STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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VERIFICATION OF CONTINUED ATTAINMENT FOR THE HILLSBOROUGH-POLK COUNTY SULFUR DIOXIDE (SO_2) MAINTENANCE AREA

May 1, 2024

Table of Contents

1. Background

Effective March 23, 2020, the U.S. Environmental Protection Agency (EPA) approved Florida's redesignation request and maintenance plan for the Hillsborough-Polk sulfur dioxide (SO_2) maintenance area. 85 Fed. Reg. 9,666 (February 20, 2020). The maintenance plan includes a section regarding verification of ongoing attainment, which requires the Florida Department of Environmental Protection (Department) to provide an annual report to EPA on or before July 1 of each year, which certifies whether the area is continuing to attain the 2010 SO_2 national ambient air quality standard (NAAQS). This annual report must include:

1) The status of ongoing compliance with the SO_2 emission limits for the Mosaic New Wales and Mosaic Bartow facilities;
2) A review of annual emissions data for these two facilities;
3) A review of the air dispersion modeling inputs and assumptions identified by EPA in coordination with the Department;
4) A certification that there are no changes in the air dispersion modeling inputs and assumptions that could result in a modeled violation; and
5) All supporting documentation and data evaluated by the Department in preparing its annual report.

This annual report addresses the items listed above to demonstrate that the Hillsborough-Polk maintenance area continues to attain the 2010 SO_2 NAAQS.

2. Status of Ongoing Compliance with the SO_2 Emission Limits

The attainment modeling demonstration was based on permitted SO_2 emissions caps of 1,090 pounds per hour (lb/hr) for the five sulfuric acid plants (SAPs) at New Wales and 1,100 lb/hr for the three SAPs at Bartow, based on a 24-hour average as determined by continuous emission monitoring systems (CEMS) data. These SO_2 emissions limits have been incorporated into Florida's State Implementation Plan (SIP) to make the limits permanent and federally enforceable.

Mosaic has been in compliance with the 24-hour block average SAP emissions for each facility since the limits became effective on August 31, 2019. **Appendix A** provides all of the 24-hour averages from January 1, 2023, through December 31, 2023. All of the 24-hour averages are below the respective limits for each facility, demonstrating that Mosaic continues to comply with the SO_2 emissions limits at both facilities, as required to maintain the NAAQS.

3. Review of Annual Emissions Data

Table 1 shows the 2023 annual emissions from New Wales and Bartow in relation to the potential to emit from those facilities. As the attainment modeling demonstration uses potential to emit, there has been less SO_2 emitted from these facilities than was modeled.

Table 1: 2023 annual SO_2 emissions from New Wales and Bartow compared to the potential to emit.

Facility	2023 Actual Emissions (TPY)	Potential to Emit (TPY)	Percentage of Potential to Emit
New Wales SAPs 1-5	2,998	4,774	62.8%
Bartow SAPs 4-6	2,882	4,818	59.8%

4. Review of Air Dispersion Modeling Inputs and Assumptions

The Department coordinated with EPA to determine which modeling inputs and assumptions used in the attainment modeling demonstration should be reviewed to determine whether there have been any changes that could result in a modeled violation of the 2010 SO_2 NAAQS. These modeling inputs and assumptions are discussed below.

Source-Specific Modeling Inputs and Assumptions

The stack parameters for each SAP at New Wales and Bartow have not changed since the Department submitted its attainment modeling demonstration. There has not been any construction or new buildings added at New Wales or Bartow that could change building downwash parameters.

Operations of the SAPs at both New Wales and Bartow have not changed and continue to reflect what was modeled in the attainment modeling demonstration. Therefore, no change in the temporal or spatial distribution of SO_2 emissions or concentrations is expected.

Meteorology

The Department analyzed the meteorology and wind rose data for the most recent five years of available data (2019-2023) and compared these data to the meteorology and wind rose data for the five years used in the attainment modeling demonstration (2012-2016). **Figure 1** shows the wind roses for these two periods and shows that the wind pattern is very similar between the two periods.

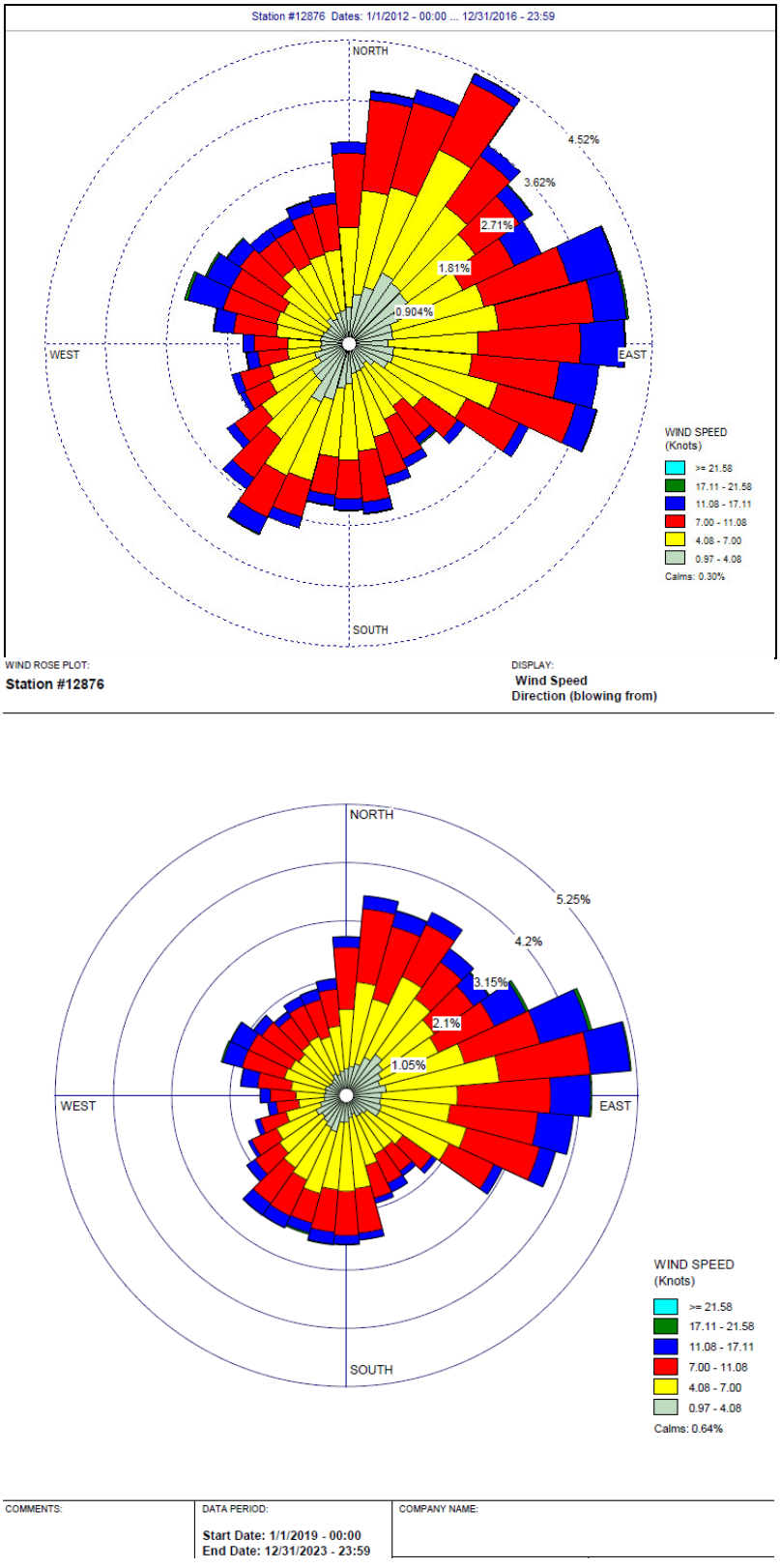

Figure 1. Wind rose data for the KGIF Winter Haven Regional Airport ASOS station for the years 2012-2016 (top) and 2019-2023 (bottom).

The most important wind direction to analyze is when the wind is traveling from Bartow towards New Wales. This wind direction results in the maximum modeled concentrations because it includes impacts from both the New Wales facility and the nearby Bartow facility. Bartow is approximately 45 degrees northeast of New Wales, so the Department assessed times during which the wind direction was in the range of 0 to 90 degrees. This range conservatively covers all potential periods when Bartow emissions could be contributing to modeled SO_2 concentrations near New Wales.

Table 2 compares the percentage of time that winds were from 0-90 degrees in the 2012-2016 meteorology dataset and the 2019-2023 meteorology dataset. There is a slight decrease in the percentage of time that winds blow from Bartow towards New Wales in the 2019-2023 dataset, which would be expected to cause a slight, but potentially insignificant, decrease in modeled concentrations.

Table 2. Percentage of time wind direction is from 0 to 90 degrees.

Years	Wind Direction 0-90º
2012-2016	33.51%
2019-2023	33.24%

Land-Use in the Area

Land use in the area, which can affect the meteorological parameters, has not changed since the area attained the NAAQS.

Ambient Background Concentrations

The Department evaluated ambient background concentrations of SO_2 at the Department's Sydney monitoring location (12-057-3002). The Department used 2014-2016 data from the Sydney monitor to calculate background SO_2 concentrations used in the attainment modeling demonstration. **Table 3** shows that the one-hour SO_2 design value at the Sydney monitor has decreased from 13 ppb to 6 ppb since the 2014-2016 period.

Table 3. SO_2 1-hour design values at the Sydney monitor.

Period	Design Value
2014-2016	13 ppb
2015-2017	10 ppb
2016-2018	9 ppb
2017-2019	9 ppb
2018-2020	9 ppb
2019-2021	6 ppb
2020-2022	6 ppb
2021-2023	6 ppb

The Department also recalculated the background SO_2 concentrations averaged by season and hour for the most recent three years of available data (2021-2023). **Table 4** and **Table 5** show the background concentrations for the 2014-2016 period, which the Department used in the attainment

modeling demonstration, and the 2021-2023 period, respectively. The maximum background SO_2 value for 2014-2016 is 7.33 µg/m^3. The maximum background SO_2 value for 2021-2023 is 3.73 µg/m^3, a significant decrease.

Table 4. Background SO_2 concentrations (ppb) used in the Department's attainment modeling demonstration (2014-2016).

Hour	Winter	Spring	Summer	Fall
0:00	1.00	1.33	0.67	2.33
1:00	2.00	1.33	1.00	2.00
2:00	1.67	1.33	0.67	2.67
3:00	1.33	1.67	1.00	2.33
4:00	1.33	1.67	1.00	3.33
5:00	1.33	1.67	0.67	3.00
6:00	1.00	2.33	1.00	1.33
7:00	1.67	2.67	2.33	3.00
8:00	2.33	3.00	2.33	7.33
9:00	4.00	3.33	3.67	6.00
10:00	3.00	3.00	3.33	3.67
11:00	3.00	3.00	3.00	3.33
12:00	3.33	2.67	2.33	2.67
13:00	3.00	2.00	2.00	2.33
14:00	3.67	2.33	2.67	1.67
15:00	2.33	2.67	2.00	2.33
16:00	3.33	3.00	1.67	2.67
17:00	3.33	2.67	1.33	2.00
18:00	2.33	3.67	1.00	1.67
19:00	2.67	5.33	1.00	2.33
20:00	2.67	3.00	0.67	1.67
21:00	1.67	2.67	1.00	2.00
22:00	2.00	1.33	1.33	2.33
23:00	1.33	1.00	1.00	1.33

Table 5. Background SO_2 concentrations (ppb) for the most recent three years (2021-2023).

Hour	Winter	Spring	Summer	Fall
0:00	1.29	0.92	0.84	0.75
1:00	1.17	0.80	0.94	1.12
2:00	0.86	0.76	0.82	0.90
3:00	0.78	0.79	0.83	0.76
4:00	1.11	0.71	0.75	0.77
5:00	0.86	0.80	0.69	0.74
6:00	0.66	0.81	0.86	0.78
7:00	0.86	1.15	1.40	1.16
8:00	1.70	1.95	1.76	1.92
9:00	2.14	1.21	2.54	2.17
10:00	2.06	1.65	2.28	1.47
11:00	2.32	2.09	1.81	1.59
12:00	1.89	1.85	1.90	1.69
13:00	1.87	1.81	2.06	1.69
14:00	1.59	2.31	1.94	1.80
15:00	1.95	2.02	1.91	1.15
16:00	2.37	1.84	2.11	1.64
17:00	2.61	2.06	3.05	1.73
18:00	3.73	2.84	2.65	3.24
19:00	2.38	1.87	3.35	2.84
20:00	2.29	1.87	1.95	2.25
21:00	1.64	1.70	1.05	0.94
22:00	1.33	1.06	0.90	0.78
23:00	0.92	1.12	1.13	0.93

Critical Emissions Value

The critical emissions value (CEV) is the emissions level (lb/hr) at which the maximum modeled concentration is equal to the NAAQS. The CEVs calculated in the attainment demonstration modeling for New Wales and Bartow are 1,118 lb/hr and 1,163 lb/hr, respectively. The emissions data submitted with the Department's redesignation request and attainment modeling demonstration from August 31, 2019 (the attainment date), through October 2, 2019, exceeded the CEV 2.8 percent of the time at New Wales, and 1.0 percent of the time at Bartow, while still maintaining the permitted emissions limits.

The Department analyzed the frequency that each facility's emissions exceeded their respective CEVs from January 1, 2023, through December 31, 2023 (see **Appendix B**). Emissions from New Wales exceeded the CEV 0.1 percent of the time, and emissions from Bartow exceeded the CEV 0.4 percent of the time, while still maintaining the permitted emissions limits. It is expected that these

occasional spikes above the CEV, which can occur with longer-term limits such as 24-hour average limits, are unlikely to have a significant impact on air quality, as they are unlikely to occur repeatedly at the same time as meteorological conditions conducive to high ambient concentrations of SO_2.

In addition, considering that the ambient background concentrations of SO_2 at the Sydney monitor have decreased since the 2014-2016 period, it is evident that the CEVs of 1,118 lb/hr and 1,163 lb/hr for New Wales and Bartow are conservative. If the CEVs were recalculated with updated modeling, the updated CEVs would be higher, and the frequency that the hourly emissions would exceed the CEVs may be reduced.

5. Certification of Continued Attainment

The Department certifies that there are no changes in the air dispersion modeling inputs and assumptions that could result in a modeled violation. The Department recommends, therefore, that no additional action or information is necessary to verify continued attainment. The Department expects that the Hillsborough-Polk maintenance area will continue to maintain the 2010 SO_2 NAAQS.

Appendix A
New Wales and Bartow Facilities 24-Hour Block Average SAP Emissions

NAAQS SO2 lb/hr Daily CAPs

Mosaic

Table 2. CY 2023 SO_2 lb /hour, 24-hour block average (6:00 a.m. to 6:00 a.m.)

Date	*New Wales Cap 1,090 PPH*	*Bartow Cap 1,100 PPH*
1/1/2023	1,005	343
1/2/2023	914	344
1/3/2023	995	217
1/4/2023	935	288
1/5/2023	985	277
1/6/2023	978	305
1/7/2023	782	317
1/8/2023	962	286
1/9/2023	1,022	288
1/10/2023	1,032	272
1/11/2023	1,034	205
1/12/2023	1,016	146
1/13/2023	1,055	332
1/14/2023	964	543
1/15/2023	1,007	407
1/16/2023	1,024	511
1/17/2023	664	432
1/18/2023	458	574
1/19/2023	552	603
1/20/2023	807	721
1/21/2023	789	705
1/22/2023	933	723
1/23/2023	1,040	729
1/24/2023	914	627
1/25/2023	758	723
1/26/2023	621	707
1/27/2023	782	531
1/28/2023	720	995
1/29/2023	789	1,087
1/30/2023	613	980
1/31/2023	592	848
2/1/2023	501	1,035
2/2/2023	395	1,057
2/3/2023	495	1,076
2/4/2023	395	959
2/5/2023	357	1,013
2/6/2023	472	886
2/7/2023	410	922
2/8/2023	371	1,076
2/9/2023	472	1,082
2/10/2023	477	1,073
2/11/2023	811	1,079
2/12/2023	1,003	1,078

Page 1 of 9

NAAQS SO2 lb/hr Daily CAPs

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Table 2. CY 2023 SO_2 lb /hour, 24-hour block average (6:00 a.m. to 6:00 a.m.)

Date	New Wales Cap 1,090 PPH	Bartow Cap 1,100 PPH
2/13/2023	997	1,087
2/14/2023	970	1,073
2/15/2023	830	915
2/16/2023	853	1,088
2/17/2023	877	1,073
2/18/2023	1,022	1,067
2/19/2023	987	1,061
2/20/2023	991	985
2/21/2023	950	916
2/22/2023	867	1,074
2/23/2023	338	1,081
2/24/2023	613	1,064
2/25/2023	854	1,085
2/26/2023	939	1,090
2/27/2023	810	1,087
2/28/2023	829	1,065
3/1/2023	693	1,069
3/2/2023	789	1,047
3/3/2023	752	1,086
3/4/2023	699	1,091
3/5/2023	679	1,094
3/6/2023	717	1,080
3/7/2023	771	892
3/8/2023	773	974
3/9/2023	706	860
3/10/2023	635	1,087
3/11/2023	621	1,079
3/12/2023	261	1,067
3/13/2023	182	1,082
3/14/2023	125	1,096
3/15/2023	132	1,088
3/16/2023	218	1,094
3/17/2023	291	1,065
3/18/2023	384	1,064
3/19/2023	400	1,046
3/20/2023	566	378
3/21/2023	515	133
3/22/2023	466	999
3/23/2023	486	1,016
3/24/2023	539	1,001
3/25/2023	546	949
3/26/2023	685	371
3/27/2023	732	674

NAAQS SO2 lb/hr Daily CAPs

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Table 2. CY 2023 SO_2 lb /hour, 24-hour block average (6:00 a.m. to 6:00 a.m.)

Date	New Wales Cap 1,090 PPH	Bartow Cap 1,100 PPH
3/28/2023	761	678
3/29/2023	824	679
3/30/2023	783	682
3/31/2023	763	562
4/1/2023	728	286
4/2/2023	750	870
4/3/2023	726	657
4/4/2023	982	540
4/5/2023	731	332
4/6/2023	653	634
4/7/2023	627	664
4/8/2023	613	670
4/9/2023	606	661
4/10/2023	616	648
4/11/2023	681	699
4/12/2023	650	708
4/13/2023	675	702
4/14/2023	617	709
4/15/2023	629	711
4/16/2023	693	701
4/17/2023	653	689
4/18/2023	700	694
4/19/2023	651	644
4/20/2023	652	646
4/21/2023	762	661
4/22/2023	818	670
4/23/2023	903	662
4/24/2023	784	678
4/25/2023	761	675
4/26/2023	688	730
4/27/2023	792	754
4/28/2023	776	752
4/29/2023	847	733
4/30/2023	867	735
5/1/2023	929	734
5/2/2023	920	737
5/3/2023	864	732
5/4/2023	778	536
5/5/2023	763	631
5/6/2023	783	710
5/7/2023	755	724
5/8/2023	742	721
5/9/2023	704	688

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NAAQS SO2 lb/hr Daily CAPs

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Table 2. CY 2023 SO_2 lb /hour, 24-hour block average (6:00 a.m. to 6:00 a.m.)

Date	New Wales Cap 1,090 PPH	Bartow Cap 1,100 PPH
5/10/2023	646	720
5/11/2023	663	742
5/12/2023	733	623
5/13/2023	618	714
5/14/2023	654	726
5/15/2023	734	734
5/16/2023	783	559
5/17/2023	675	723
5/18/2023	714	723
5/19/2023	735	686
5/20/2023	647	742
5/21/2023	575	740
5/22/2023	728	619
5/23/2023	848	713
5/24/2023	658	707
5/25/2023	664	537
5/26/2023	814	515
5/27/2023	849	612
5/28/2023	871	640
5/29/2023	845	662
5/30/2023	855	592
5/31/2023	1,006	483
6/1/2023	823	510
6/2/2023	764	0
6/3/2023	700	0
6/4/2023	912	364
6/5/2023	745	138
6/6/2023	695	396
6/7/2023	615	345
6/8/2023	566	643
6/9/2023	700	613
6/10/2023	759	681
6/11/2023	768	692
6/12/2023	617	576
6/13/2023	593	580
6/14/2023	515	529
6/15/2023	348	646
6/16/2023	310	683
6/17/2023	531	669
6/18/2023	614	692
6/19/2023	621	644
6/20/2023	751	650
6/21/2023	601	617

NAAQS SO2 lb/hr Daily CAPs

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Table 2. CY 2023 SO_2 lb /hour, 24-hour block average (6:00 a.m. to 6:00 a.m.)

Date	New Wales Cap 1,090 PPH	Bartow Cap 1,100 PPH
6/22/2023	650	548
6/23/2023	603	676
6/24/2023	678	687
6/25/2023	719	674
6/26/2023	508	684
6/27/2023	417	711
6/28/2023	525	621
6/29/2023	573	674
6/30/2023	579	671
7/1/2023	549	661
7/2/2023	490	662
7/3/2023	482	656
7/4/2023	456	549
7/5/2023	506	371
7/6/2023	455	661
7/7/2023	412	735
7/8/2023	472	747
7/9/2023	508	986
7/10/2023	511	989
7/11/2023	636	779
7/12/2023	647	969
7/13/2023	608	1,032
7/14/2023	635	1,027
7/15/2023	624	834
7/16/2023	658	807
7/17/2023	740	789
7/18/2023	686	815
7/19/2023	658	909
7/20/2023	335	818
7/21/2023	506	906
7/22/2023	616	1,047
7/23/2023	647	1,042
7/24/2023	691	1,032
7/25/2023	715	1,054
7/26/2023	915	1,056
7/27/2023	714	932
7/28/2023	709	935
7/29/2023	809	1,063
7/30/2023	805	1,051
7/31/2023	821	943
8/1/2023	770	360
8/2/2023	802	692
8/3/2023	629	982

NAAQS SO2 lb/hr Daily CAPs

Mosaic

Table 2. CY 2023 SO_2 lb /hour, 24-hour block average (6:00 a.m. to 6:00 a.m.)

Date	New Wales Cap 1,090 PPH	Bartow Cap 1,100 PPH
8/4/2023	493	881
8/5/2023	732	1,026
8/6/2023	798	1,041
8/7/2023	829	880
8/8/2023	722	990
8/9/2023	803	762
8/10/2023	894	879
8/11/2023	760	989
8/12/2023	834	1,026
8/13/2023	703	1,008
8/14/2023	770	958
8/15/2023	625	885
8/16/2023	640	692
8/17/2023	744	648
8/18/2023	361	691
8/19/2023	475	919
8/20/2023	756	929
8/21/2023	757	925
8/22/2023	750	921
8/23/2023	876	918
8/24/2023	491	567
8/25/2023	651	785
8/26/2023	766	697
8/27/2023	775	721
8/28/2023	695	704
8/29/2023	591	630
8/30/2023	470	679
8/31/2023	671	746
9/1/2023	697	806
9/2/2023	738	377
9/3/2023	747	489
9/4/2023	650	564
9/5/2023	475	609
9/6/2023	536	680
9/7/2023	219	843
9/8/2023	547	909
9/9/2023	754	922
9/10/2023	742	854
9/11/2023	749	830
9/12/2023	757	810
9/13/2023	848	821
9/14/2023	881	704
9/15/2023	830	750

NAAQS SO2 lb/hr Daily CAPs

Mosaic

Table 2. CY 2023 SO_2 lb /hour, 24-hour block average (6:00 a.m. to 6:00 a.m.)

Date	New Wales Cap 1,090 PPH	Bartow Cap 1,100 PPH
9/16/2023	896	813
9/17/2023	886	748
9/18/2023	788	808
9/19/2023	575	717
9/20/2023	600	810
9/21/2023	598	909
9/22/2023	583	808
9/23/2023	386	670
9/24/2023	396	468
9/25/2023	329	508
9/26/2023	406	501
9/27/2023	499	504
9/28/2023	449	479
9/29/2023	415	405
9/30/2023	490	361
10/1/2023	496	842
10/2/2023	422	578
10/3/2023	413	419
10/4/2023	473	257
10/5/2023	518	236
10/6/2023	472	210
10/7/2023	594	271
10/8/2023	531	444
10/9/2023	570	186
10/10/2023	512	478
10/11/2023	685	781
10/12/2023	691	724
10/13/2023	593	796
10/14/2023	500	788
10/15/2023	653	749
10/16/2023	718	533
10/17/2023	685	461
10/18/2023	638	419
10/19/2023	501	362
10/20/2023	267	706
10/21/2023	237	755
10/22/2023	209	747
10/23/2023	292	821
10/24/2023	437	627
10/25/2023	441	602
10/26/2023	477	500
10/27/2023	697	894
10/28/2023	736	986

NAAQS SO2 lb/hr Daily CAPs

Table 2. CY 2023 SO_2 lb /hour, 24-hour block average (6:00 a.m. to 6:00 a.m.)

Date	New Wales Cap 1,090 PPH	Bartow Cap 1,100 PPH
10/29/2023	723	994
10/30/2023	725	891
10/31/2023	746	604
11/1/2023	742	470
11/2/2023	592	508
11/3/2023	704	454
11/4/2023	733	49
11/5/2023	689	357
11/6/2023	668	291
11/7/2023	826	381
11/8/2023	788	371
11/9/2023	703	375
11/10/2023	635	370
11/11/2023	416	178
11/12/2023	565	137
11/13/2023	742	197
11/14/2023	806	242
11/15/2023	624	306
11/16/2023	908	219
11/17/2023	748	290
11/18/2023	987	281
11/19/2023	959	279
11/20/2023	845	97
11/21/2023	841	379
11/22/2023	941	570
11/23/2023	959	754
11/24/2023	1,004	130
11/25/2023	999	75
11/26/2023	1,036	169
11/27/2023	1,030	178
11/28/2023	989	198
11/29/2023	699	167
11/30/2023	680	360
12/1/2023	741	363
12/2/2023	752	368
12/3/2023	775	242
12/4/2023	811	260
12/5/2023	832	224
12/6/2023	606	252
12/7/2023	366	285
12/8/2023	519	344
12/9/2023	668	354
12/10/2023	666	354

NAAQS SO2 lb/hr Daily CAPs

Mosaic

Table 2. CY 2023 SO_2 lb /hour, 24-hour block average (6:00 a.m. to 6:00 a.m.)

Date	New Wales Cap 1,090 PPH	Bartow Cap 1,100 PPH
12/11/2023	513	202
12/12/2023	560	119
12/13/2023	627	294
12/14/2023	560	503
12/15/2023	539	546
12/16/2023	541	520
12/17/2023	697	543
12/18/2023	780	435
12/19/2023	566	322
12/20/2023	501	319
12/21/2023	589	505
12/22/2023	645	500
12/23/2023	764	482
12/24/2023	895	492
12/25/2023	894	491
12/26/2023	878	319
12/27/2023	827	333
12/28/2023	860	282
12/29/2023	838	541
12/30/2023	810	605
12/31/2023	477	467

Appendix B:
New Wales and Bartow Frequency of SO_2 Emissions over the CEV

Table 1. New Wales Sulfuric Acid Plants –
Hours Over the Critical Emission Value (CEV).

Month	**Hours Over CEV (hr)**	**Hours over CEV using a 1,000 ppm(hr)**	**Operating Hours(hr)**	**Percent Over CEV**	**Percent over CEV Using a 1,000 PPM**
January 2023	33	1	744	4.40%	0.10%
February 2023	6	0	672	0.90%	0.00%
March 2023	0	0	744	0.00%	0.00%
April 2023	5	0	720	0.70%	0.00%
May 2023	5	2	744	0.70%	0.30%
June 2023	7	1	720	1.00%	0.10%
July 2023	1	1	744	0.10%	0.10%
August 2023	1	1	744	0.10%	0.10%
September 2023	1	1	720	0.10%	0.10%
October 2023	0	0	736	0.00%	0.00%
November 2023	0	0	720	0.00%	0.00%
December 2023	0	0	738	0.00%	0.00%
Total	**59**	**7**	**8745**	**0.70%**	**0.10%**

Table 2. Bartow Sulfuric Acid Plants –
Hours Over the Critical Emission Value (CEV)

Month	**Hours Over CEV (hr)**	**Hours over CEV using a 1,000 ppm(hr)**	**Operating Hours(hr)**	**Percent Over CEV**	**Percent over CEV Using a 1,000 PPM**
January 2023	3	3	743	0.40%	0.40%
February 2023	7	3	672	1.00%	0.40%
March 2023	2	1	722	0.30%	0.10%
April 2023	3	3	673	0.40%	0.40%
May 2023	0	0	744	0.00%	0.00%
June 2023	1	1	641	0.20%	0.20%
July 2023	3	2	721	0.40%	0.30%
August 2023	2	2	719	0.30%	0.30%
September 2023	1	0	720	0.00%	0.00%
October 2023	13	10	742	1.80%	1.30%
November 2023	5	5	712	0.70%	0.70%
December 2023	2	2	724	0.30%	0.30%
Total	**42**	**32**	**8532**	**0.50%**	**0.40%**

Bartow Sulfuric Plants
1,163 lb SO2/hr 1-hr Critical Emission Value

Table 5. CY 2023 Detailed Summary - Hours Over CEV

Timestamp	#4 SO2 Lbs/Hr Hrly Avg	#5 SO2 Lbs/Hr Hrly Avg	#6 SO2 Lbs/Hr Hrly Avg	Combined SO2 Lbs/Hr Hrly Avg	1,000 PPM Span Exceeded?
1/28/2023 11:00	336	361	706	1,403	Yes
1/28/2023 12:00	327	363	634	1,324	Yes
1/28/2023 13:00	331	398	439	1,167	Yes
2/3/2023 13:00	365	405	397	1,167	No
2/4/2023 20:00	329	332	508	1,168	Yes
2/4/2023 21:00	337	358	837	1,532	Yes
2/6/2023 17:00	319	392	640	1,351	Yes
2/10/2023 6:00	339	387	450	1,176	No
2/27/2023 3:00	358	389	418	1,165	No
2/27/2023 4:00	355	390	424	1,169	No
3/1/2023 22:00	322	383	458	1,164	No
3/9/2023 20:00	352	331	504	1,187	Yes
4/2/2023 11:00	208	1,018	74	1,301	Yes
4/2/2023 12:00	290	905	283	1,478	Yes
4/2/2023 13:00	302	654	344	1,299	Yes
6/6/2023 18:00	1,174	0	85	1,259	Yes
7/7/2023 0:00	319	681	364	1,365	Yes
7/8/2023 12:00	322	891	356	1,569	Yes
7/22/2023 5:00	346	372	478	1,196	No
8/16/2023 22:00	171	334	706	1,211	Yes
8/25/2023 14:00	177	672	381	1,231	Yes
9/21/2023 13:00	228	1,939	292	2,459	No
10/1/2023 18:00	207	1,538	231	1,977	Yes
10/1/2023 19:00	220	2,078	287	2,585	Yes
10/1/2023 20:00	213	685	290	1,187	Yes
10/2/2023 1:00	224	1,601	293	2,118	Yes
10/2/2023 2:00	224	945	288	1,456	Yes
10/2/2023 4:00	227	706	284	1,217	No
10/2/2023 5:00	226	769	283	1,278	No
10/2/2023 6:00	227	763	283	1,273	No
10/10/2023 18:00	220	159	800	1,178	Yes
10/16/2023 14:00	46	1,821	194	2,062	Yes
10/20/2023 20:00	216	734	298	1,247	Yes
10/27/2023 12:00	226	267	952	1,445	Yes
10/27/2023 13:00	223	271	1,160	1,654	Yes
11/22/2023 0:00	0	942	223	1,165	Yes
11/22/2023 2:00	0	1,192	242	1,434	Yes

Table 5. CY 2023 Detailed Summary - Hours Over CEV

Timestamp	#4 SO2 Lbs/Hr Hrly Avg	#5 SO2 Lbs/Hr Hrly Avg	#6 SO2 Lbs/Hr Hrly Avg	Combined SO2 Lbs/Hr Hrly Avg	1,000 PPM Span Exceeded?
11/23/2023 6:00	0	930	381	1,312	Yes
11/23/2023 7:00	0	871	357	1,228	Yes
11/23/2023 21:00	0	866	339	1,205	Yes
12/29/2023 10:00	0	973	305	1,278	Yes
12/29/2023 19:00	0	899	305	1,204	Yes

New Wales Sulfuric Plants
1,118 lb SO2/hr 1-hr Critical Emission Value

Table 6. CY 2023 Detailed Summary - Hours Over CEV

Timestamp	#1 SO2 Lbs/Hr Hrly Avg	#2 SO2 Lbs/Hr Hrly Avg	#3 SO2 Lbs/Hr Hrly Avg	#4 SO2 Lbs/Hr Hrly Avg	#5 SO2 Lbs/Hr Hrly Avg	Combined SO2 Lbs/Hr Hrly Avg	1,000 PPM Span Exceeded?
1/1/2023 14:00	168	337	336	201	107	1,149	No
1/1/2023 15:00	162	336	355	222	106	1,180	No
1/1/2023 16:00	171	337	371	200	104	1,183	No
1/1/2023 17:00	161	326	345	237	102	1,171	No
1/1/2023 18:00	170	326	348	197	101	1,141	No
1/1/2023 19:00	167	317	358	239	103	1,184	No
1/4/2023 16:00	212	412	240	187	87	1,137	No
1/4/2023 17:00	235	486	281	161	87	1,250	No
1/6/2023 0:00	237	293	352	178	96	1,156	No
1/6/2023 1:00	246	274	337	170	93	1,120	No
1/6/2023 3:00	245	310	336	181	92	1,164	No
1/6/2023 4:00	251	312	339	186	93	1,181	No
1/6/2023 5:00	256	255	333	191	92	1,127	No
1/6/2023 6:00	249	318	343	181	92	1,183	No
1/6/2023 7:00	250	315	345	200	93	1,202	No
1/6/2023 8:00	238	261	346	183	94	1,121	No
1/6/2023 9:00	253	321	350	210	94	1,227	No
1/6/2023 10:00	263	327	358	159	92	1,199	No
1/12/2023 8:00	287	325	342	200	-	1,153	No
1/12/2023 9:00	286	329	357	212	-	1,183	No
1/13/2023 5:00	281	340	229	291	-	1,141	No
1/13/2023 14:00	276	425	243	184	-	1,128	No
1/13/2023 15:00	278	387	250	218	-	1,132	No
1/13/2023 17:00	265	413	246	206	-	1,129	No
1/14/2023 6:00	245	377	294	228	-	1,143	No
1/20/2023 23:00	175	302	325	148	364	1,314	Yes
1/21/2023 3:00	172	286	246	144	288	1,137	No
1/23/2023 9:00	255	389	283	148	64	1,139	No
1/23/2023 21:00	260	380	279	222	56	1,197	No
1/23/2023 22:00	248	328	278	224	47	1,124	No
1/23/2023 23:00	258	294	281	276	46	1,155	No

New Wales Sulfuric Plants
1,118 lb SO2/hr 1-hr Critical Emission Value

Table 5. CY 2023 Detailed Summary - Hours Over CEV

Timestamp	#1 SO2 Lbs/Hr Hrly Avg	#2 SO2 Lbs/Hr Hrly Avg	#3 SO2 Lbs/Hr Hrly Avg	#4 SO2 Lbs/Hr Hrly Avg	#5 SO2 Lbs/Hr Hrly Avg	Combined SO2 Lbs/Hr Hrly Avg	1,000 PPM Span Exceeded?
1/24/2023 0:00	247	371	288	244	58	1,207	No
1/24/2023 1:00	254	329	275	317	58	1,233	No
2/13/2023 6:00	146	353	305	208	120	1,132	No
2/13/2023 8:00	143	356	329	203	127	1,158	No
2/13/2023 10:00	214	287	342	187	125	1,156	No
2/15/2023 22:00	283	321	377	81	70	1,132	No
2/18/2023 9:00	151	326	360	255	41	1,134	No
2/18/2023 14:00	182	351	326	258	43	1,160	No
4/4/2023 16:00	180	816	219	225	142	1,582	No
4/4/2023 19:00	188	1,492	214	207	139	2,240	No
4/4/2023 20:00	182	1,450	215	221	138	2,207	No
4/4/2023 21:00	172	951	214	193	120	1,650	No
4/4/2023 22:00	171	702	224	163	107	1,367	No
5/6/2023 17:00	134	378	316	181	122	1,130	No
5/19/2023 0:00	547	171	264	131	68	1,181	Yes
5/31/2023 14:00	297	235	677	203	128	1,540	Yes
5/31/2023 21:00	243	242	279	249	121	1,134	No
5/31/2023 23:00	292	243	286	259	68	1,148	No
6/1/2023 0:00	316	230	348	228	91	1,213	No
6/1/2023 2:00	249	236	286	216	199	1,186	No
6/1/2023 3:00	238	242	277	248	247	1,252	No
6/1/2023 8:00	253	231	380	273	-	1,138	No
6/1/2023 9:00	254	240	517	203	-	1,215	No
6/2/2023 1:00	226	212	154	190	341	1,124	No
6/14/2023 16:00	32	106	747	210	29	1,125	Yes
7/22/2023 21:00	131	601	287	87	66	1,172	Yes
8/16/2023 18:00	167	462	362	127	47	1,165	Yes
9/6/2023 1:00	224	94	898	56	22	1,293	Yes