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January 11, 2017

Ms. Wren Stenger
Division Director (6MM)
Multimedia Planning and Permitting Division
U.S. Environmental Protection Agency, Region VI (6-RA)
1445 Ross Avenue
Dallas, Texas 75202-2733

Re: Final Modeling Report for New Mexico Source Subject to the 2010 1-Hour Sulfur Dioxide Primary NAAQS

Dear Ms. Stenger:

On behalf of the New Mexico Environment Department (NMED), I am submitting the final modeling report for New Mexico's only source (San Juan Generating Station) subject to the Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide ("SO_2") Primary National Ambient Air Quality Standard ("NAAQS").

The Data Requirements Rule directs states to characterize air quality data near significant sources. EPA concurred with New Mexico's list of only one significant source in March 2016. In June 2016, New Mexico submitted a letter and an initial modeling protocol stating that it intended to characterize air quality surrounding this source with modeling of actual data. A final modeling protocol was submitted in December 2016.

The attached final modeling report satisfies the requirements at 40 CFR Part 51.1203(d), air agency requirements. This report is submitted as documentation that air quality surrounding the San Juan Generating Station meets the 2010 NAAQS for SO_2. No other areas in the State have been designated nonattainment for this standard and no other areas in the State have significant sources.

If you have any questions regarding this submittal, please contact Rita Bates, Planning Section Chief, NMED Air Quality Bureau at (505) 476-4304.

Sincerely,

J.C. Borrego
Deputy Secretary, New Mexico Environment Department

Cc: Guy Donaldson, U.S. EPA Region 6
Jim Grady, U.S. EPA Region 6
Richard Goodyear, Chief, NMED Air Quality Bureau

Air Quality Dispersion Modeling Summary for SJGS SO2 Attainment

Modeling Parameters:

All regulatory default options in AERMOD will be used for these model runs. The use of stack-tip downwash, the calms and missing data processing routines, and default wind profile exponents will be used. Building downwash produced by buildings at the facility was also considered. The rural dispersion land use option will be used.

Complex Terrain Data:

Both simple and complex types of terrain will be used to model the facility. Elevations of receptors were obtained from the National Elevation Dataset available from the USGS website. AERMAP was then used to assign elevations to receptors and facility stacks.

Receptor Grid:

A nested grid of 50 m spacing along the fenceline, 100 m spacing out to 2.5 km, and 1000 m spacing out to 20 km was used for the modeling runs.

MET Data:

Meteorological data from the New Mexico Air Quality Bureau weather station (Substation-1H_ (EPA-350451005)) located 3.5 km west of the facility along with NWS data from the Four Corners Airport and upper air data from the Albuquerque Airport were used for this analysis. The Substation MET data is the main data set used with the NWS data used to fill in any missing data and to provide cloud cover data. The Substation MET data was at least 97% complete for all years. All data was processed with the AERMET processor. The AERSURFACE program was used to assign values to the surface roughness, Bowen Ratio, and surface albedo at each weather station site. This analysis used twelve (12) 30 degree sectors for which these variables were calculated for each month of the year. The data covers the years 2013- 2015.

Adjacent Sources:

All 21 surrounding sources in the AQB database out to 50 km was used in this analysis. The surrounding sources also included the Arizona Public Service Electric Company Four Corners Power Plant (4CPP).

Modeling Procedures:

The San Juan Generating Station was modeled using the actual SO2 CEMs data received from the facility for the years 2013 - 2015. These data are for the 4 main power plant stacks and was formatted to be read by the model. The 4CPP also used actual SO2 CEMs data for the years 2013 and 2014 but the 2015 data was not available so the 2014 data was used again (with dates changed) for the 2015 4CPP data. The remainder of the facilities SO2 emissions were taken from the latest permit on file and modeled as the allowable emissions in in that permit.

NAAQS and NMAAQS:

SO2 monitoring data from the nearby Substation monitoring site (350451005) for the years 2013-2015 will be used as the hourly background concentration to add to the modeled result.

Results / Discussion:

The highest ambient impacts were found to be on or very close to the fenceline on the west side of the facility with secondary higher impacts along the eastern fenceline. Both of these impacts were due to building downwash calculated by the model.

Table 2: Ambient Impact from Emissions

Pollutant	Contributing Sources	Avg'ing Period	Concentration (ug/m3)	Receptor Elevation (m)	UTMH (m)	UTMV (m)	Distance From Site (m)	Radius Of Impact (km)	Applicable Standard	Value of Standard	Units	Percentage of Standard
SO2	with Downwash	1-hour	195.17	1627.9	728020	4075880	541	29.2	NAAQS	196.40	ug/m3	99.4

Air Quality Dispersion Modeling Summary for SJGS SO2 Attainment

Project: San Juan Generating Station

Township 30N Range: 15W Section 16-21, County: San Juan

UTM Coordinates: 728550 m East 407600 m North Zone 12 Datum: NAD 83 Elevation 5300 feet

Brief:

This modeling analysis is in support of the SO2 attainment modeling project for PNM's San Juan Generating Station (SJGS) coal fired power plant located approx. 3 miles NNE of Waterflow in the Four Corners region of New Mexico.

Permit Conditions:

The facility can operate 24 hrs/day, 7 days/wk, 52 wks/yr or a total of 8760 hrs/yr.

Conclusion:

This modeling analysis demonstrates that normal operation of the facility neither causes nor significantly contributes to any exceedances of applicable air quality standards. The standard relevant at this facility for this analysis is the 1-Hr NAAQS standard for SO2 of 75 ppb.

Action:

This analysis shows the area impacted by the SJGS Power Plant can be classified as "In Attainment" within the guidelines of the SO2 DRR.

Model(s) Used:

The AERMOD modeling system will be used for all modeling in this project.

Number of Model Runs:

Two (2) model runs were needed to show the ambient impacts of the SJGS on the surrounding terrain. One run using building downwash and one run without building downwash to identify the modeled effects of the building downwash.

Table 1: Table of Point Emissions and Stack Parameters:

Source	Description	UTMH (m)	UTMV (m)	Elevation (m)	Height (m)	Temp (K)	ExitVel (m/s)	Dia (m)	SO2 (lbs/hr)
E301	Unit 1	728606	407569	1614	121.92	CEM data	20.24	6.48	CEM data
E302	Unit 2	728603	407575	1614	121.92	CEM data	21.49	6.71	CEM data
E303	Unit 3	728639	407583	1613	121.92	CEM data	17.68	8.89	CEM data
E304	Unit 4	728639	407592	1612	121.92	CEM data	17.68	8.89	CEM data
E501	Unit 1 Duct Leaks	728540	407569	1616	22.86	644.3	8.47	0.17	1.10
E502	Unit 2 Duct Leaks	728540	407575	1616	22.86	644.3	8.88	0.17	1.10
E503	Unit 3 Duct Leaks	728551	407583	1617	22.86	644.3	9.30	0.17	1.10
E504	Unit 4 Duct Leaks	728551	407592	1616	22.86	644.3	10.79	0.17	1.20
STACK 4&5	Four Corners Power Plant	725050	406320	1631	115.82	CEM data	CEM data	8.69	CEM data