Ongoing Data Requirements Rule Verification 2010 1-Hour Sulfur Dioxide (SO₂) Primary National Ambient Air Quality Standard (NAAQS)

Mississippi Department of Environmental Quality
April 30, 2021

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

On June 2, 2010, the U.S. EPA revised the primary NAAQS for SO_2 by establishing a 1-hour standard at a level of 75 parts per billion (ppb), which is equivalent to 196.34 μ g/m3. In 2015, South Mississippi Electric Power Association (SMEPA) conducted sulfur dioxide (SO_2) designation modeling to determine whether the area around the Morrow Plant should be designated as attainment or non-attainment. SMEPA conducted the SO_2 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)

Year	Unit ID	Operating Time	Heat Input (MMBtu)	SO₂ (tons)	Total SO ₂ (tons)	
2014	1	2,878	4,592,321	938	2 210	
2014	2	2,569	4,079,314	1,272	2,210	
2015	1	746	1,102,708	54	222	
2015	2	1,480	1,801,828	168	222	
2016	1	1,787	2,329,180	63	114	
2010	2	2,050	2,444,379	52	114	
2017	1	795	874,919	12	16	
2017	2	260	293,076	4	16	
2019	1	0	0	0	20	
2018	2	1,110	1,510,457	30	30	

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

As shown in Table 2, total SO_2 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 SO_2 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 SO_2 by establishing a 1-hour standard at a level of 75 parts per billion (ppb), which is equivalent to 196.34 μ g/m3. In 2016, Mississippi Power Company conducted sulfur dioxide (SO_2) 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 SO_2 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	Model Design	Monitored	Total	NAAQS	Below	Percent
	Period	Concentration	Background	Concentration	$(\mu g/m^3)$	NAAQS	of
		(μg/m³)	Concentration	(μg/m³)		(Y/N)?	NAAQS
			(μg/m³)				(%)
SO ₂	1-hour	105.83	42.14	147.97	196.5	Υ	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)

2012 2013 7,033 7,785 14,89 2014 2014 13,977 13,445,218 3,706 2 4,910 15,446,598 4,689 3A 8,297 14,095,612 4 4A 8,366 14,113,507 4 4B 8,224 13,506,573 4 4A 6,777 11,424,450 3 4B 7,337 12,193,976 4 4A 8,166 14,113,507 4 4B 7,337 12,193,976 4 4A 6,777 11,424,450 3 4B 7,337 12,193,976 4 4A 6,777 11,424,450 3 4B 7,337 12,193,976 4 4A 6,777 12,413,196 4 4A 8,120 13,735,333 4 4B 8,281 13,269,125 4 253 4 48 8,241 14,214,429 4 48 8,244 13,393,013 4 48 8,244 13,393,013 4 48 8,244 13,393,013 4 48 8,244 14,407,654 103 3A 8,174 14,495,875 4 3B 8,228 14,520,961 4 4A 8,241 14,4365,153 4 4B 7,404 12,278,870 4	Year	Unit ID	Operating Time	Heat Input	SO ₂	Total SO ₂
2013 1	2012			(MMBtu)	(tons)	(tons)
1						
2015 1						
2 4,910 15,446,598 4,689 3A 8,297 14,095,612 4 3B 8,236 14,126,696 4 4A 8,366 14,113,507 4 4B 8,224 13,506,573 4 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 1 7,040 16,271,301 107 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 2018 2018 2019	2014					14,898
2015 3A 8,297 14,095,612 4 3B 8,236 14,126,696 4 4A 8,366 14,113,507 4 4B 8,224 13,506,573 4 1 5,474 12,620,563 76 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 1 7,040 16,271,301 107 2 5,293 12,695,088 82 3A 7,176 12,413,196 4 3B 8,281 13,269,125 4 4A 8,120 13,735,333 4 4B 8,281 13,269,125 4 2018 2018 2018 2018 2018 2019 2019 2019 3A 8,193 14,216,628 4 4A 8,274 14,214,429 4 4B 8,224 13,393,013 4 1 4,739 11,925,228 104 22 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			·			
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2016 38 8,236 14,126,696 4A 8,366 14,113,507 4 B 8,224 13,506,573 4 1 5,474 12,620,563 76 2 5,475 13,640,775 65 3A 7,874 13,325,951 4 4B 7,337 12,193,976 4 4B 7,337 12,193,976 4 4B 7,040 16,271,301 107 2 5,293 12,695,088 82 3A 7,176 12,413,196 4A 8,120 13,735,333 4B 8,281 13,269,125 4 4B 8,281 13,269,125 4 1 6,063 14,195,649 129 2 6,332 15,809,312 107 3A 8,193 14,216,628 4 4A 8,274 14,214,429 4 4B 8,224 13,393,013 4 2019 2019 3A 8,174 14,495,875 4 3B 8,228 14,407,654 103 3A 8,174 14,495,875 4 4B 7,404 12,278,870 4	2015		8,297	14,095,612	4	8.412
2016 48 8,224 13,506,573 4 1 5,474 12,620,563 76 2 5,475 13,640,775 65 3A 7,874 13,325,951 4 3B 8,344 14,235,469 4A 4A 6,777 11,424,450 3 4B 7,040 16,271,301 107 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 1 6,063 14,195,649 129 2 6,332 15,809,312 107 3A 8,193 14,216,628 4 4A 8,274 14,214,429 4 4B 8,224 13,393,013 4 2019 2019 2019 3A 8,174 14,495,875 4 2024 4A 8,228 14,520,961 4A 8,241 14,365,153 4 4B 7,404 12,278,870 4			8,236	14,126,696	4	
2016 1		4A	8,366	14,113,507	4	
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 1 7,040 16,271,301 107 2 5,293 12,695,088 82 3A 7,176 12,413,196 4 3B 8,281 13,269,125 4 4B 8,281 13,269,125 4 1 6,063 14,195,649 129 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 2019 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		4B	8,224	13,506,573	4	
2016 3A			5,474	12,620,563	76	
2016 3B		2	5,475	13,640,775	65	
2017 38	2016	3A	7,874	13,325,951	4	156
2017 4B 7,337 12,193,976 4 1 7,040 16,271,301 107 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 1 6,063 14,195,649 129 2 6,332 15,809,312 107 3A 8,193 14,216,628 4 3B 8,306 14,190,498 4A 8,274 14,214,429 4B 8,224 13,393,013 4 1 4,739 11,925,228 104 2019 2019 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	2010	3B	8,344	14,235,469	4] 130
2017 1		4A	6,777	11,424,450	3	
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 1 6,063 14,195,649 129 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		4B	7,337	12,193,976	4	
2017 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 1 6,063 14,195,649 129 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 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		1	7,040	16,271,301	107	
2017 3B		2	5,293	12,695,088	82	205
2018 38	2017	3A	7,176	12,413,196	4	
2018 4B 8,281 13,269,125 4 1 6,063 14,195,649 129 2 6,332 15,809,312 107 3A 8,193 14,216,628 4 4A 8,274 14,214,429 4B 8,224 13,393,013 4 1 4,739 11,925,228 104 2 5,634 14,407,654 103 3A 8,174 14,495,875 4 2019 3B 8,228 14,520,961 4A 8,241 14,365,153 4 4B 7,404 12,278,870 4	2017	3B	7,092	12,095,756	4	
2018 1 6,063 14,195,649 129 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 1 4,739 11,925,228 104 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		4A	8,120	13,735,333	4	
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 1 4,739 11,925,228 104 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		4B	8,281	13,269,125	4	
2018 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 1 4,739 11,925,228 104 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		1	6,063	14,195,649	129	
2018 3B 8,306 14,190,498 4A 8,274 14,214,429 4B 8,224 13,393,013 4 1 4,739 11,925,228 104 2 5,634 14,407,654 103 3A 8,174 14,495,875 4 3B 8,228 14,520,961 4A 8,241 14,365,153 4 4B 7,404 12,278,870 4		2	6,332	15,809,312	107	
2019 3B	2010	3A	8,193	14,216,628	4	252
2019 4B 8,224 13,393,013 4 1 4,739 11,925,228 104 2 5,634 14,407,654 103 3A 8,174 14,495,875 4 3B 8,228 14,520,961 4A 8,241 14,365,153 4 4B 7,404 12,278,870 4	2018	3B	8,306	14,190,498	4	255
2019 1 4,739 11,925,228 104 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		4A	8,274	14,214,429	4	
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		4B	8,224	13,393,013	4	
2019 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		1	4,739	11,925,228	104	
2019 3B 8,228 14,520,961 4 4A 8,241 14,365,153 4 4B 7,404 12,278,870 4	2019	2	5,634	14,407,654	103	
3B 8,228 14,520,961 4 4A 8,241 14,365,153 4 4B 7,404 12,278,870 4		3A	8,174	14,495,875	4	1
4B 7,404 12,278,870 4		3B	8,228	14,520,961	4	223
1,101 ==,=10,010		4A	8,241	14,365,153	4	
		4B	7,404	12,278,870	4	
1 4,262 11,281,679 69		1	4,262	11,281,679	69	
2 6,374 18,042,376 94		2	6,374		94	
3A 8.456 15.134.208 5		3A	8,456		5	404
2020 3B 8,394 14,927,474 4 181	2020	3B	·		4	181
4A 7,792 13,698,738 4		4A				
4B 7,951 13,291,443 4		4B				

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	Model Design	Monitored	Total	NAAQS	Below	Percent
	Period	Concentration	Background	Concentration	$(\mu g/m^3)$	NAAQS	of
		(μg/m³)	Concentration	$(\mu g/m^3)$		(Y/N)?	NAAQS
			(μg/m³)				(%)
SO ₂	1-hour	45.43	39.3	84.73	196.5	Υ	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 SO_2 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 SO_2 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)

Year	Unit ID	Operating Time	Heat Input (MMBtu)	SO ₂ (tons)	Total SO ₂ (tons)
2012					3,037
2013					3,159
2014					2,882
2015	AA001	7,300	17,238,183	1,507	2 027
2015	AA002	7,711	19,634,313	1,520	3,027
2016	AA001	7,472	16,938,342	1,464	2 700
2016	AA002	6,361	16,003,855	1,336	2,799
2017	AA001	6,541	13,664,385	1,090	2.245
2017	AA002	6,061	13,939,836	1,155	2,245
2010	AA001	7,601	20,285,442	1,354	2 012
2018	AA002	7,302	17,863,565	1,458	2,812
2010	AA001	6,351	14,375,544	1,451	2.627
2019	AA002	6,461	15,47,2028	1,186	2,637
2020	AA001	6,225	10,690,045	1,048	2344
2020	AA002	6,410	15,368,749	1,297	2344

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