1	B
DAIMLER CHRYSLER MANUFACTURING	Primer Thermal Oxidizer	GA230	1481.329	-748.949	28.0	5	0.8	14.3	473	1.26E-03	1	B
DAIMLER CHRYSLER MANUFACTURING	Guidecoat Ovens TO	GA231	1481.377	-749.086	28.0	6	0.8	14.3	473	2.52E-03	1	B

Table C-3 Georgia Off-Site Sources Used in Class I Area Modeling

Company Name	Emission Source	Modeled Source ID	LCC East (km)	LCC North (km)	Stack Height (m)	Base Elev. (m)	Stack Diam. (m)	Exit Vel. (m/s)	Exit Temp. (K)	SO_2 Emission Rate (g/s)	SO_2 rate Citation	Bin Group
DAIMLER CHRYSLER MANUFACTURING	Basecoat Spray Booths	GA232	1481.379	-749.011	40.0	6	4.6	8.9	295	1.26E-03	1	B
DAIMLER CHRYSLER MANUFACTURING	Guidecoat Spray Booths	GA233	1481.374	-748.950	40.0	6	4.3	9.1	295	2.52E-03	1	B
DAIMLER CHRYSLER MANUFACTURING	Clearcoat Spray Booths	GA234	1481.370	-748.899	40.0	5	4.6	9.0	295	1.26E-03	1	B
DAIMLER CHRYSLER MANUFACTURING	Topcoat Ovens TO	GA235	1481.408	-748.959	28.0	6	0.8	14.3	473	1.26E-03	1	B
DAIMLER CHRYSLER MANUFACTURING	Hot Water Generators 4, 5	GA236	1481.547	-748.704	20.0	4	0.8	12.0	425	2.52E-03	1	B
DAIMLER CHRYSLER MANUFACTURING	Hot Water Generators 1-3	GA237	1481.556	-748.704	20.0	4	0.8	11.9	441	1.13E-02	1	B
FORT JAMES OPERATING CO.	Paper Dryer 19W, EP24	GA238	1478.330	-720.925	31.4	20	1.8	18.3	322	2.27E-03	1	B
FORT JAMES OPERATING CO.	Paper Dryer 19D, EP37	GA239	1478.361	-720.951	31.4	20	1.8	18.3	322	2.27E-03	1	B
FORT JAMES OPERATING CO.	Paper Dryer 18W, EP03	GA240	1478.376	-720.886	31.4	20	1.8	18.3	322	3.15E-03	1	B
FORT JAMES OPERATING CO.	Paper Dryer 18D, EP14	GA241	1478.407	-720.912	31.4	20	1.8	18.3	322	3.15E-03	1	B
FORT JAMES OPERATING CO.	Paper Dryer 17W, EP66	GA242	1478.423	-720.846	31.4	20	1.8	18.3	322	3.15E-03	1	B
FORT JAMES OPERATING CO.	Paper Dryer 17D, EP67	GA243	1478.454	-720.872	31.4	20	1.8	18.3	322	3.15E-03	1	B
FORT JAMES OPERATING CO.	Paper Dryer 16W, EP45	GA244	1478.438	-720.781	31.4	20	1.8	18.3	322	2.90E-03	1	B
FORT JAMES OPERATING CO.	Paper Dryer 16D, EP56	GA245	1478.494	-720.802	31.4	20	1.8	18.3	322	2.90E-03	1	B
FORT JAMES OPERATING CO.	Combustion Turbine CT1	GA246	1478.489	-720.772	50.3	20	3.3	24.7	700	2.42E+00	1	B
FORT JAMES OPERATING CO.	Combustion Turbine CT2	GA247	1478.489	-720.772	50.3	20	3.3	24.7	700	2.42E+00	1	B
FORT JAMES OPERATING CO.	Boiler #3	GA248	1478.514	-720.768	109.0	20	2.2	20.1	419	6.19E+01	1	B
FORT JAMES OPERATING CO.	Boiler #4	GA249	1478.540	-720.763	109.0	20	2.2	20.1	419	4.81E+01	1	B
FORT JAMES OPERATING CO.	Boiler #5	GA250	1478.566	-720.758	109.0	20	2.2	20.1	419	4.81E+01	1	B
FORT JAMES OPERATING CO.	Boiler #6	GA251	1478.574	-720.726	109.0	20	2.2	20.1	419	6.38E+01	1	B
FORT JAMES OPERATING CO.	Package Boiler PB1	GA252	1478.574	-720.726	24.4	20	1.3	17.4	439	6.17E+00	1	B
FORT JAMES OPERATING CO.	Paper Dryer 20D, EP30	GA253	1478.574	-720.726	1.0	20	1.0	0.001	0.001	2.77E-03	1	B
FORT JAMES OPERATING CO.	Paper Dryer 20W, EP28	GA254	1478.574	-720.726	31.4	20	1.8	18.3	340	2.77E-03	1	B
GENPOWER MACINTOSH	Auxiliary Boiler	GA255	1480.485	-729.716	30.5	5	1.2	24.4	450	1.76E-02	1	B
GENPOWER MACINTOSH	Gas Turbine S	GA256	1480.529	-729.769	50.3	5	5.5	20.1	361	5.04E-01	1	B
GENPOWER MACINTOSH	Gas Turbine N	GA257	1480.529	-729.685	50.3	5	5.5	20.1	361	5.04E-01	1	B
PAVE-TEC	Drum Cooler	GA258	1483.817	-747.783	6.7	6	0.8	30.1	411	1.13E-01	1	B
WESTBURY CO.	Dryer	GA259	1482.939	-741.875	6.1	12	0.4	25.9	436	7.81E-01	1	B
GEORGIA-PACIFIC CORP. (PLYWOOD PLANT)	New boiler	GA260	1484.551	-747.717	23.3	3	1.7	3.7	336	1.51E-01	1	B
GEORGIA-PACIFIC CORP. (PLYWOOD PLANT)	Old boiler (removed)	GA261	1484.551	-747.717	1.0	3	1.0	0.001	0.001	-5.92E-01	1	F
EMD CHEMICALS	Drying equipment	GA262	1482.903	-736.072	21.3	6	0.3	19.4	325	8.82E-02	1	B
SAVANNAH ELECTRIC & POWER CO.	CT10A & DB10A	GA263	1479.945	-718.670	48.8	18	5.8	19.4	406	1.36E+01	1	B
SAVANNAH ELECTRIC & POWER CO.	CT10B & DB10B	GA264	1479.982	-718.670	48.8	18	5.8	19.4	406	1.36E+01	1	B
SAVANNAH ELECTRIC & POWER CO.	CT11A & DB11A	GA265	1480.093	-718.673	48.8	18	5.8	19.4	406	1.36E+01	1	B
SAVANNAH ELECTRIC & POWER CO.	CT11B & DB11B	GA266	1480.130	-718.673	48.8	18	5.8	19.4	406	1.36E+01	1	B
SAVANNAH ELECTRIC & POWER CO.	Combustion Turbine 8	GA267	1480.833	-717.767	19.2	12	4.6	36.6	609	7.20E-02	2	B
SAVANNAH ELECTRIC & POWER CO.	Combustion Turbine 7	GA268	1480.846	-717.740	19.2	10	4.6	36.6	609	0.00E+00	2	B
SAVANNAH ELECTRIC & POWER CO.	Combustion Turbine 6	GA269	1480.860	-717.713	19.2	10	4.6	36.6	609	5.50E-02	2	B
SAVANNAH ELECTRIC & POWER CO.	Combustion Turbine 5	GA270	1480.873	-717.685	19.2	8	4.6	36.6	609	0.00E+00	2	B
SAVANNAH ELECTRIC & POWER CO.	Combustion Turbine 4	GA271	1480.886	-717.658	19.2	10	4.6	36.6	609	0.00E+00	2	B
SAVANNAH ELECTRIC & POWER CO.	Combustion Turbine 3	GA272	1480.900	-717.630	19.2	10	4.6	36.6	609	0.00E+00	2	B
SAVANNAH ELECTRIC & POWER CO.	Combustion Turbine 2	GA273	1480.913	-717.602	19.2	12	4.6	36.6	609	4.90E-02	2	B
SAVANNAH ELECTRIC & POWER CO.	Combustion Turbine 1	GA274	1480.927	-717.575	19.2	14	4.6	36.6	609	6.90E-02	2	B
PCS NITROGEN FERTILIZER	New Boiler	GA275	1485.457	-742.124	42.7	3	2.1	10.2	478	1.55E+01	1	B
SAVANNAH ELECTRIC & POWER CO.	Coal-fired Boiler (Unit 1)	GA276	1481.197	-717.641	95.4	15	3.5	25.9	419	1.54E+02	2	B

Table C-3 Georgia Off-Site Sources Used in Class I Area Modeling

Company Name	Emission Source	Modeled Source ID	LCC East (km)	LCC North (km)	Stack Height (m)	Base Elev. (m)	Stack Diam. (m)	Exit Vel. (m/s)	Exit Temp. (K)	SO_2 Emission Rate (g/s)	SO_2 rate Citation	Bin Group
HERCULES	Boiler SB10	GA277	1486.525	-747.590	11.8	2	0.8	7.6	505	0.00E+00	1	B
APAC-GEORGIA	Dryer	GA278	1488.203	-750.467	9.4	7	1.2	26.2	394	6.44E+00	1	B
GEORGIA-PACIFIC RESINS	Boiler production increase	GA279	1486.335	-739.865	1.0	4	1.0	0.0	478	1.15E+00	1	B
WILLAMETTE INDUSTRIES	Bark Boiler	GA280	1486.773	-740.002	76.2	5	4.3	7.3	477	-7.94E-01	1	F
WILLAMETTE INDUSTRIES	No. 1 Power Boiler	GA281	1486.773	-740.002	30.2	5	1.5	14.0	477	-2.52E-02	1	F
WILLAMETTE INDUSTRIES	No. 2 Lime Kiln	GA282	1486.773	-740.002	30.5	5	1.6	13.5	347	6.26E+00	1	B
WILLAMETTE INDUSTRIES	No. 3 Power Boiler	GA283	1486.773	-740.002	76.2	5	4.3	7.3	477	5.01E+01	1	B
WILLAMETTE INDUSTRIES	No. 3 Recovery Boiler	GA284	1486.773	-740.002	96.5	5	3.0	16.9	472	6.85E+00	2	B
WILLAMETTE INDUSTRIES	No. 3 Smelt Tank	GA285	1486.773	-740.002	96.5	5	1.0	10.9	355	1.60E+00	1	B
WILLAMETTE INDUSTRIES	No. 4 Power Boiler	GA286	1486.773	-740.002	96.5	5	3.6	16.8	472	4.21E+01	1	B
SAVANNAH SUGAR REFINERY	Coal-Fired Boiler (D)	GA287	1487.323	-740.812	45.7	2	1.9	23.8	344	5.12E+01	1	B
FUJI VEGETABLE OIL INC.	Boiler #1	GA288	1488.565	-744.215	6.7	1	0.5	0.001	0.001	8.06E-01	1	B
FUJI VEGETABLE OIL INC.	Boiler #3	GA289	1488.565	-744.215	8.2	1	0.6	0.001	0.001	2.13E+00	1	B
FUJI VEGETABLE OIL INC.	Boiler #4	GA290	1488.565	-744.215	29.0	1	0.5	0.001	0.001	3.40E-01	1	B
CITERCO	Heater #1	GA291	1489.748	-744.132	12.2	4	0.9	2.0	649	9.58E-01	1	B
INTERNATIONAL PAPER COMPANY	DV5	GA292	1490.045	-745.788	16.8	4	0.9	4.3	644	1.01E+00	1	B
INTERNATIONAL PAPER COMPANY	Incinerator (3 hr/day)	GA293	1490.055	-745.786	30.5	4	0.8	4.3	1033	8.00E+00	1	B
INTERNATIONAL PAPER COMPANY	Recovery Furnace #15	GA294	1490.016	-744.892	106.7	3	4.3	18.3	453	4.02E+01	1	B
INTERNATIONAL PAPER COMPANY	DV4	GA295	1490.186	-745.610	54.9	4	1.4	5.1	477	1.58E+01	1	B
INTERNATIONAL PAPER COMPANY	Smelt Tank #15	GA296	1490.076	-744.890	83.5	3	3.0	18.3	345	1.44E+00	1	B
INTERNATIONAL PAPER COMPANY	TRS Incineration (PB13)	GA297	1490.075	-744.813	106.7	3	3.0	23.9	447	2.42E+01	2	B
INTERNATIONAL PAPER COMPANY	Lime Kiln #7	GA298	1490.285	-744.578	82.3	4	1.8	15.5	505	4.16E-01	1	B
INTERNATIONAL PAPER COMPANY	Recovery Furnace #12	GA299	1490.337	-744.573	71.3	4	1.8	21.6	437	-3.03E+01	1	F
INTERNATIONAL PAPER COMPANY	Smelt Tank #12	GA300	1490.337	-744.573	70.2	4	1.5	6.1	341	-8.69E-01	1	F
INTERNATIONAL PAPER COMPANY	Lime Kilns #4, 5, & 6	GA301	1490.357	-744.549	41.5	4	1.4	17.5	339	-2.77E-01	1	F
INTERNATIONAL PAPER COMPANY	Recovery Furnace #13	GA302	1490.451	-744.532	71.3	4	1.8	20.2	420	-2.90E+01	1	F
INTERNATIONAL PAPER COMPANY	Smelt Tank #13	GA303	1490.451	-744.532	70.3	4	1.5	5.8	342	-8.32E-01	1	F
ENGELHARD CORPORATION	Boilers ST3	GA304	1494.880	-746.963	5.5	1	0.5	34.0	477	1.26E-01	1	B
ENGELHARD CORPORATION	Calciner ST2	GA305	1494.880	-746.963	20.4	1	1.6	11.1	344	1.01E-01	1	B
ENGELHARD CORPORATION	Secondary Dryers ST4	GA306	1494.880	-746.963	15.9	1	1.5	16.6	408	1.73E+00	1	B
ENGELHARD CORPORATION	Spray Dryer ST1	GA307	1494.880	-746.963	19.8	1	1.5	19.1	366	1.23E+00	1	B
CPV TERRAPIN	Combustion Turbine #3	GA308	1496.084	-747.064	60.4	3	5.5	12.3	342	5.73E+00	1	B
CPV TERRAPIN	Combustion Turbine #2	GA309	1496.117	-747.066	60.4	3	5.5	12.3	342	5.73E+00	1	B
CPV TERRAPIN	Combustion Turbine #1	GA310	1496.187	-747.069	60.4	3	5.5	12.3	342	5.73E+00	1	B
CPV TERRAPIN	Heater	GA311	1496.221	-746.941	21.3	3	0.4	18.3	422	1.26E-02	1	B
G-P GYPSUM CORP.	Gas Turbines T1 & T2	GA312	1497.284	-747.009	11.0	8	0.6	45.7	733	8.19E-01	1	B
SAVANNAH ENERGY SYSTEM CO.	Unit 1	GA313	1499.596	-746.386	45.7	2	1.4	30.3	408	3.91E+00	1	B
SAVANNAH ENERGY SYSTEM CO.	Unit 2	GA314	1499.596	-746.386	45.7	2	1.4	30.3	408	3.91E+00	1	B
KERR-McGEE PIGMENTS	Boiler #5	GA315	1499.870	-745.230	13.0	1	1.9	6.4	450	-1.74E+00	1	F
KERR-McGEE PIGMENTS	Boiler B-1	GA316	1499.870	-745.230	22.7	1	1.5	13.7	436	1.06E+01	1	B
KERR-McGEE PIGMENTS	Boilers 1-4	GA317	1499.870	-745.230	12.5	1	1.5	7.9	533	-1.97E+00	1	F
KERR-McGEE PIGMENTS	Chloride Scrubber	GA318	1499.870	-745.230	61.0	1	0.6	5.8	300	7.56E-01	1	B
KERR-McGEE PIGMENTS	Incenerator	GA319	1499.870	-745.230	27.4	1	1.4	10.4	1139	7.94E+00	1	B
KERR-McGEE PIGMENTS	Ore Dryers 1A & 12A	GA320	1499.870	-745.230	18.3	1	0.6	10.7	408	7.56E-01	1	B
KERR-McGEE PIGMENTS	Rotary Dryer	GA321	1499.870	-745.230	12.2	1	0.7	22.0	372	7.56E-01	1	B

Table C-3 Georgia Off-Site Sources Used in Class I Area Modeling

Company Name	Emission Source	Modeled Source ID	LCC East (km)	LCC North (km)	Stack Height (m)	Base Elev. (m)	Stack Diam. (m)	Exit Vel. (m/s)	Exit Temp. (K)	SO_2 Emission Rate (g/s)	SO_2 rate Citation	Bin Group
KERR-McGEE PIGMENTS	Spray Dryer 4A	GA322	1499.870	-745.230	25.9	1	1.4	11.2	383	1.76E+00	1	B
SOUTHERN LNG	Gas Heater (HS02)	GA323	1502.367	-744.180	5.3	3	0.4	1.7	505	1.26E-04	1	B
SOUTHERN LNG	Boiler (BS01)	GA324	1502.370	-744.192	6.1	3	0.6	5.9	505	5.54E-02	1	B
SOUTHERN LNG	Gas Heater (HS01)	GA325	1502.370	-744.185	5.3	3	0.4	1.7	505	1.26E-04	1	B
SOUTHERN LNG	LNG Vaporizer (VS08)	GA326	1502.375	-744.108	23.5	3	1.3	8.2	290	8.82E-03	1	B
SOUTHERN LNG	LNG Vaporizer (VS07)	GA327	1502.382	-744.117	23.5	3	1.3	8.2	290	8.82E-03	1	B
SOUTHERN LNG	LNG Vaporizer (VS06)	GA328	1502.390	-744.127	23.5	3	1.3	8.2	290	8.82E-03	1	B
SOUTHERN LNG	LNG Vaporizer (VS03)	GA329	1502.398	-744.140	23.5	3	1.5	4.1	290	6.55E-03	1	B
SOUTHERN LNG	LNG Vaporizer (VS02)	GA330	1502.405	-744.149	23.5	4	1.5	8.2	290	1.26E-02	1	B
SOUTHERN LNG	LNG Vaporizer (VS01)	GA331	1502.412	-744.161	23.5	3	1.5	8.2	290	1.26E-02	1	B
SOUTHERN LNG	Comp. Engine (CS01)	GA332	1502.439	-744.111	5.7	5	0.3	41.1	735	6.30E-04	1	B
SOUTHERN LNG	Gen. Engine (GS01)	GA333	1502.534	-744.166	9.4	5	0.6	41.8	761	2.02E-03	1	B
SOUTHERN LNG	Gen. Engine (GS02)	GA334	1502.538	-744.171	9.4	5	0.6	41.8	761	2.02E-03	1	B
SOUTHERN LNG	Gen. Turbine (GS03)	GA335	1502.541	-744.175	8.4	5	1.0	10.2	715	1.76E-02	1	B
SOUTHERN LNG	Gen. Turbine (GS04)	GA336	1502.543	-744.179	8.4	5	1.0	10.2	715	1.76E-02	1	B
GREAT SOUTHERN PAPER CO. (GEORGIA-PACIFIC)	Recovery Boilers 1&2	GA337	1133.459	-904.756	61.0	46	3.7	27.6	463	5.44E+01	1	B
GREAT SOUTHERN PAPER CO. (GEORGIA-PACIFIC)	Smelt Tank 3	GA338	1133.459	-904.756	75.6	45	1.8	7.0	336	1.76E+00	1	B
GREAT SOUTHERN PAPER CO. (GEORGIA-PACIFIC)	Smelt Tank 1 - Baseline	GA339	1133.474	-904.758	49.1	44	1.2	7.8	341	-6.30E-01	1	F
GREAT SOUTHERN PAPER CO. (GEORGIA-PACIFIC)	Smelt Tank 1 - Future	GA340	1133.474	-904.758	58.2	44	1.5	7.8	341	6.93E-01	1	B
GREAT SOUTHERN PAPER CO. (GEORGIA-PACIFIC)	Smelt Tank 2 - Baseline	GA341	1133.475	-904.747	49.1	44	1.5	7.9	343	-6.30E-01	1	F
GREAT SOUTHERN PAPER CO. (GEORGIA-PACIFIC)	Smelt Tank 2 - Future	GA342	1133.475	-904.747	58.2	44	1.5	7.9	343	6.93E-01	1	B
GREAT SOUTHERN PAPER CO. (GEORGIA-PACIFIC)	Lime Kiln 2	GA343	1133.534	-904.480	25.0	34	1.8	9.7	355	2.32E+00	1	B
GREAT SOUTHERN PAPER CO. (GEORGIA-PACIFIC)	Lime Kiln 1	GA344	1133.550	-904.488	25.0	34	1.8	9.7	355	2.32E+00	1	B
LONGLEAF ENERGY ASOCIATES	Auxiliary Boiler	GA345	1134.514	-897.086	68.6	61	1.5	18.1	628	1.15E+00	1	B
LONGLEAF ENERGY ASOCIATES	Unit 2 Boiler	GA346	1134.648	-897.074	140.2	65	7.3	18.2	347	9.29E+01	1	B
LONGLEAF ENERGY ASOCIATES	Unit 1 Boiler	GA347	1134.648	-897.066	140.2	65	7.3	18.2	347	9.29E+01	1	B
BIBB COMPANY	Boilers 7 & 8	GA348	1123.850	-756.880	10.7	104	0.6	12.8	505	3.21E+00	1	B
U. S. ARMY INFANTRY CENTER	Boiler B2	GA349	1127.357	-773.348	11.0	103	0.9	5.5	541	1.13E+00	1	B
U. S. ARMY INFANTRY CENTER	Boiler KH3	GA350	1127.357	-773.348	13.4	103	0.9	2.2	450	1.12E+00	1	B
U. S. ARMY INFANTRY CENTER	Boilers MH1 & MH2	GA351	1127.357	-773.348	19.5	103	0.9	2.5	450	2.51E+00	1	B
CATAULA GENERATING COMPANY	Turbines T1-T4	GA352	1128.689	-743.235	25.9	157	5.5	45.5	767	5.32E+01	1	B
PEACE VALLEY GENERATION CO.	Auxiliary Boiler	GA353	1129.825	-744.091	33.5	182	0.9	19.9	439	1.39E-01	1	B
PEACE VALLEY GENERATION CO.	Comb-Cycle Turbines (4)	GA354	1129.825	-744.091	51.8	182	5.5	12.8	355	7.56E+00	1	B
PEACE VALLEY GENERATION CO.	Simple-Cycle Tur. (2)	GA355	1129.825	-744.091	33.5	182	5.8	26.8	793	2.82E+00	1	B
OGLETHORPE POWER CORPORATION	CT1	GA356	1150.352	-743.081	27.4	164	5.5	24.4	766	1.44E-02	1	B
OGLETHORPE POWER CORPORATION	CT2	GA357	1150.348	-743.052	27.4	163	5.5	24.4	766	1.44E-02	1	B
OGLETHORPE POWER CORPORATION	CT3	GA358	1150.345	-743.023	27.4	162	5.5	24.4	766	1.44E-02	1	B
OGLETHORPE POWER CORPORATION	CT4	GA359	1150.342	-742.994	27.4	161	5.5	24.4	766	1.44E-02	1	B
OGLETHORPE POWER CORPORATION	CT5	GA360	1150.338	-742.965	27.4	160	5.5	24.4	766	9.14E+00	1	B
OGLETHORPE POWER CORPORATION	CT6	GA361	1150.335	-742.936	27.4	160	5.5	24.4	766	9.14E+00	1	B
OGLETHORPE POWER CORPORATION	Heater 1	GA362	1150.407	-743.053	5.8	165	0.5	26.0	811	4.28E-03	1	B
OGLETHORPE POWER CORPORATION	Heater 2	GA363	1150.400	-742.995	5.8	161	0.5	26.0	811	4.28E-03	1	B
OGLETHORPE POWER CORPORATION	Heater 3	GA364	1150.393	-742.937	5.8	162	0.5	26.0	811	4.28E-03	1	B
ENGELHARD CORPORATION	Flash Dryer #3	GA365	1196.970	-945.247	36.6	54	0.9	11.3	422	3.53E+00	1	B
ENGELHARD CORPORATION	Flash Dryers #4 & #5	GA366	1196.970	-945.247	39.6	54	0.8	15.2	403	9.32E+00	1	B

Table C-3 Georgia Off-Site Sources Used in Class I Area Modeling

Company Name	Emission Source	Modeled Source ID	LCC East (km)	LCC North (km)	Stack Height (m)	Base Elev. (m)	Stack Diam. (m)	Exit Vel. (m/s)	Exit Temp. (K)	SO_2 Emission Rate (g/s)	SO_2 rate Citation	Bin Group
ENGELHARD CORPORATION	No. 6 Boiler	GA367	1196.970	-945.247	30.5	54	1.8	1.7	533	1.81E+01	1	B
DUKE ENERGY BAKER	Combution Turbine No. 1	GA368	1198.259	-875.297	28.4	54	4.6	39.7	784	7.56E+00	1	B
DUKE ENERGY BAKER	Combution Turbine No. 2	GA369	1198.254	-875.250	28.4	54	4.6	39.7	784	7.56E+00	1	B
DUKE ENERGY BAKER	Combution Turbine No. 3	GA370	1198.252	-875.230	28.4	54	4.6	39.7	784	7.56E+00	1	B
DUKE ENERGY BAKER	Combution Turbine No. 4	GA371	1198.246	-875.183	28.4	55	4.6	39.7	784	7.56E+00	1	B
DUKE ENERGY BAKER	Combution Turbine No. 5	GA372	1198.244	-875.163	28.4	55	4.6	39.7	784	7.56E+00	1	B
DUKE ENERGY BAKER	Combution Turbine No. 6	GA373	1198.239	-875.116	28.4	55	4.6	39.7	784	7.56E+00	1	B
DUKE ENERGY BAKER	Combution Turbine No. 7	GA374	1198.236	-875.096	28.4	55	4.6	39.7	784	7.56E+00	1	B
DUKE ENERGY BAKER	Combution Turbine No. 8	GA375	1198.231	-875.049	28.4	54	4.6	39.7	784	7.56E+00	1	B
DAVIDSON EXTERIOR TRIM	Boilers	GA376	1203.678	-796.203	14.0	115	0.5	7.6	478	8.09E+00	1	B
REEVES CONSTRUCTION COMPANY	New Drum Mixer	GA377	1212.485	-843.317	9.8	67	1.1	30.8	405	1.46E+01	1	B
M&M/MARS	Boiler (B2)	GA378	1214.022	-851.138	8.8	59	0.9	12.5	505	1.15E+01	1	B
GEORGIA-PACIFIC CORPORATION	Wood-waste Boiler	GA379	1215.414	-845.184	9.1	62	0.6	27.4	505	2.90E-01	1	B
COATS & CLARK	Coal-fired Boiler	GA380	1217.776	-847.118	18.3	65	1.8	5.2	450	3.64E+00	1	B
PECAN GROVE GENERATING	Auxiliary Boiler No. 1	GA381	1223.293	-870.423	22.9	61	0.6	24.3	450	2.84E-02	1	B
PECAN GROVE GENERATING	HRSG Stack No. 2	GA382	1223.307	-870.462	45.7	61	4.6	33.3	411	1.26E+01	1	B
PECAN GROVE GENERATING	HRSG Stack No. 1	GA383	1222.953	-867.418	45.7	61	4.6	33.3	411	1.26E+01	1	B
GILMAN PAPER CO.	EPAPER1	GA384	1477.032	-900.730	83.3	4	4.3	7.3	450	-2.81E+02	5	F
GILMAN PAPER CO.	EPAPER2	GA385	1477.032	-900.730	36.6	4	1.8	20.0	700	-6.00E+01	5	F
GILMAN PAPER CO.	EPAPER3	GA386	1477.032	-900.730	47.2	4	2.3	13.1	426	-7.60E+00	5	F
GILMAN PAPER CO.	EPAPER4	GA387	1477.032	-900.730	53.3	4	1.6	25.2	394	-7.60E+00	5	F
GILMAN PAPER CO.	EPAPER5	GA388	1477.032	-900.730	76.2	4	2.6	22.1	427	-1.58E+01	5	F
INTERNATIONAL PAPER COMPANY	No. 11/12 PB	GA389	1490.451	-744.532	93.9	4	5.49	13.7	465	-3.64E+01	6	F
INTERNATIONAL PAPER COMPANY	Recovery Furnace #14	GA390	1490.451	-744.532	106.8	4	2.74	21.3	426	-1.06E+01	6	F

1. SO_2 Emission rate based on PSD Increment Spreadsheet downloaded from Georgia EPD website and Major.xls and minor.xls spreadsheets provided by Georgia EPD
2. Actual SO_2 Emission rates taken from Georgia 2005 NEI database as provided by Georgia EPD.
3. Based on EPA guidance on modeling horizontal stacks.
4. Based on maximum fuel oil firing and maximum sulfur content.
5. Based on Seminole Title V application.
6. Based on information provided by facility.

Note: The Calpuff Model is limited to 200 Sources. The bin group letter references the bin group in which the souces were modeled.

Table C-6: Ambient Air Concentration Development

Pollutant	Air Unit Risk (m^3/mg)	Weight of Evidence	Cancer Risk	RBAC (mg/m^3)	RfDi (mg/kg-d)	Rfc (mg/m3)	PEL (mg/m^3)	PEL Adj (mg/m^3)	PEL-C (mg/m^3)	PEL-C Adj (mg/m^3)	TLV-TWA (mg/m^3)	TLV-TWA Adj (mg/m^3)	TLC-STEL (mg/m^3)	TLC-STEL adj (mg/m^3)	TLV-C (mg/m^3)	TLV-Adj (mg/m^3)	REL-TWA (mg/m^3)	REL-TWA Adj (mg/m^3)	REL-STEL (mg/m^3)	REL-STEL Adj (mg/m^3)	REL-C (mg/m^3)	REL-C Adj (mg/m^3)	LD 50 (mg/kg)	AAC - Annual (mg/m^3)	AAC - 24-hr (mg/m^3)	Short Term Limit (mg/m^3)
Organics																										
Acenaphthene			-	-		-		-		-		-		-		-		-		-		-	600	-	**4.1E-02**	-
Acenaphthylene		D	-	-		-		-		-		-		-		-		-		-		-	1760	-	**1.2E-01**	-
Acetaldehyde	0.0022	B	1.00E-05	4.55E-03		9.00E-03		-		-		-		-	45.04	4.50		-		-		-		**4.5E-03**	-	**4.50**
Acetophenone		D	-	-		-		-		-	49.14	0.12		-		-		-		-		-		-	**1.2E-01**	-
Acrolein			-	-		2.00E-05		-		-		-		-	0.2293	0.02		-		-		-		**2.0E-05**	-	**0.02**
Ammonia			-	-		1.00E-01		-		-		-	24.38	2.44		-		-	24.38	2.44		-		**1.0E-01**	-	**2.44**
Anthracene		D	-	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
Benzene	0.0022	A	1.00E-06	4.55E-04		-		-		-		-	8.0	0.80		-		-		-		-		**4.5E-04**	-	**0.80**
Benzo(a)anthracene		B	1.00E-05	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
Benzo(a)pyrene		B	1.00E-05	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
Benzo(a)fluranthene		B	1.00E-05	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
Benzo(b)fluoranthene		B	1.00E-05	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
Benzo(e)pyrene			-	-		-		-		-		-		-		-		-		-		-	9	-	**6.2E-04**	-
Benzo(g,h,i)perylene		D	-	-		-		-		-		-		-		-		-		-		-	9	-	**6.2E-04**	-
Benzo(g,h,i)pyrene			-	-		-		-		-		-		-		-		-		-		-	9	-	**6.2E-04**	-
Benzo(b,k)fluoranthene		B	1.00E-05	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
Benzo(k)fluoranthene		B	1.00E-05	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
Benzyl chloride		B	1.00E-05	-		-	5	0.01		-		-		-		-		-		-	5	0.50		-	**1.2E-02**	**0.50**
Biphenyl			-	-		-	1	2.38E-03		-		-		-		-		-		-		-		-	**2.4E-03**	-
bis(2-Ethylhexyl)phthalate			-	-		-	5	0.01		-		-		-		-		-	10	1.00		-		-	**1.2E-02**	**1.00**
Bromoform	1.10E-03	B	1.00E-05	9.09E-03		-		-		-		-		-		-		-		-		-		**9.1E-03**	-	-
2-Butanone (MEK)			-	-		5.00		-		-		-	884.66	88.47		-		-		-		-		**5.0E+00**	-	**88.47**
Carbon tetrachloride	0.015	B	1.00E-05	6.67E-04		-		-	157.25	15.73		-		-		-		-		-		-		**6.7E-04**	-	**15.73**
Carbon disulfide			-	-		0.70		-	93.3	9.33		-		-		-		-		-		-		**7.0E-01**	-	**9.33**
Chlorobenzene		D	-	-		-	350	0.83		-		-		-		-		-		-		-		-	**8.3E-01**	-
Chloroform	0.023	B	1.00E-05	4.35E-04		-		-	240	24.00		-		-		-		-		-		-		**4.3E-04**	-	**24.00**
Chloromethane		D	-	-		0.09			414	41.40		-		-		-		-		-		-		**9.0E-02**	-	**41.40**
2-Chloronaphthalene		C	1.00E-04	-	0.00086	3.01E-03		-		-		-	78.64	7.86		-		-		-		-		**3.0E-03**	-	**7.86**
2-Chloroacetophenone			-	-		3.00E-05		-		-		-		-		-		-		-		-		**3.0E-05**	-	-
Chrysene		B	1.00E-05	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
Cumene		D	-	-		4.00E-01		-		-		-		-		-		-		-		-		**4.0E-01**	-	-
Cyanide		D	-	-		-	5	0.01		-		-		-		-		-		-		-		-	**1.2E-02**	-
Dibenzo(a,h)anthracene		B	1.00E-05	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
Di-nbutylphthalate		D	-	-			5	0.01		-		-		-		-		-		-		-		-	**1.2E-02**	-
Dimethyl sulfate		B	1.00E-05	-		-	5	0.01		-		-		-		-		-		-		-		-	**1.2E-02**	-
7,12-Dimethylbenz(a)anthracene		D	-	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
2,4-Dinitrotoluene			-	-		-				-		-		-		-	1.5	3.57E-03		-		-		-	**3.6E-03**	-
Ethylbenzene		D	-	-		1.00		-		-		-	542.74	54.27		-		-		-		-		**1.0E+00**	-	**54.27**
Ethyl Chloride			-	-		10.00		-		-		-		-		-		-		-		-		**1.0E+01**	-	-
Ethylene dichloride	2.60E-02	B	1.00E-05	3.85E-04		-		-	404.8	40.48		-		-		-		-		-		-		**3.8E-04**	-	**40.48**
Ethylene dibromide	6.00E-01	A	1.00E-06	1.67E-06		-		-	230.6	23.06		-		-		-		-		-		-		**1.7E-06**	-	**23.06**
Fluoranthene		D	-	-		-		-		-		-		-		-		-		-		-	100	-	**6.9E-03**	-
Fluorene		D	-	-		-	0.2	4.76E-04		-				-		-		-		-		-		-	**4.8E-04**	-
Formaldehyde	0.013	B	1.00E-05	7.69E-04		-		-	2.46	0.25		-		-		-		-		-		-		**7.7E-04**	-	**0.25**
Hexane			-	-		0.70		-		-		-		-		-		-		-		-		**7.0E-01**	-	-
Hydrogen chloride			-	-		0.02		-	7	0.70		-		-		-		-		-		-		**2.0E-02**	-	**0.70**
Indeno(1,2,3,c,d)pyrene		B	1.00E-05	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
Isophorone		C	1.00E-04	-		-	140	0.33		-		-		-	28.26	2.83		-		-		-		-	**3.3E-01**	**2.83**
Methyl Bromide		D	-	-		0.005			80	8.00				-		-								**5.0E-03**	-	**8.00**
Methyl hydrazine			-	-		-		-	0.35	0.04	0.019	4.52E-05		-		-		-		-		-		-	**4.5E-05**	**0.04**
MIBK			-	-		3.00		-		-		-	307.24	30.72		-		-		-		-		**3.0E+00**	-	**30.72**
MMA		E	-	-		0.70		-		-		-	409.53	40.95		-		-		-		-		**7.0E-01**	-	**40.95**
2-Methylnaphthalene			-	-		-		-		-	2.91	0.01		-		-		-		-		-		-	**6.9E-03**	-
3-Methylchloranthrene			-	-		-		-		-		-		-		-		-		-		-	100	-	**6.9E-03**	-

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09

Table C-6: Ambient Air Concentration Development

Pollutant	Air Unit Risk (m^3/mg)	Weight of Evidence	Cancer Risk	RBAC (mg/m^3)	RfDi (mg/kg-d)	Rfc (mg/m3)	PEL (mg/m^3)	PEL Adj (mg/m^3)	PEL-C (mg/m^3)	PEL-C Adj (mg/m^3)	TLV-TWA (mg/m^3)	TLV-TWA Adj (mg/m^3)	TLC-STEL (mg/m^3)	TLC-STEL adj (mg/m^3)	TLV-C (mg/m^3)	TLV-Adj (mg/m^3)	REL-TWA (mg/m^3)	REL-TWA Adj (mg/m^3)	REL-STEL (mg/m^3)	REL-STEL Adj (mg/m^3)	REL-C (mg/m^3)	REL-C Adj (mg/m^3)	LD 50 (mg/kg)	AAC - Annual (mg/m^3)	AAC - 24-hr (mg/m^3)	Short Term Limit (mg/m^3)
MTBE			-	-		3.00		-		-		-		-		-		-		-		-		**3.0E+00**	-	-
Methylene chloride	4.70E-04	B	1.00E-05	2.13E-02		-		-	434.2	43.42		-		-		-		-		-		-		**2.1E-02**	-	**43.42**
Naphthalene		C	1.00E-04	-		3.00E-03		-		-		-	78.64	7.86		-		-		-		-		**3.0E-03**	-	**7.86**
5-Methyl chrysene		B	1.00E-05	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
OCDD			-	-										-		-							1000	-	**6.9E-02**	-
Phenanthrene		D	-	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
Phenol		D	-	-		-	19	0.05		-		-		-		-		-			60	6.00		-	**4.5E-02**	**6.00**
Propionaldehyde			-	-		0.008		-		-		-		-		-		-		-		-		**8.0E-03**	-	-
Pyrene		D	-	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		-	**4.8E-04**	-
Styrene			-	-		1.00		-	852	85.20		-		-		-		-		-		-		**1.0E+00**	-	**85.20**
Sulfuric Acid (H_2SO_4)			-	-		-	1	2.38E-03		-		-	3	0.30		-		-		-		-		-	**2.4E-03**	**0.30**
Tetrachloroethylene			-	-		-	678	1.61	1356	135.60		-		-		-		-		-		-		-	**1.6E+00**	**135.60**
Toluene			-	-		5.00		-	1130	113.00		-		-		-		-		-		-		**5.0E+00**	-	**113.00**
1,1,1-Trichloroethane (methyl chloroform)			-	-		-	1900	4.52		-		-	2460	246.00		-		-		-				-	**4.5E+00**	**246.00**
1,1,2-Trichloroethane	0.016	C	1.00E-04	6.25E-03		-		-		-		-		-		-		-		-		-		**6.3E-03**	-	-
1,2.4-Trichlorobenzene		D	-	-		-		-		-		-		-	37	3.70		-		-		-		-	-	**3.70**
Trichloroethylene			-	-		-	537	1.28	1075	107.50		-		-		-		-		-		-		-	**1.3E+00**	**107.50**
Vinyl acetate			-	-		0.20		-		-		-	52.82	5.28		-		-		-		-		**2.0E-01**	-	**5.28**
Xylene			-	-		0.10		-		-		-	651	65.10		-		-		-		-		**1.0E-01**	-	**65.10**
m-Xylene			-	-		0.10		-		-		-	651	65.10		-		-		-		-		**1.0E-01**	-	**65.10**
o-Xylene			-	-		0.10		-		-		-	651	65.10		-		-		-		-		**1.0E-01**	-	**65.10**
p-Xylene			-	-		0.10		-		-		-	651	65.10		-		-		-		-		**1.0E-01**	-	**65.10**
P-cresol		C	1.00E-04	-		-	22	0.05		-		-		-		-		-		-		-		-	**5.2E-02**	-
Pentachlorophenol		B	1.00E-05	-		-	0.5	1.19E-03		-		-		-		-		-		-		-		-	**1.2E-03**	-
Hexachlorobenzene	4.60E-01	B	1.00E-05	2.17E-05		-		-		-		-		-		-		-		-		-		**2.2E-05**	-	-
Methyl iodide			-	-		-	28	0.07		-		-		-		-		-		-		-		-	**6.7E-02**	-
1,3-Butadiene	0.03	A	1.00E-06	3.33E-05		-		-	11	1.10		-		-		-		-		-		-		**3.3E-05**	-	**1.10**
1,3-Dichloropropene	4.00E-03	B	1.00E-05	2.50E-03		-		-		-		-		-		-		-		-		-		**2.5E-03**	-	-
1,4-Dichlorobenzene			-	-		8.00E-01		-		-		-		-		-		-		-		-		**8.0E-01**	-	-
2,4,6-Trichlorophenol	3.10E-03	B	1.00E-05	3.23E-03		-		-		-		-		-		-		-		-		-		**3.2E-03**	-	-
2,4-Dinitrophenol			-	-		-		-		-		-		-		-		-		-		-	13	-	**9.0E-04**	-
4-Nitrophenol			-	-		-		-		-		-		-		-		-		-		-	75	-	**5.2E-03**	-
Allyl Chloride		C	1.00E-04	-		1.00E-03		-		-		-	6	0.60		-		-		-		-		**1.0E-03**	-	**0.60**
Calcium Cyanamide			-	-		-		-		-	0.5	1.19E-03		-		-		-		-		-		-	**1.2E-03**	-
Dibenzo[a,j]Acridine			-	-		-		-		-		-		-		-		-		-		-	500	-	**3.5E-02**	-
Diethyl Sulfate			-	-		-		-		-		-		-		-		-		-		-	647	-	**4.5E-02**	-
Dimethyl Phthalate		D	-	-		-		-		-	5	1.19E-02		-		-		-		-		-		-	**1.2E-02**	-
Polychlorinated Biphenyls	0.1	B	1.00E-05	1.00E-04		-		-		-		-		-		-		-		-		-		**1.0E-04**	-	-
Propylene Dichloride			-	-		4.00E-03		-		-		-	508	50.80		-		-		-		-		**4.0E-03**	-	**50.80**
Sodium Cyanide			-	-		-	5	1.19E-02		-		-		-	5	0.50		-		-		-		-	**1.2E-02**	**0.50**
Toluene-2,4-Diamine			-	-		-		-		-		-		-		-		-		-		-	80	-	**5.5E-03**	-
Vinyl Chloride	4.40E-03	A	1.00E-06	2.27E-04		-		-	12.781	1.28		-		-		-		-		-		-		**2.3E-04**	-	**1.28**
Dioxins (Total)			-	-		4.00E-08												-					0.022	**4.0E-08**		-
Metals																										
Antimony			-	-		2.00E-04				-		-		-		-		-		-		-		**2.0E-04**	-	-
Arsenic	4.3	A	1.00E-06	2.33E-07		-		-		-		-		-		-		-		-	0.002	2.00E-04		**2.3E-07**	-	**2.00E-04**
Beryllium	2.4	B	1.00E-05	4.17E-06		-		-	0.005	5.00E-04		-		-		-		-		-		-		**4.2E-06**	-	**5.00E-04**
Cadmium	1.8	B	1.00E-05	5.56E-06		-		-	0.3	0.03		-		-		-		-		-		-		**5.6E-06**	-	**3.00E-02**
Chromium (II,III)			-	-		-	0.5	1.19E-03		-		-		-		-		-		-		-		-	**1.2E-03**	-
Chromium (VI)	12	A	1.00E-06	8.33E-08		-		-	0.1	0.01		-		-		-		-		-		-		**8.3E-08**	-	**1.00E-02**
Cobalt			-	-		-	0.1	2.38E-04		-		-		-		-		-		-		-		-	**2.4E-04**	-
Copper		D	-	-		-	0.1	2.38E-04		-		-		-		-		-		-		-		-	**2.4E-04**	-
Lead		B	1.00E-05	-		-	0.05	1.19E-04		-		-		-		-		-		-		-		-	**1.2E-04**	-

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Table C-6: Ambient Air Concentration Development

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Pollutant	Air Unit Risk (m^3/mg)	Weight of Evidence	Cancer Risk	RBAC (mg/m^3)	RfDi (mg/kg-d)	Rfc (mg/m3)	PEL (mg/m^3)	PEL Adj (mg/m^3)	PEL-C (mg/m^3)	PEL-C Adj (mg/m^3)	TLV-TWA (mg/m^3)	TLV-TWA Adj (mg/m^3)	TLC-STEL (mg/m^3)	TLC-STEL adj (mg/m^3)	TLV-C (mg/m^3)	TLV-Adj (mg/m^3)	REL-TWA (mg/m^3)	REL-TWA Adj (mg/m^3)	REL-STEL (mg/m^3)	REL-STEL Adj (mg/m^3)	REL-C (mg/m^3)	REL-C Adj (mg/m^3)	LD 50 (mg/kg)	AAC - Annual (mg/m^3)	AAC - 24-hr (mg/m^3)	Short Term Limit (mg/m^3)
Mercury		D	-	-		0.00030		-	0.1	0.01		-		-		-		-		-	0.1	0.01		**3.0E-04**	**-**	**1.00E-02**
Magnesium			-	-		-	15	0.036		-		-		-		-		-		-		-		**-**	**3.6E-02**	**-**
Manganese		D	-	-		0.00005		-	5	0.50		-		-		-		-		-		-		**5.0E-05**	**-**	**5.00E-01**
Nickel	0.24	A	1.00E-06	4.17E-06		-				-		-		-		-		-		-		-		**4.2E-06**	**-**	**-**
Phosphorus			-	-		-	0.1	2.38E-04		-		-		-		-		-		-		-		**-**	**2.4E-04**	**-**
Selenium		D	-	-		-	0.2	4.76E-04		-		-		-		-		-		-		-		**-**	**4.8E-04**	**-**
Zinc			-	-		-	5	0.012		-			10	1.00		-		-		-		-		**-**	**1.2E-02**	**1.00E+00**
Additional Evaluations																										
Hydrogen Fluoride, as F			-	-			2.5	0.01		-			2.3	0.23		-	2.5	0.01		-		-		**-**	**5.95E-03**	**2.30E-01**

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Table C-7 - Permit Review Summary Table : Offsite SO_2 Emission Assessment

Plant	Permit Type	County	Permit	Permit Condition	SO_2 Source	Distance to AOI (km)	SO_2 Emissions "20D" Technique (tpy)	SO_2 Emissions (tpy)	Included in Modeling
BRITE CO A & I CHEMICALS INC	-	Washington	No information available	-	-	7	135	-	outside the AOI therefore screened out with "20D" technique
BURGESS PIGMENT COMPANY	Title V	Washington	Permit for the operation of kaolin processing plant	included in modeling	Y	-	-	-	YES
COBB EMC-DEEPSTEP	SIP	Washington	Synthetic minor permit for the construction and operation of five 1.825 MW generators	sulfur content in No. 2 fuel oil not to exceed 0.05 % and the total hours of opeartion of each generator not to exceed 500 hrs within a rolling 12 month period.	Y	21	412	100	screened out with "20D" technique
COBB EMC-ROBINS SPRIN	SIP	Washington	Synthetic minor permit for the construction and operation of eight 1.825 MW generators	sulfur content in No. 2 fuel oil not to exceed 0.05 % and the total hours of opeartion of each generator not to exceed 349 hrs within a rolling 12 month period.	Y	8	152	100	screened out with "20D" technique
COBB EMC-SANDERSVILLE	SIP	Washington	Synthetic minor permit for the construction and operation of three 1.825 MW generators	sulfur content in No. 2 fuel oil not to exceed 0.05 % and the total hours of opeartion of each generator not to exceed 500 hrs within a rolling 12 month period.	Y	4	82	100	not included as SO_2 emission sources are Emergency Generators
EVANS ADHESIVE CORPORATION	-	Washington	No information available	-	-	7	143	-	outside the AOI therefore screened out with "20D" technique
GEORGIA DEPT OF TRANSPORTATION	SIP	Washington	Permit for construction and operation for a new drum mixer asphalt plant fired with LPGand a RAP processing facility	only natural gas/LPG burned in the dryer	N	-	-	-	no SO_2 emission source.
GEORGIA INDUSTRIAL MINERALS, INC	SIP	Washington	Permit for construction and operation of one dryer, two classifiers, two bin and Auger type baggers and three Baghouses.	no information on type of fuel burned in the dryer	N	-	-	-	no SO_2 emission source.
IMERYS CLAYS, INC.-- DEEPSTEP ROAD PLANT	Title V	Washington	Permit for the operation of a kaolin processing plant	included in modeling	Y	-	-	-	YES
IMERYS SANDERSVILLE CALCINE PLANT	Title V	Washington	Permit for the operation of a kaolin processing plant	included in modeling	Y	-	-	-	YES
J.M. HUBER CORPORATION	-	Washington	No information available	-	-	7	147	-	outside the AOI therefore screened out with "20D" technique
KENT-TENN CLAY	SIP	Washington	Permit for construction and operation of a kaolin clay processing plant.	only natural gas or No. 2 fuel oil burned in the rotary dryer	Y	9	182	100	screened out with "20D" technique
KENTUCKY TENNESSEE CLAY CO.	SIP	Washington	Permit for construction and operation of a kaolin clay processing plant.	-	Y	8	152	100	screened out with "20D" technique
KGEN SANDERSVILLE LLC	Title V	Washington	Permit for the construction and operation of a peaking power plant	included in modeling	Y	-	-	-	YES
LAPP INSULATOR COMPANY	-	Washington	No information available	-	-	8	153	-	outside the AOI therefore screened out with "20D" technique
PAUL CREEK ENERGY CENTER	SIP	Washington	Permit for the construction and operation of three natural gas fired combustion turbines	permitted on march 25, 2009 after the submittal of plant Washington application.	N	-	-	-	permitted after the submittal of Plant Washington application
PRENTISS INCORPORATED	-	Washington	No information available	-	-	7	147	-	outside the AOI therefore screened out with "20D" technique
SANDERSVILLE ETHANOL, LLC	SIP	Washington	Permit for the construction and operation of a facility to manufacture ethanol fuel	included in modeling	Y	-	-	-	YES
SMITH-SHEPPARD CONCRE	-	Washington	No information available	-	-	8	151	-	outside the AOI therefore screened out with "20D" technique
TENNILLE VENEER INC	-	Washington	No information available	-	-	11	211	-	outside the AOI therefore screened out with "20D" technique
THIELE KAOLIN COMPANY - SANDERSVILLE PLANT	Title V	Washington	Permit for the operation of a kaolin processing plant	included in modeling	Y	-	-	-	YES
TROJAN BATTERY CO -SANDERSVILLE	SIP	Washington	Permit for construction and operation of a lead acid battery manufacturing facility	no SO_2 emission sources	N	-	-	-	no SO_2 emission source.
WASHINGTON COUNTY POWER, LLC	Title V	Washington	Permit for the operation of an electric generating plant	included in modeling	Y	-	-	-	YES
BATTLE LUMBER CO INC	SIP	Jefferson	No information available	-	-	-	-	-	see note 1
BRYANTS INC	SIP	Jefferson	No information available	-	-	-	-	-	see note 1
FARMERS GIN & STORAGE	SIP	Jefferson	No information available	-	-	-	-	-	see note 1
FULGHUM INDUSTRIES INC	SIP	Jefferson	Permit for the operation of a facility to manufacture equipment for the forest industry	no SO_2 emission sources	N	-	-	-	no SO_2 emission source.
GEORGIA TENNESSEE MINING & CO	SIP	Jefferson	No information available	-	-	-	-	-	see note 1
GLIT-MICROTRON, INC	SIP	Jefferson	operation of a facility for the manufacture of abrasive products	no SO_2 emission sources	N	-	-	-	no SO_2 emission source.
HUBER ENGINEERED MATERIALS	Title V	Jefferson		included in modeling	Y				YES
J.M. HUBER WRENS CALCINE PLANT	Title V	Jefferson	Permit for the operation of a kaolin processing plant	included in modeling	Y				YES
LAMB BROS LUMBER CO	SIP	Jefferson	No information available	-	-	-	-	-	see note 1
MATTHEWS FERTILIZER &	SIP	Jefferson	No information available	-	-	-	-	-	see note 1
MCBRIDE GIN & FARM SU	SIP	Jefferson	No information available	-	-	-	-	-	see note 1
MESTEK, INC. (DBA AIR BALANCE, INC.)	SIP	Jefferson	Permit for the operation for HVAC system component manufacturing and coating facility.	no SO_2 emission sources	N	-	-	-	no SO_2 emission source.
SOUTHERN NATURAL GAS - WRENS COMPRESSOR ST	Title V	Jefferson	Permit for the operation of a natural gas compressor station	included in modeling	Y				YES
STAPLETON GIN CO	SIP	Jefferson	No information available	-	-	-	-	-	see note 1
THERMO KING CORPORATION	SIP	Jefferson	Permit for the operation for refrigeration unit manufacturing facility, which includes engine testing and all surface coating operations.	no SO_2 emission sources	N	-	-	-	no SO_2 emission source.
THIELE KAOLIN CO - REEDY CREEK DIVISON	Title V	Jefferson	Permit for the operation of a kaolin processing plant	included in modeling	Y	-	-	-	YES
COBB EMC-WEST WRIGHTS	SIP	Johnson	Synthetic minor permit for the construction and operation of three 1.825 MW generators	Sulfur content in No. 2 fuel oil not to exceed 0.05 % and the total hours of opeartion of each generator not to exceed 500 hrs within a rolling 12 month period.	Y			100	see note 1 see note 1
ROCHE MANUFACTURING C	SIP	Johnson	Permit for operation of a cotton gin and modification of associated air pollution control equipment	no SO_2 emission sources	N	-	-	-	see note 1 see note 1
WRIGHTSVILLE LUMBER COMPANY	SIP	Johnson	No information available	-	-	-	-	-	see note 1
ACTIVE MINERALS INTERNATIONAL, LLC (WKA LLC)	SIP	Wilkinson	Permit for the operation of a kaolin clay manufacturing facility.	No. 2 fuel oil consumption shall not exceed 1,500,000 gallons during any 12 consecutive months	Y	-	-	100	see note 1 see note 1
ALTERRA BIOENERGY OF MIDDLE GEORGIA, LLC	SIP	Wilkinson	Permit for construction and operation of a biodiesel fuel manufacturing facility	fuel sulfur content less than 2.5 %	Y	-	-	100	see note 1 see note 1
BLOODWORTH H F	-	Wilkinson	No information available	-	-	-	-	-	see note 1
CARBO CERAMICS	Title V	Wilkinson	Permit for the operation of a ceramic pellet manufacturing facility	shall not burn any fuel other than natural gas or propane in any fuel burning equipment	Y	41	812	601.5	screened out with "20D" technique
CARBO CERAMICS - Toomsboro	Title V	Wilkinson	Permit for the operation of a ceramic pellet manufacturing facility	shall not burn any fuel other than natural gas or propane in any fuel burning equipment	Y	40	792	618	screened out with "20D" technique
CULPEPPER WOOD PRODUCT	SIP	Wilkinson	No information available	-	-	-	-	-	see note 1
ELITE COATINGS - EAGLE BRIDGES	SIP	Wilkinson	No information available	-	-	-	-	-	see note 1
ENGELHARD CORP- EDGAR PLANT	Title V	Wilkinson	Permit for the operation of kaolin clay processing plant	included in modeling	Y	-	-	-	YES
ENGELHARD CORP- GORDON PLANT	Title V	Wilkinson	Permit for the operation of kaolin clay processing plant	included in modeling	Y	-	-	-	YES
FOUNTAIN PALLET CO INC	SIP	Wilkinson	No information available	-	-	-	-	-	see note 1
M & M CLAYS	SIP	Wilkinson	Permit for construction and operation of a kaolin Clay processing facility.	sulfur content of fuel oil shall not exceed 0.5 %.	Y		-	100	see note 1
NEW HOLLAND TIRE CO INC	SIP	Wilkinson	No information available	-	-	-	-	-	see note 1

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Table C-7 - Permit Review Summary Table : Offsite SO_2 Emission Assessment

Plant	Permit Type	County	Permit	Permit Condition	SO_2 Source	Distance to AOI (km)	SO_2 Emissions "20D" Technique (tpy)	SO_2 Emissions (tpy)	Included in Modeling
NORTH AMERICAN CONTAINER CORPORATION	SIP	Wilkinson	Permit for the operation of a sawmill and pallet production facility	no SO_2 emission sources	-	-	-	-	no SO2 emission source.
RESCAR INDUSTRIES INC	Title V	Wilkinson	Permit for the operation of a railcar cleaning and refurbishing facility	not to burn any fuel oil with sulfur content greater than 2.5%	Y	55	1092	100	screened out with "20D" technique
UNIMIN CORPORATION	SIP	Wilkinson	Permit for the operation of a kaolin clay processing facility.	No. 2 fuel oil consumption shall not exceed 2,600,000 gallons during any 12 consecutive months and sulfur content - 0.5 %	Y		-	100	see note 1 see note 1
BORAL MATERIAL TECHNO	SIP	Baldwin	No information available	-	-	-	-	-	see note 1
BUTLER FORD MERCURY HONDA INC	SIP	Baldwin	No information available	-	-	-	-	-	see note 1
C & R CABINET SHOP	SIP	Baldwin	No information available	-	-	-	-	-	see note 1
CENTRAL STATE HOSPITAL	Title V	Baldwin	Permit for the operation of psychiatric and general medical hospital	Boiler # 1 & 2 - 87.2 MMBtu/hr each; Boiler# 3 & 4 (wood fired) - 38.4 MMBtu/hr each; Boiler # 5 & 6 - 16.8 MMBtu/hr each. Shall not burn more than 300,000 gallons of fuel oil and 32,500 tons of wood chips per any 12 consecutive months. Sulfur content of fuel oil not more than 0.5 %.	Y	39	772	100	screened out with "20D" technique
CONCORD FABRICS INCORPORATED	SIP	Baldwin		one 500 hp Cleaver Brooks boiler and one 500 Johnston 500 hp boiler. Fuel oil sulfur content 0.5 %	Y				see note 1
FOWLER-FLEMISTER CONCRETE CO INC	SIP	Baldwin	Permit for the operation of a dry batch ready mix concrete plant	no SO2 emission sources	-	-	-	-	no SO2 emission source.
FOWLER-FLEMISTER CONCRETE INC	SIP	Baldwin	No information available	-	-	-	-	-	see note 1
GEORGIA POWER HARLEE BRANCH STEAM ELECTRIC GENERATING PLANT	Title V	Baldwin		included in modeling	Y	-	-	-	YES
HARRINGTON MILLING CO	SIP	Baldwin	No information available	-	-	-	-	-	see note 1
MOHAWK INDUSTRIES INC	SIP	Baldwin	No information available	-	-	-	-	-	see note 1
NOVA CABINET SHOP	SIP	Baldwin	No information available	-	-	-	-	-	see note 1
RATH REFRACTORIES	SIP	Baldwin	Permit for the construction and operation of a shaped alumina refractory brick	no SO_2 emission sources					no SO2 emission source.
RHEEM MANUFACTURING COMPANY	SIP	Baldwin	Permit for the construction and operation of twelve fin presses	no SO_2 emission sources					no SO2 emission source.
SHAW INDUSTRIES INC PLANT 88	SIP	Baldwin	No information available	-					see note 1
SOUTHERN NATURAL GAS-HALL GATE COMPRESSOR	SIP	Baldwin	Permit for the operation of a natural gas compressor station	included in modeling					no SO2 emission source.
T & S HARDWOODS INC	SIP	Baldwin	No information available	-	-	-	-	-	see note 1
TOYOTA OF MILLEDGEVILLE	SIP	Baldwin	No information available	-	-	-	-	-	see note 1
UNION HILL CHURCH ROAD MSW LANDFILL	Title V	Baldwin	Permit for the operation of a municipal solid waste disposal operation	no SO_2 emission sources	-	-	-	-	no SO2 emission source.
VOUGHT AIRCRAFT INDUSTRIES INC	Title V	Baldwin	Permit for the operation of a facility for the manufacture of aircraft assemblies.	Gordon Piatt Boiler (1B01) , Superior Boiler (1B02), and Oven. Sulfur content of oil less than 2.5 %.	Y	43	852	100	screened out with "20D" technique
ZSCHIMMER & SCHWARZ INC	SIP	Baldwin	No information available	-	-	-	-	-	see note 1
CORRIDOR MATERIALS LLC	SIP	Hancock	Operation of a rock quarry and associated air pollution control equipment.	no SO_2 emission sources	-	-	-	-	see note 1 see note 1
EDWARDS LUMBER CO INC	SIP	Hancock	No information available	-	-	-	-	-	see note 1
HANSON AGGREGATES LLC - SPARTA QUARRY	SIP	Hancock	Permit for the operation of a granite quarry and stone processing plant.	no SO_2 emission sources	-	-	-	-	see note 1 see note 1
READY MIX USA, LLC - SPARTA ROCK QUARRY	SIP	Hancock	Permit for the operation of a rock quarry.	no SO_2 emission sources	-	-	-	-	see note 1 see note 1
SPARTA FURNITURE MANU	SIP	Hancock	No information available	-	-	-	-	-	see note 1
GEORGIA PACIFIC WOOD PRODUCTS LLC WARRENTON GA	Title V	Warren	Permit for the operation of a sawmill	included in modeling	Y	-	-	-	YES
JEBCO INCORPORATED	SIP	Warren	Operation of a facility to manufacture coated metal fabricated items	no SO2 emission sources	-	-	-	-	no SO2 emission source.
MARTIN MARIETTA HARRENTON QUARRY	SIP	Warren	No information available	-	-	-	-	-	see note 1
OLDCASTLE MATERIALS - PLANTATION QUARRY	SIP	Warren	No information available	-	-	-	-	-	see note 1
TIMBERMAN	SIP	Warren	No information available	-	-	-	-	-	see note 1
TRW AUTOMOTIVE - WARRENTON CASTING CENTER	Title V	Warren	Permit for the operation of a gray iron foundry	% sulfur content - 2.5 %	Y	34	672	100	screened out with "20D" technique
HP PELZER AUTOMOTIVE SYSTEMS INCORPORATED	Title V	Mcduffie	Permit for the operation of a facility for the manufacturing of internal components for automobiles	no SO_2 emission sources	N	-	-	-	no SO2 emission source.
MARTIN MARIETTA AGGREGATES	SIP	Mcduffie	Permit for the operation of a rock quarry.	no SO_2 emission sources	-	-	-	-	no SO2 emission source.
MILLIKEN & CO KINGSLEY PLANT	SIP	Mcduffie	Permit for the operation of six slashers for the sizing of synthetic yarns and a 11.5 MMBtu/hr boiler firing natural gas and fuel oil.	Emissions from Boiler (B01) shall not exceed 100 tons during any 12 consecutive months.	Y				see note 1
PELZER ACOUSTIC PRODUCTS LLC	SIP	Mcduffie	Permit for the operation of a facility for the manufacture of resinated and non-resinated cotton fiber blankets	no SO_2 emission sources	N	-	-	-	no SO2 emission source.
THOMSON OAK FLOORING CO	SIP	Mcduffie	No information available	-	-	-	-	-	see note 1
TIN INC. DBA TEMPLE-INLAND	Title V	Mcduffie	Permit for the opearion of a particleboard manufacturing facility	Temple-Inland shall not burn fuel containing more than 2.5% sulfur in the wood-fired Boiler(B001), the dryers (D006-D009) and the Coen burner (B003).- **Included in Modeling**	Y	-	-	-	YES
ALONAN MANUFACTURING INC	SIP	Putnam	No information available	-	-	-	-	-	see note 1
EATONTON COOPERATIVE FEED CO INC	SIP	Putnam	No information available	-	-	-	-	-	see note 1
FOWLER FLEMISTER CONCRETE	SIP	Putnam	Permit for the operation of a dry batch ready mix concrete plant	no SO_2 emission sources					no SO2 emission source.
FOWLER-FLEMISTER CONCRETE INC	SIP	Putnam	No information available	-	-	-	-	-	see note 1
GRO TEC INCORPORATED	SIP	Putnam	No information available	-	-	-	-	-	see note 1
HALLMAN WOOD PRODUCTS	SIP	Putnam	No information available	-	-	-	-	-	see note 1

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Table C-7 - Permit Review Summary Table : Offsite SO_2 Emission Assessment

Plant	Permit Type	County	Permit	Permit Condition	SO_2 Source	Distance to AOI (km)	SO_2 Emissions "20D" Technique (tpy)	SO_2 Emissions (tpy)	Included in Modeling
MARBLE WORKS INCORPORATED	SIP	Putnam	No information available	-	-	-	-	-	see note 1
OCONEE CABINETS	SIP	Putnam	No information available	-	-	-	-	-	see note 1
RAYONIER WOOD PRODUCTS LLC- EATONTON	SIP	Putnam	No information available	-	-	-	-	-	see note 1
WOOD'S ASSOCIATED PRO	SIP	Putnam	No information available	-	-	-	-	-	see note 1
DOUGLAS ASPHALT COMPANY	SIP	Jefferson	Permit for the operation of a drum mix asphalt plant	total uncontrolled emissions of SO_2 could not equal or exceed 100 tons during any 12 consecutive months.	Y	-	-	-	see note 1
									see note 1
GEORGIA VITRIFIED BRICK & CLAY LTD	SIP	Columbia	Permit for the construction and operation of a clay flue lining processing facility	All 5 dryers (D6-D10) are equipped with natural gas burners. Both Kilns (K4 and K5) are permitted to use natural gas and wood dust burners	N	-	-	-	see note 1
									see note 1
TRACY LUCKEY COMPANY INCORPORATED	-	Columbia	No information available	-	-	-	-	-	see note 1
DEANS BRIDGE RD MSW LANDFILL	Title V	Richmond	permit for the operation of a municipal solid waste landfill	no SO_2 emission sources	-	-	-	-	no SO2 emission source.
KELLEYS GIN INC	SIP	Burke	No information available	-	-	-	-	-	see note 1
LAMB C B LUMBER CO	SIP	Burke	No information available	-	-	-	-	-	see note 1
LOUISIANA-PACIFIC (LUMBER MILL)	SIP	Burke	No information available	-	-	-	-	-	see note 1
MIDVILLE WAREHOUSE	SIP	Burke	No information available	-	-	-	-	-	see note 1
RAYONIER	SIP	Burke	No information available	-	-	-	-	-	see note 1
VULCAN MATERIALS CO.	SIP	Greene	operation of a granite quarry and stone processing equipments	no SO_2 emission sources	-	-	-	-	no SO2 emission source.
COOK CABINET SHOP	SIP	Laurens	No information available	-	-	-	-	-	see note 1
DUBLIN CONSTRUCTION CO INC	SIP	Laurens	No information available	-	-	-	-	-	see note 1
EVANS CABINET CORP	Title V	Laurens	Permit for the operation of a wooden kitchen cabinet furniture manufacturing	no SO_2 emission sources	-	-	-	-	no SO2 emission source.
GOLD KIST SEED PROCESSING PLANT	SIP	Laurens	No information available	-	-	-	-	-	see note 1
GOODYEAR AUTO SERVICE CENTER	SIP	Laurens	No information available	-	-	-	-	-	see note 1
GRIFFIN INDUSTRIES INC	Title V	Laurens	Permit for the operation of a rendering plant	Boiler (B001) and Boiler (B002)-33.48 MMBtu/hr and Boiler (B003) - 50.2 MMBtu/hr; 25 MMBtu/hr feather dryer/Biomass Burner. % Sulfur content - 2.5% - Included in Modeling	Y	-	-	-	YES
LAURENS COUNTY LANDFILL	SIP	Laurens	No information available	-	-	-	-	-	see note 1
LIFETIME CABINET INCORPORATED	SIP	Laurens	No information available	-	-	-	-	-	see note 1
MOHAWK INDUSTRIES - LAURENS PARK FACILITY	SIP	Laurens	No information available	-	-	-	-	-	see note 1
REEVES CONSTRUCTION CO. (PLT 9)	SIP	Laurens	Permit for the operation of a asphalt plant	total uncontrolled SO_2 emissions could not equal or exceed 100 tons during any 12 consecutive months	Y	-	-	-	see note 1
									see note 1
ROCHE MANUFACTURING	SIP	Laurens	No information available	-	-	-	-	-	see note 1
SOUTHERN PEANUT & STO	SIP	Laurens	No information available	-	-	-	-	-	see note 1
TELFAIR SHELL	SIP	Laurens	No information available	-	-	-	-	-	see note 1
USVA VETERANS ADMIN C	SIP	Laurens	No information available	-	-	-	-	-	see note 1
YKK (AB) AMERICA, INC.	SIP	Laurens	No information available	-	-	-	-	-	see note 1

note 1: Plant is a SIP permitted source therefore SO2 emissions are less than 100 tpy. The plant would therefore screen out using the "20D" rule because it is greater than 10.4 km from the site.

Completed by: PBS 7/2/09
Checked by: SAK 7/2/09