

Ongoing Data Requirements Rule Verification
2010 1-Hour Sulfur Dioxide (SO₂) Primary
National Ambient Air Quality Standard (NAAQS)
Mississippi Department of Environmental Quality
May 4, 2022

R.D. Morrow Senior Generating Plant- Lamar County, MS

On June 2, 2010, the U.S. EPA revised the primary NAAQS for SO₂ by establishing a 1-hour standard at a level of 75 parts per billion (ppb), which is equivalent to 196.34 µg/m³. In 2015, South Mississippi Electric Power Association (SMEPA) conducted sulfur dioxide (SO₂) designation modeling to determine whether the area around the Morrow Plant should be designated as attainment or non-attainment. SMEPA conducted the SO₂ designation modeling using the U.S. EPA’s preferred air dispersion model for near-field regulatory applications, the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD). SMEPA used the following dispersion modeling methodology to determine the designation status of the area around the Morrow Plant:

- Used the most recent three (3) years of actual emissions (2012, 2013, and 2014);
- Used three (3) years of meteorological data (2012, 2013, and 2014);
- Used actual stack heights rather than limiting model stack heights to GEP height; and
- Included near-by sources from the regional inventories provided by the MDEQ.

SMEPA conducted the dispersion modeling in accordance with the modeling protocol approved by the U.S. EPA. Table 1 shows the dispersion modeling results and indicates the area around the Morrow Plant should be classified as “attainment” and SMEPA is not causing or contributing to any violations of the 1-hour SO₂ National Ambient Air Quality Standards (NAAQS).

Table 1: SO₂ Designation Modeling Results

	2012	2013	2014
4th Maximum Modeled Concentration, µg/m ³	125.11	123.02	131.42
Design Value Concentration, µg/m ³	115.17	123.02	95.89
4th Highest Averaged Concentration (2012-2014), µg/m ³	111.36		
Background Concentration	36.65		
NAAQS	196.34		
NAAQS Exceedance (Yes/No)	No		

In February of 2016, EPA notified the Mississippi Department of Environmental Quality (MDEQ) that, due to the modeling submitted, Lamar County, MS is designated as unclassifiable/attainment for the 2010 SO₂ standard. Under 40 CFR 51.1205(b), areas designated as attaining the standard based on modeling of actual emissions are required to submit a report including more recent emissions data and evaluating whether further modeling is warranted. Table 2 includes the facility emissions from EPA’s Clean Air Markets (CAMD) database.

Table 2: R D Morrow Senior Generating Plant SO₂ Emissions (tons)

Facility Name	Year	Unit ID	Operating Time	Heat Input (MMBtu)	SO ₂ (tons)	Total SO ₂ (tons)
R D Morrow Senior Generating Plant	2014	1	2,878	4,592,321	938	2,210
		2	2,569	4,079,314	1,272	
	2015	1	746	1,102,708	54	222
		2	1,480	1,801,828	168	
	2016	1	1,787	2,329,180	63	114
		2	2,050	2,444,379	52	
	2017	1	795	874,919	12	16
		2	260	293,076	4	
	2018	1	0	0	0	30
		2	1,110	1,510,457	30	

Source: EPA’s Clean Air Markets (CAMD) database

As shown in Table 2, total SO₂ emissions for the R D Morrow Senior Generating Plant have been reduced since the years used in the modeling submitted in 2015. Therefore, the previous modeling used for the 2010 SO₂ Round 2 designations remains valid and no additional modeling is needed. MDEQ recommends that Lamar County, MS remain classified as unclassifiable/attainment.

On November 9, 2018, SMEPA submitted Retired Unit Exemption forms to EPA indicating that both Units ID #1 and #2 would be permanently retired on November 17, 2018. Both of these units have been retired and dismantled. These units were replaced with new natural gas combined cycle units. Table 3 lists potential emissions as stated in SMEPA’s application.

Table 3: R D Morrow Senior Generating Plant SO₂ Emissions (tons) of NGCC Units

Source Name	Source Description	Source Unit	Pollutant	Potential Emissions (tpy)
R D Morrow Plant	New NGCC	AA-12	SO ₂	50.7
R D Morrow Plant	New NGCC	AA-13	SO ₂	50.7

Since Units #1 & #2 have been permanently retired and dismantled, and the county was classified as unclassifiable/attainment while the units were operational, MDEQ will seek, in a separate submittal, to have the SMEPA R D Morrow Senior Generating Plant removed from the annual reporting requirements of the Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide (SO₂) Primary National Ambient Air Quality Standard.

Daniels Electric Generating Plant – Jackson County, MS

On June 2, 2010, the U.S. EPA revised the primary NAAQS for SO₂ by establishing a 1-hour standard at a level of 75 parts per billion (ppb), which is equivalent to 196.34 µg/m³. In 2016, Mississippi Power Company conducted sulfur dioxide (SO₂) designation modeling to determine whether the area around the Daniels Electric Generating Plant should be designated as attainment or non-attainment. Mississippi Power conducted the SO₂ designation modeling using the U.S. EPA’s preferred air dispersion model for near-field regulatory applications, the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD). Mississippi Power used the following dispersion modeling methodology to determine the designation status of the area around the Daniels Electric Generating Plant:

- Used the most recent three (3) years of actual emissions (2012, 2013, and 2014);
- Used three (3) years of meteorological data (2012, 2013, and 2014);
- Used actual stack heights rather than limiting model stack heights to GEP height; and
- Included near-by sources from the regional inventories provided by the MDEQ.

Mississippi Power conducted the dispersion modeling in accordance with the modeling protocol approved by the U.S. EPA. Table 4 shows the dispersion modeling results and indicates the area around the Daniels Electric Generating Plant should be classified as “attainment” and Mississippi Power is not causing or contributing to any violations of the 1-hour SO₂ National Ambient Air Quality Standards (NAAQS).

Table 4: SO₂ Designation Modeling Results – Daniels Electric Generating Plant

Pollutant	Averaging Period	Model Design Concentration (µg/m ³)	Monitored Background Concentration (µg/m ³)	Total Concentration (µg/m ³)	NAAQS (µg/m ³)	Below NAAQS (Y/N)?	Percent of NAAQS (%)
SO ₂	1-hour	105.83	42.14	147.97	196.5	Y	75%

In December of 2017, EPA notified the Mississippi Department of Environmental Quality (MDEQ) that, due to the modeling submitted, Jackson County, MS is designated as unclassifiable/attainment for the 2010 SO₂ standard. Under 40 CFR 51.1205(b), areas designated as attaining the standard based on modeling of actual emissions are required to submit a report including more recent emissions data and evaluating whether further modeling is warranted. Table 5 includes the facility emissions from EPA’s Clean Air Markets (CAMD) database.

As shown in Table 5, total SO₂ emissions for the Daniel Electric Generating Plant have been reduced since the years used in the modeling submitted in 2016. Therefore, the previous modeling used for the 2010 SO₂ Round 2 designations remains valid and no additional modeling is needed. MDEQ recommends that Jackson County, MS remain classified as unclassifiable/attainment.

Table 5: Daniel Electric Generating Plant SO₂ Emissions (tons)

Facility Name	Year	Unit ID	Operating Time	Heat Input (MMBtu)	SO ₂ (tons)	Total SO ₂ (tons)
	2016	1	5,474	12,620,563	76	156
		2	5,475	13,640,775	65	
		3A	7,874	13,325,951	4	
		3B	8,344	14,235,469	4	
		4A	6,777	11,424,450	3	
		4B	7,337	12,193,976	4	
	2017	1	7,040	16,271,301	107	205
		2	5,293	12,695,088	82	
		3A	7,176	12,413,196	4	
		3B	7,092	12,095,756	4	
		4A	8,120	13,735,333	4	
		4B	8,281	13,269,125	4	
	2018	1	6,063	14,195,649	129	253
		2	6,332	15,809,312	107	
		3A	8,193	14,216,628	4	
		3B	8,306	14,190,498	4	
		4A	8,274	14,214,429	4	
		4B	8,224	13,393,013	4	
	2019	1	4,739	11,925,228	104	223
		2	5,634	14,407,654	103	
		3A	8,174	14,495,875	4	
		3B	8,228	14,520,961	4	
		4A	8,241	14,365,153	4	
		4B	7,404	12,278,870	4	
2020	1	4,262	11,281,679	69	181	
	2	6,374	18,042,376	94		
	3A	8,456	15,134,208	5		
	3B	8,394	14,927,474	4		
	4A	7,792	13,698,738	4		
	4B	7,951	13,291,443	4		
2021	1	6,675	22,725,173	93	169	
	2	3,772	10,792,796	59		
	3A	8,056	14,304,857	4		
	3B	8,056	13,938,100	4		
	4A	8,353	14,189,489	4		
	4B	8,338	13,608,860	4		

Source: EPA's Clean Air Markets (CAMD) database

Red Hills Generation Facility – Choctaw County, MS

On June 2, 2010, the U.S. EPA revised the primary NAAQS for SO₂ by establishing a 1-hour standard at a level of 75 parts per billion (ppb), which is equivalent to 196.34 µg/m³. In 2016, The Choctaw Generation Limited Partnership, L.L.L.P. conducted sulfur dioxide (SO₂) designation modeling to determine whether the area around the Red Hills Generation Facility should be designated as attainment or non-attainment. The Choctaw Generation Limited Partnership, L.L.L.P. conducted the SO₂ designation modeling using the U.S. EPA’s preferred air dispersion model for near-field regulatory applications, the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD). The Choctaw Generation Limited Partnership, L.L.L.P. used the following dispersion modeling methodology to determine the designation status of the area around the Red Hills Generation Facility:

- Used the most recent three (3) years of actual emissions (2012, 2013, and 2014);
- Used three (3) years of meteorological data (2012, 2013, and 2014);
- Used actual stack heights rather than limiting model stack heights to GEP height; and
- Included near-by sources from the regional inventories provided by the MDEQ.

The Choctaw Generation Limited Partnership, L.L.L.P. conducted the dispersion modeling in accordance with the modeling protocol approved by the U.S. EPA. Table 6 shows the dispersion modeling results and indicates the area around the Red Hills Generation Facility should be classified as “attainment” and The Choctaw Generation Limited Partnership, L.L.L.P. is not causing or contributing to any violations of the 1-hour SO₂ National Ambient Air Quality Standards (NAAQS).

Table 6: SO₂ Designation Modeling Results – Red Hills Generation Facility

Pollutant	Averaging Period	Model Design Concentration (µg/m ³)	Monitored Background Concentration (µg/m ³)	Total Concentration (µg/m ³)	NAAQS (µg/m ³)	Below NAAQS (Y/N)?	Percent of NAAQS (%)
SO ₂	1-hour	45.43	39.3	84.73	196.5	Y	43%

In December of 2017, EPA notified the Mississippi Department of Environmental Quality (MDEQ) that, due to the modeling submitted, Choctaw County, MS is designated as unclassifiable/attainment for the 2010 SO₂ standard. Under 40 CFR 51.1205(b), areas designated as attaining the standard based on modeling of actual emissions are required to submit a report including more recent emissions data and evaluating whether further modeling

is warranted. Table 7 includes the facility emissions from EPA’s Clean Air Markets (CAMD) database.

As shown in Table 7, total SO₂ emissions for the Red Hills Generation Facility have been reduced since the years used in the modeling submitted in 2016. Therefore, the previous modeling used for the 2010 SO₂ Round 2 designations remains valid and no additional modeling is needed. MDEQ recommends that Choctaw County, MS remain classified as unclassifiable/attainment.

Table 7: Red Hills Generation Facility SO₂ Emissions (tons)

Facility Name	Year	Unit ID	Operating Time	Heat Input (MMBtu)	SO ₂ (tons)	Total SO ₂ (tons)
	2015	AA001	7,300	17,238,183	1,507	3,027
		AA002	7,711	19,634,313	1,520	
	2016	AA001	7,472	16,938,342	1,464	2,799
		AA002	6,361	16,003,855	1,336	
	2017	AA001	6,541	13,664,385	1,090	2,245
		AA002	6,061	13,939,836	1,155	
	2018	AA001	7,601	20,285,442	1,354	2,812
		AA002	7,302	17,863,565	1,458	
	2019	AA001	6,351	14,375,544	1,451	2,637
		AA002	6,461	15,47,2028	1,186	
	2020	AA001	6,225	10,690,045	1,048	2,344
		AA002	6,410	15,368,749	1,297	
	2021	AA001	7,197	15,539,942	1,478	2,843
		AA002	7,286	16,887,101	1,366	

Source: EPA’s Clean Air Markets (CAMD) database