

November 18, 2016



James W. Boylan, Ph.D.
Planning & Support Program
Georgia Department of Natural Resources
Environmental Protection Division – Air Protection Branch
4244 International Parkway, Suite 120
Atlanta, GA 30354

Re: Georgia Power Plant Bowen, Data Requirements for Characterizing Air Quality for the Primary 1-hour SO₂ National Ambient Air Quality Standard

Dear Dr. Boylan,

This is to submit modeled air quality data in the vicinity of Georgia Power Plant Bowen characterizing maximum 1-hour ambient concentrations of sulfur dioxide (SO₂) under the Data Requirements Rule (“DRR”) in 40 C.F.R. Part 51 Subpart BB. The air quality data is based on dispersion modeling conducted in accordance with (1) the April 1, 2016 modeling protocol, (2) the June 14, 2016 modeling protocol addendum, and (3) the September 27, 2016 modeling protocol update addressing comments from EPA’s technical review of the protocol and addendum. Based on the modeled air quality data (included in the electronic files on the attached compact disc), SO₂ emissions from Plant Bowen do not cause or contribute to any violations of the 1-hour SO₂ NAAQS.

The following discusses the procedures used to support the dispersion modeling.

Meteorological Input Data

Since no onsite meteorological data was available, hourly surface and upper air observations from the Cartersville Airport and Peachtree City national weather service stations for the period 2012-2014 were used in the modeling. The data were judged by GA EPD to be representative (i.e., no significant difference in surface characteristics in the areas surrounding the surface station and plant site) and provided in a preprocessed AERMOD model-ready format using the AERMET (v14134) processor.

Source Input Data

Actual hourly emissions, temperatures, and exhaust flow rates for the most recent three calendar years (2012-2014) were modeled. The emissions and exhaust flow rates used to develop the source input data are the same as those reported to the EPA Clean Air Markets Division under

the Acid Rain Program using continuous emissions monitoring systems certified according to 40 C.F.R Part 75. The physical source parameters (e.g., actual stack heights, exhaust configuration, etc.), and other information relevant to the representation of the point sources at Plant Bowen are described in the April 1, 2016 modeling protocol. Figures 1-3 show the actual hourly SO₂ emission rates (lb/hr) that were modeled through each stack for 2012, 2013, and 2014.

2012 Plant Bowen Hourly SO₂ Emission Rates (lb/hr)

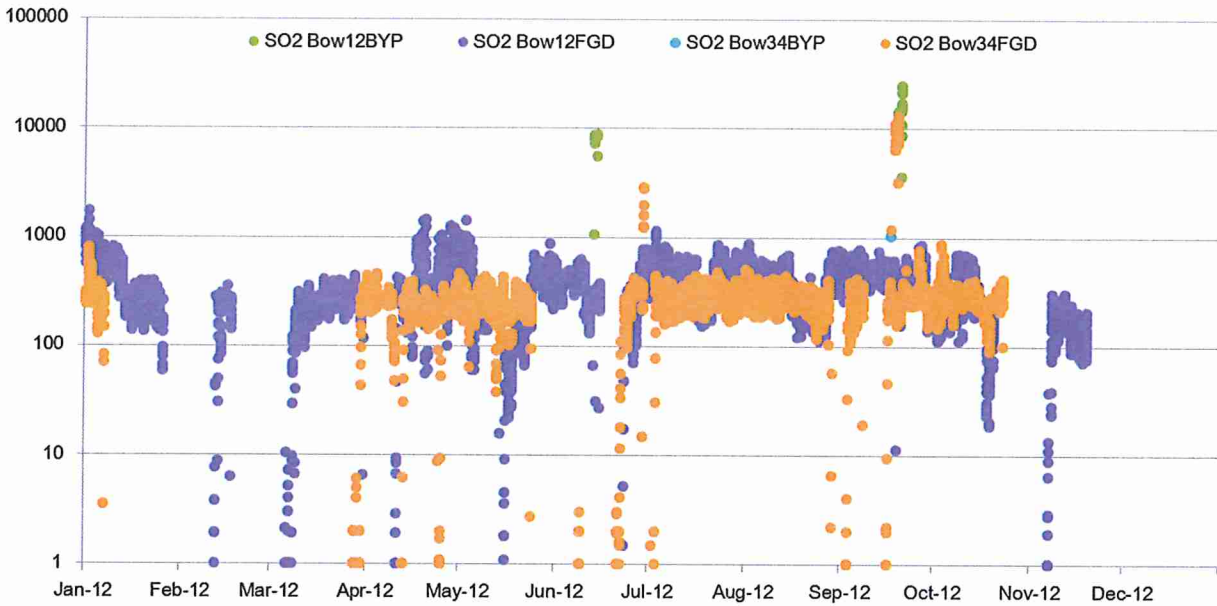


Figure 1. Hourly (2012) SO₂ emission rates for each modeled point source at Plant Bowen

2013 Plant Bowen Hourly SO₂ Emission Rates (lb/hr)

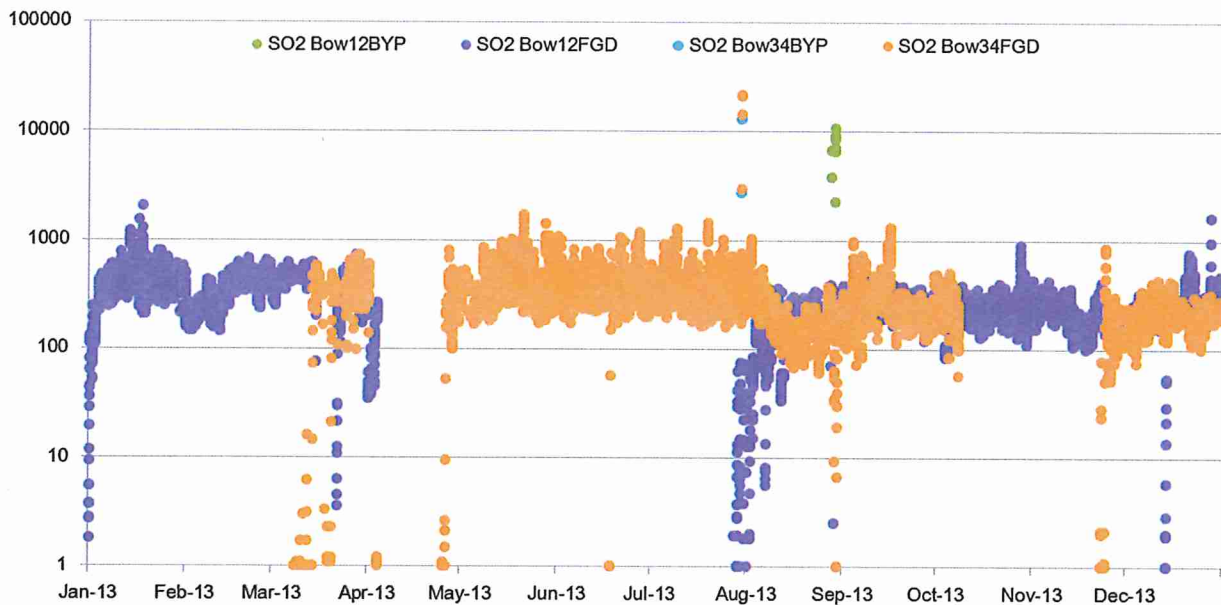


Figure 2. Hourly (2013) SO₂ emission rates for each modeled point source at Plant Bowen

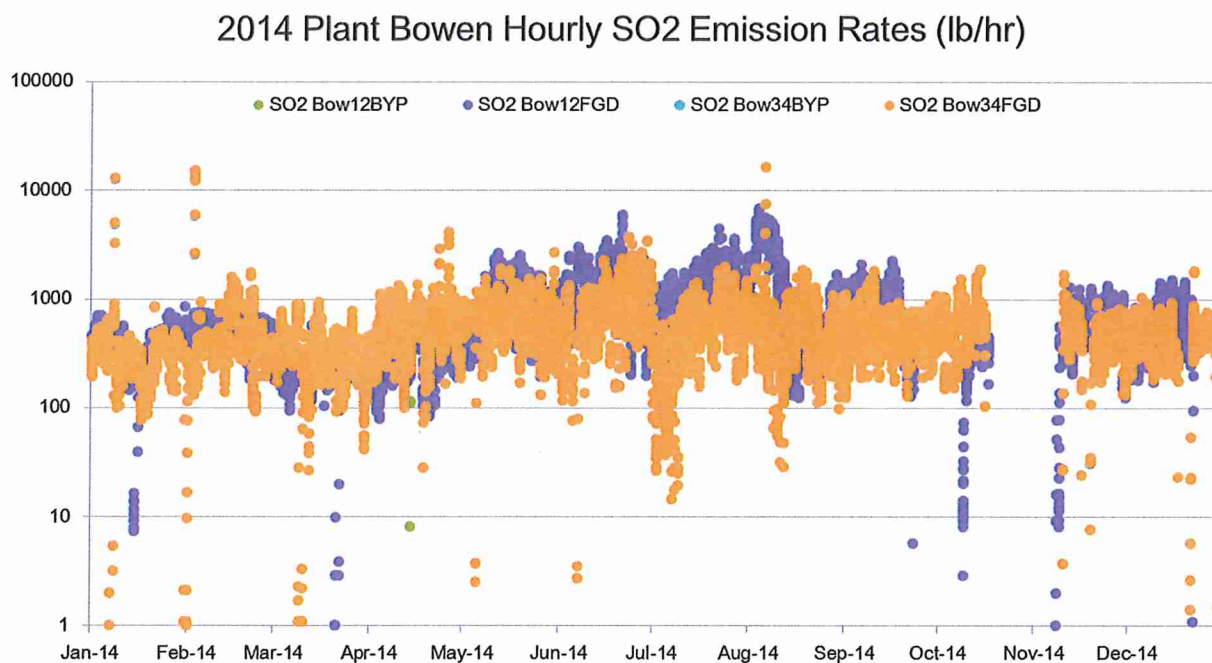


Figure 3. Hourly (2014) SO₂ emission rates for each modeled point source at Plant Bowen

Receptor Locations

A Cartesian receptor grid extending to approximately 20 km from Plant Bowen in all directions was used in the modeling analysis. The receptors were placed according to the following configuration:

- 100 meter spacing out to 2 km,
- 250 meter spacing from 2 km out to 5 km,
- 500 meter spacing from 5 km out to 10 km, and
- 1,000 meter spacing from 10 km out to 20 km.

Then, all areas of maximum impact were resolved to 100 meter spacing.

Building Downwash

The effects of building downwash were incorporated into the modeling analysis. Direction-specific building downwash parameters required by AERMOD were developed using BPIP PRIME (04274).

Offsite Emissions Inventory

All offsite sources of SO₂ not modeled are adequately represented by the background concentration included in the modeling analysis. Please refer to the June 14, 2016 modeling

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protocol addendum and September 27, 2016 modeling protocol update for additional discussion regarding the inclusion of additional offsite sources in the modeling analysis.

2010 SO₂ NAAQS Assessment

As part of the modeling analysis, background was added to the modeled concentrations to assess compliance with the 1-hour SO₂ NAAQS. The 2013-2015 design value for the Rome monitor (13-115-0003), 35 ppb (91.6 µg/m³), was used as the “first-tier” background concentration. Please refer to the September 27, 2016 modeling protocol update. The total SO₂ concentrations were calculated as the sum of the modeled design concentration from Plant Bowen and the background concentration. The modeled design concentration was calculated by AERMOD (v14134) using actual hourly emissions from 2012-2014 and reflects the 3-year average of the 99th-percentile daily maximum 1-hour SO₂ concentrations. The modeling results are presented in Table 1 below and show that the 4th highest daily 1-hour concentration averaged over 3 years, including background, is 55 ppb. The contribution of Plant Bowen, in-and-of itself, was only 20 ppb. This value is well below the NAAQS level of 75 ppb.

Table 1. Summary of highest 1-hour SO₂ modeled impacts averaged over 3 years, including background

Rank	3-year Average (ppb)	2012 (ppb)	2013 (ppb)	2014 (ppb)	Receptor (lat, long)	Distance from Plant Bowen (km)
1st	94	104	70	108	34.1092, -84.9267	1.85
2nd	69	68	51	89	34.1063, -84.9133	2.3
3rd	62	63	49	73	34.1009, -84.9134	2.85
4th	55	46	44	76	34.1053, -84.9090	2.55

Should you or your staff have any questions, please contact Jon Bandzul at (404) 506-3458.

Sincerely,



Rosa Chi
Environmental Affairs Manager

Cc: Di Tian, Georgia Environmental Protection Division
Jon Bandzul, Georgia Power Company
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