OglethorpePower

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An Electric Membership Cooperative

July 27, 2010

Mr. Eric Cornwell
Georgia Environmental Protection Division
Air Protection Branch
4244 International Parkway, Suite 120
Atlanta, GA 30354

Certified Mail/Return Receipt#
70100290000026340583

Dear Mr. Cornwell:

Subject: Oglethorpe Power Corporation – Warren County PSD Permit Application
Supplemental 1-hour SO_2 Class II Area Modeling

Oglethorpe Power Corporation (Oglethorpe) has proposed to construct a nominal 100 megawatt (MW) biomass-fueled electric generating facility in Warren County, Georgia. A Prevention of Significant Deterioration (PSD) permit application was submitted in October 2009 requesting authorization to construct the facility. Recently, EPA finalized the 1-hour SO_2 National Ambient Air Quality Standard (NAAQS) on June 22, 2010 with an effective date of August 23, 2010 and all PSD permits issued after this date should demonstrate compliance with the new standard.[1] Therefore, Oglethorpe is submitting this letter to demonstrate the proposed project will not cause or contribute to a violation of the 1-hour SO_2 NAAQS. This submittal closely follows the procedures and receptor grid used for the supplemental 1-hr NO_2 modeling,[2] which was based on modeling methodologies employed in the original October 2009 submittal and/or the revised load analysis submitted in March 2010.[3] As requested by Georgia Environmental Protection Division (EPD), all AERMOD modeling performed for this submittal uses the same AERMOD version as used for the original submittal (07026).

A CD containing all of the supplemental SO_2 modeling analyses files is included as Attachment A to this letter.

SO_2 Significance Analyses

Oglethorpe has modified the modeled emission rates and stack parameters for the SO_2 emissions sources at the Warren facility for the 1-hour SO_2 Significance Analysis from those used in the short-term (3-hour and 24-hour) SO_2 Significance Analysis. To account for short-term variability in the proposed biomass boiler's SO_2 emission rate, the modeled maximum 1-hour SO_2 emission rate for the boiler is based on a 0.10 lb/MMBtu SO_2 emission factor instead of the 0.01 lb/MMBtu 30-day rolling average SO_2 BACT limit. The maximum hourly SO_2 emission factor for the boiler was multiplied by the heat input rate

[1] 75 Federal Register 35520, June 22, 2010.

[2] Letter to Mr. Eric Cornwell (Georgia EPD) from Mr. Doug Fulle Oglethorpe), June 25, 2010.

[3] Letter to Mr. Eric Cornwell (Georgia EPD) from Mr. Doug Fulle (Oglethorpe), March 5, 2010.

corresponding to the worst-case load, 1,329 MMBtu/hr, to calculate the maximum hourly SO2 emission rate of 132.9 lb/hr (refer to the PM_{10} load analysis presented in the March 5, 2010 revised load analysis).[4] As shown in Table 1, the modeled stack height, exhaust temperature, flow rate, exit velocity, and stack diameter for the boiler are all consistent with the worst-case load conditions from the supplemental PM_{10} load analysis.

In the annual SO_2 Significance Analysis, Oglethorpe excluded emissions from the emergency fire pumps due to their limited operation (i.e., less than 500 hours per year) based on Georgia EPD guidance.[5] The two (2) fire pump engines proposed for the Warren facility may, however, operate for a brief duration on a routine basis for maintenance and readiness testing when the boiler is operating at worst-case load, and therefore, these engines were considered in the 1-hour SO_2 Significance Analysis. Based on refined facility design information, the pump rating and engine capacity of the (larger) primary fire pump (FP01) has changed from 2,500 gpm and 330 hp to 3,500 gpm and 420 hp. The specifications for the (smaller) booster fire pump (FP02) have also changed from 2,500 gpm and 175 hp to 2,000 gpm and 175 hp. The maximum hourly SO_2 emission rates from the fire pump engines are based on 15 ppmw sulfur in diesel and design fuel consumption rates assuming 100% conversion of fuel sulfur to SO_2. The modeled stack parameters for the engines are based on specification sheets from the manufacturer at full load.[6] [7]

TABLE 1. MODELED SOURCE PARAMETERS FOR THE 1-HOUR SO_2 SIGNIFICANCE ANALYSIS

Modeled Stack ID	Source Description	Modeled SO_2 Emission Rate (lb/hr)	(gps)	Stack Height (ft)	(m)	Exhaust Temperature (°F)	(K)	Flow Rate (acfm)	Exhaust Velocity (ft/s)	(m/s)	Stack Diameter (ft)	(m)
B001	Biomass Boiler	132.90	16.75	220.00	67.06	335	441.48	532,850	78.52	23.93	12.00	3.66
FP01	Fire Pump No. 1	4.57E-03	5.76E-04	50.00	15.24	891	750.37	2,048	97.78	29.80	0.67	0.20
FP02	Fire Pump No. 2	1.90E-03	2.40E-04	50.00	15.24	821	711.48	1,061	90.06	27.45	0.50	0.15

Using the emission rates and stack parameters shown in Table 1, Oglethorpe conducted a 1-hour SO_2 Significance Analysis. Table 2 presents the results of the 1-hour SO_2 Significance Analysis and compares the resulting impacts to Oglethorpe's proposed 1-hour SO_2 Significant Impact Level (SIL) of 7.8 $\mu g/m^3$.[8]

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[4] The modeled rate of 1,329 MMBtu/hr was determined to result in higher impacts than the maximum heat input scenario of 1,399 MMBtu/hr. Any proposed lb/hr limits should thus be based on the 1,399 MMBtu/hr scenario.

[5] Letter from Mr. Peter Courtney (Georgia EPD) to Mr. Doug Fulle (Oglethorpe), July 2, 2009.

[6] Clarke Fire Protection Products, Clarke Model JW6H-UFAD80 Installation & Operation Data, available at http://www.clarkefire.com/Libraries/PDF/I_O_JW6H-UFAD80_C132906.sflb.ashx.

[7] Cummins Fire Power, Cummins Model CFP7E-F10 Fire Pump Driver Engine Datasheet, available at http://www.cumminsfirepower.com/documents/CurveData_CFP7E-F10.pdf

[8] No SIL, PSD increment, or monitoring *de minimis* levels have been established for 1-hour SO_2 PSD modeling analyses, nor have any yet been proposed by EPA. Oglethorpe's proposed SIL is set as 4% of NAAQS and is based on the June 29, 2010 EPA SCRAM memo for 1-hour NO_2 SIL/NAAQS ratio available at www.epa.gov/nsr/documents/20100629no2guidance.pdf)

As shown in Table 2, predicted SO_2 impacts exceed the proposed SIL, requiring further analysis to demonstrate compliance with NAAQS (no Class II Increment for SO_2 has been established; thus, increment modeling is not required).

Consistent with EPA guidance for conducting a $PM_{2.5}$ Significance Analysis (which is also used to assess the significance of project impacts for comparison against a probabilistic NAAQS), Oglethorpe calculated the five-year average of the first high impacts at each receptor over the five meteorological years modeled (i.e., 1989 to 1993) and compared these impacts against the proposed SIL to determine the Significant Impact Area (SIA) for the project.[9] Based on this approach, five-year average first high 1-hour ambient SO_2 impacts above the proposed 1-hour Class II SIL are predicted out to a distance of 7.2 kilometers (km) from the proposed Warren facility.

As shown in Figure 1 of Attachment A, the receptor location defining the SIA for the project occurred within the 500 m spaced coarse grid. To determine more precisely the distance of the SIA, Oglethorpe created a 1 km by 1 km 100 m spaced fine receptor grid centered on the coarse grid receptor defining the SIA and reran the Significance Analysis at this fine grid for the full five meteorological years. This analysis refined the SIA distance from 6.7 km to 7.2 km. To ensure the receptor grid carried forward to the NAAQS analysis extended in all directions to the exact distance of the SIA, Oglethorpe added a ring of receptors at 7.2 km from the Warren facility with a spacing of approximately 500 m.

TABLE 2. 1-HOUR SO_2 SIGNIFICANCE ANALYSIS RESULTS

Averaging Period	Year	UTM East[1] (km)	UTM North[1] (km)	Max Conc. ($\mu g/m^3$)	Proposed SIL ($\mu g/m^3$)	Exceeds SIL?	SIA (km)
1-hour	1989	348.88	3,696.32	17.3	7.8	Yes	7.2
	1990	348.43	3,697.50	17.4	7.8	Yes	
	1991	347.54	3,699.01	17.9	7.8	Yes	
	1992	350.24	3,697.81	16.0	7.8	Yes	
	1993	348.88	3,696.37	18.2	7.8	Yes	
	Max 5-yr Avg.	348.44	3,697.61	15.7	7.8	Yes	

[1] UTM coordinates are in NAD83 Zone 17.

AMBIENT MONITORING

No monitoring *de minimis* level to determine whether pre-construction monitoring should be considered has been established for 1-hour SO_2 modeling analyses. Regardless, Oglethorpe requests that Georgia EPD waive the pre-construction monitoring requirements of 40 CFR 52.21(m) for this project since background concentration data developed from existing monitors are already available from Georgia EPD and provide suitable estimates of background concentrations.

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[9] Memo from Stephen Page (EPA OAQPS Director) to various addressees, March 23, 2010. Available at: www.epa.gov/scram001/Official%20Signed%20Modeling%20Proc%20for%20Demo%20Compli%20w%20PM2.5.pdf

There are eight SO_2 ambient monitors in Georgia, located generally in the vicinity of Rome, Columbus, Atlanta, Macon, Savannah and Brunswick. Two monitors are located in rural areas like the proposed Warren site: Rome and Macon. Macon is approximately 100 km from the Warren site and is located in an area of similar regional topography (generally along the Fall Line). In contrast, Rome is located approximately 265 km distant, in a river valley with surrounding mountainous terrain. Based on review of the sites, the monitor considered to be representative of a rural airshed similar to the area surrounding the Warren facility is the Macon SE monitor (Site ID 13-021-0012) located on the east side of Macon, Georgia, in Bibb County. The monitoring objective of Macon SE monitor is Population Exposure, which likely presents a conservatively high background concentration for a PSD modeling analysis.

Georgia EPD provided Oglethorpe with an unofficial 1-hour SO_2 background concentration for the Macon SE monitor of 28 ppb, which converts to 73 $\mu g/m^3$.[10] This value matches that reported by EPA in the supporting material for the 1-hr SO_2 final rule.[11] Oglethorpe used 73 $\mu g/m^3$ as the background in this analysis.

NAAQS ANALYSIS

The SO_2 NAAQS analysis included the potential emissions from all proposed emission units at the Warren facility. Impacts attributable to Warren facility-wide emissions and the regional source inventory (as specified by the SIA distance) were added to the Macon SO_2 monitor background concentration and the total combined impact was assessed against the applicable NAAQS to demonstrate compliance. Impacts were predicted at all receptors from the Significance Analysis within the SIA plus the added ring of receptors at the SIA distance.

For the 1-hour SO_2 NAAQS, the form of the standard is the 99th percentile of the daily maximum 1-hour concentrations averaged across the three years of meteorological data. As represented in the guidance memo for the 1-hr NO_2 standard, this form is most accurately represented for air dispersion modeling as the average of the 4th-highest daily maximum 1-hr concentration for each year of the five year meteorological data set.[12] While not specifically addressing the 1-hr SO_2 NAAQS, the same principles are applicable for the 1-hr NO_2 and 1-hr SO_2 NAAQS. Currently, the post-processing routines in AERMOD cannot directly produce results in this form and the procedure recommended by EPA to obtain results in this form require the use of the POSTFILE output option which generates very large binary

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[10] Email from Ms. Janet Aldredge (Georgia EPD) to Mr. Russell Bailey (Trinity), *SO_2 Data*, July 20, 2010.

[11] See www.epa.gov/air/sulfurdioxide/actions.html, *Additional Documents, Counties with Monitors Currently Violating Revised Primary Sulfur Dioxide Standard (2007 - 2009), Table (PDF) (6pp, 61k) (updated 6/15/2010)*, which links to www.epa.gov/air/sulfurdioxide/pdfs/20100602table0709.pdf. In the table, see the row labeled *Georgia Bibb*, which lists the 2007-2009 design value as 28 ppb.

[12] Per February 25, 2010, EPA SCRAM Notice, *Notice Regarding Modeling for Hourly NO_2 NAAQS.*

output files that are difficult and time consuming to process. As a conservative alternative, Oglethorpe used the five-year average highest 4th high (H4H) 1-hour concentration instead of the five-year average 4th highest daily maximum 1-hour output for comparison against the NAAQS.[13]

To develop the 1-hour SO_2 inventory, all SO_2 sources within a distance of 50 km of the edge of the SIA were assumed to potentially contribute to ground-level concentrations within the SIA and were evaluated for possible inclusion in the NAAQS analysis. The SO_2 regional source inventory was compiled using the procedures provided by Georgia EPD.[14] The Significant Impact Distance (SID), or the distance within 50 km of the SIA, was determined to be a distance of 57.2 km. For conservatism, and to ensure that all pertinent sources were included within the inventory, an initial list of sources was gathered for all sources within 60 km of the facility. Oglethorpe used a Geographic Information System (GIS) program to select all counties that fall within 60 km of the Warren facility. Oglethorpe then identified all sources in these counties using a list of Title V sources provided by Georgia EPD[15], and the Georgia EPD online database of issued air permits.[16] Oglethorpe reviewed the list of sources and calculated the distance from each facility in the inventory to the Warren facility. Any sources beyond 60 km were excluded.

For sources within 60 km of the Warren site, Oglethorpe reviewed the Georgia EPD online Title V database, facility permits available online, and Georgia EPD paper files to determine the potential SO_2 emissions for each facility. For these facilities within 60 km of the Warren site, the "20D" screening process was applied to exclude insignificant sources.[17] In this process, regional sources whose potential SO_2 emissions (tpy) were less than 20 times the distance to the edge of the SIA (in km) were eliminated since they can be presumed to have negligible contributions to receptors in the SIA. Regional sources located within close proximity to each other (2 km, per Georgia EPD guidance) were evaluated cumulatively in the 20D analysis to determine whether the combined "source" was still appropriate to exclude. Tables 1 and 2 in Attachment B list the sources considered in the 20D screening evaluation. Each table does not exclude any facility that is within the SIA of 7.2 km with SO_2 emissions.

Following application of the 20D rule, 5 facilities (4 major sources and 1 minor source) remained for inclusion in the SO_2 regional source inventory. One of these major source sites, the Thermal Ceramics facility in August, Georgia, was outside of the SIA of 57.2 km. However, due to the large amount of SO_2 emissions from this source, and the fact that the source would not screen out per 20D if it were within the SIA, this source was included in the NAAQS analysis since it could potentially have an impact on the analysis. For the major sources, individual stack parameters were obtained from the 2008 National

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[13] The difference in the two forms is whether you consider just one highest value per day, or any number of values per day. If several of the 4 highest 1-hr averages occurred on just one day, and if other days had notably lower averages, only considering the daily maximum 1-hr value could result in a lower calculated impact.

[14] Letter from Mr. Peter Courtney (Georgia EPD) to Mr. Doug Fulle (Oglethorpe), dated July 2, 2009. Methodology confirmed during an April 27, 2010 conversation between Mr. Peter Courtney (Georgia EPD) and Ms. Lori Price (Trinity).

[15] Title V Source list provided by Mr. Peter Courtney (Georgia EPD) in an email to Ms. Lori Price (Trinity) on April 27, 2010.

[16] http://www.georgiaair.org

[17] Federal Register, Volume 57, No. 45, March 6, 1992, p. 8079.

Emission Inventory (NEI) dataset and/or permit file reviews. Potential SO_2 emissions data was obtained from Facility file reviews, online Title V applications, facility operating permits, or NEI information where available. In some cases, emissions were estimated based on AP-42 emission factors.

Emission rates for the minor source identified were obtained from file review, operating permit documentation for the site, and estimated based on AP-42 factors. Stack parameters and coordinates for the minor emission source identified were determined based on the facility permit application and file review. Modeled emission rates and stack parameters for the 1-hour SO_2 NAAQS emission inventory sources are shown in Tables 3 through 7 of Attachment B.

The modeling results presented in Table 3 demonstrate the proposed Warren facility will not cause or contribute to an exceedance of the 1-hr SO_2 NAAQS. The values shown in the table represent the five-year average of the 4th highest concentrations in the five-year period modeled. As shown in Figure 2 of Attachment A, the maximum 1-hour SO_2 NAAQS impacts all occur at the edge of the SIA and are clearly attributable to modeled regional sources and not the Warren plant.

TABLE 3. 1-HOUR SO_2 NAAQS RESULTS

Averaging Period	Year	UTM East[1] (km)	UTM North[1] (km)	Modeled Concentration ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Combined Maximum Impact ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Exceeds NAAQS?
1-hour	Average H4H	353.64	3,702.01	51.8	73	124.8	196	No

[1] UTM coordinates are in NAD83 Zone 17.

If you have any questions about the material presented in this letter or require additional information, please do not hesitate to call me at 770-270-7166.

Sincerely,

OGLETHORPE POWER CORPORATION

Douglas J. Fulle
Vice President, Environmental Affairs

DJF:dmc

Attachments

c: EPA Region 4, Air Planning Branch, Air Permits Section
Mr. Pete Courtney (Georgia EPD)

Attachment A

Supporting Figures and Tables
Model Files

FIGURE 1. OGLETHORPE POWER CORPORATION WARREN COUNTY BIOMASS PLANT 1-HR SO_2 SIGNIFICANCE ANALYSIS RESULTS

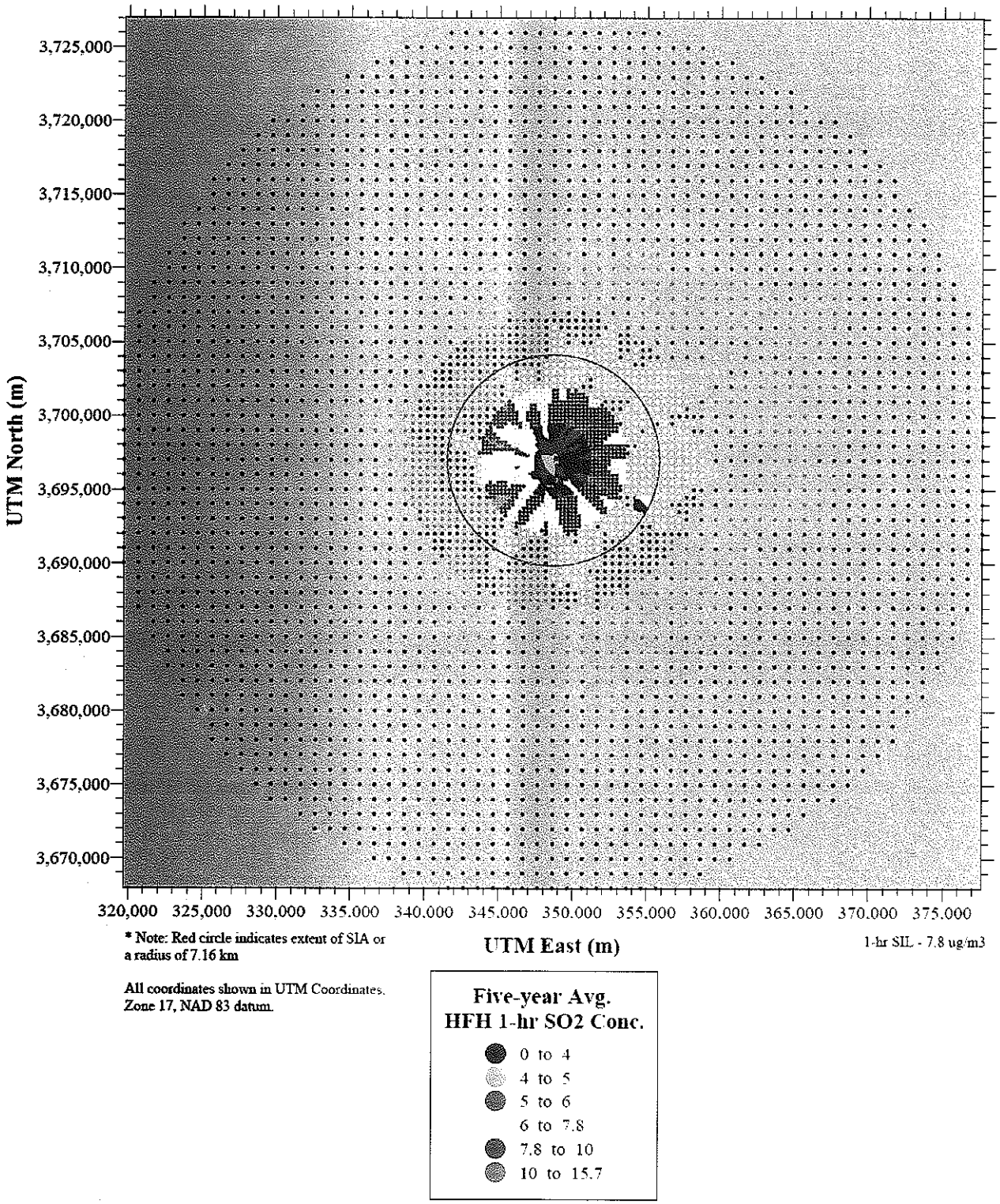
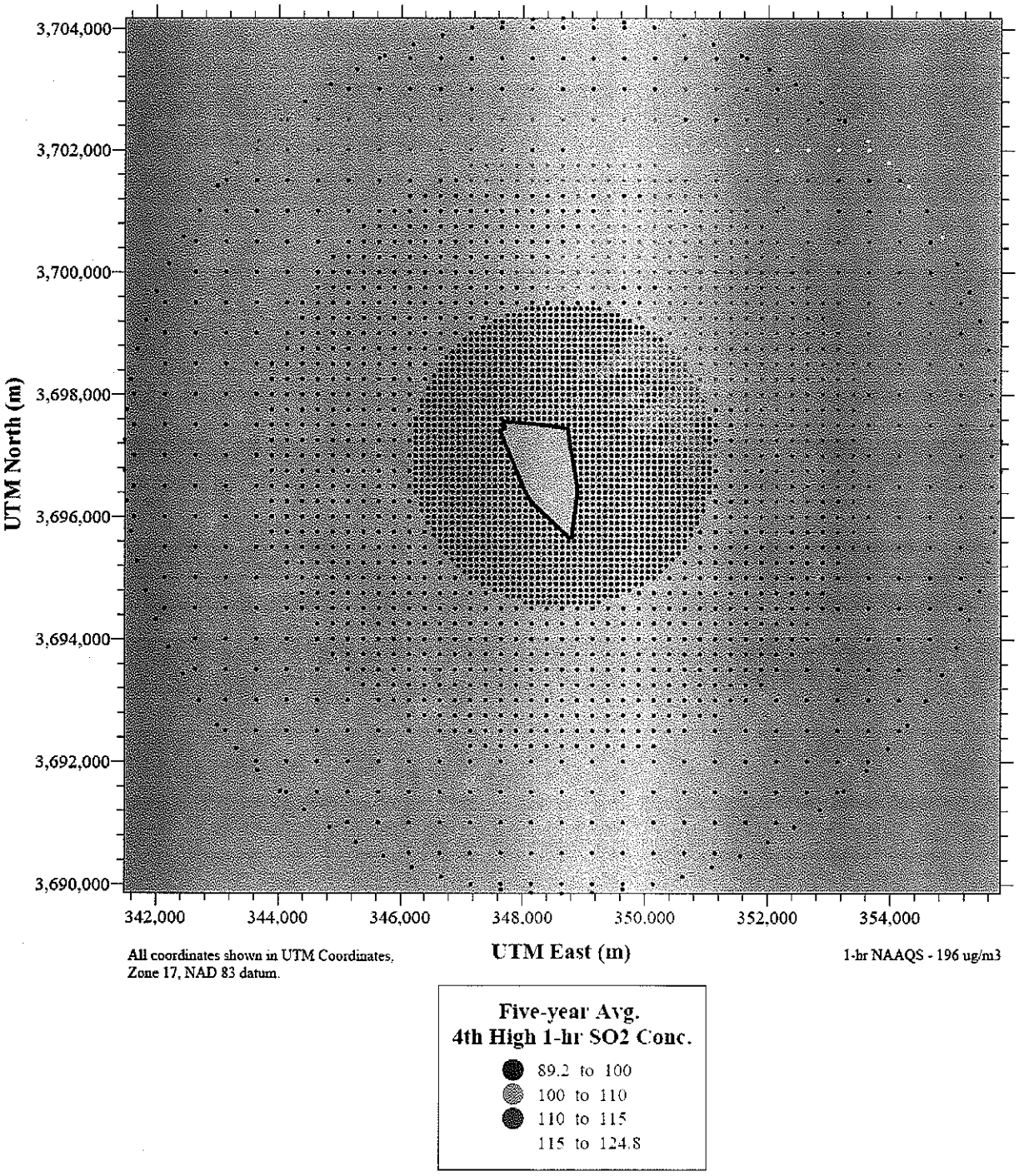


FIGURE 2. OGLETHORPE POWER CORPORATION WARREN COUNTY BIOMASS PLANT 1-HR SO_2 NAAQS ANALYSIS RESULTS



MODEL FILES ON CD

The CD included with this letter contains all of the input and output data files used to generate the results from the air quality analyses presented in Tables 2 and 3. The following sections provide a description of the contents of each folder included in the attached CD.

01 DOWNWASH

- Contains the input, output, and summary files from the building downwash analysis. This analysis includes all modeled SO_2 sources and buildings at the Warren plant.

02 SIGNIFICANCE

- SO_2 – contains the input (.ami), output (.lst) and plot (.plt) files from the 1-hour significance analysis
    - SIA DIST – contains the input (.ami), output (.lst) and plot (.plt) files to determine the SIA distance

For all of the Class II significance files, the nomenclature is as follows:

ABCCYY(Z).xxx where:

A = pollutant ID (S = SO_2)

B = type of analysis (S = significance; SD = SIA distance determination)

CC= model run (02 for SO_2)

YY = modeled year (1989-1993)

xxx = input, output or plot file (.ami = input, .lst = output, .plt=plot)

03 SO_2 NAAQS

- Contains the input (.ami), output (.lst) and plot (.plt) files from the Class II 1-hour SO_2 NAAQS analysis.

Attachment B

Regional Inventory Sources

Table 1. SO_2 Regional Source Inventory - Major Source Review

SOURCE DESCRIPTION	City	County	Application Number	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Potential Facility SO_2 Emissions[1] (tpy)	Distance from Facility (km)	W/in 2 km of another facility?	SO2 20D	Exclude Per 20D Rule?[2]
Georgia Sources										
Georgia-Pacific Corp Chip-n-Saw Div. Warrenton	Warrenton	Warren	15586	346,957	3,697,767	9.4	1.94	No	N/A	No
TRW Warrenton Foundry	Warrenton	Warren	18565	352,855	3,699,389	0.1	5.08	No	N/A	No
HP Pelzer - Thomson	Thomson	Mcduffie	18028	357,093	3,702,062	0.02	10.09	No	57.76	Yes
TIN Inc. Dba Temple-Inland	Thomson	Mcduffie	18982	362,550	3,703,879	73.3	15.73	No	170.66	Yes
Kamin - Wrens Calcine Plant	Wrens	Jefferson	18155	366,261	3,680,478	100	24.00	No	335.93	Yes
Kamin - Wrens Main	Wrens	Jefferson	18156	369,055	3,682,523	250	24.91	No	354.18	Yes
Southern Natural Gas	Wrens	Jefferson	17482	370,270	3,675,170	0.14	30.56	No	467.22	Yes
GA Tenn Mining Co	Wrens	Jefferson	17101	369,879	3,672,829	100	31.99	No	495.79	Yes
US Army Signal Center & Fort Gordon	Fort Gordon	Richmond	18463	384,815	3,691,585	100	36.61	No	588.23	Yes
Thiele Kaolin Co. Reedy Creek Div.	Reedy Creek	Glascock	16796	364,414	3,663,651	205	36.64	No	588.74	Yes
Kgen Sandersville, LLC	Warthen	Washington	18303	326,300	3,665,800	255	38.07	No	617.34	Yes
Power4Georgians	Sandersville	Washington	17924	337,088	3,659,816	1,892	38.61	No	628.16	No
Georgia Iron Works	Grovetown	Columbia	17240	389,502	3,702,676	100	41.38	Yes	683.57	Yes
Metokote Corporation Plt 14	Grovetown	Columbia	15212	389,386	3,704,081	100	41.49	Yes		
Augusta-Richmond County Deans Bridge Road Landfill	Blythe	Richmond	17962	393,568	3,690,992	100	45.37	No	763.31	Yes
Washington County Power LLC	Sandersville	Washington	18970	314,748	3,663,978	100	47.04	No	796.78	Yes
Imerys Clays, Inc., Deepstep Road Plant	Sandersville	Washington	18051	324,393	3,655,700	250	47.58	No	807.51	Yes
Georgia Bathware	Union Point	Greene	16494	307,434	3,720,941	100	47.75	No	810.97	Yes
Cobb EMC - N. Hospital Road	Sandersville	Washington		331,800	3,652,088	100	47.64	Yes	808.75	Yes
Burgess Pigment Company, Sandersville Plant	Sandersville	Washington	16797	330,773	3,650,665	93	49.33	Yes		
Kamin - Sandersville	Sandersville	Washington	18154	329,500	3,649,250	100	51.12	Yes		
Cobb EMC - Deepstep Road	Sandersville	Washington		324,400	3,653,457	100	49.52	No	846.34	Yes
Quebecor World Kri Inc.	Evans	Columbia	17627	396,034	3,711,687	100	49.79	Yes	851.79	Yes
World Color Printing (USA) Ii, Corp.	Evans	Columbia	19232	396,085	3,711,586	250	49.81	Yes		
Thiele Kaolin Co. - Sandersville Plant	Sandersville	Washington	16792	330,686	3,649,165	380	50.77	Yes	870.52	Yes
Imerys Clays, Inc. Sandersville Calcine Plant	Sandersville	Washington	16693	330,657	3,649,161	431	50.78	Yes		
Crawfod Kitchens, Inc.	Martinez	Columbia	15577	398,963	3,708,220	100	51.71	No	890.15	Yes
Southern Natural Gas Co., Hall Gate	Milledgeville	Baldwin	15813	308,428	3,659,645	100	54.61	No	948.19	Yes
Cobb EMC - Indian Trail	Sandersville	Washington		312,333	3,654,862	100	55.33	No	962.55	Yes
Novelis, Inc.	Greensboro	Green	18405	295,863	3,714,899	100	55.76	No	971.15	Yes
Solvay Advanced Polymers - Augusta	Augusta	Richmond	18040	405,656	3,692,766	100	57.23	No	1,000.60	Yes
The Proctor & Gamble Manufacturing Company	Augusta	Richmond	16744	406,562	3,694,781	100	58.03	No	1,016.67	Yes
Thermal Ceramics	Augusta	Richmond	18161	407,138	3,700,364	3,700	58.69	No	1,029.88	No
Occidental Chemical Corp	Augusta	Richmond	16711	407,598	3,695,443	100	59.05	Yes	1,037.01	Yes
Prayon Inc.	Augusta	Richmond	19245	407,742	3,695,468	255	59.19	Yes		
Kendall Co Augusta Plant	Augusta	Richmond	19036	408,696	3,695,710	250	60.14	Yes		
Boral Bricks #6 Augusta Plant	Augusta	Richmond	19384	408,661	3,699,994	100	60.19	No	1,059.85	Yes

1. For conservatism, facility emissions were set to the PTE maximum thresholds in Section B1 (i.e., 50, 100, 250 tpy) unless further analysis was needed to evalate 20D applicability.

2. Emissions from facilities within 2 km of another site, as determined by a review of the coordinates when sorted by distance from the Warren facility, were grouped together when completing the 20D screening.

Table 2. SO_2 Regional Source Inventory - Minor Source Review

Facility Name	Most Recent Permit Number	City	County	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Distance from Facility (km)	W/in 2 km of another facility?	Potential Facility SO_2 Emissions (tpy)	Screen out: >5 km from SIA?	SO_2 20D	Exclude Per 20D Rule?[1,2]
Martin Marietta Aggregates - Warrenton Rock Quarry	1423-301-0005-S-01-3	Warrenton	Warren	347,946	3,695,382	1.44	No	0	No	N/A	No
Jebco, Inc.	2522-301-0010-S-01-0	Warrenton	Warren	343,662	3,697,525	4.97	No	0	No	N/A	No
Oldcastle Materials - Plantation Quarry	1423-301-0015-S-01-1	Camak	Warren	347,900	3,703,600	6.95	No	0	No	N/A	No
Shaw Industries Group, Inc. - Plant 22/89	2281-189-0024-S-01-2	Thomson	McDuffie	356,807	3,701,993	9.81	No	99.40	No	52.21	No
Pelzer Acoustic Products LLC	2399-189-0020-S-01-1	Thomson	McDuffie	361,527	3,703,986	14.88	No	0.04	Yes	153.68	Yes
Hanson Aggregates Southeast LLC - Sparta Quarry	1423-141-0007-S-02-1	Sparta	Hancock	337,582	3,685,184	15.90	No	0	Yes	173.92	Yes

1. As noted in EPD guidance "Recommended Minor Source (<100 tpy) Criteria Pollutant Inventory Techniques for PSD Modeling Projects", minor sources inherently have emissions below 100 tons per year. Thus, any facility located more than 5 km from the proposed facility will be excluded per the 20D Rule. For SO_2 this distance was 12 km.

2. Emissions from facilities within 2 km of another site, as determined by a review of the coordinates when sorted by distance from the Warren facility, were grouped together when completing the 20D screening.

Table 3. Modeling Data for Georgia-Pacific Chip-n-Saw Warrenton

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	SO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
BESP	GPBESP	346,955	3,698,080	168.0	2.14	75.0	4.25	58.74	500
103S	GP103S	346,945	3,698,070	168.0	-	28.0	7.00	0.0033	Ambient
104S	GP104S	346,920	3,698,030	168.0	-	23.0	7.00	0.0033	Ambient
S201	GPS201	346,900	3,697,925	168.0	-	24.0	1.32	24.98	269
S202	GPS202	346,900	3,697,925	168.0	-	24.0	1.32	24.98	269
S203	GPS203	346,900	3,697,925	168.0	-	24.0	1.32	24.98	269
302P	GP302P	346,835	3,697,850	168.0	-	65.0	4.25	51.61	Ambient
105A	GP105A	347,030	3,697,935	168.0	-	34.0	3.28	0.0033	Ambient
105B	GP105B	346,975	3,697,990	168.0	-	33.0	3.28	0.0033	Ambient
Facility Total:					**2.14**				

Table 4. Modeling Data for TRW Warrenton Foundry

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	SO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
980	TRW980	352,855	3,699,389	148.0	0.01	30.0	0.66	50.00	Ambient
981	TRW981	352,855	3,699,389	148.0	0.01	30.0	0.66	50.00	Ambient
982	TRW982	352,855	3,699,389	148.0	0.01	30.0	0.66	50.00	Ambient
983	TRW983	352,855	3,699,389	148.0	0.01	30.0	0.66	50.00	Ambient
Facility Total:					**0.02**				

Table 5. Modeling Data for Shaw Industries Group, Plant 22/89 (Minor Source)

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	SO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
BS01	SHAWBS01	356,807	3,701,993	160.6	15.72	49.0	2.00	26.08	304
BS03	SHAWBS03	356,807	3,701,993	160.6	6.37	28.0	1.67	32.30	400
BS04	SHAWBS04	356,807	3,701,993	160.6	12.68	49.0	2.00	26.08	304
S001	SHAWS001	356,807	3,701,993	160.6	-	50.0	2.50	95.00	200
Facility Total:					**34.77**				

Table 6. Modeling Data for Power4Georgians

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	SO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
S1	PR4GAS1	337,088	3,659,816	139.3	983.00	450.0	30.00	60.84	140
S45	PR4GAS45	337,408	3,659,768	139.3	0.41	106.4	5.00	65.00	275
Facility Total:					**983.41**				

Table 7. Modeling Data for Thermal Ceramics

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	SO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
Z013	TCTK7	407,215	3,700,066	39.0	844.75	178.0	3.0	60.0	150.0
ZGSO	TCSF01	407,215	3,700,066	39.0	0.01	37.0	2.0	21.0	700.0
ZGBO	TCSF02	407,215	3,700,066	39.0	0.01	40.0	2.0	21.0	700.0
ZGVD	TCSF03	407,215	3,700,066	39.0	0.01	30.0	1.5	18.0	300.0
Facility Total:					**844.78**				