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OglethorpePower

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An Electric Membership Cooperative

June 25, 2010

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

Dear Mr. Cornwell:

Subject: Oglethorpe Power Corporation – Warren County PSD Permit Application
Supplemental 1-hour NO_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 PSD permit application was submitted in October 2009 requesting authorization to construct the facility. Since the time of the original application submittal, EPA finalized the 1-hour NO_2 National Ambient Air Quality Standard (NAAQS) and has issued guidance indicating a 1-hour NO_2 NAAQS analysis is required after April 12, 2010 for any project triggering PSD review for NO_X without a final PSD permit.[1] Therefore, Oglethorpe is submitting this letter to demonstrate the proposed project will not cause or contribute to a violation of the 1-hour NO_2 NAAQS. Unless otherwise noted, modeling methodologies employed in the analysis remain the same as those utilized in the original October 2009 submittal and/or based on the revised load analysis submitted in March 2010.[2] As requested by Georgia Environmental Protection Division (EPD), all AERMOD modeling performed for this submittal uses the same AERMOD version as used in the original submittal (07026).

A CD containing all of the supplemental NO_2 modeling analyses files is included as Attachment A to this letter.

NO_2 SIGNIFICANCE ANALYSES

Oglethorpe has modified the modeled emission rates and stack parameters for the NO_X emissions sources at the Warren facility for the 1-hour NO_2 Significance Analysis from those used in the annual NO_2 Significance Analysis. To account for short-term variability in the proposed biomass boiler's NO_X emission rate, the modeled maximum 1-hour NO_X emission rate for the boiler is based on a 0.30 lb/MMBtu NO_X emission factor instead of the 0.11 lb/MMBtu 30-day rolling average NO_X BACT limit used as the basis for the modeled annual average NO_X emission rate. The maximum hourly NO_X emission factor for the boiler was multiplied by the heat input rate corresponding to the worst-case load,

[1] Memo from Stephen Page (EPA OAQPS Director) to Air Division Directors and Deputies, Regions I-X, April 1, 2010. Available at: http://www.epa.gov/region7/air/nsr/nsrmemos/psdnaaqs.pdf

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

1,329 MMBtu/hr, to calculate the maximum hourly NO_X emission rate of 398.7 lb/hr (refer to the PM_{10} load analysis presented in the March 5, 2010 revised load analysis).[3] Consistent with Georgia EPD direction on the Ambient Ratio Method (ARM), Oglethorpe has shown compliance with the NO_2 standards by modeling NO_2 emissions as 75% of NO_X emissions from all NO_X sources. 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 NO_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.[4] 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 NO_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 NO_X emission rates from the fire pump engines are based on the emissions guarantees from the engine manufacturers in lb/hp-hr and the maximum rated power output for the engines at
100 percent load in hp.[5] [6] The modeled stack parameters for the engines are based on specification sheets from the manufacturer at full load.[7] [8]

TABLE 1. MODELED SOURCE PARAMETERS FOR THE 1-HOUR NO_2 SIGNIFICANCE ANALYSIS

Modeled Stack ID	Source Description	Modeled NO_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	299.03	37.68	220.00	67.06	335	441.48	532,850	78.52	23.93	12.00	3.66
FP01	Fire Pump No. 1	1.81	0.228	50.00	15.24	891	750.37	2,048	97.78	29.80	0.67	0.20
FP02	Fire Pump No. 2	0.72	0.090	50.00	15.24	821	711.48	1,061	90.06	27.45	0.50	0.15

[3] 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.

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

[5] John Deere Power Systems, Clarke Model JW6H-UFAD80 Rating Specific Emissions Data, available at http://www.clarkefire.com/Libraries/PDF/Emissions_JW6H-UFAD80_6090HFC47A_1760_2010.sflb.ashx

[6] Cummins Fire Power, Cummins Model CFP7E-F10 Fire Pump Driver EPA Tier 3 Emissions Data, available at http://www.cumminsfirepower.com/documents/EPA-T3-CFP7E-F10.pdf

[7] 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.

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

Using the emission rates and stack parameters shown in Table 1, Oglethorpe conducted a 1-hour NO_2 Significance Analysis. Table 2 presents the results of the 1-hour NO_2 Significance Analysis and compares the resulting impacts to Oglethorpe's proposed 1-hour NO_2 Significant Impact Level (SIL) of 9.4 $\mu g/m^3$.[9] As shown in Table 2, predicted NO_2 impacts exceed the proposed SIL, requiring further analysis to demonstrate compliance with NAAQS (no Class II Increment for NO_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.[10] Based on this approach, five-year average first high 1-hour ambient NO_2 impacts above the proposed 1-hour Class II SIL are predicted out to a distance of 24.5 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 1 km 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 24.2 km to 24.5 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 24.5 km from the Warren facility with a spacing of approximately 1 km.

TABLE 2. 1-HOUR NO_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	370.64	3,708.01	44.0	9.4	Yes	24.5
	1990	370.64	3,708.01	40.7	9.4	Yes	
	1991	369.14	3,709.21	41.5	9.4	Yes	
	1992	369.14	3,709.21	44.9	9.4	Yes	
	1993	369.24	3,708.31	43.6	9.4	Yes	
	Max 5-yr Avg.	369.24	3,709.21	40.0	9.4	Yes	

[1] UTM coordinates are in NAD83 Zone 17.

[9] No SIL, PSD increment, or monitoring *de minimis* levels have been established for 1-hour NO_2 PSD modeling analyses. Oglethorpe's proposed SIL is set as 5% of NAAQS (equivalent to the 1-hour CO SIL/NAAQS ratio).

[10] 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

AMBIENT MONITORING

No monitoring *de minimis* level to determine whether pre-construction monitoring should be considered has been established for 1-hour NO_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.

Of the five (5) existing NO_2 ambient monitors located in Georgia, four (4) monitors are located in or very near the Atlanta Metropolitan Statistical Area (MSA) and are not expected to provide representative estimates of the background concentration in the project's SIA due to the much higher levels of NO_X emissions associated with urban and suburban development in Atlanta that influence the measured NO_2 concentrations at these monitors. The monitor considered to be representative of a rural airshed similar to the area surrounding the Warren facility is the Paulding County monitor (Site ID 13-233-0003) located near Yorkville, Georgia. The monitoring objective of Paulding County monitor is "Upwind Background (Atlanta, GA MSA), Population Exposure (Atlanta, GA MSA), General/Background (Atlanta, GA MSA)" which most closely matches the objective of establishing a background concentration for a PSD modeling analysis. Georgia EPD provided Oglethorpe with a quality-assured 1-hour NO_2 background concentration for the Paulding County monitor of 40 $\mu g/m^3$.[11]

NAAQS ANALYSIS

The NO_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 appropriate Paulding County 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 NO_2 NAAQS, the form of the standard is the 98th percentile of the daily maximum 1-hour concentrations averaged across the three years of meteorological data. This form is most accurately represented for air dispersion modeling as the average of the 8th-highest daily maximum 1-hr concentration for each year of the five year meteorological data set.[12] 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 output files that are difficult and time consuming to process. As a conservative alternative,

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[11] 1-hour background concentration provided by Georgia EPD during a May 4, 2010 meeting between Georgia EPD, Oglethorpe, and Trinity.

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

Oglethorpe used the five-year average highest 8th high (H8H) 1-hour concentration instead of the five-year average 8th highest daily maximum 1-hour output for comparison against the NAAQS.[13]

To develop the 1-hour NO_2 inventory, all NO_2 sources within a distance of 50 km of the edge of a SIA were assumed to potentially contribute to ground-level concentrations within the SIA and were evaluated for possible inclusion in the NAAQS analysis. The NO_2 regional source inventory was compiled using the procedures provided by Georgia EPD.[14] The first step was to develop an initial list of facilities within 50 km of the SIA, a distance of 74.5 km (also known as the Significant Impact Distance [SID]). Oglethorpe used a Geographic Information System (GIS) program to select all counties that fall within 74.5 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 50 km of the SIA (greater than 74.5 km from Oglethorpe) were excluded.

For sources within 50 km of the SIA, Oglethorpe reviewed the Georgia EPD online Title V database, facility permits available online, and Georgia EPD paper files to determine the potential NO_X emissions for each facility. For these facilities within 50 km of the SIA, the "20D" screening process was applied to exclude insignificant sources.[17] In this process, regional sources whose potential NO_X 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. Note that the Ambient Ratio Method was conservatively not applied for the 20D screening analysis (NO_X emissions, not NO_2 emissions were used in the analysis).

Following application of the 20D rule, 21 facilities (13 major sources and 8 minor sources) remained for inclusion in the NO_2 regional source inventory. For the major sources, individual stack parameters were obtained from the 2008 National Emission Inventory (NEI) dataset and/or permit file reviews. Potential NO_X 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

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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 8 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 factors. The Ambient Ratio Method was applied to the evaluated NO_X emissions to obtain NO_2 emissions for modeling.

Emission rates for minor sources were obtained from file reviews, available operating permits, or estimated based on AP-42 factors. Stack parameters and coordinates for the minor emission sources were determined based on permit applications and file reviews. Modeled emission rates and stack parameters for the 1-hour NO_2 NAAQS emission inventory sources are shown in Tables 3 through 24 of Attachment B.

In order to receive a PSD permit, a proposed PSD project must be determined to not "cause or contribute" to a NAAQS violation. According to EPA's *Draft New Source Review Workshop Manual* and the *Guideline on Air Quality Models*, the impacts from the project's "net emissions increase" are not considered to be causing or contributing to an exceedance when ambient impacts are insignificant.[18] [19] Table 3 illustrates the results from the 1-hour NO_2 NAAQS analysis, indicating that potential exceedances of the 1-hour NAAQS may occur. The values shown in the table represent the five-year average of the H8H concentrations in the five-year period modeled. As shown in Figure 2 of Attachment A, the maximum 1-hour NO_2 NAAQS impacts all occur at the edge of the SIA and are clearly attributable to modeled regional sources and not the Warren plant (i.e., the Oglethorpe facility impacts are not significant at the points of potential exceedance during the potential exceedance events). The demonstration of this insignificance is described below.

TABLE 3. 1-HOUR NO_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 H8H	368.58	3,682.78	6,034.4	40.0	6,074.4	189	Yes

[1] UTM coordinates are in NAD83 Zone 17.

To assess whether the proposed project will cause or contribute to any 1-hour NO_2 NAAQS exceedances, Oglethorpe extracted the receptor locations from the full NAAQS receptor grid with 1) five-year average H8H impacts above NAAQS minus background and 2) Warren only five-year average HFH impacts above Oglethorpe's proposed SIL. In order to identify those receptors and events (i.e., receptor-events) for which the Oglethorpe Warren plant's contribution is above the proposed NO_2 1 hour SIL at these exceeding receptors, a new NAAQS modeling scenario utilizing the EVENTFILE option inherent to AERMOD was created. This option generates a new input file that contains receptors and events during which the predicted concentration exceeds the NAAQS (189 $\mu g/m^3$) minus background (40 $\mu g/m^3$), 149

[18] U.S. EPA, Office of Air Quality Planning and Standards, *Draft New Source Review Workshop Manual*, (Research Triangle Park, NC: U.S. EPA, October 1990).

[19] U.S. EPA, *Guideline on Air Quality Models*, 40 CFR Part 51 - Appendix W (Revised, November 9, 2005) Preamble Section VI.

$\mu g/m^3$ in this case. Using the information for each receptor-event that exceeds the threshold, AERMOD is then run to estimate ambient concentrations from each source during that receptor-event. The impacts from the receptor-events are then compared to the H8H plot file output to ensure that they do not represent any of H1H to H7H for the receptor. For all receptor-events with H8H, H9H, or lower concentrations greater than the NAAQS, Oglethorpe then evaluated whether the Warren plant produced a significant impact at any of these receptor-events (i.e., the Warren plant impacts were greater than the SIL at that event). Based on this evaluation, conducted on a year-by-year basis, Oglethorpe determined that the proposed Warren plant does not produce a significant impact during any modeled exceedances and therefore, by definition, cannot cause or contribute to a NAAQS violation. A full list of all H8H and subsequent receptor-events potentially exceeding the NAAQS is included in Attachment A in Tables 1 through 5.

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

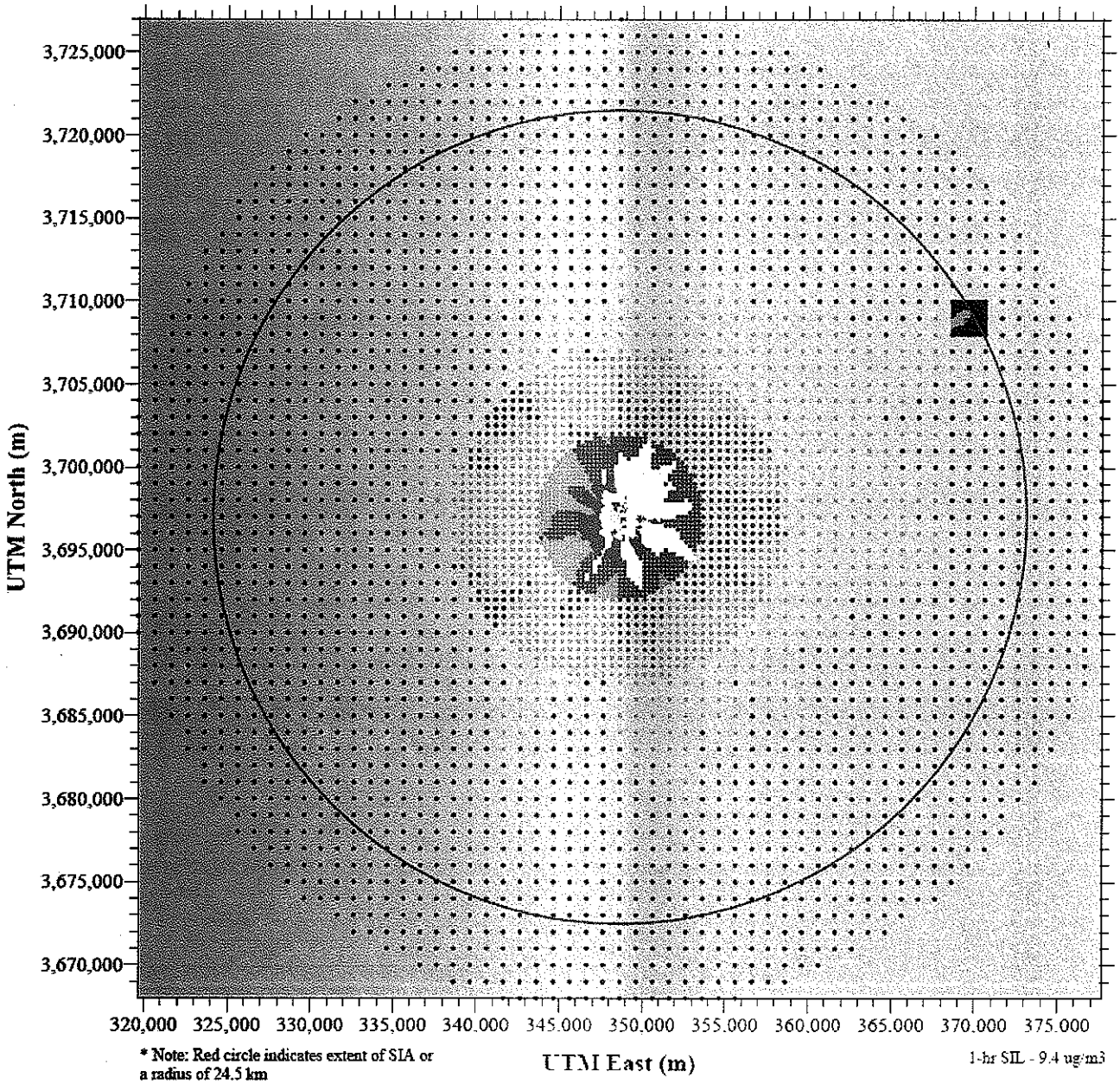
c: EPA Region 4, Air Planning Branch, Air Permits Section
Mr. Pete Courtney (Georgia EPD)
Ms. Wende Martin (Oglethorpe)
Mr. Mike Bilello (Oglethorpe)
Mr. Russell Bailey (Trinity)

Attachments

Attachment A

Supporting Figures and Tables
Model Files

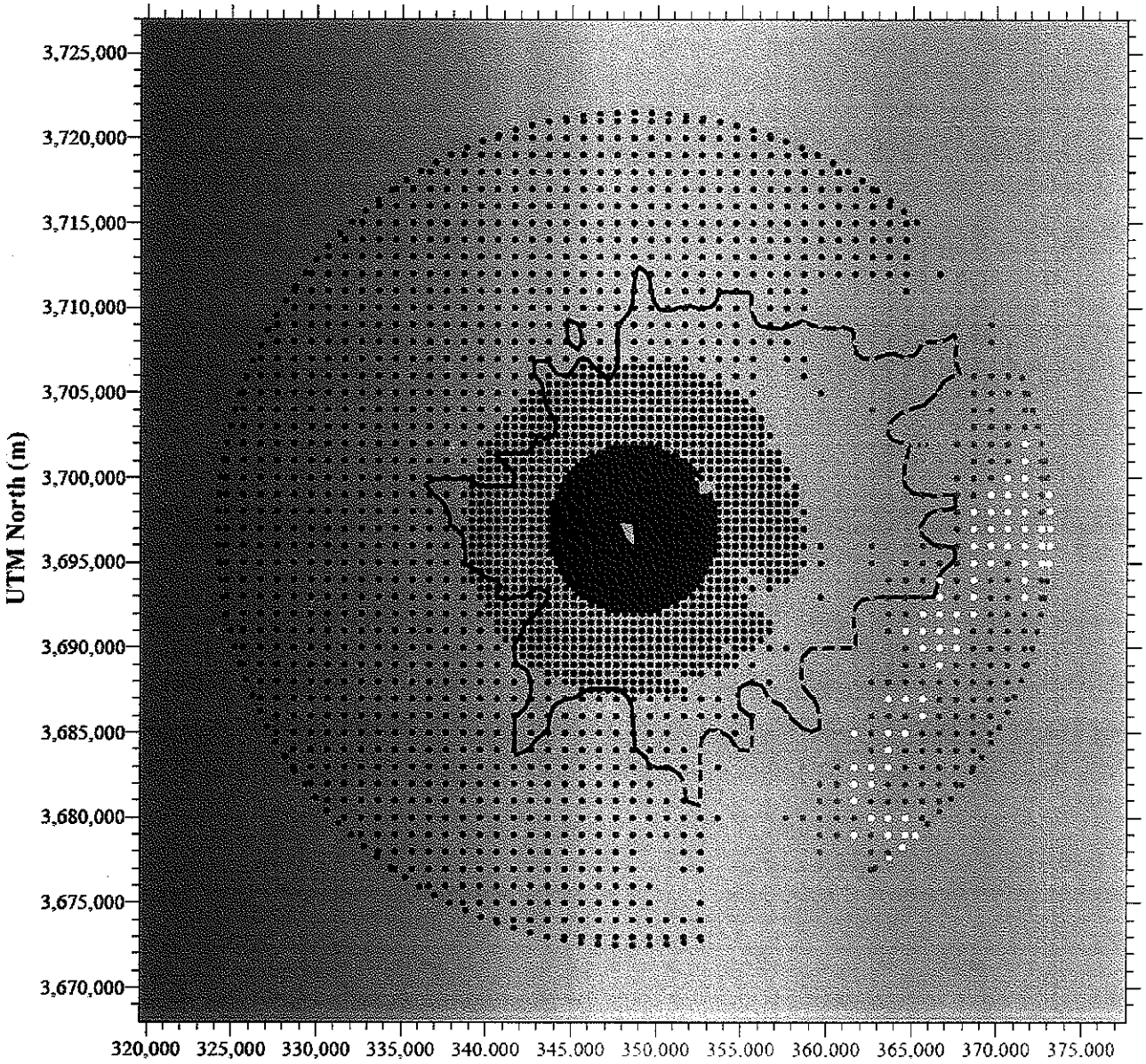
FIGURE 1. OGLETHORPE POWER CORPORATION WARREN COUNTY BIOMASS PLANT 1-HR NO_2 SIGNIFICANCE ANALYSIS RESULTS



* Note: Red circle indicates extent of SIA or a radius of 24.5 km

All coordinates shown in UTM Coordinates. Zone 17, NAD 83 datum.

FIGURE 2. OGLETHORPE POWER CORPORATION WARREN COUNTY BIOMASS PLANT 1-HR NO_2 SIGNIFICANCE ANALYSIS RESULTS



* Note: Black line indicates outline of receptors at which the Warren Plant is significant.

All coordinates shown in UTM Coordinates, Zone 17, NAD 83 datum.

1-hr NAAQS Minus Background of 40 ug/m3 is 149 ug/m3

Five-year Avg. H8H 1-hr NO2 Conc.

- 0 to 50
- 50 to 100
- 100 to 149
- 149 to 250
- 250 to 6035

ENV-COR-10-067

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 NO_X sources and buildings at the Warren plant.

02 SIGNIFICANCE

- NO_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 (N = NO_2)

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

CC= model run (05 for NO_2)

YY = modeled year (1989-1993)

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

03 NO_2 NAAQS

- STEP 1 – Contains the input (.ami), output (.lst) and plot (.plt) files from the Class II 1-hour NO_2 NAAQS analysis at all receptors in the SIA and the ring of receptors at the exact SIA distance.
- STEP 2 – Contains the input (.ami) and output (.lst) files from the Class II 1-hour NO_2 NAAQS analysis at significant receptors showing exceedances in the initial NAAQS analysis.
- STEP 2 – Contains the event input (.inp) and output (.out) files that include all events during which the predicted concentration from all facility and regional inventory sources exceeds the 1-hour NO_2 NAAQS minus background value (i.e., 149 $\mu g/m^3$) at the exceeding receptors from the initial NAAQS analysis.
- STEP 2 – Contains the Comma Delimited files used to process event output files for the 1-hour NO_2 NAAQS analysis.

Table 1. Summary of Significant Receptors Exceeding 1-Hour NO2 NAAQS and Warren Plant Contribution - 1989

Year	Event	Time	UTM East (km)	UTM North (km)	Event Ranking	1-Hour Conc. ($\mu g/m^3$)	1-Hour Bkg. Conc. ($\mu g/m^3$)	Total 1-Hour Conc. ($\mu g/m^3$)	1-Hour NAAQS ($\mu g/m^3$)	Total Impact Exceeds NAAQS?	Warren Plant Contribution ($\mu g/m^3$)	1-Hour SIL ($\mu g/m^3$)	Warren Plant Exceeds SIL?
1989	TH010016	89120708	366.64	3694.01	8	195.9	40	235.9	189	Yes	< 0.1	9.4	No
1989	TH010002	89021320	366.64	3694.01	9	152.4	40	192.4	189	Yes	0.0	9.4	No

Table 2. Summary of Significant Receptors Exceeding 1-Hour NO2 NAAQS and Warren Plant Contribution - 1990

Year	Event	Time	UTM East (km)	UTM North (km)	Event Ranking	1-Hour Conc. ($\mu g/m^3$)	1-Hour Bkg. Conc. ($\mu g/m^3$)	Total 1-Hour Conc. ($\mu g/m^3$)	1-Hour NAAQS ($\mu g/m^3$)	Total Impact Exceeds NAAQS?	Warren Plant Contribution ($\mu g/m^3$)	1-Hour SIL ($\mu g/m^3$)	Warren Plant Exceeds SIL?
1990	TH010018	90062124	366.64	3693.01	8	296.3	40	336.3	189	Yes	0.0	9.4	No
1990	TH010005	90012719	366.64	3693.01	9	252.1	40	292.1	189	Yes	0.0	9.4	No
1990	TH010022	90080322	366.64	3693.01	10	250.3	40	290.3	189	Yes	0.0	9.4	No
1990	TH010014	90061322	366.64	3693.01	11	250.0	40	290.0	189	Yes	0.0	9.4	No
1990	TH010008	90042404	366.64	3693.01	12	228.2	40	268.2	189	Yes	0.0	9.4	No
1990	TH010010	90042504	366.64	3693.01	13	216.7	40	256.7	189	Yes	0.0	9.4	No
1990	TH010032	90112021	366.64	3693.01	14	204.6	40	244.6	189	Yes	0.0	9.4	No
1990	TH010009	90042423	366.64	3693.01	15	200.4	40	240.4	189	Yes	0.0	9.4	No
1990	TH010021	90070406	366.64	3693.01	16	185.1	40	225.1	189	Yes	0.0	9.4	No
1990	TH010026	90081424	366.64	3693.01	17	176.7	40	216.7	189	Yes	0.0	9.4	No
1990	TH010029	90082707	366.64	3693.01	18	175.9	40	215.9	189	Yes	< 0.1	9.4	No
1990	TH010013	90060702	366.64	3693.01	19	161.7	40	201.7	189	Yes	0.0	9.4	No
1990	TH010002	90011706	366.64	3694.01	8	201.0	40	241.0	189	Yes	0.0	9.4	No
1990	TH010020	90062921	366.64	3694.01	9	183.4	40	223.4	189	Yes	0.0	9.4	No
1990	TH010025	90081305	366.64	3694.01	10	183.1	40	223.1	189	Yes	0.0	9.4	No
1990	TH010023	90080322	366.64	3694.01	11	166.0	40	206.0	189	Yes	0.0	9.4	No
1990	TH010015	90061322	366.64	3694.01	12	166.0	40	206.0	189	Yes	0.0	9.4	No
1990	TH010024	90080524	366.64	3694.01	13	165.8	40	205.8	189	Yes	0.0	9.4	No
1990	TH010031	90090721	366.64	3694.01	14	155.4	40	195.4	189	Yes	0.0	9.4	No

Table 3. Summary of Significant Receptors Exceeding 1-Hour NO2 NAAQS and Warren Plant Contribution - 1991

Year	Event	Time	UTM East (km)	UTM North (km)	Event Ranking	1-Hour Conc. ($\mu g/m^3$)	1-Hour Bkg. Conc. ($\mu g/m^3$)	Total 1-Hour Conc. ($\mu g/m^3$)	1-Hour NAAQS ($\mu g/m^3$)	Total Impact Exceeds NAAQS?	Warren Plant Contribution ($\mu g/m^3$)	1-Hour SIL ($\mu g/m^3$)	Warren Plant Exceeds SIL?
1991	TH010013	91081323	366.64	3693.01	8	160.6	40	200.6	189	Yes	0.0	9.4	No

Table 4. Summary of Significant Receptors Exceeding 1-Hour NO2 NAAQS and Warren Plant Contribution - 1992

Year	Event	Time	UTM East (km)	UTM North (km)	Event Ranking	1-Hour Conc. ($\mu g/m^3$)	1-Hour Bkg. Conc. ($\mu g/m^3$)	Total 1-Hour Conc. ($\mu g/m^3$)	1-Hour NAAQS ($\mu g/m^3$)	Total Impact Exceeds NAAQS?	Warren Plant Contribution ($\mu g/m^3$)	1-Hour SIL ($\mu g/m^3$)	Warren Plant Exceeds SIL?
1992	None												

Table 5. Summary of Significant Receptors Exceeding 1-Hour NO2 NAAQS and Warren Plant Contribution - 1993

Year	Event	Time	UTM East (km)	UTM North (km)	Event Ranking	1-Hour Conc. ($\mu g/m^3$)	1-Hour Bkg. Conc. ($\mu g/m^3$)	Total 1-Hour Conc. ($\mu g/m^3$)	1-Hour NAAQS ($\mu g/m^3$)	Total Impact Exceeds NAAQS?	Warren Plant Contribution ($\mu g/m^3$)	1-Hour SIL ($\mu g/m^3$)	Warren Plant Exceeds SIL?
1993	TH010017	93071504	366.64	3693.01	8	211.7	40	251.7	189	Yes	0.0	9.4	No
1993	TH010009	93052301	366.64	3693.01	9	201.5	40	241.5	189	Yes	0.0	9.4	No
1993	TH010022	93081920	366.64	3693.01	10	201.4	40	241.4	189	Yes	0.0	9.4	No
1993	TH010012	93060720	366.64	3693.01	11	152.7	40	192.7	189	Yes	0.0	9.4	No
1993	TH010021	93072405	366.64	3694.01	8	186.1	40	226.1	189	Yes	0.0	9.4	No
1993	TH010020	93072404	366.64	3694.01	9	185.1	40	225.1	189	Yes	0.0	9.4	No
1993	TH010006	93050501	366.64	3694.01	10	171.4	40	211.4	189	Yes	0.0	9.4	No
1993	TH010023	93081920	366.64	3694.01	11	153.4	40	193.4	189	Yes	0.0	9.4	No
1993	TH010016	93071423	366.64	3694.01	12	150.2	40	190.2	189	Yes	0.0	9.4	No

Attachment B

Regional Inventory Sources

Table 1. NO_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 NO_X Emissions[1] (tpy)	Distance from Facility (km)	W/in 2 km of another facility?	NO_X 20D	Exclude Per 20D Rule?[2]
Georgia Sources										
Georgia-Pacific Corp Chip-n-Saw Div. Warrenton	Warrenton	Warren	15586	346,957	3,697,767	82.58	1.94	No	N/A	No
TRW Warrenton Foundry	Warrenton	Warren	18565	352,855	3,699,389	8.20	5.08	No	N/A	No
HP Pelzer - Thomson	Thomson	Mcduffie	18028	357,093	3,702,062	3.26	10.09	No	N/A	No
TIN Inc. Dba Temple-Inland	Thomson	Mcduffie	18982	362,550	3,703,879	453.99	15.73	No	N/A	No
Kamin - Wrens Calcine Plant	Wrens	Jefferson	18155	366,261	3,680,478	92.88	24.00	No	N/A	No
Kamin - Wrens Main	Wrens	Jefferson	18156	369,055	3,682,523	250.00	24.91	No	8.18	No
Southern Natural Gas	Wrens	Jefferson	17482	370,270	3,675,170	471.65	30.56	No	121.22	No
GA Tenn Mining Co	Wrens	Jefferson	17101	369,879	3,672,829	50.00	31.99	No	149.79	Yes
US Army Signal Center & Fort Gordon	Fort Gordon	Richmond	18463	384,815	3,691,585	86.71	36.61	No	242.23	Yes
Thiele Kaolin Co. Reedy Creek Div.	Reedy Creek	Glascock	16796	364,414	3,663,651	64.00	36.64	Yes	242.74	Yes
Kgen Sandersville, LLC	Warthen	Washington	18303	326,300	3,665,800	726.40	38.07	No	271.34	No
Power4Georgians	Sandersville	Washington	17924	337,088	3,659,816	1,922.82	38.61	Yes	282.16	No
Georgia Iron Works	Grovetown	Columbia	17240	389,502	3,702,676	25.00	41.38	Yes	337.57	Yes
Metokote Corporation Plt 14	Grovetown	Columbia	15212	389,386	3,704,081	-	41.49	Yes		
Augusta-Richmond County Deans Bridge Road Landfill	Blythe	Richmond	17962	393,568	3,690,992	50.00	45.37	No	417.31	Yes
Washington County Power LLC	Sandersville	Washington	18970	314,748	3,663,978	250.00	47.04	No	450.78	Yes
Imerys Clays, Inc., Deepstep Road Plant	Sandersville	Washington	18051	324,393	3,655,700	142.87	47.58	No	461.51	Yes
Georgia Bathware	Union Point	Greene	16494	307,434	3,720,941	25.00	47.75	No	464.97	Yes
Cobb EMC - N. Hospital Road	Sandersville	Washington		331,800	3,652,088	100.00	47.64	Yes	462.75	Yes
Burgess Pigment Company, Sandersville Plant	Sandersville	Washington	16797	330,773	3,650,665	80.00	49.33	Yes	496.67	Yes
Kamin - Sandersville	Sandersville	Washington	18154	329,500	3,649,250	250.00	51.12	Yes		
Cobb EMC - Deepstep Road	Sandersville	Washington		324,400	3,653,457	100.00	49.52	Yes	500.34	Yes
Quebecor World Kri Inc.	Evans	Columbia	17627	396,034	3,711,687	100.00	49.79	No	505.79	Yes
World Color Printing (USA) Ii, Corp.	Evans	Columbia	19232	396,085	3,711,586	100.00	49.81	No		
Thiele Kaolin Co. - Sandersville Plant	Sandersville	Washington	16792	330,686	3,649,165	211.71	50.77	Yes	870.52	Yes
Imerys Clays, Inc. Sandersville Calcine Plant	Sandersville	Washington	16693	330,657	3,649,161	154.96	50.78	Yes		
Crawfod Kitchens, Inc.	Martinez	Columbia	15577	398,963	3,708,220	25.00	51.71	No	544.15	Yes
Southern Natural Gas Co., Hall Gate	Milledgeville	Baldwin	15813	308,428	3,659,645	415.75	54.61	No	602.19	Yes
Cobb EMC - Indian Trail	Sandersville	Washington		312,333	3,654,862	100.00	55.33	No	616.55	Yes
Novelis, Inc.	Greensboro	Green	18405	295,863	3,714,899	100.00	55.76	No	625.15	Yes
Solvay Advanced Polymers - Augusta	Augusta	Richmond	18040	405,656	3,692,766	250.00	57.23	No	654.60	Yes
The Proctor & Gamble Manufacturing Company	Augusta	Richmond	16744	406,562	3,694,781	100.00	58.03	No	670.67	Yes
Thermal Ceramics	Augusta	Richmond	18161	407,138	3,700,364	50.00	58.69	No	683.88	Yes
Occidental Chemical Corp	Augusta	Richmond	16711	407,598	3,695,443	250.00	59.05	Yes		
Prayon Inc.	Augusta	Richmond	19245	407,742	3,695,468	100.00	59.19	Yes	691.01	Yes
Kendall Co Augusta Plant	Augusta	Richmond	19036	408,696	3,695,710	100.00	60.14	Yes		
Boral Bricks #6 Augusta Plant	Augusta	Richmond	19384	408,661	3,699,994	50.00	60.19	No	713.85	Yes
Boral Bricks, Inc. - Plants 3, 4 & 5	Augusta	Richmond	18902	409,495	3,703,909	100.00	61.36	No	737.24	Yes
West Fraser - Augusta Lumber Mill	Augusta	Richmond	17283	410,417	3,688,499	16.50	62.40	Yes		
Olin Corporation Augusta Plant	Augusta	Richmond	16930	410,992	3,689,333	13.30	62.86	Yes		
Augusta Newsprint Co	Augusta	Richmond	18973	411,043	3,688,936	499.63	62.96	Yes	757.92	No
International Paper - Augusta Mill	Augusta	Richmond	17414	410,981	3,687,393	6,700.00	63.11	Yes		
Deerfield Specialty Papers, Inc	Augusta	Richmond	18643	411,065	3,687,063	6.80	63.24	Yes		
The Nutrasweet Kelco Co	Augusta	Richmond	18169	412,217	3,698,455	250.00	63.68	Yes	783.64	Yes
G D Searle, LLC/Pharmacia	Augusta	Richmond	16225	412,263	3,698,571	-	63.73	Yes		
Vought Aircraft Industries Inc	Milledgeville	Baldwin	18099	288,905	3,664,213	28.69	67.92	No	868.36	Yes
Central State Hospital	Milledgeville	Baldwin	19163	292,823	3,658,572	96.92	67.52	No	860.38	Yes
Rayonier Wood Products LLC - Eatonton Sawmill	Eatonton	Putnam	16936	279,778	3,681,511	74.64	70.44	No	918.70	Yes
American Testing Lab d.b.a. Horton Comp	Eatonton	Putnam	18218	278,165	3,686,900	50.00	71.07	Yes		
Horton Homes, Inc.	Eatonton	Putnam	17947	277,981	3,687,356	25.00	71.19	Yes	931.42	Yes
Horton Vans, Inc.	Eatonton	Putnam	15981	277,804	3,687,396	100.00	71.36	Yes		
South Carolina Sources										
Gro-Bark, Inc.		McCormick		378,046	3,751,041	8.32	61.84	No	746.86	Yes
Georgia Pacific		McCormick		381,848	3,750,606	2.69	63.37	No	777.45	Yes
Town of McCormick CPW		McCormick		382,776	3,753,412	98.64	66.25	No	835.03	Yes
SC Dept. of Corr.-McCormick		McCormick		385,245	3,755,726	10.18	69.51	No	900.28	Yes
Halocarbon Products Corp		Aiken		413,005	3,705,505	21.64	65.05	No	810.93	Yes
Cytec Industries, Inc		Aiken		414,277	3,704,322	12.39	66.16	No	833.19	Yes
Kinder Morgan - North Augusta Terminal		Edgefield		411,700	3,717,500	5.12	66.48	No	839.68	Yes
SCE&G - Urquhart		Aiken		415,224	3,699,571	9,370.57	66.73	No	844.53	No
Kimberly-Clark		Aiken		416,579	3,697,667	570.10	68.03	No	870.52	Yes
Charter Terminal Company, Inc.		Aiken		413,888	3,723,920	33.59	70.78	No	925.59	Yes
Dixie Clay Company		Aiken		419,795	3,705,566	21.46	71.79	No	945.74	Yes
Air Products & Chemicals		Aiken		421,371	3,708,911	14.89	73.83	No	986.62	Yes
Aiken County Langley Landfill		Aiken		421,775	3,706,460	26.81	73.87	No	987.31	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. NO_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 NO_X Emissions (tpy)	Screen out; >5 km from SIA?	NO_X 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	42.90	No	N/A	No
Pelzer Acoustic Products LLC	2399-189-0020-S-01-1	Thomson	McDuffie	361,527	3,703,986	14.88	No	4.07	No	N/A	No
Hanson Aggregates Southeast LLC - Sparta Quarry	1423-141-0007-S-02-1	Sparta	Hancock	337,582	3,685,184	15.90	No	0	No	N/A	No
Milliken & Company Kingsley Plant	2221-189-0021-S-01-0	Thomson	McDuffie	360,222	3,710,799	18.31	No	18.15	No	N/A	No
Martin Marietta Aggregates - Camak Rock Quarry	1423-301-0002-S-01-1	Thomson	Warren	347,924	3,716,391	19.72	No	0	No	N/A	No
Erdene Materials Corporation - Dearing Plant	1455-189-0025-B-01-0	Dearing	McDuffie	371,879	3,698,091	23.36	No	6	No	N/A	No
Mestek, Inc. (dba Air Balance, Inc.)	3433-163-0015-B-01-0	Wrens	Jefferson	369,721	3,673,964	31.05	No	N/A	Yes	130.91	Yes
Continental Commercial Products, LLC - Gilt Division	2295-163-0031-S-04-0	Wrens	Jefferson	371,459	3,675,353	31.29	No	N/A	Yes	135.84	Yes
Georgia Vitrified Brick & Clay Ltd	3259-036-11751	Harlem	Columbia	380,034	3,697,625	31.49	No	N/A	Yes	139.76	Yes
Corridor Materials LLC - Sparta Quarry	1423-141-0002-B-01-0	Sparta	Hancock	317,731	3,684,524	33.14	Yes	N/A	N/A	172.78	Yes
Corridor Mining LLC - Culverton Quarry	1423-141-0002-B-02-0	Sparta	Hancock	315,971	3,683,610	35.11		N/A			
Reeves Co Inc. - Appling Hmaf	2951-073-0024-S-02-0	Appling	Columbia	381,234	3,710,694	35.55	No	N/A	Yes	221.05	Yes
Hexcel Reinforcements Corp.	2221-317-0019-S-03-0	Washington	Wilkes	338,045	3,731,573	36.44	Yes	N/A	N/A	238.85	Yes
Anthony Forest Products Company	2439-317-0027-S-01-2	Washington	Wilkes	337,424	3,731,418	36.48		N/A			
Sample & Son Const and Demolition LF	4953-073-0030-S-01-0	Grovetown	Columbia	382,931	3,710,318	36.98		N/A			
Reeves Construction Co. ,	2951-073-0026-S-02-0	Grovetown	Columbia	384,120	3,709,694	37.87	Yes	N/A	N/A	249.55	Yes
Augusta Ready Mix, Inc.	3273-073-0031-R-01-0	Grovetown	Columbia	384,589	3,709,140	38.12		N/A			
International Paper Company - Washington Lumber Mill	2421-317-0023-V-01-1	Washington	Wilkes	338,979	3,733,610	38.15	No	N/A	Yes	273.06	Yes
Martin Marietta Aggregates	1423-036-11280	Grovetown	Columbia	385,159	3,709,414	38.75	Yes	N/A	N/A	285.02	Yes
Augusta Asphalt, LLC	2951-073-0028-R-01-0	Grovetown	Columbia	385,194	3,709,406	38.78		N/A			
Paul Creek Energy Center	4911-303-0052-F-01-0	Warthen	Washington	325,635	3,664,932	39.16	No	N/A	Yes	293.20	Yes
AFG Insulations, Inc.	3296-317-0030-E-01-0	Washington	Wilkes	337,317	3,735,091	40.02	No	N/A	Yes	310.44	Yes
Aggregates, USA - Dogwood Quarry	1423-073-0002-S-02-0	Grovetown	Columbia	388,045	3,704,794	40.31	No	N/A	Yes	316.20	Yes
Ready Mix USA, LLC - Sparta Rock Quarry	1423-141-0008-S-01-0	East of Sparta	Hancock	310,493	3,681,646	40.93	No	N/A	Yes	328.56	Yes
Pollard Lumber Co	2421-073-0023-S-01-0	Appling	Columbia	382,225	3,720,504	41.24	No	N/A	Yes	334.85	Yes
MetoKote Corp Plant 14	3479-073-0020-S-02-0	Grovetown	Columbia	389,363	3,703,792	41.42	No	N/A	Yes	338.36	Yes
Pittman Construction Company	2951-133-0019-S-02-0	Greensboro	Greene	310,334	3,714,071	42.00	No	N/A	Yes	349.92	Yes
National Security Agency	9711-245-0176-S-01-0	Augusta	Richmond	390,998	3,699,652	42.54	No	N/A	Yes	360.83	Yes
Vulcan Materials	1423-133-0018-S-01-0	Greensboro	Greene	306,807	3,712,676	44.71	No	N/A	Yes	404.25	Yes
Georgia Department of Transportation - Davisboro Asphalt Plant	2951-303-0049-R-01-0	Davisboro	Washington	349,678	3,651,097	45.60	No	N/A	Yes	421.93	Yes
Leco Corporation	3297-036-11078	Grovetown	Columbia	394,372	3,705,331	46.62	No	N/A	Yes	442.44	Yes
Cobb EMC - Sandersville	4911-303-0045-S-01-0	Sandersville	Washington	331,802	3,652,098	47.63	No	N/A	Yes	462.56	Yes
Lafarge Building Materials, Inc. - Martinez Concrete Plant	3273-073-0015-R-01-0	Martinez	Columbia	395,868	3,705,928	48.20	No	N/A	Yes	474.08	Yes
Cobb EMC - Robin Springs	4911-303-0038-S-01-0	Sandersville	Washington	324,916	3,654,516	48.34	Yes	N/A	N/A	476.81	Yes
Kentucky-Tennessee Clay Company (Pit 53)	3295-303-0021-S-02-1	Sandersville	Washington	325,130	3,654,389	48.35		N/A			
Unimin Corporation - Hephzibah	1455-245-0007-S-02-2	Hephzibah	Richmond	396,297	3,686,147	48.89	No	N/A	Yes	487.70	Yes
Thermo King Corporation	3585-163-0007-B-01-0	Louisville	Jefferson	370,429	3,652,598	49.21	No	N/A	Yes	494.17	Yes
US Battery Manufacturing Company	3691-073-0017-B-03-0	Evans	Columbia	395,518	3,712,345	49.50	No	N/A	Yes	500.04	Yes
Sandersville Ethanol, LLC	2869-303-0050-S-01-0	Sandersville	Washington	328,546	3,651,211	49.68	No	N/A	Yes	503.57	Yes
Kennametal Inc.	3545-073-0012-S-02-0	Evans	Columbia	396,787	3,710,426	50.15	No	N/A	Yes	512.96	Yes
Martin Marietta Aggregates	1423-121-5292-SM	Augusta	Richmond	398,434	3,709,133	51.41	No	N/A	Yes	538.11	Yes
Kentucky-Tennessee Clay Company (Pits 51 & 52)	3295-303-0005-S-01-0	Sandersville	Washington	329,474	3,648,637	51.70	No	N/A	Yes	543.90	Yes
Georgia Industrial Minerals, Inc.	3295-303-0046-B-01-1	Sandersville	Washington	316,547	3,655,890	51.85	No	N/A	Yes	547.04	Yes
North American Bristol Corporation	3084-133-0013-S-03-0	Greensboro	Greene	300,454	3,719,018	53.04	No	N/A	Yes	570.79	Yes
Washington County Landfill	4953-303-0034-S-01-1	Sandersville	Washington	326,956	3,647,647	53.58	No	N/A	Yes	581.62	Yes
Cobb EMC - Deepstep	4911-303-0036-S-02-0	Sandersville	Washington	312,318	3,654,894	55.31	No	N/A	Yes	616.26	Yes
PQ Corporation	2819-121-10979	Augusta	Richmond	403,986	3,696,510	55.43	Yes	N/A	N/A	618.52	Yes
Pryoflex Augusta LLC	2685-245-0171-S-01-2	Augusta	Richmond	403,987	3,696,524	55.43		N/A			
Fowler-Flemister Concrete, Inc. - Greensboro Plant	3273-133-0012-R-01-0	Greensboro	Greene	296,614	3,716,440	55.58	No	N/A	Yes	621.55	Yes
GV Industries, Inc. - SCL Division	3955-245-0058-F-01-0	Augusta	Richmond	404,310	3,705,475	56.44		N/A			
USVA Veterans Admin H - VA Augusta Medical Center, Uptown Division	8062-245-0106-S-01-0	Augusta	Richmond	404,725	3,703,684	56.60		N/A			
University Hospital	8062-245-0037-S-01-0	Augusta	Richmond	405,696	3,703,934	57.59	Yes	N/A	N/A	638.79	Yes
USVA Veterans Admin II	8062-245-0059-S-01-0	Augusta	Richmond	405,810	3,704,437	57.77		N/A			
Augusta Hospital, LLC	8062-245-0139-B-02-0	Augusta	Richmond	405,418	3,703,585	57.28		N/A			
Reeves CC Inc. - Riverwatch HMAF	2951-245-0030-S-02-0	Augusta	Richmond	403,644	3,709,732	56.61	No	N/A	Yes	642.18	Yes
WeylChem Augusta Corp.	2869-245-0054-S-06-2	Augusta	Richmond	405,665	3,691,926	57.30	No	N/A	Yes	656.06	Yes
Martin Marietta Materials, Inc. - Augusta Quarry	1423-245-0045-S-01-0	Augusta	Richmond	404,023	3,711,378	57.38	No	N/A	Yes	657.55	Yes
Omni Oxide Corporation	3399-245-0175-B-01-0	Augusta	Richmond	405,926	3,692,761	57.50	Yes	N/A	N/A	659.99	Yes
US Battery Mfg. Co of Augusta	3691-245-0162-S-01-2	Augusta	Richmond	405,926	3,692,761	57.50		N/A			
Commercial & Military Systems Company, Inc.	3713-245-0159-S-01-0	Augusta	Richmond	406,482	3,697,573	57.93	Yes	N/A	N/A	668.58	Yes
Georgia-Pacific Corporation I LLC	2653-245-0039-S-02-0	Augusta	Richmond	407,912	3,697,238	59.35		N/A			
Transflo Terminal Servies, Inc.	4212-245-0172-S-01-0	Augusta	Richmond	406,412	3,702,582	58.15		N/A			
Bumble Bee Foods, LLC	2013-245-0014-R-02-1	Augusta	Richmond	407,316	3,702,625	59.06	Yes	N/A	N/A	673.04	Yes
Castleberry's Food Company - Augusta Facility	2013-245-0014-R-01-1	Augusta	Richmond	407,375	3,702,764	59.13		N/A			
EKA Chemicals - Augusta GP Plant	2819-245-0133-B-01-1	Augusta	Richmond	407,594	3,695,445	59.05		N/A			
Keebler Foods Company	2052-245-0161-B-03-0	Augusta	Richmond	408,029	3,695,528	59.48	Yes	N/A	N/A	690.95	Yes
Augusta Select Tissue, LLC	2676-245-0174-B-01-1	Augusta	Richmond	408,349	3,695,293	59.81		N/A			
Avondale Mills, Inc. - Sibley Division	2261-245-0010-S-01-3	Augusta	Richmond	407,832	3,705,679	59.95	Yes	N/A	N/A	709.04	Yes
Standard Textile Augusta, Inc.	2211-245-0040-B-01-2	Augusta	Richmond	407,982	3,705,392	60.06		N/A			
Medical College of Georgia	8221-245-0134-S-01-0	Augusta	Richmond	408,094	3,703,760	59.95		N/A			
Medical College of Georgia - South Energy Plant	8221-245-0134-S-01-1	Augusta	Richmond	408,142	3,703,518	59.97		N/A			
Medical College of Georgia - Central Energy Plant	8221-245-0134-S-01-3	Augusta	Richmond	408,825	3,704,034	60.71		N/A			
Olin Corporation	2812-245-0017-E-02-2	Augusta	Richmond	409,380	3,704,826	61.36	Yes	N/A	N/A	709.07	Yes
PQ Corporation	2819-121-10738	Augusta	Richmond	409,380	3,704,826	61.36		N/A			
Modern Welding Company of Georgia	3443-245-0151-S-01-0	Augusta	Richmond	409,380	3,704,826	61.36		N/A			
Industrial Metal Finishing, Inc.	2796-121-11957	Augusta	Richmond	409,399	3,704,113	61.29		N/A			
Southern Crushers, Inc.	1423-245-0156-B-01-0	Augusta	Richmond	408,492	3,701,078	60.09	Yes	N/A	N/A	711.87	Yes
Laker Inc.	2851-245-0148-S-01-0	Augusta	Richmond	409,988	3,702,450	61.70		N/A			
Garrett Aviation Services	3721-245-0167-S-01-0	Augusta	Richmond	409,383	3,692,743	60.95	Yes	N/A	N/A	729.00	Yes
Finnchem USA, Inc	2819-245-0138-S-03-2	Augusta	Richmond	410,028	3,691,245	61.71		N/A			
Farmers & Truckers Biodiesel LLC	2869-245-0173-B-01-0	Augusta	Richmond	410,501	3,688,406	62.49	Yes	N/A	N/A	759.82	Yes
International Flavors and Fragrances	2869-245-0140-B-02-2	Augusta	Richmond	410,509	3,688,702	62.46		N/A			
Deerfield Tissue, LLC	4621-245-0028-B-05-0	Augusta	Richmond	411,063	3,687,063	63.24	No	N/A	Yes	774.77	Yes
PVS Technologies, Inc.	2819-245-0144-S-02-0	Augusta	Richmond	411,101	3,689,082	63.00	No	N/A	Yes	770.02	Yes
Blanco Augusta Technology Center	2836-245-0155-S-05-0	Augusta	Richmond	413,216	3,698,452	63.68	No	N/A	Yes	783.62	Yes
Marble Works, Inc.	3088-237-0130-S-01-0	Eatonton	Putnam	288,126	3,701,823	60.65	No	N/A	Yes	723.04	Yes
Farmers Gin and Storage Company	0724-163-0008-R-01-0	Wadley	Jefferson	369,300	3,636,800	63.37	Yes	N/A	N/A	777.40	Yes
Fulghum Industries, Inc.	3554-163-0027-S-01-0	Wadley	Jefferson	368,602	3,635,988	63.92		N/A			
ASTA, Inc.	3357-033-0038-S-01-0	Waynesboro	Burke	404,618	3,663,313	65.24	Yes	N/A	N/A	814.73	Yes
Fleetguard, Incorporated - Waynesboro	3714-033-0036-S-01-0	Waynesboro	Burke	404,618	3,663,313	65.24		N/A			
Fowler Flemister Concrete, Inc. - Millodgeville Plant	3273-009-0002-R-01-0	Millodgeville	Baldwin	291,757	3,663,367	65.85	Yes	N/A	N/A	827.02	Yes
Rath Refractories	3297-009-0044-B-01-0	Millodgeville	Baldwin	290,748	3,663,679	66.57		N/A			
Reeves Construction Company - GFL Waynesboro Plant	2951-033-0037-S-03-0	Waynesboro	Burke	406,900	3,662,883	67.42	Yes	N/A	N/A	858.45	Yes
FIAMM Technologies Inc.	3691-033-0034-S-02-2	Waynesboro	Burke	408,053	3,662,423	68.65		N/A			
Thomas Alloy	5093-009-0042-B-02-0	Milledgeville	Baldwin	287,763	3,664,002	69.02	Yes	N/A	N/A	890.46	Yes
Concord Fabrics	2257-005-41320	Milledgeville	Baldwin	286,482	3,663,297	70.48		N/A			
Martin Marietta Aggregates	1423-221-0005-B-01-0	Stephens	Oglethorpe	298,551	3,746,523	70.61	No	N/A	Yes	922.13	Yes
Douglas Asphalt Company	2951-163-0032-S-01-0	Midville	Jefferson	368,953	3,628,966	70.72	No	N/A	Yes	924.36	Yes
Hy-Lite Products, Inc. Eatonton Facility	3999-237-0134-S-01-0	Eatonton	Putnam	277,109	3,692,352	71.58	No	N/A	Yes	941.64	Yes
Fowler Flemister Concrete, Inc. - Oconee Plant	3273-237-0133-R-01-0	Eatonton	Putnam	275,469	3,691,699	73.26	No	N/A	Yes	975.22	Yes
Mundy, Inc.	0724-033-0002-R-01-0	Waynesboro	Burke	384,678	3,632,498	73.65	No	N/A	Yes	982.93	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.

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)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)	Notes
BESP	GPBESP	346,955	3,698,080	168.0	14.14	75.0	4.25	58.74	500	1
103S	GP103S	346,945	3,698,070	168.0	-	28.0	7.00	0.0033	Ambient	1, 2
104S	GP104S	346,920	3,698,030	168.0	-	23.0	7.00	0.0033	Ambient	1, 2
S201	GPS201	346,900	3,697,925	168.0	-	24.0	1.32	24.98	269	1
S202	GPS202	346,900	3,697,925	168.0	-	24.0	1.32	24.98	269	1
S203	GPS203	346,900	3,697,925	168.0	-	24.0	1.32	24.98	269	1
302P	GP302P	346,835	3,697,850	168.0	-	65.0	4.25	51.61	Ambient	1
105A	GP105A	347,030	3,697,935	168.0	-	34.0	3.28	0.0033	Ambient	1, 3
105B	GP105B	346,975	3,697,990	168.0	-	33.0	3.28	0.0033	Ambient	1, 3
Facility Total:					**14.14**					

1. As total of individual max actual emission rates do not sum to facility-wide total potential emissions presented in Title V application, individual source emission rates were scaled by ratio of (total potential / total max actual) to ensure total facility-wide potential emissions were modeled.

2. Raincapped.

3. Conveyance system worst-case option for drop point into railroad car utilzied.

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)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
980	TRW980	352,855	3,699,389	148.0	0.35	30.0	0.66	50.00	Ambient
981	TRW981	352,855	3,699,389	148.0	0.35	30.0	0.66	50.00	Ambient
982	TRW982	352,855	3,699,389	148.0	0.35	30.0	0.66	50.00	Ambient
983	TRW983	352,855	3,699,389	148.0	0.35	30.0	0.66	50.00	Ambient
Facility Total:					**1.40**				

Table 5. Modeling Data for HP Pelzer

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
S03	HPPS03	357,093	3,702,062	158.8	0.25	26.0	1.00	14.85	230
S04	HPPS04	357,093	3,702,062	158.8	0.15	20.0	1.33	0.00	200
S07	HPPS07	357,093	3,702,062	158.8	0.15	20.0	1.33	7.20	200
Facility Total:					**0.56**				

Table 6. Modeling Data for TIN, dba Temple-Inland

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
SB01	TINSB01	362,550	3,703,879	170.0	43.28	60.0	3.51	15.00	390
SD11	TINSD11	362,550	3,703,879	170.0	34.46	81.3	8.33	40.00	150
Facility Total:					**77.74**				

Table 7. Modeling Data for Kamin Wrens (Calcine Plant)

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
D6S	CMWCD6S	366,261	3,680,478	149.4	15.90	150.0	4.00	60.00	260
Facility Total:					**15.90**				

Table 8. Modeling Data for Kamin Wrens (Main Plant)

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
202S	KMWM202S	369,055	3,682,523	137.5	1.07	16.0	0.84	15.00	130
378S	KMWM378S	369,055	3,682,523	137.5	26.78	97.0	6.00	33.00	236
431S	KMWM431S	369,055	3,682,523	137.5	12.32	52.0	3.50	12.00	130
501S	KMWM501S	369,055	3,682,523	137.5	2.05	38.0	2.00	3.00	130
52S	KMWM52S	369,055	3,682,523	137.5	13.75	75.0	4.40	200.00	210
62S	KMWM62S	369,055	3,682,523	137.5	19.18	75.0	4.70	207.00	210
GG1S	KMWMGG1S	369,055	3,682,523	137.5	173.13	11.0	0.84	15.00	130
Facility Total:					**248.29**				

Table 9. Modeling Data for Southern Natural Gas Wrens

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
C01S	SNGW01	368,334	3,679,746	144.8	18.36	17.0	0.82	120.08	980
C02S	SNGW02	368,341	3,679,751	144.8	18.36	17.0	0.82	120.08	980
C03S	SNGW03	368,350	3,679,763	144.8	37.17	16.0	0.95	172.90	1100
C05S	SNGW05	368,459	3,679,751	144.8	6.58	37.0	3.51	41.99	858
Facility Total:					**80.47**				

Table 10. Modeling Data for KGen Sandersville

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
ST1	KGENST1	326,449	3,665,732	135.0	35.70	92.0	15.00	97.00	951
ST2	KGENST2	326,421	3,665,768	135.0	35.70	92.0	15.00	97.00	951
ST3	KGENST3	326,408	3,665,785	135.0	35.70	92.0	15.00	97.00	951
ST4	KGENST4	326,379	3,665,821	135.0	35.70	92.0	15.00	97.00	951
ST5	KGENST5	326,366	3,665,838	135.0	35.70	92.0	15.00	97.00	951
ST6	KGENST6	326,338	3,665,874	135.0	35.70	92.0	15.00	97.00	951
ST7	KGENST7	326,325	3,665,891	135.0	35.70	92.0	15.00	97.00	951
ST8	KGENST8	326,297	3,665,927	135.0	35.70	92.0	15.00	97.00	951
Facility Total:					**285.60**				

Table 11. 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)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
BS01	SHAWBS01	356,807	3,701,993	160.6	3.32	49.0	2.00	26.08	304
BS03	SHAWBS03	356,807	3,701,993	160.6	1.35	28.0	1.67	32.30	400
BS04	SHAWBS04	356,807	3,701,993	160.6	2.68	49.0	2.00	26.08	304
Facility Total:					**7.35**				

Table 12. Modeling Data for Pelzer Acoustic Products (Minor Source)

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
BLR1	PAS02	361,527	3,703,986	157.0	0.47	26.0	1.00	14.85	230
ALI	PAS05	361,527	3,703,986	157.0	0.23	20.0	1.33	83.98	250
Facility Total:					**0.70**				

Table 13. Modeling Data for Milliken & Company Kingsley Plant (Minor Source)

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
B001	MILB001	360,222	3,710,799	150.0	1.23	25.0	2.25	20.00	407
B002	MILB002	360,222	3,710,799	150.0	1.88	25.0	2.00	20.00	407
Facility Total:					**3.11**				

Table 14. Modeling Data for West Fraser Lumber - Augusta

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
KD01	WFLKD01	410,417	3,688,499	48.8	0.70	29.5	1.75	17.00	250
KD02	WFLKD02	410,417	3,688,499	48.8	1.28	30.0	1.75	17.00	250
KD03	WFLKD03	410,417	3,688,499	48.8	1.92	30.0	1.75	17.00	250
Facility Total:					**3.90**				

Table 15. Modeling Data for Olin Corporation

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
E05A	OLINAU05	410,992	3,689,333	42.4	1.57	30.0	2.00	26.00	425
E06A	OLINAU06	410,992	3,689,333	42.4	1.57	37.0	2.00	26.00	425
Facility Total:					**3.14**				

Table 16. Modeling Data for Augusta Newsprint

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
BLR1	ANPS009	411,043	3,688,936	41.1	88.24	140.0	9.50	38.80	150
BLR2	ANPS001	411,043	3,688,936	41.1	5.04	121.0	7.00	46.56	599
Facility Total:					**93.27**				

Table 17. Modeling Data for International Paper - Augusta Mill

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
LK1	IPALK1	410,981	3,687,393	48.2	20.15	202.0	5.67	16.00	169
LK2	IPALK2	410,981	3,687,393	48.2	36.30	212.0	5.13	49.00	154
PB1	IPAPB1	410,981	3,687,393	48.2	196.97	199.8	7.33	60.70	137
PB2	IPAPB2	410,981	3,687,393	48.2	216.14	199.8	8.00	82.50	452
PB3	IPAPB3	410,981	3,687,393	48.2	126.00	200.0	10.00	56.00	340
RB2	IPARB2	410,981	3,687,393	48.2	29.84	200.0	8.00	80.00	312
RB3	IPARB3	410,981	3,687,393	48.2	140.63	210.0	9.83	120.00	392
RLB	IPARLB	410,981	3,687,393	48.2	42.80	120.0	5.00	42.40	400
ST2	IPAST2	410,981	3,687,393	48.2	0.55	195.0	3.46	55.50	150
ST3	IPAST3	410,981	3,687,393	48.2	2.31	210.0	6.00	20.00	165
PAPR	IPAPAPR	410,981	3,687,393	48.2	3.67	58.2	3.40	27.61	436
Facility Total:					**815.34**				

Table 18. Modeling Data for Deerfield Specialty Papers

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
B02	DEERB02	411,065	3,687,063	44.2	1.65	16.0	3.75	49.80	375
Facility Total:					**1.65**				

Table 19. Modeling Data for DSM Resins and DSM Chemicals North America

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
F001	DSMRF001	413,697	3,701,994	39.6	0.74	33.0	1.67	19.00	895
F002	DSMRF002	413,697	3,701,994	39.6	1.04	33.0	2.50	19.00	895
S014	DSMCS014	413,727	3,702,063	39.6	158.42	220.0	11.75	49.70	300
S029	DSMCS029	413,727	3,702,063	39.6	0.92	36.0	1.50	29.00	600
S031	DSMCS031	413,727	3,702,063	39.6	2.48	150.0	2.00	14.00	750
S002	DSMCS002	413,727	3,702,063	39.6	6.13	80.0	3.50	24.00	350
S012	DSMCS012	413,727	3,702,063	39.6	0.25	65.0	2.00	14.00	750
S017	DSMCS017	413,727	3,702,063	39.6	0.37	75.5	2.17	16.00	750
S020	DSMCS020	413,727	3,702,063	39.6	41.73	80.0	4.50	49.50	350
S07A	DSMCS07A	413,727	3,702,063	39.6	11.99	162.0	2.70	52.00	722
S18A	DSMCS18A	413,727	3,702,063	39.6	17.12	125.0	3.00	64.80	350
Facility Total:					**241.21**				

Table 20. Modeling Data for PCS Nitrogen

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
AM01, GT01	PCSST12	413,814	3,701,712	37.8	120.20	108.0	13.90	42.00	360
N101	PCSST18	413,814	3,701,712	37.8	426.56	137.5	3.20	104.00	97
N201	PCSST19	413,814	3,701,712	37.8	121.88	69.0	5.00	104.00	344
N301	PCSST20	413,814	3,701,712	37.8	0.10	12.0	1.00	2.00	70
AB01	PCSST21	413,814	3,701,712	37.8	6.82	125.0	5.00	10.40	300
AB03	PCSST24	413,814	3,701,712	37.8	25.89	104.0	5.00	5.20	330
FL01	PCSST36	413,814	3,701,712	37.8	0.02	100.0	0.25	18.50	300
Facility Total:					**701.47**				

Table 21. Modeling Data for Georgia Power Plant Branch

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
SG01, SG02	GAPRST1	285,663	3,675,200	111.9	2,677.13	1000.0	22.50	82.00	250
SG03, SG04	GAPRST2	285,663	3,675,200	111.9	3,974.40	1000.0	29.00	77.00	260
Facility Total:					**6,651.53**				

Table 22. Modeling Data for Power4Georgians

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
S1	PR4GAS1	337,088	3,659,816	140.2	505.95	450.0	30.00	60.84	140
S45	PR4GAS45	337,338	3,659,776	140.2	18.00	90.0	5.00	65.00	275
Facility Total:					**523.95**				

Table 23. Modeling Data for SCE&G Urquhart

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
B3	SCEGB3	415,224	3,699,571	44.2	716.10	200.0	15.50	39.40	289
T1	SCEGT1	415,224	3,699,571	44.2	136.05	30.0	10.00	76.00	796
T2	SCEGT2	415,224	3,699,571	44.2	121.50	30.0	10.00	86.00	796
T3	SCEGT3	415,224	3,699,571	44.2	121.50	30.0	10.00	86.00	796
CT1	SCEGCT1	415,224	3,699,571	44.2	254.70	150.0	20.00	41.00	330
CT2	SCEGCT2	415,224	3,699,571	44.2	254.70	150.0	20.00	41.00	330
Facility Total:					**1,604.55**				

Table 24. Modeling Data for Erdene Materials (Minor Source)

Source or Stack ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	NO_2 Emissions (lb/hr)	Height (ft)	Diam. (ft)	Vel. (ft/s)	Temp. (F)
SD01	ERDNSD01	371,879	3,698,091	145.7	1.10	30.0	4.00	20.56	180
Facility Total:					**1.10**				