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Oglethorpe Power Corporation
2100 East Exchange Place
Tucker, GA 30084-5336
phone 770-270-7600
fax 770-270-7872
An Electric Membership Cooperative

March 5, 2010

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

Subject: Oglethorpe Power Corporation – Warren County PSD Permit Application
Refined Load Modeling Analysis
Operating Scenario Details
Supplemental PM_{10} Nearfield Modeling

Dear Mr. Cornwell:

Oglethorpe Power Corporation (Oglethorpe) appreciates meeting with you on December 10, 2009 regarding the proposed nominal 100 megawatt (MW) biomass-fueled electric generating facility in Warren County, Georgia.

This letter addresses three items discussed at the December 10, 2009 meeting, one of which was also requested from you via letter dated December 30, 2009. The first and second items covered in this letter are a refined load modeling analysis that is less conservative than in the original October 2009 submittal and additional detail on the different operating scenarios. The third item included is a supplemental PM_{10} nearfield modeling analysis that calculates impacts at all receptors within the Significant Impact Area (SIA), regardless of whether the proposed project is significant at that receptor.

Refined Load Modeling Analysis

The application submittal presented eight load analysis scenarios, as shown in Table 3-2 of Volume II. These eight scenarios represent permutations of the fuel blend and the operating load.

Fuel Blend

Three fuel blends are presented in Table 3-2, in order of descending preference as a fuel source. These terms match the engineering data used in development of the combustion characterization.

1. Design blend
2. Off-design blend
3. Worst HHV blend (HHV = higher heating value)

As you move from Blend 1 to Blend 3, the quantity of fuel required to produce a specific load level increases; the quantity of fuel increases in both mass (due to a lower Btu/lb) and in heat input (due to a lower efficiency). This relationship can be seen in Table 1 – to reach a valves wide open (VWO) condition, the heat input (MMBtu/hr) climbs from 1,329 to 1,354 to 1,399 as the fuel proceeds from Blend 1 to Blend 3.

TABLE 1. OPERATING SCENARIOS

Scenario[1]	Fuel Blend	Load[2]	Heat Input[3] (MMBTU/hr)	Heating Value[4] (BTU/lb)
1	Design Blend	VWO	1,329	4,864
2	Design Blend	100%	1,258	
3	Off-Design Blend	VWO	1,354	4,544
4	Off-Design Blend	100%	1,282	
5	Off-Design Blend	80%	1,103	
6	Off-Design Blend	60%	849	
7	Off-Design Blend	40%	566	
8	Worst HHV Blend	VWO	1,399	4,234

1. All scenarios represent steady-state conditions.
2. 100% load corresponds to the steam flow necessary to generate 100 MW net.
3. Heat input based on combustion modeling.
4. Heating value based on tests of fuel samples by Nablabs.

The constituents of the fuel blends are provided in Table 3-1 of Volume I, which is reproduced here with minor revisions as Table 2. In Table 3-1 of Volume I as submitted, the 60-20-0-20 blend is represented as "worst-case". While the labels in Table 3-1 are correct, the description could potentially be misleading, since there are three fuel blends shown in Table 1. The 60-20-0-20 "worst-case" blend represents both the "off-design" blend and the "worst HHV" blend shown in Table 1. The difference in the "off-design" and "worst HHV" blend comes from which samples were used to develop the blend properties. The "worst HHV" blend uses the highest moisture fuel from each of the four fuel type categories, while the "off-design" blend uses a more typical moisture value for the four fuel type categories.

TABLE 2. NOMINAL WOODY BIOMASS FUEL BLENDS
[REVISED TABLE 3-1 OF VOLUME I SUBMITTAL]

Fuel Type	Design (%)	Off-Design & Worst HHV (%)
Whole Tree Chips	80	60
Forest Residues, Tops & Limbs	10	20
Mill Residues, Sawdust & Shavings	5	0
Mill Residues, Bark	5	20

From an operating perspective, Oglethorpe would prefer to use the design blend fuel but is prepared to use fuels with an off-design blend. Additionally, the boiler will be designed to be capable of achieving a VWO operating condition on the worst-HHV blend.

OPERATING LOAD

Five different operating loads are considered in the scenarios shown in Table 1 (same loads considered in the original submittal in Table 3-2).

1. VWO (valves wide open)
2. 100%
3. 80%
4. 60%
5. 40%

All of these five levels are characterized based on steam flow. The 100% case is based on the steam flow required to make 100 MW net power, and the remaining cases are based on a percent of that steam flow. Typical normal operation of a steam turbine is to throttle the steam flow into the turbine with control valves to achieve the desired electrical output of the generator. The generator electrical output can be controlled from low loads up to full load (100%). Even at full load the control valves are still pinching the steam flow a small amount.

In contrast, operating in VWO mode is different, as the control valves are fully opened. Without steam flow control from the valves, at VWO any fluctuation in the load demand cannot be responded to quickly, as the only way to adjust load is via boiler pressure and firing rate, which is a relatively slower process compared to adjusting the control valves. Due to the lesser control of generation in VWO mode, the unit cannot participate in electrical transmission system frequency control; only a limited number of units across the electrical grid can be operating in the VWO mode at any time to maintain grid stability.[1]

[1] While theoretically the control valves could be run fully open at loads other than maximum, practically such is not practiced due to the lesser control available. In the case of the Warren project, VWO always refers to running the unit at the maximum possible steam throughput rate.

EXPECTED OPERATING CONDITION

Oglethorpe anticipates that the unit will run at 100% load the vast majority of the time. The unit may for occasional short periods reach a VWO operating mode, but such operation would be unlikely to exceed a 24-hour period and more typically would be only for a few hours. Additionally, the unit may occasionally operate at less than 100% load and is designed to run with all air pollution control devices in usage down to 40% load, but operation below 100% load is expected to be atypical.

For fuel blends, Oglethorpe expects that, on average, the fuel will fluctuate between the design blend and off-design blend specifications but could on occasion receive fuel more similar to the worst HHV blend. The actual fuel blend is known with less certainty than the operating load as there are currently no similar facilities operating in this region, and it is unclear how the market will respond to the demand for biomass.

In the submitted permit application, the following operating conditions were used to estimate steady-state emissions:

- Annual emissions – 100% load, off-design blend – 1,282 MMBtu/hr (Scenario 4)
- Short-term emissions – VWO, worst HHV blend – 1,399 MMBtu/hr (Scenario 8)

SUBMITTED LOAD MODELING ANALYSIS

The October 2009 submittal used a conservative approach to develop the scenario used for the refined modeling. First, stack parameters for each of the eight scenarios were modeled in SCREEN3 (Table 3-2 of Volume II) using a unit-emission rate. The results showed that Scenario 7 (40% load) resulted in the least dispersion and thus the highest impact (Table 3-4 of Volume II). Given the small ambient concentrations attributable to the boiler stack, the submitted load modeling analysis used the least dispersive stack parameters (Scenario 7) for all refined modeling. As noted in Footnote 8 of Volume II, the submitted approach results in over-estimating the predicted impacts by approximately a factor of two. However, given the small relative impact from the boiler, the submitted modeling still demonstrated that Oglethorpe complies with all air quality standards even with the additional conservatism.

REFINED LOAD MODELING ANALYSIS

During the December 10, 2009 meeting, Georgia EPD requested that Oglethorpe refine the load modeling analysis to account for the varying emission rates associated with each load rather than conservatively assuming the same emission rate for each load. Specifically, Georgia EPD wanted to ascertain whether a less conservative analysis would result in different modeled parameters for the boiler for the subsequent PM_{10} analyses (i.e., which might reduce the modeled impacts and SIA).

In the refined load analysis, the maximum impact obtained for the unit emission rate for each scenario was multiplied by the emission rates estimated for that scenario either based on the proposed BACT limits (all but Scenario 7) and/or vendor data emission factors (Scenario 7) and the heat inputs for each scenario (shown in Table 1 of this letter).[2] The modeled emission rates for each pollutant are summarized in Table 3.

TABLE 3. BIOMASS BOILER MODELED EMISSION RATES FOR LOAD ANALYSIS

	Emission factor (lb/MMBtu)[1]				Emissions (lb/hr)			
Scenario	CO	NO_X	PM_{10}	SO_2	CO	NO_X	PM_{10}	SO_2
1	0.08	0.11	0.018	0.010	106.32	146.19	23.92	13.29
2	0.08	0.11	0.018	0.010	100.64	138.38	22.64	12.58
3	0.08	0.11	0.018	0.010	108.32	148.94	24.37	13.54
4	0.08	0.11	0.018	0.010	102.56	141.02	23.08	12.82
5	0.08	0.11	0.018	0.010	88.24	121.33	19.85	11.03
6	0.08	0.11	0.018	0.010	67.92	93.39	15.28	8.49
7	0.15	0.15	0.018	0.010	84.90	84.90	10.19	5.66
8	0.08	0.11	0.018	0.010	111.92	153.89	25.18	13.99

1. Emissions are either based on the proposed BACT limits and/or vendor data emission factors.

The refined SCREEN3 load analysis ambient impacts are presented in Table 4; maximum concentrations were calculated by multiplying the emission rates for each scenario (as shown in Table 3) with the impact from a 1 g/s emission rate for each scenario. The results show that the worst-case impacts for CO and NO_X occur at 40% load and off-design fuel blend (Scenario 7) while the worst-case impacts for SO_2 and PM_{10} occur for the valves wide open, design fuel blend scenario (Scenario 1).

[2] The emission rates in Table 3 do not consider short-term variability of emissions, as there is no information to suggest that the short-term variability would differ between the various scenarios listed.

TABLE 4. REFINED LOAD ANALYSIS RESULTS

Scenario	Modeled Emissions (g/s)	Maximum Impact (μg/m³)	Distance (m)	Maximum Concentration[1] CO (μg/m³)	NOx (μg/m³)	PM_{10} (μg/m³)	SO_2 (μg/m³)
1	1	12.09	174	161.96	222.69	**36.44**	**20.24**
2	1	12.73	174	161.42	221.96	36.32	20.18
3	1	11.70	174	159.68	219.56	35.93	19.96
4	1	12.36	174	159.72	219.62	35.94	19.97
5	1	13.98	174	155.43	213.72	34.97	19.43
6	1	17.07	174	146.08	200.86	32.87	18.26
7	1	21.79	174	**233.09**	**233.09**	27.97	15.54
8	1	10.98	178	154.84	212.90	34.84	19.35

1. Based on the maximum impact at 1 g/s multiplied by the expected emissions (lb/hr) * 453.6 g/lb / 3,600 s/hr.

The PM_{10} (and CO, NO_X, and SO_2) modeling previously submitted were conducted using the boiler stack parameters associated with the lowest dispersion (Scenario 7) together with the maximum emission rates projected from the boiler (Scenario 8), which for PM_{10} would have yielded a maximum load analysis concentration of 69.14 μg/m³ (as compared to the Table 4 worst-case concentration of 36.44 μg/m³).[3]

As the previously submitted worst-case analyses using the Scenario 7 parameters and the Scenario 8 emission rates (i.e., the hypothetical worst-case scenario) yielded Significance Analysis results below the Significant Impact Levels (SILs) for CO, NO_X, and SO_2, no further analyses were conducted for these pollutants. Per Georgia EPD request, the less conservative worst-case scenario for PM_{10}, Scenario 1, is used in the supplemental Significance Analysis as well as the Increment and National Ambient Air Quality Standards (NAAQS) analyses discussed in the following section. Table 5 summarizes the revised biomass boiler modeling parameters used for the supplemental PM_{10} analyses.

TABLE 5. MODELED BIOMASS BOILER STACK PARAMETERS FOR PM_{10} ANALYSES

Boiler Emissions (lb/hr)	(g/s)	Exhaust Temperature (°F)	(K)	Exhaust Velocity (ft/s)	(m/s)
23.92	3.014	335.0	441.48	78.52	23.93

1. The stack height (220 ft, 67.06 m) and diameter (12.0 ft, 3.66 m) remain constant.

[3] Based on Scenario 7 maximum impact of 21.79 μg/m³ for 1 g/s rate multiplied by the Scenario 8 emission rate of 25.18 lb/hr (3.173 g/s).

SUPPLEMENTAL PM_{10} NEARFIELD ANALYSES

As previously discussed, the nearfield PM_{10} Significance, Class II Increment, and NAAQS modeling analyses previously submitted as part of Volume II of the application were conducted using a highly conservative scenario for the boiler: utilization of the worst-case emission rates (Scenario 8) with the 40% load dispersion parameters (Scenario 7) as based on the original unit-rate load analysis. Based on Georgia EPD guidance, the analyses presented in this section included boiler parameters based on Scenario 1 rather than the more conservative, hypothetical scenario used in the previous submittal. All other proposed Warren facility emission units' parameters and emission rates included in the previously submitted PM_{10} analyses (i.e., material handling and storage units, cooling towers, and haul roads) remained the same as included in the previously submitted analyses.

As requested by Georgia EPD, all AERMOD modeling performed for this submittal uses the same AERMOD version as used for the original submittal (07026). Additionally, the code used in the analysis is the single-core (non-parallel) code provided by EPA.[4]

A CD containing all of the supplemental PM_{10} modeling analyses files is included as an attachment to this letter. Supporting figures are also included.

NEARFIELD SIGNIFICANCE ANALYSIS

The results of the supplemental PM_{10} Significance Analysis for each averaging period are provided in Table 6.

[4] The initial submittal used Trinity Consultants' parallel code for the PM_{10} significance analysis. While Trinity has conclusively demonstrated equivalence of this code and the EPA non-parallel code, it has not yet been officially approved by EPA. See http://remote.aermod.com/AERMODequivalency.aspx for the equivalency demonstrations.

TABLE 6. PM_{10} NEARFIELD SIGNIFICANCE RESULTS

Averaging Period	Year	UTM East (km)	UTM North (km)	Max Conc. (µg/m³)	SIL (µg/m³)	Exceeds SIL?	SIA (km)
24-Hour	1989	348.03	3,697.54	27.8	5	Yes	3.72
	1990	348.03	3,697.54	29.8	5	Yes	
	1991	348.81	3,696.96	24.1	5	Yes	
	1992	348.03	3,697.54	33.2	5	Yes	
	1993	348.81	3,696.96	18.6	5	Yes	
	MAX	348.03	3,697.54	33.2	5	Yes	
Annual	1989	348.03	3,696.43	3.4	1	Yes	1.34
	1990	348.01	3,696.48	3.4	1	Yes	
	1991	348.01	3,696.48	4.1	1	Yes	
	1992	348.01	3,696.48	4.0	1	Yes	
	1993	348.01	3,696.48	3.2	1	Yes	
	MAX	348.01	3,696.48	4.1	1	Yes	

As shown in Table 6, predicted PM_{10} impacts in the supplemental analysis still exceed the nearfield SILs, requiring further analysis to demonstrate compliance with NAAQS and Class II Increment for PM_{10}.

The results shown in Table 6 vary little from the original submittal PM_{10} Significance Analysis results shown in Table 5-3 of Volume II of the application. The locations of the maximum impacts remain the same, and the only discernable change in the slight reduction in the annual SIA from 1.40 km in the original submittal to 1.34 km in the supplement analysis and a slight reduction in the number of significant receptors from 1,505 to 1,475. However, the overall SIA remains at 3.72 km. This result is as expected since the maximum impacts occur on the facility fenceline and are largely attributed to the material handling and/or fugitive haul road impacts rather than the biomass boiler impacts. Figure 1 in the attachment illustrates the significant receptors from the supplemental Significance Analysis and the 3.72 km SIA.

As the maximum 24-hour impact from the supplemental Significance Analysis remains the same as the original submittal, the monitoring *de minimis* evaluation in Table 5-5 of the original submittal remains unchanged. In addition, the inventory of off-site sources used in the NAAQS and Increment modeling is unchanged from the original submittal. Note, however, Oglethorpe has received a better characterization of the stack locations and exhaust parameters for the Georgia-Pacific Warrenton Chip-N-Saw facility from Georgia-Pacific personnel and has incorporated the data provided by Georgia-Pacific into the inventories included in the supplemental Increment and NAAQS analyses rather than the initial estimates of stack parameters and locations included in Table D-3 of the original modeling submittal. Table 7 presents a summary of the revised Georgia-Pacific modeled inventory sources and parameters.

TABLE 7. GEORGIA-PACIFIC WARRENTON CHIP-N-SAW INVENTORY (REVISED)

Source ID	Model ID	UTM East (NAD83 Zone 17) (m)	UTM North (NAD83 Zone 17) (m)	Elevation (m)	Potential PM Emissions (tons/yr)	Installation/ Modification Date	NAAQS Inventory Emission (lb/hr)	Increment Inventory Emission (lb/hr)	Height (m)	Diam. (m)	Vel. (m/s)	Temp. (F)	Notes
BESP	GPBESP	346,955	3,698,080	168	62.06	1/1/1973	14.17		22.87	1.30	17.91	500	1
103S	GP103S	346,945	3,698,070	168	0.84	1/1/1989	0.19	0.12	8.54	2.13	0.001	Ambient	1,2
104S	GP104S	346,920	3,698,030	168	6.41	1/1/1989	1.46	0.89	7.01	2.13	0.001	Ambient	1,2
S201	GPS201	346,900	3,697,925	168	0.70	1/1/1973	0.16		7.32	0.40	7.62	269	1
S202	GPS202	346,900	3,697,925	168	0.70	1/1/1973	0.16		7.32	0.40	7.62	269	1
S203	GPS203	346,900	3,697,925	168	0.70	1/1/1976	0.16		7.32	0.40	7.62	269	1
302P	GP302P	346,835	3,697,850	168	1.07	1/1/1995	0.25	0.15	19.82	1.30	15.73	Ambient	1,2
105A	GP105A	347,030	3,697,935	168	7.46	1/1/1978	1.70		10.37	1.00	0.001	Ambient	1
105B	GP105B	346,975	3,697,990	168	6.02	1/1/1978	1.37		10.06	1.00	0.001	Ambient	1
Facility Total:					**85.96**		**19.63**	**1.15**					3

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. Increment emission rates reflect max actual emissions as presented in facility Title V application.

NEARFIELD INCREMENT ANALYSIS

In contrast to the analysis in the original submittal, which only assessed whether the impacts from the project may cause or contribute to an exceedance of the Increment, this supplemental analysis presents the results for all receptors within the 3.72 km SIA for all time periods. While the original submittal presented all information required by the PSD regulations to review the proposed Warren facility, Georgia EPD has requested this supplemental analysis to assist Georgia EPD with its overall air quality responsibilities. The differences are summarized below:

- Original submittal (refer to Section 5.2 of Volume II)
  - Receptors – only where Oglethorpe significant
  - Time periods – only when Oglethorpe significant
- Supplemental submittal
  - Receptors – all within 3.72 km SIA
  - Time periods – all in the five years of data

Total Predicted Increment Results

With the exception of the updated PM_{10} modeled parameters shown in Table 5, all modeled Warren facility sources remained unchanged from the previously submitted Increment analysis. Further, all inventory sources in the previously submitted PM_{10} analysis also remained the same as in the original submittal for facilities other than Georgia-Pacific; the revised inventory source parameters for Georgia-Pacific are shown in Table 7 (note only the source locations and exhaust parameters were updated; emission rates remain the same).

The results of the supplemental Class II Increment analysis are shown in Table 8. The 24-hour average values represent the highest second-high (H2H) values for a particular modeled meteorological year.

TABLE 8. PM_{10} CLASS II INCREMENT RESULTS

Averaging Period	Year	UTM East (km)	UTM North (km)	Modeled Conc. (μg/m³)	Increment (μg/m³)	Exceeds Increment?
24-Hour	1989	347.1	3,694.3	333.5	30	Yes
	1990	346.9	3,698.0	355.5	30	Yes
	1991	347.1	3,694.3	274.3	30	Yes
	1992	347.1	3,694.3	293.1	30	Yes
	1993	346.9	3,698.0	340.0	30	Yes
	MAX	346.9	3,698.0	355.5	30	Yes
Annual	1989	347.6	3,695.1	56.6	17	Yes
	1990	347.6	3,695.1	60.8	17	Yes
	1991	347.1	3,694.3	61.0	17	Yes
	1992	347.1	3,694.3	61.7	17	Yes
	1993	347.1	3,694.3	60.0	17	Yes
	MAX	347.1	3,694.3	61.7	17	Yes

As Table 8 illustrates, the modeling analysis predicts ambient concentrations above the listed PM_{10} Increment standards for both the 24-hour and annual averaging periods. In order to receive a PSD permit, a proposed PSD project must be determined to not "cause or contribute" to a PSD Increment or NAAQS violation. According to U.S. EPA's *Draft New Source Review Workshop Manual*, the impacts from the proposed project are not considered to be causing or contributing to an exceedance when emissions levels are insignificant.[5] Because the modeling domain includes areas of modeled exceedances and because this supplemental analysis includes all receptors and time intervals, it is necessary to complete an additional step to determine if the proposed Warren facility is significant at the locations and time (i.e., "receptor-events") where concentrations above the Increment standards occur.

24-Hour Increment Warren Facility Contribution Analysis

Oglethorpe utilized the following procedure to determine if the proposed Warren facility contributes to any 24-hour averaging period PSD Increment violations (i.e., if the facility had an impact above the SIL for a receptor-event predicted to exceed the Increment).

First, the EVENTFILE option within AERMOD was enabled. This option generates a separate results file that contains the individual contributions of every modeled source at each receptor and time in which the predicted concentration exceeds a given threshold (e.g., the 24-hour PM_{10} Increment standard). All the receptor-events identified (combinations of receptors and 24-hour periods) to have concentrations above the 24-hour PM_{10} Increment standard were selected.

[5] 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).

Second, the contribution of the Warren facility sources was determined from the EVENTFILE output. Next, events were sorted by receptors and ranked (i.e., first highest high, second highest high, etc.). Events in which the Warren facility impacts were below the 24-hour PM_{10} SIL of 5 $\mu g/m^3$ were excluded from further analysis. Impacts that were the first highest high were also not considered further. After finishing this step, 11 receptor-events remained.

Third, these remaining events were mapped, as shown in Figure 2 of the attachment. As the figure shows, these events all occur at receptors located within the property boundary of the adjacent Martin-Marietta Aggregates Quarry or the adjacent Georgia-Pacific Chip-N-Saw facility. The quarry property boundary is shown on the plot using the modeling receptors included in the quarry's own previously submitted modeling analysis, while the Georgia-Pacific property boundary was estimated based on information provided by Georgia-Pacific.[6,7] Therefore, it is appropriate to exclude the contribution of the quarry's or sawmill's own sources, respectively, from the total modeled concentration for these 11 events since they all occur within the quarry or sawmill property, respectively. As Tables 9 and 10 show, the remaining receptor-events do not represent exceedances of the 24-hour Class II PM_{10} Increment standard once the on-property quarry or sawmill impacts are excluded. Therefore, the proposed Warren facility will not cause or contribute to any violations of the PM_{10} 24-hour Increment.

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[6] Quarry modeling files provided by email from Mr. Peter Courtney (Georgia EPD) to Mr. Stephen Simonsen (Trinity Consultants) on July 22, 2009.

[7] File provided by email from Ms. Maria Zufall (Georgia-Pacific) to Ms. Lori Price (Trinity Consultants) on February 16, 2010.

**TABLE 9. 24-HR AVERAGE PM_{10} INCREMENT CULPABILITY RESULTS
QUARRY PROPERTY**

Event ID	Date	UTM East (km)	UTM North (km)	Total Modeled Conc. (μg/m³)	Impact Ranking (Highest High)	Warren Facility Contribution (μg/m³)	Quarry Contribution (μg/m³)	Adjusted Ambient Concentration[1] (μg/m³)	Increment (μg/m³)	Exceeds Increment? (Yes/No)
TH244930	1992-12-28	347.4	3,694.8	51.5	1	5.0	46.4	N/A - First High	30	No
TH244925	1992-12-28	347.4	3,694.9	62.8	1	5.2	57.5	N/A - First High	30	No
TH244921	1992-12-28	347.4	3,695.0	145.3	1	5.5	139.7	N/A - First High	30	No
TH244918	1992-12-28	347.4	3,695.1	37.1	20	5.5	31.6	5.5	30	No
TH244913	1992-12-28	347.4	3,695.2	38.1	6	5.3	32.8	5.4	30	No
TH244923	1992-12-28	347.5	3,694.9	69.6	1	5.2	64.3	N/A - First High	30	No
TH244920	1992-12-28	347.5	3,695.0	87.6	1	5.8	81.7	N/A - First High	30	No
TH244914	1992-12-28	347.5	3,695.1	112.8	1	6.0	106.7	N/A - First High	30	No
TH244910	1992-12-28	347.5	3,695.2	80.0	9	6.2	73.8	6.3	30	No
TH244922	1992-12-28	347.6	3,694.9	55.6	1	5.4	50.1	N/A - First High	30	No
TH244917	1992-12-28	347.6	3,695.0	119.0	2	5.7	113.2	5.8	30	No
TH244912	1992-12-28	347.6	3,695.1	112.7	33	6.1	106.5	6.2	30	No
TH244908	1992-12-28	347.6	3,695.2	118.0	8	6.5	111.3	6.6	30	No
TH243145	1992-08-29	347.7	3,695.1	42.4	87	5.2	37.0	5.4	30	No
TH243139	1992-08-29	347.7	3,695.2	33.3	96	5.2	27.8	5.4	30	No
TH243135	1992-08-29	347.7	3,695.3	38.1	84	5.0	32.9	5.2	30	No
TH243138	1992-08-29	347.8	3,695.2	40.9	30	5.3	35.5	5.4	30	No

1. Adjusted concentration equal to modeled value minus concentration from quarry emission sources.

**TABLE 10. 24-HR AVERAGE PM_{10} INCREMENT CULPABILITY RESULTS
SAWMILL PROPERTY**

Event ID	Date	UTM East (km)	UTM North (km)	Total Modeled Conc. (μg/m³)	Impact Ranking (Highest High)	Warren Facility Contribution (μg/m³)	Georgia-Pacific Contribution (μg/m³)	Adjusted Ambient Concentration[1] (μg/m³)	Increment (μg/m³)	Exceeds Increment? (Yes/No)
TH240204	1991-01-14	347.3	3,698.1	33.8	3	5.6	27.4	6.5	30	No
TH240209	1991-01-14	347.3	3,698.2	36.5	1	6.1	29.7	N/A - First High	30	No
TH240205	1991-01-14	347.4	3,698.2	34.6	1	5.6	27.5	N/A - First High	30	No

1. Adjusted concentration equal to modeled value minus concentration from Georgia-Pacific emission sources.

Annual Increment Warren Facility Contribution Analysis

For the annual average PM_{10} Increment results, several receptors had predicted annual average concentrations above the annual average PM_{10} Increment standard. For each of these events, Oglethorpe examined the impacts from each of the individual source groups for all facilities included in the inventory. The predicted concentrations from Warren facility source group did not exceed the SIL of 1 μg/m³ at any of the receptors with total impacts above the Increment. Table 1of the attachment contains a list of all modeled impacts above the annual average PM_{10} Increment standard, as well as the contribution from Warren facility sources. Therefore, the Warren facility has demonstrated that it will not cause or contribute to an exceedance of the Class II annual Increment.

NEARFIELD NAAQS ANALYSIS

The supplemental NAAQS analysis for PM_{10} was conducted to determine if the impacts from the project may cause or contribute to an exceedance of the NAAQS. As with the supplemental Increment analysis, the supplemental NAAQS analysis included all receptors within the 3.72 km SIA regardless of whether the proposed project is significant at that receptor, while the previously submitted analysis included only times and receptors at which the proposed project was significant (refer to Section 5.3 of Volume II).

Total Predicted NAAQS Results

With the exception of the updated PM_{10} modeled parameters shown in Table 5, all modeled Warren facility sources remained unchanged from the previously submitted NAAQS analysis. Further, all inventory sources in the previously submitted PM_{10} analysis also remained the same as in the previously submitted application with the exception of the Georgia-Pacific source representations shown in Table 7. The results of the supplemental NAAQS analysis are shown in Table 11. The values shown in the table represent the highest sixth-high (H6H) value among 24-hour periods over the five-year period modeled.

TABLE 11. PM_{10} NAAQS RESULTS

Averaging Period	Year	UTM East (km)	UTM North (km)	Modeled Conc. (μg/m³)	Bkg. Conc. (μg/m³)	Total Ambient Conc.[2] (μg/m³)	NAAQS (μg/m³)	Exceeds NAAQS?
24-Hour	H6H	346.9	3,698.0	572.9	38	610.9	150	Yes
Annual	1989	347.2	3,694.3	113.1	20	133.1	50	Yes
	1990	347.2	3,694.3	121.2	20	141.2	50	Yes
	1991	347.2	3,694.3	135.9	20	155.9	50	Yes
	1992	347.2	3,694.3	139.4	20	159.4	50	Yes
	1993	347.2	3,694.3	121.0	20	141.0	50	Yes
	MAX	347.2	3,694.3	139.4	20	159.4	50	Yes

As Table 11 shows, the modeling analyses predict ambient concentrations above the 24-hour and annual PM_{10} NAAQS. As with the Increment modeling analyses, Oglethorpe conducted a culpability analysis of the events exceeding the NAAQS to determine whether the proposed Warren facility will cause or contribute to a violation of the NAAQS.

24-Hour NAAQS Warren Facility Contribution Analysis

For the 24-hour average NAAQS, all events with impacts above 112 μg/m³ (a value which when combined with the background concentration results in an exceedance of the NAAQS) were identified. Next, the contribution of the Warren facility sources was determined from the EVENTFILE output.

Events in which the Warren facility impacts were below the 24-hour PM_{10} SIL of 5 $\mu g/m^3$ were excluded. Impacts that were the first highest high through fifth highest high (over the entire 5-year period) were also not considered further. Following this step, seven receptor-events remained. These remaining receptor-events were mapped as shown in Figure 3 of the attachment. As the figure shows, these events occur at receptors located within the property boundary of the adjacent Martin-Marietta Aggregates Quarry. After excluding the contribution of the quarry's own sources from the total impacts predicted for the receptors on the quarry property, the remaining receptor-events do not represent exceedances of the 24-hour PM_{10} NAAQS standard. Table 12 summarizes the contribution analysis for these events and shows that the proposed Warren facility does not cause or contribute to an exceedance of the 24-hour NAAQS.

TABLE 12. 24-HR AVERAGE PM_{10} NAAQS CULPABILITY RESULTS

Event ID	Date	UTM East (km)	UTM North (km)	Total Modeled Conc. ($\mu g/m^3$)	Impact Ranking (Highest High)	Warren Facility Contrib. ($\mu g/m^3$)	Quarry Contrib. ($\mu g/m^3$)	Adjusted Ambient Conc.[1] ($\mu g/m^3$)	Bkg. Conc. ($\mu g/m^3$)	Total Adjusted Ambient Conc.[2] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Exceeds NAAQS? (Yes/No)
TH244462	1992-12-28	347.4	3,695.0	193.0	5	5.5	187.0	N/A - 1st-5th High	38	N/A - 1st-5th High	150	No
TH244461	1992-12-28	347.5	3,695.0	124.8	1	5.8	118.8	N/A - 1st-5th High	38	N/A - 1st-5th High	150	No
TH244456	1992-12-28	347.5	3,695.1	148.5	1	6.0	142.3	N/A - 1st-5th High	38	N/A - 1st-5th High	150	No
TH244454	1992-12-28	347.5	3,695.2	115.4	27	6.2	109.0	6.4	38	44.4	150	No
TH244459	1992-12-28	347.6	3,695.0	173.6	3	5.7	167.7	N/A - 1st-5th High	38	N/A - 1st-5th High	150	No
TH244455	1992-12-28	347.6	3,695.1	163.9	215	6.1	157.6	6.3	38	44.3	150	No
TH244453	1992-12-28	347.6	3,695.2	171.4	34	6.5	164.8	6.7	38	44.7	150	No

1. Adjusted concentration equal to modeled value minus concentration from quarry emission sources.
2. Total concentration equal to adjusted ambient concentration plus the background concentration.

Annual NAAQS Warren Facility Contribution Analysis

Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, U.S. EPA revoked the annual PM_{10} standard in 2006 (effective December 17, 2006). However, the dispersion modeling results for the annual averaging period are included, as the comparison of modeled PM_{10} impacts provides a surrogate for the $PM_{2.5}$ annual NAAQS.

For PM_{10} annual average NAAQS, several receptors had predicted annual average concentrations above the standard. Oglethorpe examined the individual source groups' impacts for all facilities included in the inventory for only those receptors. The predicted concentrations from the Warren facility source group did not exceed the SIL of 1 $\mu g/m^3$ at any of the receptors with total impacts above the NAAQS. Table 2 of the attachment contains a list of all modeled impacts above the annual average PM_{10} NAAQS standard, as well as the contribution from Warren facility sources. Therefore, the Warren facility has demonstrated that it will not cause or contribute to an exceedance of the Class II annual NAAQS.

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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

Attachment

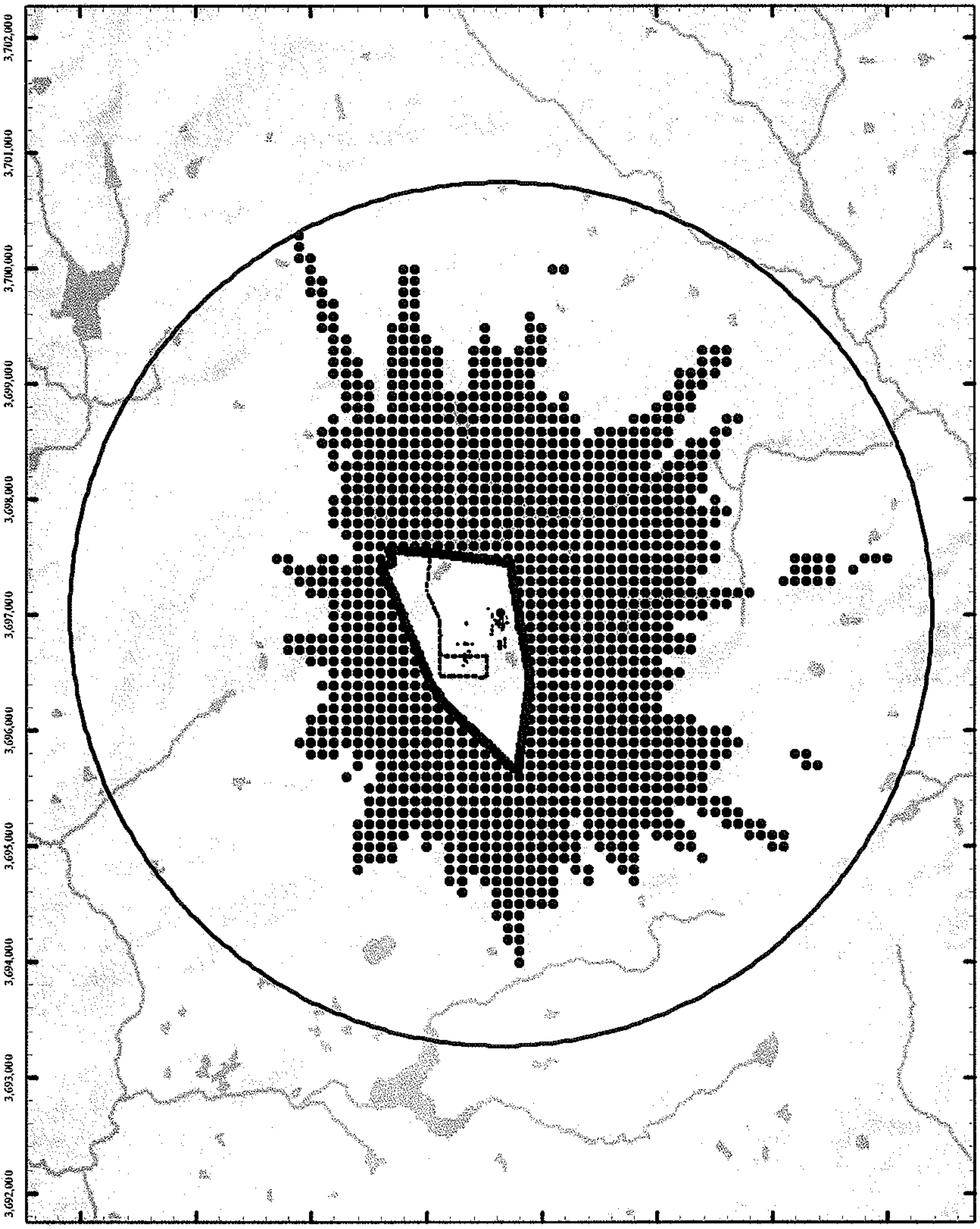
cc: Mr. Pete Courtney (Georgia EPD)
Ms. Wende Martin (Oglethorpe)
Mr. Russell Bailey (Trinity)
File – Biomass 400.11

Attachment

Supporting Figures
Annual Impact Tables
Model Files

Figure 1. PM10 Significant Impact Area

Oglethorpe Power Corporation Warren County Facility
Warrenton, Warren County, Georgia

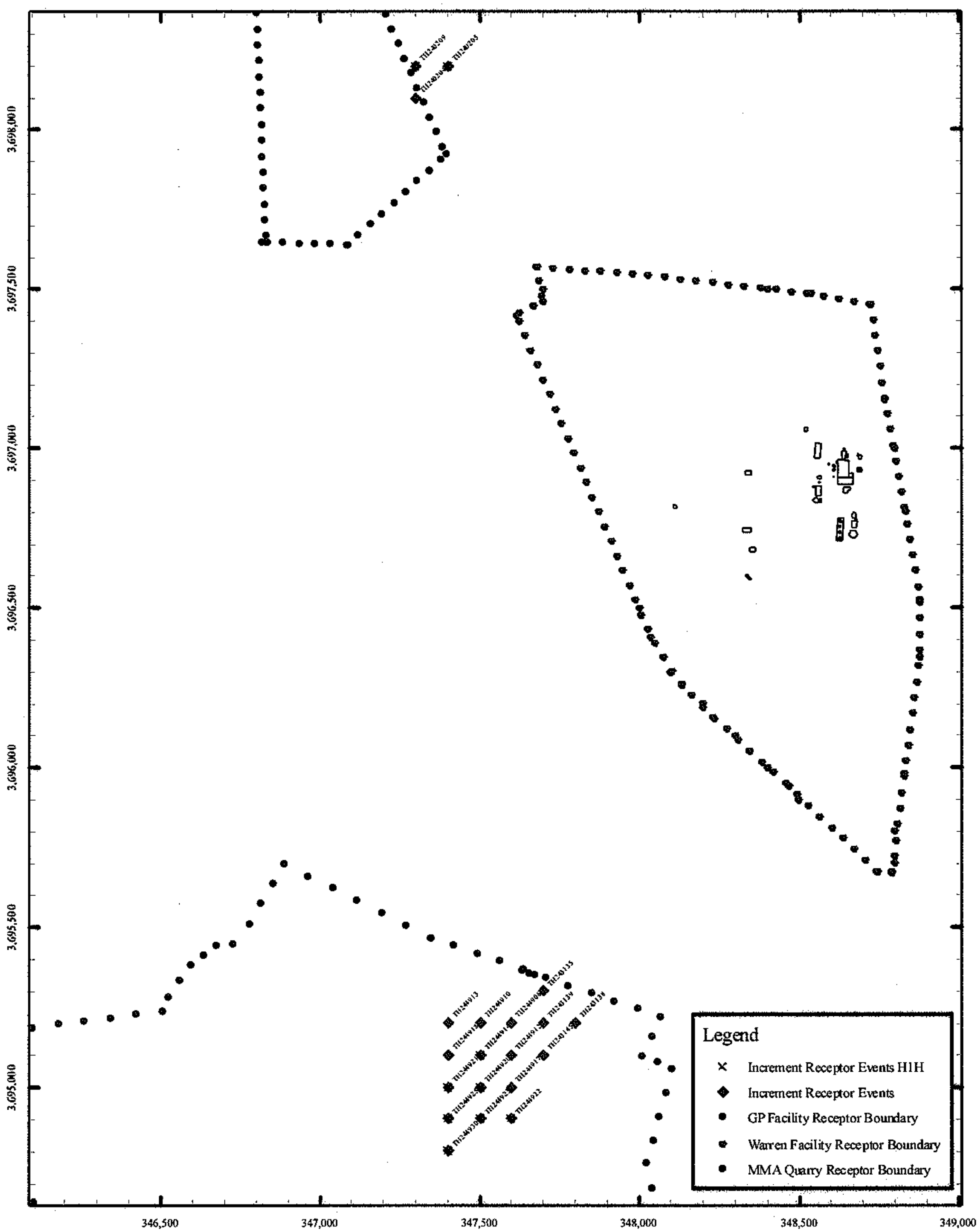


Coordinates reflect UTM projection Zone 17, NAD83.
The refined NAAQS and Increment modeling, with regional inventory sources, includes all receptors within SIA.
Receptors at which the project has demonstrated impacts above the SILs are plotted in blue.
The shaded relief imagery was developed by ESRI using GTOPO30, SRTM, and NED elevation data from the USGS.

Trinity Consultants

Figure 2. 24-hr Average PM10 Increment Results

Oglethorpe Power Corporation Warren County Facility
Warrenton, Warren County, Georgia

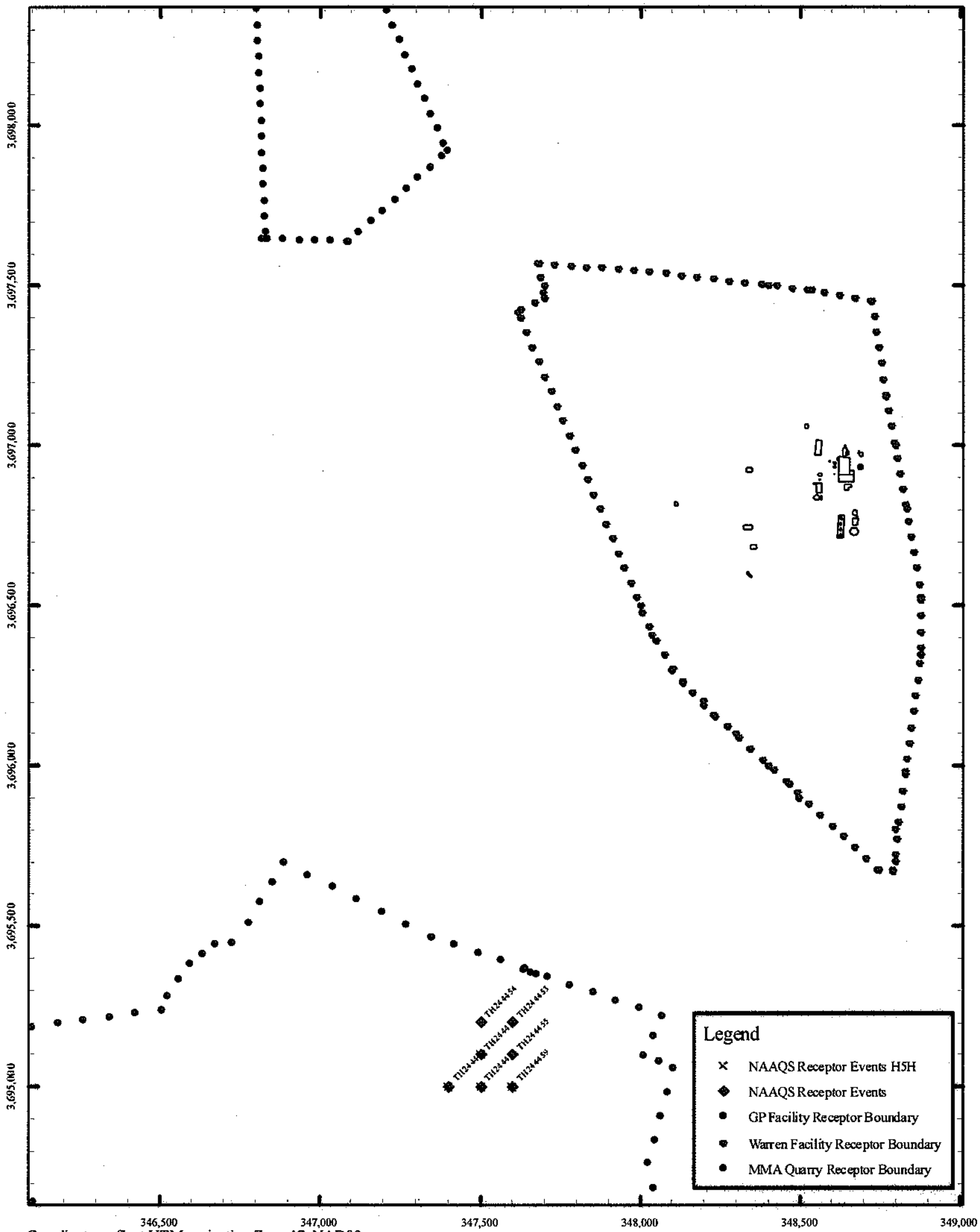


Increment receptor-events are those receptors with both a total 24-hr average concentrations above 30 ug/m3, and a contribution from Oglethorpe sources above 5 ug/m3. However, for those events within the property boundary of another industrial source, that source's concentrations may be excluded from the total. Events marked with X represent H1H values and may be excluded from the results. Coordinates reflect UTM projection Zone 17, NAD83.

Trinity Consultants

Figure 3. 24-hr Average PM10 NAAQS Results

Oglethorpe Power Corporation Warren County Facility
Warrenton, Warren County, Georgia



Coordinates reflect UTM projection Zone 17, NAD83.
NAAQS receptor-events are those receptors with both a total 24-hr average concentrations above 150 ug/m3, and a contribution from Oglethorpe sources above 5 ug/m3. However, for those events within the property boundary of another industrial source, that source's concentrations may be excluded from the total. Events marked with X represent H5H values and may be excluded from the results.
Coordinates reflect UTM projection Zone 17, NAD83.

Trinity Consultants

Table 1. Summary of Receptors Exceeding Annual PM_{10} Increment and Warren Facility Contribution

Oglethorpe Power Corporation Warren County Facility
Warrenton, Warren County, Georgia

Year	UTM East (km)	UTM North (km)	Total Modeled Concentration (μg/m³)	Warren Facility Contribution (μg/m³)	Annual Increment (μg/m³)	Total Impact Exceeds Increment? (Yes/No)	Warren Facility Exceeds SIL? (Yes/No)
1989	347.7	3,695.3	23.92	0.41	17	Yes	No
1989	347.6	3,695.3	30.18	0.39	17	Yes	No
1989	347.7	3,695.2	21.15	0.38	17	Yes	No
1989	347.5	3,695.3	32.47	0.36	17	Yes	No
1989	347.6	3,695.2	40.82	0.36	17	Yes	No
1989	347.4	3,695.3	30.79	0.34	17	Yes	No
1989	347.5	3,695.2	24.14	0.34	17	Yes	No
1989	347.7	3,695.1	20.34	0.35	17	Yes	No
1989	347.6	3,695.1	56.58	0.34	17	Yes	No
1989	347.0	3,698.0	21.95	0.21	17	Yes	No
1989	347.5	3,695.1	31.71	0.32	17	Yes	No
1989	347.2	3,695.3	24.63	0.29	17	Yes	No
1989	347.0	3,698.1	19.38	0.20	17	Yes	No
1989	346.9	3,698.0	50.17	0.20	17	Yes	No
1989	347.4	3,695.0	38.75	0.29	17	Yes	No
1989	347.2	3,695.1	28.72	0.26	17	Yes	No
1989	347.3	3,695.0	27.08	0.27	17	Yes	No
1989	347.2	3,694.3	38.56	0.19	17	Yes	No
1989	347.0	3,694.4	52.71	0.18	17	Yes	No
1989	347.1	3,694.3	48.39	0.19	17	Yes	No
1990	347.7	3,695.3	21.14	0.30	17	Yes	No
1990	347.6	3,695.3	28.86	0.29	17	Yes	No
1990	347.7	3,695.2	20.68	0.28	17	Yes	No
1990	347.5	3,695.3	31.24	0.28	17	Yes	No
1990	347.6	3,695.2	41.67	0.27	17	Yes	No
1990	347.4	3,695.3	34.04	0.28	17	Yes	No
1990	347.5	3,695.2	25.21	0.25	17	Yes	No
1990	347.7	3,695.1	20.95	0.26	17	Yes	No
1990	347.6	3,695.1	60.82	0.25	17	Yes	No
1990	347.0	3,698.0	24.21	0.18	17	Yes	No
1990	347.5	3,695.1	29.63	0.24	17	Yes	No
1990	347.2	3,695.3	24.55	0.26	17	Yes	No
1990	346.9	3,698.0	42.93	0.17	17	Yes	No
1990	347.5	3,695.0	17.66	0.23	17	Yes	No
1990	347.4	3,695.0	38.12	0.22	17	Yes	No
1990	347.2	3,695.1	29.17	0.22	17	Yes	No
1990	347.3	3,695.0	31.57	0.22	17	Yes	No
1990	347.2	3,694.3	40.67	0.14	17	Yes	No
1990	347.0	3,694.4	56.79	0.14	17	Yes	No
1990	347.1	3,694.3	58.82	0.14	17	Yes	No
1991	347.7	3,695.3	21.47	0.32	17	Yes	No
1991	347.6	3,695.3	26.38	0.32	17	Yes	No
1991	347.7	3,695.2	21.24	0.29	17	Yes	No
1991	347.5	3,695.3	28.84	0.31	17	Yes	No
1991	347.6	3,695.2	41.18	0.29	17	Yes	No
1991	347.4	3,695.3	37.66	0.29	17	Yes	No
1991	347.5	3,695.2	27.04	0.28	17	Yes	No
1991	347.7	3,695.1	21.58	0.26	17	Yes	No
1991	347.3	3,695.3	17.08	0.28	17	Yes	No
1991	347.6	3,695.1	59.70	0.27	17	Yes	No
1991	347.0	3,698.0	24.48	0.16	17	Yes	No
1991	347.5	3,695.1	31.02	0.27	17	Yes	No
1991	347.2	3,695.3	26.13	0.27	17	Yes	No
1991	346.9	3,698.0	49.87	0.15	17	Yes	No
1991	347.5	3,695.0	19.27	0.25	17	Yes	No
1991	347.4	3,695.0	41.96	0.25	17	Yes	No
1991	347.2	3,695.1	30.79	0.23	17	Yes	No
1991	347.3	3,695.0	35.49	0.23	17	Yes	No
1991	347.2	3,694.3	41.45	0.16	17	Yes	No
1991	347.0	3,694.4	55.35	0.15	17	Yes	No
1991	347.1	3,694.3	61.01	0.16	17	Yes	No
1992	347.7	3,695.3	25.04	0.30	17	Yes	No
1992	347.6	3,695.3	26.83	0.30	17	Yes	No
1992	347.7	3,695.2	23.38	0.28	17	Yes	No
1992	347.5	3,695.3	29.91	0.29	17	Yes	No
1992	347.6	3,695.2	41.42	0.27	17	Yes	No
1992	347.4	3,695.3	37.06	0.29	17	Yes	No
1992	347.5	3,695.2	26.88	0.26	17	Yes	No
1992	347.7	3,695.1	26.72	0.25	17	Yes	No
1992	347.3	3,695.3	18.28	0.29	17	Yes	No
1992	347.6	3,695.1	57.29	0.25	17	Yes	No
1992	347.0	3,698.0	27.48	0.14	17	Yes	No
1992	347.5	3,695.1	32.47	0.24	17	Yes	No
1992	347.2	3,695.3	25.60	0.28	17	Yes	No
1992	346.9	3,698.0	47.48	0.14	17	Yes	No
1992	347.2	3,695.2	17.18	0.26	17	Yes	No
1992	347.5	3,695.0	19.67	0.23	17	Yes	No
1992	347.4	3,695.0	43.54	0.23	17	Yes	No
1992	347.2	3,695.1	32.61	0.24	17	Yes	No
1992	347.3	3,695.0	35.46	0.22	17	Yes	No
1992	347.2	3,694.3	45.33	0.14	17	Yes	No
1992	347.0	3,694.4	54.43	0.14	17	Yes	No
1992	347.1	3,694.3	61.66	0.14	17	Yes	No
1993	347.7	3,695.3	23.19	0.29	17	Yes	No
1993	347.6	3,695.3	26.20	0.29	17	Yes	No
1993	347.7	3,695.2	20.94	0.26	17	Yes	No
1993	347.5	3,695.3	29.24	0.28	17	Yes	No
1993	347.6	3,695.2	41.17	0.26	17	Yes	No
1993	347.4	3,695.3	34.48	0.27	17	Yes	No
1993	347.5	3,695.2	24.76	0.25	17	Yes	No
1993	347.7	3,695.1	22.87	0.24	17	Yes	No
1993	347.6	3,695.1	59.68	0.24	17	Yes	No
1993	347.0	3,698.0	26.97	0.16	17	Yes	No
1993	347.5	3,695.1	28.97	0.24	17	Yes	No
1993	347.2	3,695.3	22.55	0.23	17	Yes	No
1993	346.9	3,698.0	40.34	0.15	17	Yes	No
1993	347.5	3,695.0	18.87	0.22	17	Yes	No
1993	347.4	3,695.0	40.55	0.22	17	Yes	No
1993	347.2	3,695.1	30.11	0.21	17	Yes	No
1993	347.3	3,695.0	31.11	0.21	17	Yes	No
1993	347.2	3,694.3	42.47	0.14	17	Yes	No
1993	347.0	3,694.4	52.58	0.14	17	Yes	No
1993	347.1	3,694.3	59.98	0.14	17	Yes	No

Table 2. Summary of Receptors Exceeding Annual PM_{10} NAAQS and Warren Facility Contribution

Oglethorpe Power Corporation Warren County Facility
Warrenton, Warren County, Georgia

Year	UTM East (km)	UTM North (km)	Annual Conc. (µg/m³)	Annual Bkg. Conc. (µg/m³)	Total Annual Conc. (µg/m³)	Warren Facility Contribution (µg/m³)	Annual NAAQS (µg/m³)	Total Impact Exceeds NAAQS? (Yes/No)	Warren Facility Exceeds SIL? (Yes/No)
1989	347.7	3,695.3	38.62	20	58.62	0.41	50	Yes	No
1989	347.6	3,695.3	47.53	20	67.53	0.39	50	Yes	No
1989	347.7	3,695.2	35.65	20	55.65	0.38	50	Yes	No
1989	347.5	3,695.3	51.43	20	71.43	0.36	50	Yes	No
1989	347.6	3,695.2	62.76	20	82.76	0.36	50	Yes	No
1989	347.4	3,695.3	49.05	20	69.05	0.34	50	Yes	No
1989	347.5	3,695.2	37.99	20	57.99	0.34	50	Yes	No
1989	347.7	3,695.1	35.54	20	55.54	0.35	50	Yes	No
1989	347.0	3,697.9	30.43	20	50.43	0.22	50	Yes	No
1989	347.6	3,695.1	86.46	20	106.46	0.34	50	Yes	No
1989	347.0	3,698.0	52.59	20	72.59	0.21	50	Yes	No
1989	347.5	3,695.1	43.65	20	63.65	0.32	50	Yes	No
1989	347.2	3,695.3	39.42	20	59.42	0.29	50	Yes	No
1989	347.0	3,698.1	39.30	20	59.30	0.20	50	Yes	No
1989	346.9	3,698.0	91.45	20	111.45	0.20	50	Yes	No
1989	347.4	3,695.0	60.36	20	80.36	0.29	50	Yes	No
1989	346.9	3,698.1	30.34	20	50.34	0.19	50	Yes	No
1989	347.2	3,695.1	46.22	20	66.22	0.26	50	Yes	No
1989	347.3	3,695.0	44.39	20	64.39	0.27	50	Yes	No
1989	347.4	3,694.4	31.16	20	51.16	0.21	50	Yes	No
1989	347.3	3,694.3	50.85	20	70.85	0.20	50	Yes	No
1989	347.2	3,694.3	113.09	20	133.09	0.19	50	Yes	No
1989	347.0	3,694.4	88.27	20	108.27	0.18	50	Yes	No
1989	347.1	3,694.3	95.85	20	115.85	0.19	50	Yes	No
1990	347.7	3,695.3	34.51	20	54.51	0.30	50	Yes	No
1990	347.6	3,695.3	46.21	20	66.21	0.29	50	Yes	No
1990	347.7	3,695.2	34.33	20	54.33	0.28	50	Yes	No
1990	347.5	3,695.3	49.49	20	69.49	0.28	50	Yes	No
1990	347.6	3,695.2	65.01	20	85.01	0.27	50	Yes	No
1990	347.4	3,695.3	54.97	20	74.97	0.28	50	Yes	No
1990	347.5	3,695.2	39.81	20	59.81	0.25	50	Yes	No
1990	347.7	3,695.1	35.28	20	55.28	0.26	50	Yes	No
1990	347.0	3,697.9	31.94	20	51.94	0.19	50	Yes	No
1990	347.6	3,695.1	93.16	20	113.16	0.25	50	Yes	No
1990	347.0	3,698.0	55.32	20	75.32	0.18	50	Yes	No
1990	347.5	3,695.1	41.48	20	61.48	0.24	50	Yes	No
1990	347.2	3,695.3	39.19	20	59.19	0.26	50	Yes	No
1990	347.0	3,698.1	30.75	20	50.75	0.17	50	Yes	No
1990	346.9	3,698.0	79.93	20	99.93	0.17	50	Yes	No
1990	347.5	3,695.0	30.29	20	50.29	0.23	50	Yes	No
1990	347.4	3,695.0	60.39	20	80.39	0.22	50	Yes	No
1990	346.9	3,698.1	31.37	20	51.37	0.16	50	Yes	No
1990	347.2	3,695.1	47.18	20	67.18	0.22	50	Yes	No
1990	347.3	3,695.0	51.38	20	71.38	0.22	50	Yes	No
1990	347.3	3,694.3	57.04	20	77.04	0.15	50	Yes	No
1990	347.2	3,694.3	121.15	20	141.15	0.14	50	Yes	No
1990	347.0	3,694.4	95.04	20	115.04	0.14	50	Yes	No
1990	347.1	3,694.3	112.91	20	132.91	0.14	50	Yes	No
1991	347.7	3,695.3	35.14	20	55.14	0.32	50	Yes	No
1991	347.6	3,695.3	42.12	20	62.12	0.32	50	Yes	No
1991	347.7	3,695.2	35.63	20	55.63	0.29	50	Yes	No
1991	347.5	3,695.3	45.83	20	65.83	0.31	50	Yes	No
1991	347.6	3,695.2	63.78	20	83.78	0.29	50	Yes	No
1991	347.4	3,695.3	59.06	20	79.06	0.29	50	Yes	No
1991	347.5	3,695.2	42.36	20	62.36	0.28	50	Yes	No
1991	347.7	3,695.1	36.73	20	56.73	0.26	50	Yes	No
1991	347.0	3,697.9	33.38	20	53.38	0.17	50	Yes	No
1991	347.6	3,695.1	91.06	20	111.06	0.27	50	Yes	No
1991	347.0	3,698.0	54.38	20	74.38	0.16	50	Yes	No
1991	347.5	3,695.1	42.59	20	62.59	0.27	50	Yes	No
1991	347.2	3,695.3	40.76	20	60.76	0.27	50	Yes	No
1991	346.9	3,698.0	91.90	20	111.90	0.15	50	Yes	No
1991	347.5	3,695.0	32.06	20	52.06	0.25	50	Yes	No
1991	347.4	3,695.0	64.61	20	84.61	0.25	50	Yes	No
1991	347.2	3,695.1	47.72	20	67.72	0.23	50	Yes	No
1991	347.3	3,695.0	54.91	20	74.91	0.23	50	Yes	No
1991	347.3	3,694.3	62.32	20	82.32	0.16	50	Yes	No
1991	347.2	3,694.3	135.92	20	155.92	0.16	50	Yes	No
1991	347.0	3,694.4	94.80	20	114.80	0.15	50	Yes	No
1991	347.1	3,694.3	121.97	20	141.97	0.16	50	Yes	No
1992	347.7	3,695.3	39.41	20	59.41	0.30	50	Yes	No
1992	347.6	3,695.3	41.76	20	61.76	0.30	50	Yes	No
1992	347.7	3,695.2	37.20	20	57.20	0.28	50	Yes	No
1992	347.5	3,695.3	47.24	20	67.24	0.29	50	Yes	No
1992	347.6	3,695.2	62.83	20	82.83	0.27	50	Yes	No
1992	347.4	3,695.3	58.48	20	78.48	0.29	50	Yes	No
1992	347.5	3,695.2	41.53	20	61.53	0.26	50	Yes	No
1992	347.7	3,695.1	42.32	20	62.32	0.25	50	Yes	No
1992	347.0	3,697.9	32.79	20	52.79	0.16	50	Yes	No
1992	347.6	3,695.1	85.94	20	105.94	0.25	50	Yes	No
1992	347.0	3,698.0	60.67	20	80.67	0.14	50	Yes	No
1992	347.5	3,695.1	43.28	20	63.28	0.24	50	Yes	No
1992	347.2	3,695.3	39.09	20	59.09	0.28	50	Yes	No
1992	346.9	3,698.0	87.72	20	107.72	0.14	50	Yes	No
1992	347.5	3,695.0	31.15	20	51.15	0.23	50	Yes	No
1992	347.4	3,695.0	66.97	20	86.97	0.23	50	Yes	No
1992	347.2	3,695.1	49.51	20	69.51	0.24	50	Yes	No
1992	347.3	3,695.0	53.85	20	73.85	0.22	50	Yes	No
1992	347.3	3,694.3	62.35	20	82.35	0.14	50	Yes	No
1992	347.2	3,694.3	139.42	20	159.42	0.14	50	Yes	No
1992	347.0	3,694.4	92.91	20	112.91	0.14	50	Yes	No
1992	347.1	3,694.3	122.53	20	142.53	0.14	50	Yes	No
1993	347.7	3,695.3	37.06	20	57.06	0.29	50	Yes	No
1993	347.6	3,695.3	41.17	20	61.17	0.29	50	Yes	No
1993	347.7	3,695.2	34.41	20	54.41	0.26	50	Yes	No
1993	347.5	3,695.3	45.93	20	65.93	0.28	50	Yes	No
1993	347.6	3,695.2	63.08	20	83.08	0.26	50	Yes	No
1993	347.4	3,695.3	54.23	20	74.23	0.27	50	Yes	No
1993	347.5	3,695.2	38.27	20	58.27	0.25	50	Yes	No
1993	347.7	3,695.1	37.72	20	57.72	0.24	50	Yes	No
1993	347.6	3,695.1	90.23	20	110.23	0.24	50	Yes	No
1993	347.0	3,698.0	58.98	20	78.98	0.16	50	Yes	No
1993	347.5	3,695.1	39.42	20	59.42	0.24	50	Yes	No
1993	347.2	3,695.3	35.96	20	55.96	0.23	50	Yes	No
1993	346.9	3,698.0	75.71	20	95.71	0.15	50	Yes	No
1993	347.5	3,695.0	30.15	20	50.15	0.22	50	Yes	No
1993	347.4	3,695.0	61.85	20	81.85	0.22	50	Yes	No
1993	347.2	3,695.1	47.38	20	67.38	0.21	50	Yes	No
1993	347.3	3,695.0	49.84	20	69.84	0.21	50	Yes	No
1993	347.3	3,694.3	58.08	20	78.08	0.13	50	Yes	No
1993	347.2	3,694.3	121.00	20	141.00	0.14	50	Yes	No
1993	347.0	3,694.4	88.89	20	108.89	0.14	50	Yes	No
1993	347.1	3,694.3	113.43	20	133.43	0.14	50	Yes	No

The CD included with this letter contains all of the supplemental PM_{10} modeling analyses input and output data files used to generate the results presented in this letter; copies of previously provided files (i.e., meteorological data, downwash, load analysis) are not included. The following section provides a description of the contents of each folder included in the attached CD.

PM_{10} SUPPLEMENTAL SIGNIFICANCE

Contains the input (.ami), output (.lst) and plot (.plt) files from the 24-hr and Annual significance analysis. For all of the PM_{10} Class II significance files, the nomenclature is as follows:

*AB*V2*CYY*.xxx where:

- *A* = pollutant ID (*P*= PM_{10})
- *B* = type of analysis (*S* = significance)
- *C* = averaging period for plot files (*A* = annual, *D* = daily/24-hour)
- *YY* = modeled year (1989-1993)
- *xxx* = input, output or plot file (*.ami* = input, *.lst* = output, *.plt*=plot)

PM_{10} SUPPLEMENTAL INCREMENT

Contains the input (.ami), output (.lst) and plot (.plt) files from the 24-hr and annual supplemental Increment analysis. For all of the PM_{10} Increment files, the nomenclature is as follows:

*AB*V2*CDDYY*.xxx where:

- *A* = pollutant ID (*P*= PM_{10})
- *B* = type of analysis (*I* = Increment)
- *C* = averaging period for plot files (*A* = annual, *D* = daily/24-hour)
- *DD* = value utilized in maxifile analysis (*DD* = 30 for 24-hour Increment)
- *YY* = modeled year (1989-1993)
- *xxx* = input, output or plot file (*.ami* = input, *.lst* = output, *.plt*=plot, *.max* = maxifile)

Annual plot files (.plt) were also generated for each individual facility source group for each met year using the following nomenclature:

ABCDDDYY.xxx where:

- *A* = pollutant ID (*P*= PM_{10})
- *B* = type of analysis (*I* = Increment)
- *C* = averaging period (*A* = annual)
- *DDD* = inventory facility identifier (*ALL* = all sources, *GP* = Georgia Pacific, *MMQ* = Martin Marietta Quarry, *OPC* = Oglethorpe Warren, *TIN* = Temple-Inland, *TRW* = TRW)
- *YY* = modeled year (1989-1993)
- *xxx* = plot file (*.plt* = plot)

24-hour PM_{10} Increment Culpability Analysis

- ▲ For each year, contains the events.inp file generated by AERMOD in the Increment analysis. The file contains all receptors and times in which the predicted total Increment concentration exceeds the 24-hour PM_{10} Increment standard (30 $\mu g/m^3$). These files were copied as aermod.inp and ran in AERMOD to generate aermod.out.

- ▲ For each year, contains the Comma Delimited and Excel files used to process event output files for the 24-hr Class II Increment analyses for PM_{10}.

PM_{10} SUPPLEMENTAL NAAQS

- ▲ Contains the input (.ami), output (.lst) and plot (.plt) files from the annual supplemental NAAQS analysis. For all of the PM_{10} annual NAAQS files, the nomenclature is as follows:

  *AB*V2*CYY*.xxx where:
  - *A* = pollutant ID (*P*= PM_{10})
  - *B* = type of analysis (*N* = NAAQS)
  - *C* = averaging period (*A* = annual)
  - *YY* = modeled year (1989-1993)
  - *xxx* = input, output or plot file (*.ami* = input, *.lst* = output)

Plot files (.plt) were also generated for each individual facility source group for each met year using the following nomenclature:

ABCDDDYY.xxx where:
- *A* = pollutant ID (*P*= PM_{10})
- *B* = type of analysis (*N* = NAAQS)
- *C* = averaging period (*A* = annual)
- *DDD* = inventory facility identifier (*ALL* = all sources, *GP* = Georgia Pacific, *MMQ* = Martin Marietta Quarry, *OPC* = Oglethorpe Warren, *TIN* = Temple-Inland, *TRW* = TRW)
- *YY* = modeled year (1989-1993)
- *xxx* = plot file (*.plt* = plot)

- ▲ Contains the input (.ami), output (.lst) and plot (.plt) files from the 24-hr supplemental NAAQS analysis. For the PM_{10} 24-hour NAAQS files, the nomenclature is as follows:

  *AB*V2*CDDYY*.xxx where:

  - *A* = pollutant ID (*P*= PM_{10})
  - *B* = type of analysis (*N* = NAAQS)
  - *C* = averaging period for plot files (*D* = Daily/24-hour)
  - *DD* = value utilized in maxifile analysis (*DD* = 112 for 24-hour NAAQS minus background value)
  - *YY* = modeled year (1989, represents the 1989-1993 data compiled into one file)
  - *xxx* = input, output or plot file (*.ami* = input, *.lst* = output, *.plt*=plot)

24-hour PM_{10} NAAQS Culpability Analysis

- ▲ Contains the events.inp file generated by AERMOD in the NAAQS analysis. The file contains all receptors and times in which the predicted total NAAQS concentration prior to application of the background value of 38 $\mu g/m^3$ exceeds the 24-hour PM_{10} NAAQS standard (150 $\mu g/m^3$). This file was copied as aermod.inp and ran in AERMOD to generate aermod.out.

- ▲ Contains the Comma Delimited and Excel files used to process event output files for the 24-hr NAAQS analyses for PM_{10}.