STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PROPOSED REVISION TO STATE IMPLEMENTATION PLAN

Pre-Hearing

SUBMITTAL NUMBER 2018-02

REDESIGNATION REQUEST AND MAINTENANCE PLAN FOR THE HILLSBOROUGH COUNTY SULFUR DIOXIDE (SO_2) NONATTAINMENT AREA

April 26, 2018

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Executive Summary

1. Introduction

The Department of Environmental Protection (Department) is proposing a revision to Florida's State Implementation Plan (SIP) under the federal Clean Air Act (CAA). This SIP revision consists of a request to redesignate the portion of Hillsborough County that was designated as "nonattainment" with respect to the 2010 revised sulfur dioxide (SO_2) national ambient air quality standard (NAAQS) to "attainment" and a request to approve an associated maintenance plan that will ensure the continued attainment of the 2010 SO_2 NAAQS in the area.

2. Background

On June 22, 2010 (effective August 23, 2010), the U.S. Environmental Protection Agency (EPA) promulgated a revised NAAQS for the air pollutant SO_2. 75 Fed. Reg. 35,520. The level of the revised standard is 75 parts per billion (ppb), based on a three-year average of the annual 99th percentile of one-hour daily maximum concentrations. The revised SO_2 standard is the first one-hour primary standard promulgated by EPA for this air pollutant.

On August 5, 2013 (effective October 4, 2013), EPA designated an area in Hillsborough County, Florida "nonattainment" for SO_2 based on ambient SO_2 monitoring data in the area showing violation of the revised NAAQS over the three-year period 2009-2011. 78 Fed. Reg. 47,191. The designated nonattainment area (NAA) is described as follows:

> *That portion of Hillsborough County encompassed by the polygon with the vertices using Universal Traverse Mercator (UTM) coordinates in UTM zone 17 with datum NAD83 as follows: (1) vertices – UTM Easting (m) 35881, UTM Northing 3076066; (2) vertices – UTM Easting (m) 355673, UTM Northing 3079275; (3) UTM Easting (m) 360300, UTM Northing 3086380; (4) vertices – UTM Easting (m) 366850, UTM Northing 3086692; (5) vertices – UTM Easting (m) 368364, UTM Northing 3083760; and (6) vertices – UTM Easting (m) 365708, UTM Northing 3079121.*

78 Fed. Reg. 47,198. The Hillsborough County NAA contains within its boundaries one major point source for SO_2 emissions – Mosaic Fertilizer, LLC's (Mosaic) Riverview facility. In addition, there are two much smaller point sources within the NAA – Ajax Paving Industries, Inc.'s Plant No. 6 (Ajax) and Harsco Minerals (Harsco). An adjacent power plant, Tampa Electric Company's (TECO) Big Bend Station, is located just outside of the NAA.

In 2015, Mosaic received an air construction permit from the Department requiring the facility to change the catalysts in the converters in sulfuric acid plants (SAPs) Nos. 7, 8 and 9, increase the stack height of each SAP, eliminate the use of fuel oil at the plant except during periods of natural gas curtailment or disruption, and to comply with specific SO_2 emissions caps based on a 24-hour average as determined by continuous emission monitoring system (CEMS) data (**Appendix A**).[1] Also in 2015, TECO received an air construction permit from the Department requiring the facility to comply with an SO_2 emissions cap of 3,162 lbs/hour based on a 30-day rolling average for all fossil-fuel-fired electrical generating units as determined by CEMS data (**Appendix B**).[2] These two permits formed the basis of the Department's attainment demonstration for the Nonattainment Area State Implementation Plan (NAA

[1] *See* Air Construction Permit 0570008-080-AC issued by the Florida Department of Environmental Protection on January 15, 2015.
[2] *See* Air Construction Permit 0570039-074-AC issued by the Florida Department of Environmental Protection on February 26, 2015.

SIP) submitted to EPA on April 3, 2015. The NAA SIP was fully approved by EPA on July 3, 2017 (effective August 2, 2017). 82 Fed. Reg. 30,749. The NAA SIP was fully implemented with the completion of all construction, installation of controls, and compliance with the emission limits on November 17, 2017.

3. Clean Data Determination

Attainment of the SO_2 NAAQS occurs when the most recent three-year average of the annual 99th percentile of one-hour daily maximum concentrations at a monitor does not exceed the level of the NAAQS. The last three-year average of the annual 99th percentile of one-hour daily maximum concentrations exceeding the NAAQS in the NAA was recorded for the period 2012-2014, as shown in **Table 1** below. Therefore, beginning with the period 2013-2015, the SO_2 monitor in the NAA is attaining the 2010 revised SO_2 NAAQS.

Table 1. Fourth high SO_2 values and design values for monitor 12-057-0109 for 2007 – 2017.

Year	Fourth High Value (ppb)	Design Value (ppb)
2007	126	
2008	123	
2009	104	118
2010	104	110
2011	102	103
2012	110	105
2013	68	93
2014	60	79
2015	69	66
2016	69	66
2017	41	60

4. SIP Development Process

Section 403.061(35), Florida Statutes, authorizes the Department to "exercise the duties, powers, and responsibilities required of the state under the federal Clean Air Act." These duties and responsibilities include the development and periodic updating of Florida's SIP. Pursuant to this statutory authority, the Department has developed this proposed SIP revision.

Pursuant to state administrative procedures and 40 CFR 51.102, on April 26, 2018, the Department published a notice in the Florida Administrative Register (FAR) announcing the opportunity for the public to provide comments, request a public hearing, and participate in a public hearing to be held on June 1, 2018, if requested, regarding the proposed revision to Florida's SIP.

In accordance with the 30-day notice requirement of 40 CFR 51.102, this pre-hearing submittal regarding the proposed SIP revision was transmitted to EPA on April 26, 2018, and posted on the website for the Department's Division of Air Resource Management. At the same time, notice of the opportunity to submit comments, request a public hearing, and participate in the public hearing, if requested, was transmitted to the Department's District offices and Florida's local air pollution control programs.

Redesignation Request

The Department is requesting that EPA redesignate the Hillsborough County SO_2 NAA to "attainment." EPA's memos *Procedures for Processing Requests to Redesignate Areas to Attainment*[3] and *Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions*[4] discuss the five requirements for redesignation found in CAA Sections 107(d)(3)(E)(i-v):

i. the Administrator determines that the area has attained the national ambient air quality standard;
ii. the Administrator has fully approved the applicable implementation plan for the area under section 7410(k) of this title;
iii. the Administrator determines that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan and applicable Federal air pollutant control regulations and other permanent and enforceable reductions;
iv. the Administrator has fully approved a maintenance plan for the area as meeting the requirements of section 7505a of this title; and
v. the State containing such area has met all requirements applicable to the area under section 7410 of this title and part D of this subchapter.

This submittal demonstrates that each of these requirements has been met and that a redesignation of the area to "attainment" is appropriate as detailed in this redesignation request.

1. Attainment of the SO_2 NAAQS [CAA section 107(d)(3)(E)(i)]

The State must show that the area is attaining the NAAQS. There are two components involved in making this demonstration which should be considered interdependently: ambient air quality data and EPA-approved air quality modeling.

1.1. Ambient Air Quality Data

The Department (through the Hillsborough County Environmental Protection Commission) currently operates one ambient SO_2 monitor in the NAA around Mosaic (**Figure 1**). The East Bay SO_2 monitor (12-057-0109) is located approximately 1 km southeast of Mosaic and 7 km north of TECO. The original nonattainment designation was based on monitored violations at this monitor.

A summary of the most recent monitoring data from this monitor along with the date when the monitor attained the 2010 SO_2 NAAQS is presented in **Table 2**. As can be seen, there has been significant improvement in air quality with respect to SO_2 in the NAA as construction and control measures were implemented. The daily maximum 1-hour SO_2 design values recorded at the monitor since 2011 are shown below in **Figure 2**. The graph shows that the fourth high concentrations were exceeding the NAAQS in 2011 and 2012, with overall concentrations decreasing since that time through 2017. While there have been a few 1-hour daily maximum SO_2 values recorded above the standard in 2013-2016, the fourth high value remained below the standard, and in 2017, there were no 1-hour values recorded above

[3] Procedures for Processing Requests to Redesignate Areas to Attainment. John Calcagni Memorandum dated September 4, 1992, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, available at: www.epa.gov/ozone-pollution/procedures-processing-requests-redesignate-areas-attainment
[4] Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions. Stephen D. Page Memorandum dated April 23, 2014, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, available at: https://www.epa.gov/so2-pollution/guidance-1-hour-sulfur-dioxide-so2-nonattainment-area-state-implementation-plans-sip

the standard. The monitoring data presented here indicate that as of January 2016, the 2010 SO_2 NAAQS has been attained throughout the Hillsborough County NAA.

Figure 1: Ambient SO_2 monitor in the Hillsborough County SO_2 nonattainment area.

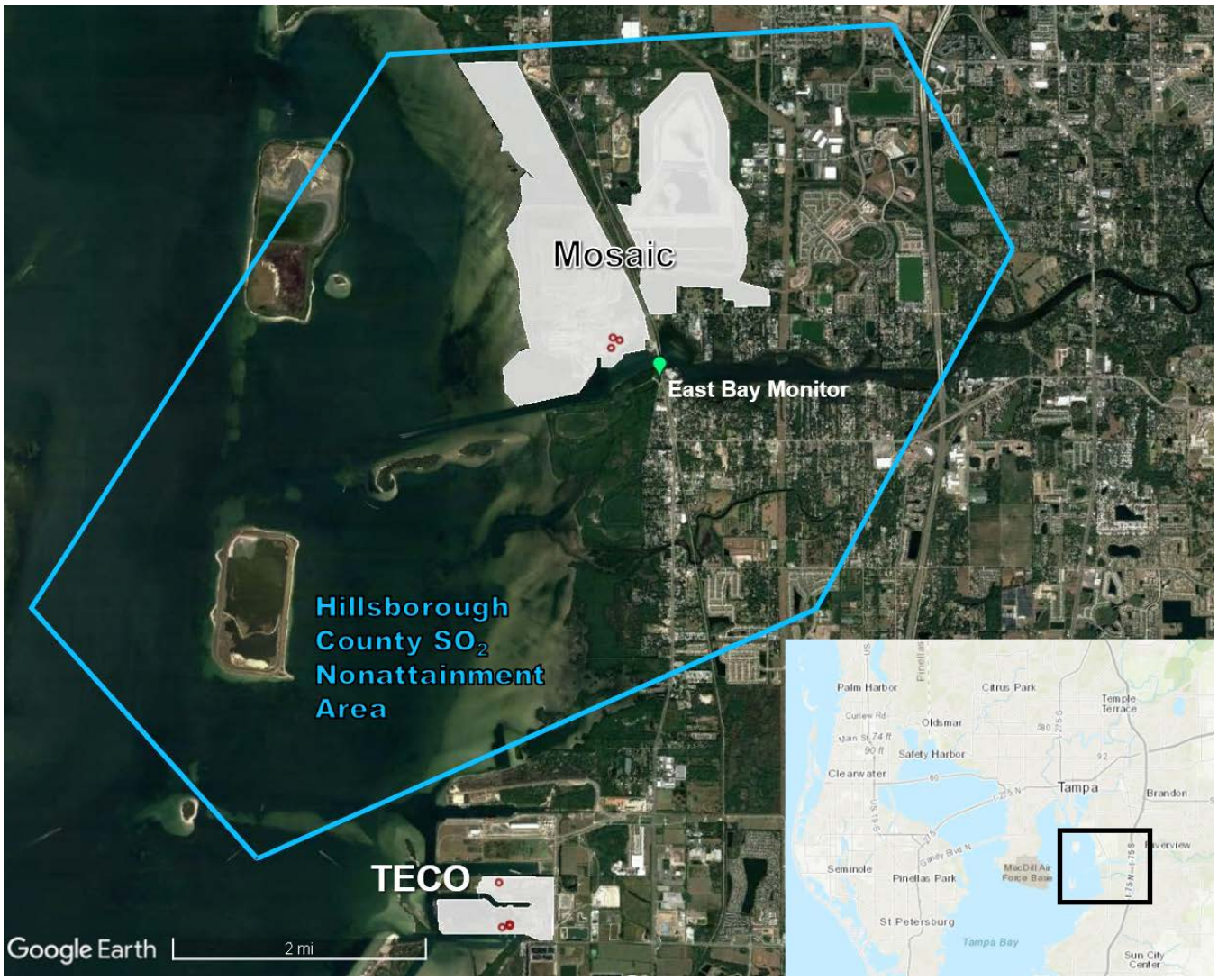
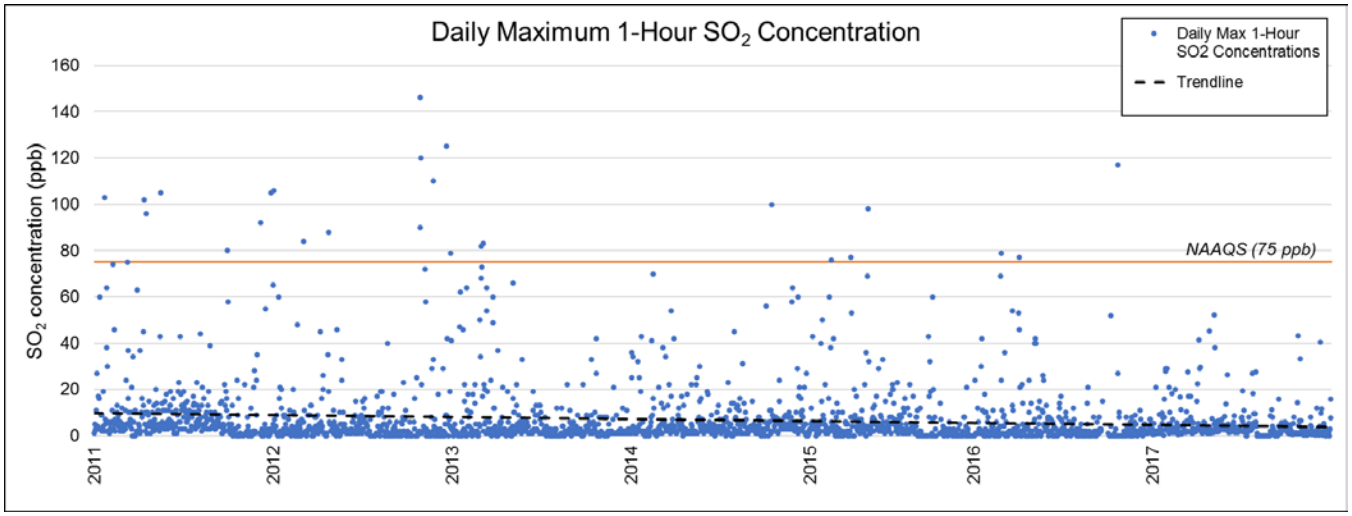


Table 2: Monitored SO_2 design values and reductions in the Hillsborough County SO_2 nonattainment area.

Monitor	Attainment Date	Highest Design Value 2011-2017	2015-2017 Design Value	Percent Reduction in Design Value
East Bay	January 2016	105 ppb	60 ppb	43%

Figure 2: Monitored SO_2 concentrations in the Hillsborough County SO_2 nonattainment area 2011-2017.



All data from this monitor, including data for the most recent three-year period, have been quality assured in accordance with 40 CFR Part 58, Subpart B and all other federal requirements. The data have been fully certified and uploaded to the EPA air quality system (AQS) for public access. A data completeness report is provided below in **Table 3**. Because 2017 data were incomplete in Quarter 3, the data substitution test in 40 CFR Part 50, Appendix T, section 3(c)(ii)(B) was applied to the data to validate the 2015-2017 attaining design value. The results of this data substitution test resulted in a test design value of 60 ppb for 2015-2017. The test determined that the most recent attaining design value (2015-2017 design value) is valid.

Once redesignated, the Department commits to continue operating an appropriate SO_2 monitoring network to verify the continued attainment of the 2010 SO_2 NAAQS in the area. Additionally, the Department will consult with EPA Region 4 prior to making changes to the existing monitoring network, continue to quality assure the monitoring data in accordance with 40 CFR Part 58, Subpart B and all other federal requirements, and enter all data into AQS in a timely manner.

Table 3: Data completeness for the SO_2 monitor in the Hillsborough County SO_2 nonattainment area. Data substitution was used to complete 2017 Quarter 3 and validate the design value.

Monitor	Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
East Bay	2013	99.44	99.36	99.37	95.92	98.52
	2014	99.35	99.18	95.15	89.09	95.66
	2015	91.06	94.55	81.30	98.14	91.26
	2016	99.13	97.80	95.06	98.37	97.59
	2017	99.03	98.99	59.15	96.97	88.45

1.2. Air Quality Modeling

The NAA SIP for the area included air quality modeling to demonstrate that the implemented control measures would result in the area attaining and maintaining the NAAQS (**Appendix C**). This demonstration was performed in 2015 with meteorological data from 2008-2012 and using the recommended AMS/EPA Regulatory Modeling (AERMOD) system including the pre-processors

AERMET and AERMAP.[5] The modeling demonstration included all SO_2-emitting sources at the Mosaic and TECO facilities (including building downwash effects), the only significant sources of SO_2 emissions in or near the NAA. The modeled emission rates, and equivalent compliance limits (calculated following EPA guidance[6]), are listed in **Table 4** below. Other sources were determined to have an insignificant contribution to SO_2 levels in the NAA, and are accounted for in the added background concentrations. The background concentrations were developed for each hour of the day by season from East Bay monitor (12-057-0109) data for January 2012 through December 2013, following the procedure outlined in EPA's SO_2 NAAQS Designations Modeling Technical Assistance Document.[7] Only the most recent two years of data were used rather than three years, due to a significant, multi-year decline in the monitored SO_2 concentrations at this site. The background concentrations were filtered to remove measurements that were influenced by Mosaic or TECO (that is, measurements where the hourly wind direction was in the range of 275° to 4° or 153° to 241°); the final set of background concentrations is summarized in **Table 5** below. A discrete Cartesian grid of 8,412 receptors with 100 m spacing (50 m along property boundaries) encompassing the entire NAA, except facility property, was used for predicting maximum concentrations in the modeling. Further details on the modeling demonstration can be found in **Appendix C**.

Table 4: Derivation of compliance emission limits from the Hillsborough County SO_2 nonattainment area plan.

Derivation of Compliance Emission Limits					
Source	Modeled Emissions Rate (lb/hr)	Averaging Time Adjustment Factor	Based on:	Compliance (Permitted) Limit (lb/hr)	Averaging Time
Mosaic Riverview					
SAP7	415.37	0.963	24-hour to 1-hour CEMS	400	24-hour
SAP8	327.1	0.963	24-hour to 1-hour CEMS	315	24-hour
SAP9	441.33	0.963	24-hour to 1-hour CEMS	425	24-hour
2-unit cap	571	0.963	24-hour to 1-hour CEMS	550	24-hour
3-unit cap	597	0.963	24-hour to 1-hour CEMS	575	24-hour
TECO Big Bend					
4-unit cap	4388	0.721	30-day to 1-hour CEMS	3162	30-day

[5] *Guideline on Air Quality Models*. 40 CFR Part 51, Appendix W.

[6] Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711. *https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf*

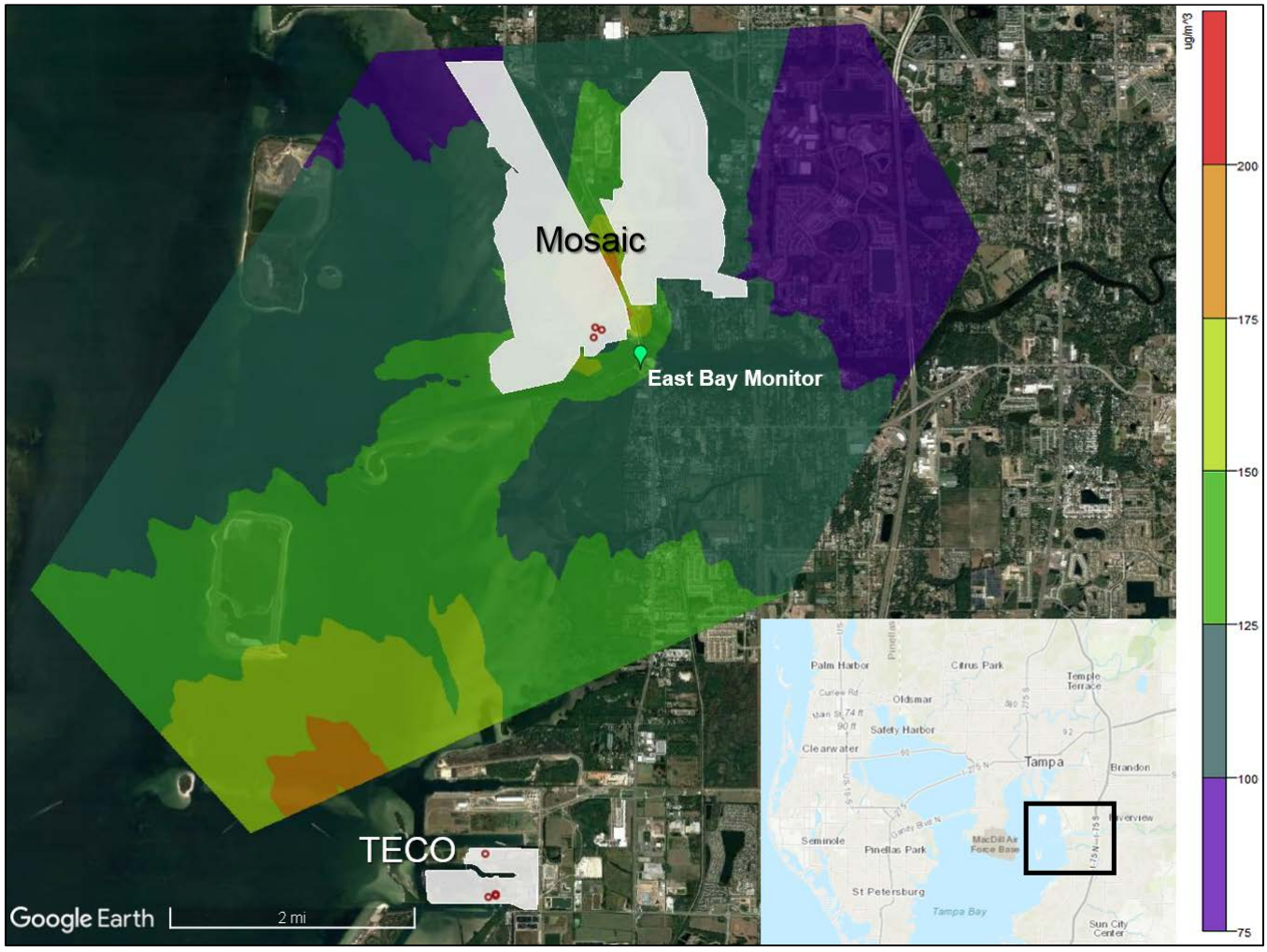
[7] SO_2 National Ambient Air Quality Standards Designations Modeling Technical Assistance Document. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711. *https://www.epa.gov/sites/production/files/2016-06/documents/so2modelingtad.pdf*

Table 5: Final set of SO_2 background concentrations from the Hillsborough County SO_2 nonattainment area plan.

SO_2 Background Concentrations by Hour-of-Day by Season for Monitor 057-0109 (ppb)									
Hour	Winter	Spring	Summer	Fall	Hour	Winter	Spring	Summer	Fall
0:00	2	5	2	7	12:00	5	6	13	4
1:00	1	3	4	4	13:00	5	6	7	4
2:00	5	2	2	3	14:00	6	7	9	2
3:00	3	2	1	2	15:00	6	3	4	2
4:00	2	1	1	1	16:00	9	4	3	2
5:00	1	2	1	1	17:00	3	6	3	1
6:00	2	2	1	1	18:00	3	7	5	3
7:00	2	3	2	1	19:00	2	6	6	4
8:00	3	3	3	3	20:00	6	5	2	7
9:00	5	4	8	9	21:00	3	4	2	7
10:00	3	3	10	4	22:00	3	15	10	4
11:00	7	5	11	3	23:00	3	9	4	4

Although the ambient monitor is not placed to sample the highest SO_2 concentrations, the results of the modeling demonstration using maximum allowable emissions indicate that the NAA is complying with the revised SO_2 NAAQS as a result of significant real reductions of SO_2 emissions at both the Mosaic facility and the TECO facility (**Figure 3**). The modeling results also show that concentrations decrease rapidly with increasing distance from the facility. Based on these results from this recent modeling demonstration, it can be reasonably extrapolated from the current monitoring network that the entire NAA is now attaining the NAAQS and additional modeling is not necessary.

Figure 3: SO_2 monitor location and modeled design values from the Hillsborough County SO_2 nonattainment area plan.



2. Fully Approved Implementation Plan for the Area [CAA section 107(d)(3)(E)(ii)]

The SIP for the area must be fully approved under CAA section 110(k), and must satisfy all requirements that apply to the area.

Florida's SIP for the Hillsborough County SO_2 NAA is fully approved by EPA. The SIP has no parts that are the subject of a disapproval; a finding of failure to submit or to implement the SIP; or partial, conditional, or limited approval.[8]

The Department submitted a complete NAA plan to EPA on April 3, 2015. Section 172(c) of the CAA lists the requirements that must be met in all NAA plans:

- 172(c)(1): Analysis of RACM/RACT in the NAA
- 172(c)(2), (4), (6), (7): Modeling analysis showing that the enforceable emissions limitations and other control measures taken by the state will provide for reasonable further progress (RFP) and expeditious attainment of the NAAQS
- 172(c)(3): Base year emissions inventory

[8] 40 CFR 52.522

- 172(c)(5): Provide for a nonattainment new source review (NNSR) program and account for any emissions that may affect RFP or interference with attainment or maintenance of the NAAQS
- 172(c)(9): Contingency measures

This SIP revision met each of these requirements for the Hillsborough County SO_2 NAA, including a 2011 base year emissions inventory, analysis of RACM/RACT for Mosaic, enforceable conditions from air construction permits issued to Mosaic and TECO, a dispersion modeling demonstration indicating attainment of the NAAQS, the Department's existing SIP-approved NNSR and PSD permitting program (outlined in Chapters 62-204, 62-210, and 62-212, F.A.C.), and contingency measures. On July 3, 2017 (effective August 2, 2017), EPA fully approved the Department's NAA SIP for the Hillsborough County SO_2 NAA. 82 Fed. Reg. 30,749. As of November 17, 2017, all control measures are in place and the NAA plan is fully implemented.

3. Permanent and Enforceable Air Quality Improvement [CAA section 107(d)(3)(E)(iii)]

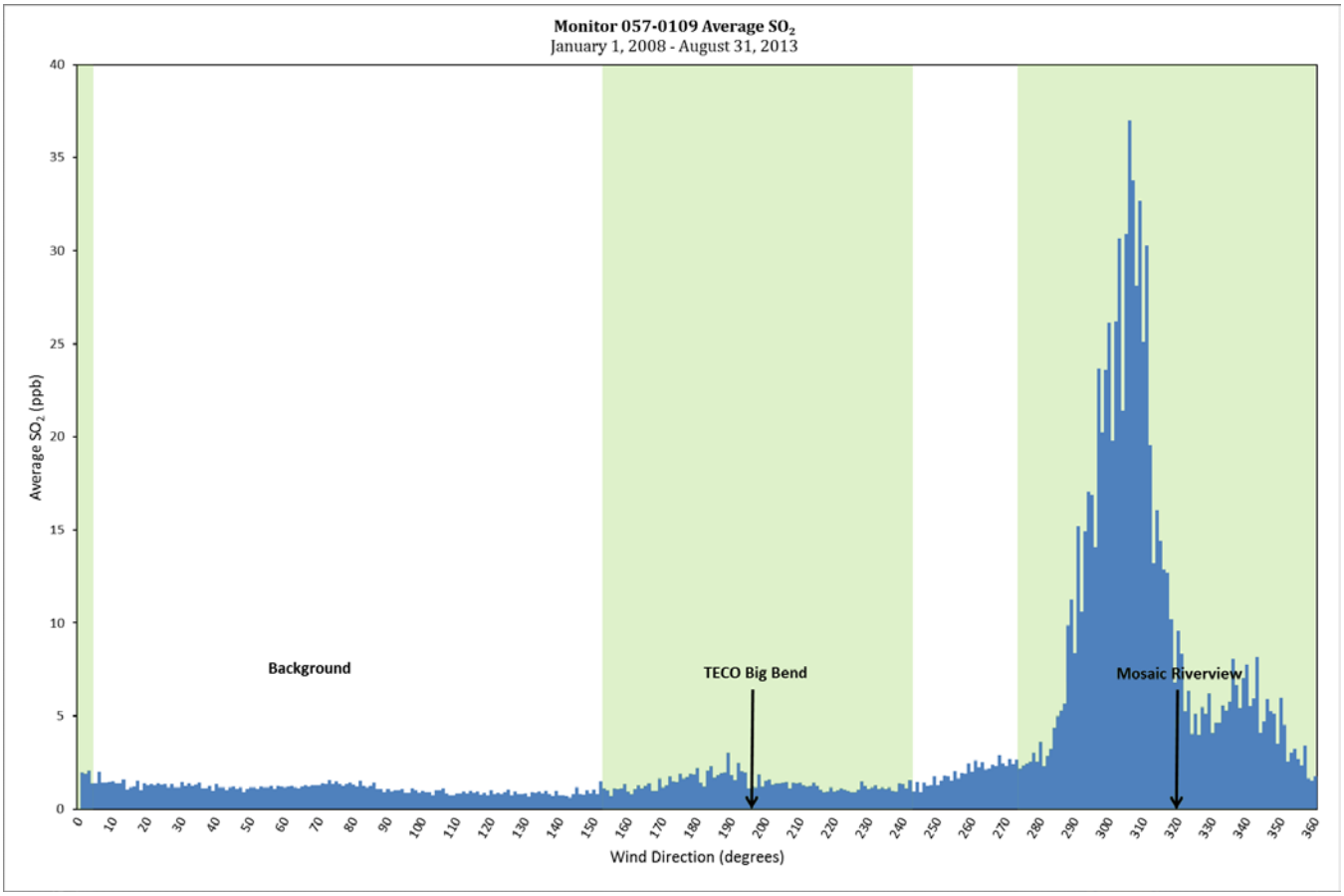
The State must be able to reasonably attribute the improvement in air quality to emission reductions which are permanent and enforceable.

SO_2 is a source-oriented pollutant that is not naturally present in the environment in high concentrations and is not formed in large quantities by any atmospheric process. Elevated concentrations are often due to a single large industrial source or group of sources with localized impacts. The Hillsborough County NAA includes just one major point source of SO_2 (Mosaic) and one major point source of SO_2 is just outside the NAA (TECO). Further analysis of the ambient monitoring data shows that elevated SO_2 concentrations are almost exclusively associated with wind directions from Mosaic (**Figure 4**). Modeling of actual emissions at the time of area designations revealed contributing impacts throughout the NAA due to emissions from TECO. It follows then that the elevated ambient SO_2 concentrations in the NAA are due in large part to these two sources.

The NAA SIP for the area was based on this determination and successfully reduced ambient concentrations below the NAAQS by only requiring emissions reductions at Mosaic and TECO. These emissions reductions are permanent and enforceable through the federally-approved NAA SIP and the facilities' Title V operating permits.[9] The construction work at TECO was completed in early 2016, and construction work at Mosaic was fully completed in November 2017. This corresponds to the decrease in emissions from the facilities beginning in 2015 and continuing into 2017 (**Figure 5**) and the overall downward trend in monitored daily maximum 1-hour ambient SO_2 concentrations seen in **Figure 2**, with no values measured above the standard since late 2016. Since the completion of construction and the full implementation of the NAA SIP, there have been no monitored exceedances of the 2010 SO_2 NAAQS. The monitored levels of SO_2 and the completed implementation of control measures at both facilities provide high confidence that the permanent and enforceable permit conditions in place at Mosaic and TECO will provide for the continued maintenance of the 2010 SO_2 NAAQS.

[9] The multi-unit caps for Mosaic Riverview have not been incorporated into its most recent Title V permit. The Department will incorporate the multi-unit caps at the next Title V revision or renewal.

Figure 4: Ambient SO_2 concentrations by wind direction near Mosaic and TECO.



3.1. Permanent and Enforceable Emissions Reductions at Mosaic and TECO

The Mosaic and TECO facilities have undergone construction and implementation of various control measures since the nonattainment designation.

The construction at Mosaic included the following pollution control measures:

- Upgrade the catalysts in the converters in SAPs Nos. 7, 8 and 9;
- Increase the stack height of each SAP to improve dispersion;
- Eliminate the use of fuel oil at the plant except during periods of natural gas curtailment or disruption;
- Comply with specific SO_2 emissions caps based on a 24-hour average as determined by CEMS data.

These control measures are required by the Mosaic air construction permit[10] that was incorporated into Florida's SIP via the federally-approved NAA plan making these controls permanent and enforceable. The controls and emission limits included in the permit satisfy RACM/RACT requirements and were approved in the NAA plan.

The three SAPs are by far the largest sources of SO_2 at the Mosaic facility. These plants are sulfur burning, double conversion, and double absorption plants of Leonard-Monsanto design. Sulfur is burned

[10] *See* Air Construction Permit 0570008-080-AC issued by the Florida Department of Environmental Protection on January 15, 2015.

with dried atmospheric oxygen to produce SO_2. The SO_2 is then catalytically oxidized to sulfur trioxide (SO_3) over a catalyst bed. The SO_3 is then absorbed in sulfuric acid (H_2SO_4). The remaining SO_2, not previously oxidized, is passed over a final converter bed of catalyst and the SO_3 produced is then absorbed in H_2SO_4. The control of SO_2 emissions is primarily by the process itself. Improvements in catalyst efficiency allow the units to meet the multi-unit caps incorporated into Florida's NAA SIP by converting more SO_2 emissions formed during the manufacturing process to sulfuric acid, improving the efficiency of the manufacturing process and reducing SO_2 emissions.

To reduce SO_2 emissions at the three SAPs, the construction permit authorized Mosaic to replace the vanadium catalyst in each unit with a more efficient catalyst. The new catalysts convert more SO_2 for process purposes and allow Mosaic to meet much more stringent SO_2 emissions limits for these units. In addition, Mosaic increased the stack height for each unit to at least 65 meters (good engineering practice stack height) to provide for more effective plume dispersion. The construction permit imposes two new emission caps for two- and three-unit operating scenarios while retaining the current individual unit limits as shown in **Table 6**. The two- and three-unit caps provide much stricter emissions limitations than the individual limits. On average, at maximum production (i.e., three units in operation), the emissions are reduced by over 50 percent.

The former allowable SO_2 emission limits for the AP Plant, Granulation Plant, AFI Plants, and the Auxiliary Boiler were due to the permitted use of No. 2 fuel oil in these units. Potential emissions of SO_2 from these units has been eliminated by the removal of fuel oil as a permitted alternative fuel. This constitutes a total reduction of approximately 940 tons per year attributable to the removal of fuel oil.

Table 6: Mosaic Facility SO_2 Source Changes

<table>
<tr><th rowspan="2">Source</th><th colspan="4">SO_2 Emission Limits (lb/hr)</th><th colspan="2">Stack Height (m)</th></tr>
<tr><th>Previous</th><th>Individual</th><th>2-Unit</th><th>3-Unit</th><th>Previous</th><th>New</th></tr>
<tr><td>SAP7</td><td>400</td><td>400</td><td rowspan="3">Any two units cannot exceed 550 combined.</td><td rowspan="3">Combined emissions cannot exceed 575.</td><td>45.7</td><td>65.0</td></tr>
<tr><td>SAP8</td><td>315</td><td>315</td><td>45.7</td><td>65.0</td></tr>
<tr><td>SAP9</td><td>425</td><td>425</td><td>45.7</td><td>65.0</td></tr>
<tr><td>No. 6 AP Plant</td><td>40.2</td><td colspan="3" rowspan="5">The facility was required to cease burning fuel oil at all units. This essentially eliminated SO_2 emissions from these five units.</td><td colspan="2" rowspan="5">No changes.</td></tr>
<tr><td>No. 5 Granulation Plant</td><td>20.1</td></tr>
<tr><td>No. 1 AFI Plant</td><td>45.0</td></tr>
<tr><td>No. 2 AFI Plant</td><td>45.0</td></tr>
<tr><td>Auxiliary Boiler</td><td>65.3</td></tr>
<tr><td colspan="7">*All previous and new SO_2 emission limits are 24-hr block averages.</td></tr>
</table>

The four fossil fuel-fired steam generators at the TECO facility are the largest sources of SO_2 in the area. These units burn a mix of coal and petroleum coke with No. 2 fuel oil fired during startup. TECO performed an extensive flue gas desulfurization (FGD) optimization project on all four units from 2000-2009. This project significantly decreased SO_2 emissions from the facility.

The TECO air construction permit[11] requires an SO_2 emission cap of 3,162 lbs/hour on a 30-day rolling average for all four fossil-fuel-fired electrical generating units. This requirement was incorporated into

[11] *See* Air Construction Permit 0570039-074-AC issued by the Florida Department of Environmental Protection on February 26, 2015.

both Florida's SIP via the NAA plan and the facility's Title V operating permit[12], making this requirement permanent and enforceable.

TECO made additional enhancements to Units 1 – 4 to help meet the federally-enforceable emission cap. Ancillary FGD scrubber enhancements were made to comply with the acid gases requirements of the new MATS, implementing projects to increase the SO_2 removal efficiencies of all the FGD systems, with particular emphasis on FFSG Unit 4. The FGD absorber towers of all units have been modified with the addition of tower rings to deflect flue gas away from the walls of the towers and all spray nozzles have been replaced with a new double-headed nozzle design. These modifications increase gas-liquid contact within the towers. The FFSG Unit 4 FGD system has also received additional modifications to further increase its removal efficiency. Specifically, the spray sections of its towers (C and D towers) received new redesigned spray headers to increase the number of spray nozzles, thereby increasing gas liquid contact; larger motors are utilized on the spray headers' recycle pumps to provide the necessary higher head pressure requirements; and dual flow trays in each tower were moved to a lower elevation to increase their effectiveness. Finally, to equalize the uneven gas flow distribution between C and D towers, the C tower flue gas inlet duct was replaced with ductwork having a lower pressure.

TECO also implemented the natural gas igniter replacement project. This project replaced all existing No. 2 fuel igniters and associated equipment to allow Units 1 – 4 to fire natural gas during startup, shutdown, and flame stabilization. In addition, the project also allowed Units 1 – 4 to cofire natural gas and solid fuels or fire natural gas only. These additional enhancements have allowed TECO to meet a new four-unit emissions cap of 3,162 lb/hr as shown in **Table 7**, beginning in June 2016.

Table 7: TECO Facility SO_2 Source Changes

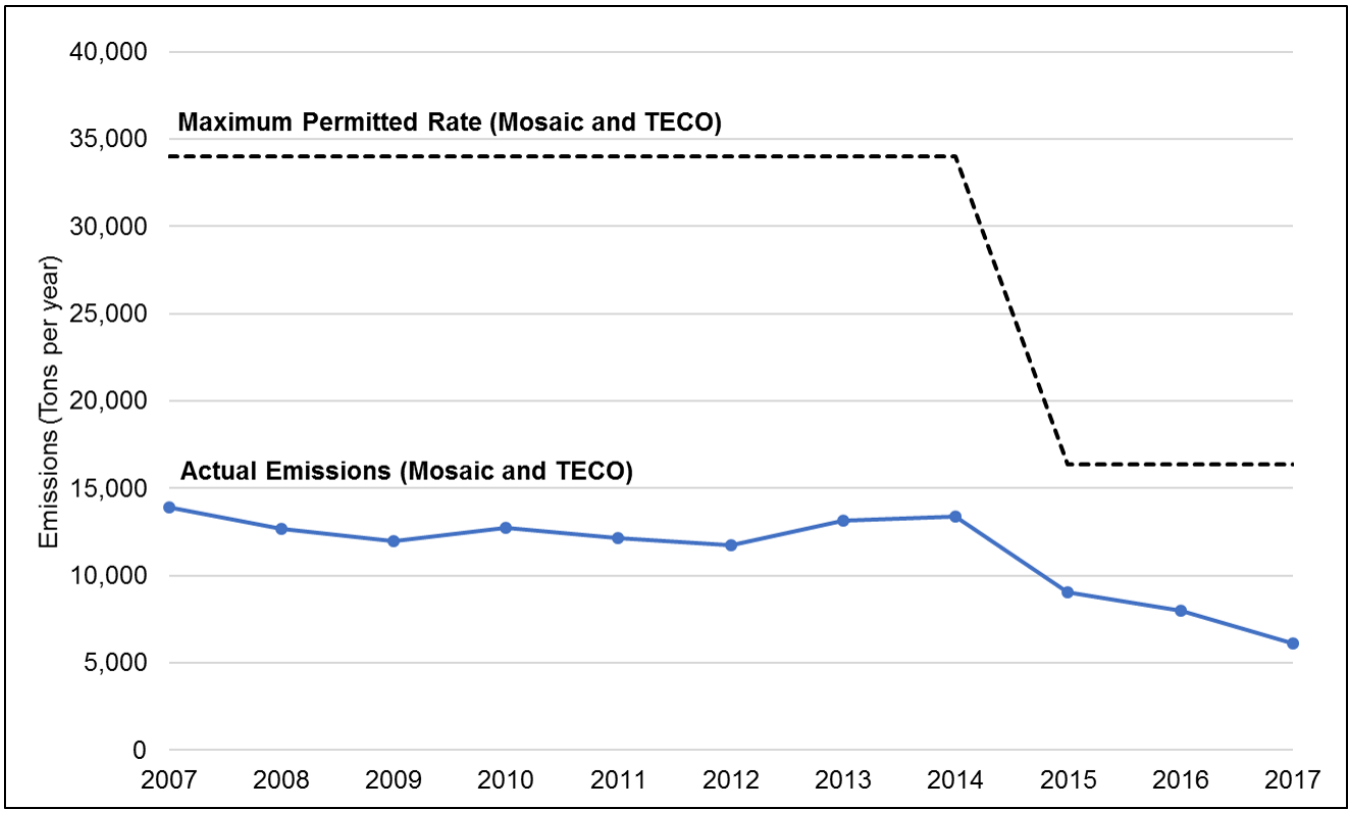
Source	**SO_2 Emission Limit* (lb/hr)**	
	Previous	**New**
FFSG Unit 1	1,009.25	Four-unit emissions cap of 3,162 (Originally 6,587.6 total)
FFSG Unit 2	999.00	
FFSG Unit 3	1,028.75	
FFSG Unit 4	3,550.60	
SCCT 4A	20.56	No changes
SCCT 4B	20.56	
*All SO_2 emission limits are 30-day rolling averages.		

3.2. Estimated Emission Reductions

The NAA plan estimated base year 2011 emissions of SO_2 from TECO of 9,105.93 tons and from Mosaic of 3,034.06 tons. TECO's previous allowable limit was 29,033.79 tons per year. Mosaic's previous allowable limit was 4,993.2 tons per year. The attainment year maximum allowable emissions are 2,518.5 and 13,866 tons per year for Mosaic and TECO, respectively, approximately a 50 percent reduction. **Figure 5** shows that actual SO_2 emissions from Mosaic and TECO have decreased 7,253 tons (approximately 54 percent) since 2014.

[12] *See* Title V Operating Permit 0570039-110-AV issued by the Florida Department of Environmental Protection on November 7, 2017.

Figure 5: Annual SO_2 emissions from the Mosaic and TECO facilities 2007-2017.



4. Fully Approved Maintenance Plan for the Area [CAA section 107(d)(3)(E)(iv)]

EPA must fully approve a maintenance plan which meets the requirements of CAA section 175A.

The maintenance plan for this area is contained in the "Area Maintenance Plan" section of this document and is subject to parallel processing with this redesignation request.

5. Section 110 and Part D Requirements [CAA section 107(d)(3)(E)(v)]

For the purposes of redesignation, a State must meet all requirements of CAA section 110 and Part D that were applicable prior to submittal of the complete redesignation request.

Section 110(a) of the CAA contains the general requirements for a SIP for national primary and secondary ambient air quality standards. Within three years of the promulgation of a new NAAQS, the State is required to submit an "infrastructure SIP" (ISIP) providing a plan for the implementation, maintenance, and enforcement of the new NAAQS. Florida's ISIP for the 2010 SO_2 NAAQS was submitted to EPA on June 3, 2013 (supplemented January 8, 2014). This submittal certified that the Florida SIP contains provisions that ensure the 2010 SO_2 NAAQS is implemented, enforced, and maintained in Florida. EPA approved Florida's ISIP on September 30, 2016, 81 Fed. Reg. 67,179 (effective October 31, 2016), except for the CAA section 110(a)(2)(D)(i)(I) element, which the Department will be submitting as a revision to Florida's June 3, 2013 ISIP submission in the near future.

Subpart 1 of Part D of the CAA contains the general requirements applicable to all areas designated as nonattainment for any NAAQS. Subpart 5 contains requirements specific to areas designated nonattainment for a SO_2 NAAQS. Florida has satisfied these requirements through EPA's approval of the NAA plan and the subsequent full implementation of that plan.

Area Maintenance Plan

Section 107(d)(3)(E) of the CAA stipulates that for an area to be redesignated to "attainment" from "nonattainment," the EPA must fully approve a maintenance plan which meets the requirements of section 175A. Section 175A outlines the framework of a maintenance plan that must provide for maintenance of the relevant NAAQS in the area for at least 10 years after redesignation. The Department is submitting this maintenance plan for the Hillsborough County SO_2 NAA concurrently with the redesignation request also contained within this SIP revision. This plan provides for maintenance of the 2010 SO_2 NAAQS through the year 2032.

EPA's memos *Procedures for Processing Requests to Redesignate Areas to Attainment*[13] and *Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions*[14] recommend considering the following five provisions in the maintenance plan when seeking redesignation:

1. Attainment Emissions Inventory,
2. Maintenance Demonstration,
3. Monitoring Network,
4. Verification of Continued Attainment,
5. Contingency Plan.

Each of these provisions are addressed here in accordance with the same EPA memos and the CAA.

1. Attainment Emissions Inventory

The State should develop an attainment emissions inventory to identify the level of emissions in the area which is sufficient to attain the NAAQS. Where the State has made an adequate demonstration that air quality has improved as a result of the SIP, the attainment inventory will generally be the actual inventory at the time the area attained the standard.

As explained in **section 3** of the **Redesignation Request** above, the improvement in air quality in the NAA is due directly to the construction and emissions reductions at the Mosaic and TECO facilities. Through the control measures implemented at both facilities, including, among other things, stack height increases and catalyst changes for Mosaic SAP units and the implementation of new SO_2 emissions caps for units at both TECO and Mosaic, SO_2 emissions have been dramatically reduced. The attainment emissions inventory is therefore simply the emissions inventory from the year after monitored ambient SO_2 concentrations fell below the NAAQS.

There has not been a monitored violation of the SO_2 NAAQS since 2014 in Hillsborough County. The Department has therefore chosen to use 2015 actual emissions data to represent the attainment emissions inventory. SO_2 emissions data from Mosaic, TECO, Ajax, and Harsco facilities' 2015 annual operating reports (AOR) for all sources are presented below in **Table 8**. TECO is included in the attainment inventory even though it is located just outside the NAA because it is the largest source of SO_2 in the area.

The complete attainment emissions inventory for the entire NAA is presented in **Table 9**. Mosaic and TECO are the largest sources of SO_2 emissions in or near the NAA. Area and Non-Road emissions for

[13] Procedures for Processing Requests to Redesignate Areas to Attainment. John Calcagni Memorandum dated September 4, 1992, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, available at: www.epa.gov/ozone-pollution/procedures-processing-requests-redesignate-areas-attainment

[14] Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions. Stephen D. Page Memorandum dated April 23, 2014, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, available at: https://www.epa.gov/so2-pollution/guidance-1-hour-sulfur-dioxide-so2-nonattainment-area-state-implementation-plans-sip

the area are based on 2014 NEI data for Hillsborough County. The 2014 emissions for each category were projected to 2015 based on the increase in the Hillsborough County population from 2014 to 2015, and then allocated to the NAA based on the NAA's fraction of land area within the county. On-Road emissions for the area are estimated with MOVES2014a and then allocated to the NAA based on the NAA's fraction of land area within the county. Further details on the data used to develop the attainment inventory can be found in **Appendix D**.

Table 8: 2015 SO_2 emissions inventory for the TECO (057-0039), Mosaic (057-0008), Ajax (777-5424), and Harsco (057-0224) facilities in Hillsborough County.

TECO Facility SO_2 Emissions		
EU ID	**Unit Description**	**2015 SO_2 Emissions (tons)**
1	Fossil Fuel Fired Steam Generator Unit No. 1	1804.89
2	Fossil Fuel Fired Steam Generator Unit No. 2	1324.81
3	Fossil Fuel Fired Steam Generator Unit No. 3	1819.60
4	Fossil Fuel Fired Steam Generator Unit No. 4	2366.10
41	SCCT 4A: PWPS FT8-3 SwiftPac CT/Gen Peaking Unit	0.01
42	SCCT 4B: PWPS FT8-3 SwiftPac CT/Gen Peaking Unit	0.01
43	SCCT Black Start Emergency Engine (1,495 HP)	0.0004
44	Emergency Diesel Generator (1,046 HP)	0.0003
45	Emergency Diesel Generator and Fire Pump Diesel Engine	0.0003
51	Process Heaters (2-6 MMBtu/hour)	0.0007
53	Units 1&2 Emergency Diesel Generator (197 HP)	0.00005
	Total	7315.42
Mosaic Facility SO_2 Emissions		
EU ID	**Unit Description**	**2015 SO_2 Emissions (tons)**
4	No. 7 Sulfuric Acid Plant	668.33
5	No. 8 Sulfuric Acid Plant	532.19
6	No. 9 Sulfuric Acid Plant	529.11
7	No. 6 AP Plant	0.02
55	No. 5 AP Plant	0.04
63	Tank Nos. 1, 2, and 3 for molten sulfur storage w/scrubber	0
66	Sulfur Pit #7, Molten Storage/Handling System	0.02
67	Sulfur Pit #8, Molten Storage/Handling System	0.02
68	Sulfur Pit #9, Molten Storage/Handling System	0.02
74	Truck Loading Station for Molten Sulfur w/common scrubber	0
111	Existing Emergency Stationary RICE < or equal to 500 HP	0.13
112	Auxiliary Boiler	0.002
113	Non-Emergency CI ICE	3.44
	Total	1733.32
Ajax Facility SO_2 Emissions		
EU ID	**Unit Description**	**2015 SO_2 Emissions (tons)**
5	Diesel Engine and Power Generator for RAP Crusher	0.05
6	Drum Mix Asphalt Plant (400TPH)	0.25
	Total	0.30
Harsco Facility SO_2 Emissions		
EU ID	**Unit Description**	**2015 SO_2 Emissions (tons)**
1	Fluid Bed Slag Dryer	0.004
	Total	0.004
	Total All Point Sources	9049.05

Table 9: 2015 attainment emissions inventory for the Hillsborough County SO_2 nonattainment area (Area and Non-Road emissions are from NEI 2014 version 2).

Source Type	**Point**	**Area**	**Non-Road**	**On-Road**	**Total**
2015 SO_2 Emissions (tons)	9,049.05	8.80	0.16	1.86	**9,059.87**

2. Maintenance Demonstration

A State may generally demonstrate maintenance of the NAAQS by either showing that future emissions of a pollutant or its precursors will not exceed the level of the attainment inventory, or by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS.

Mosaic and TECO are the largest sources of SO_2 emissions in or near the Hillsborough County SO_2 NAA. The EPA approved NAA plan for this area included an attainment modeling demonstration that showed compliance with the 2010 SO_2 NAAQS based on the facilities' current permitted emission rates. These permitted rates are based on a variety of control measures implemented at Mosaic and TECO as a part of the NAA plan including the increase in stack height and catalyst changes at the Mosaic SAP units and new SO_2 emission caps for units at both Mosaic and TECO. These control measures are permanent and enforceable through the federally-approved NAA plan. No major design or production changes have occurred at the facilities since the submittal of the NAA plan in 2015. All existing control measures will remain in effect after redesignation and any future sources will require similar measures unless the Department demonstrates through appropriate dispersion modeling that the NAAQS can be maintained.

Table 10 below presents projected emissions inventories for the area every three years for the next 15 years. The Department is not aware of and does not anticipate any future development within the NAA that would increase SO_2 emissions. Therefore, the 2032 inventory and each of the interim year inventories is identical to the 2015 inventory for Point sources. Any increase in actual emissions from Mosaic and TECO are required by permit to remain below the modeled emissions in **Appendix C** that demonstrate attainment of the NAAQS. Area and Non-Road emissions were estimated by projecting 2014 National Emissions Inventory (NEI) SO_2 emissions for these categories based on the projected population increase in Hillsborough County[15] and allocated to the NAA based on the NAA's fraction of land area within the county. Increases in emissions in the Area and Non-Road sectors are insignificant in comparison to the large emissions from the Point source sector. On-Road SO_2 emissions are estimated from MOVES2014a and allocated to the NAA based on the NAA's fraction of land area within the county; SO_2 emissions from the On-Road source sector remain very small. Further details on the data used to develop the projected future emissions inventories can be found in **Appendix D**.

Table 10: Projected future emissions inventories for the Hillsborough County SO_2 nonattainment area.

Source Type	Projected 2020 SO_2 Emissions (tons)	Projected 2023 SO_2 Emissions (tons)	Projected 2026 SO_2 Emissions (tons)	Projected 2029 SO_2 Emissions (tons)	Projected 2032 SO_2 Emissions (tons)
Point	9,049.05	9,049.05	9,049.05	9,049.05	9,049.05
Area	9.53	10.01	10.47	10.91	11.31
Non-Road	0.18	0.19	0.20	0.20	0.21
On-Road	0.74	0.71	0.69	0.67	0.66
Total	9,059.49	9,059.95	9,060.40	9,060.83	9,061.23

3. Monitoring Network

Once an area has been redesignated, the State should continue to operate an appropriate air quality monitoring network, in accordance with 40 CFR Part 58, to verify the attainment status of the area.

[15] Population projections performed by: Florida Demographic Estimating Conference, February 2014 and the University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Bulletin 168, April 2014, http://edr.state.fl.us/Content/population-demographics/data/Medium_Projections.pdf

The Department (through the Hillsborough County Environmental Protection Commission) currently operates one ambient SO_2 monitor in the NAA that meet all federal rules and regulations as described in **section 1** of the **Redesignation Request** above. The Department commits to maintaining an appropriate, well-sited monitoring network in the NAA through the maintenance plan period in order to verify the continued maintenance of the 2010 SO_2 NAAQS.

4. Verification of Continued Attainment

Each State should ensure that it has the legal authority to implement and enforce all measures necessary to attain and maintain the NAAQS.

Section 403.061(35), Florida Statutes, authorizes the Department to "exercise the duties, powers, and responsibilities required of the state under the federal Clean Air Act." These duties and responsibilities include implementing and enforcing all measures necessary to attain and maintain the NAAQS. All measures necessary to attain and maintain the NAAQS have been implemented through the NAA plan. The Department will verify the continued attainment through the monitoring network. Additionally, Mosaic and TECO's required submittal of emissions data to the Department through its AOR will be used to verify continued compliance with the permitted emissions rates that were shown through the modeling demonstration in the NAA plan to be sufficient to provide for maintenance of the NAAQS throughout the NAA. Any increases in actual emissions from Mosaic or TECO, the largest SO_2 sources in or near the NAA, must remain below their permitted levels, which were made federally-enforceable through the NAA Plan, and which will continue to be federally-enforceable throughout the duration of this Maintenance Area SIP. Any potential future SO_2 emissions sources that may locate in or near the NAA would be required to comply with the Department's approved NSR permitting program, either NNSR or prevention of significant deterioration (PSD) review, to ensure that the area will continue to meet the NAAQS. The Department's SIP-approved NNSR and PSD permitting program is outlined in Chapters 62-204, 62-210, and 62-212, F.A.C. and require any new major source or major modification to undergo PSD or NNSR permitting.

5. Contingency Plan

CAA section 175A requires that a maintenance plan include contingency provisions, as necessary, to promptly correct any violation of the NAAQS that occurs after redesignation of the area.

In the "General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990," published on April 16, 1992 at 57 Fed. Reg. 13,498, EPA expressly discussed contingency measures for SO_2. This guidance states that in many cases, as is the case with Florida's Hillsborough County NAA, attainment revolves around compliance of a single source or small set of sources with emission limits shown to provide for attainment. This guidance concludes that in such cases, "EPA interprets 'contingency measures' to mean that the state agency has a comprehensive program to identify sources of violations of the SO_2 NAAQS and to undertake an aggressive follow-up for compliance and enforcement including expedited procedures for establishing enforceable consent agreements pending the adoption of revised SIPs." EPA's memo *Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions*[16] further states that although the guidance discussed above applies to contingency measures for nonattainment plans under section 172(c)(9), the guidance may also be applied with respect to contingency measures required in maintenance plans under section 175A(d).

[16] Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions. Stephen D. Page Memorandum dated April 23, 2014, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, available at: https://www.epa.gov/so2-pollution/guidance-1-hour-sulfur-dioxide-so2-nonattainment-area-state-implementation-plans-sip

The following specific contingency measures, which were part of the NAA SIP, shall continue to apply as part of the Maintenance Area SIP:

The Department's Office of Air Monitoring reviews the monitoring network daily for potential exceedances and submits an exceedance notification and confirmation to the Department and EPA on the business day following any monitored exceedance. Upon notification by the Department's Office of Air Monitoring that the East Bay monitor (12-057-0109) has registered SO_2 levels in excess of the standard (75 ppb, 1-hour daily maximum concentration) for a fourth time during a calendar year, the Department will then notify Mosaic and TECO of the occurrence of a fourth high exceedance. Upon notification by the Department of a confirmed fourth high exceedance,[17] Mosaic and TECO will undertake a full system audit of all emissions units subject to control under the permits that formed the basis of the NAA plan. Mosaic and TECO will each independently submit to the Department in writing, within 10 days of notification of the fourth registered exceedance, a written system audit report detailing the operating parameters of all emissions units for four 10-day periods, up to and including the dates upon which the East Bay monitor registered each of the four exceedances, together with recommended provisional SO_2 emission control strategies for each affected unit and evidence that these control strategies have been deployed, as appropriate.

Upon receipt of these written system audit reports, the Department will immediately begin a 30-day evaluation period to diagnose the cause of the monitored exceedances. This will be followed by a 30-day consultation period with Mosaic and/or TECO to develop and implement operational changes. At the completion of this consultation period, the Department will mandate operational changes identified by the written system audit to prevent any future monitored violation of the standard. These changes could include, but would not be limited to, fuel switching to reduce or eliminate the use of sulfur-containing fuels and physical or operational reduction of production capacity, as appropriate. Any necessary changes would be implemented as soon as practicable, with at least one measure identified during the full system audit implemented within 18-24 months of the monitored violation, in order to bring the area into attainment as expeditiously as possible.

The Department would rely on its authority outlined in Rule 62-4.080, F.A.C., which expressly authorizes the Department to require the permittee to conform to new or additional conditions if there is a showing of any change in the environment or surrounding conditions that requires a modification to conform to applicable air quality standards. Depending on the present circumstances, the Department would exercise this authority to work expeditiously with Mosaic and TECO to make necessary permit modifications. If a permit modification is deemed necessary, the Department would issue a final permit within the statutory timeframes required in Sections 120 and 403, Florida Statues, and any new emissions limits required by such a permit would be submitted to EPA as a SIP revision.

The attainment modeling demonstration within the NAA plan for the area (and attached to this document as **Appendix C**) is still applicable and is sufficient evidence of continued maintenance of the SO_2 NAAQS into the foreseeable future. EPA's *Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions*[18] further states that the attainment plan for SO_2 can serve as the maintenance plan for the area, and that because the modeling demonstration for the NAA plan relies on allowable emissions, it demonstrates that the standard will be maintained and provide maintenance for the 10-year period and beyond.

[17] Confirmation of a fourth high exceedance over the SO_2 NAAQS would be made after quality assurance activities are completed, but not necessarily with Department-certified data.

[18] Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions. Stephen D. Page Memorandum dated April 23, 2014, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, available at: https://www.epa.gov/so2-pollution/guidance-1-hour-sulfur-dioxide-so2-nonattainment-area-state-implementation-plans-sip

Response to 40 CFR Part 51, Appendix V, Criteria

Pursuant to 40 CFR Part 51, Appendix V, the following materials shall be included in State Implementation Plan (SIP) submissions for review and approval by the U.S. Environmental Protection Agency (EPA).

1. Administrative Materials

a. A formal letter of submittal from the Governor or his designee, requesting EPA approval of the plan or revision thereof (hereafter "the plan").

A Pre-Hearing Submittal Letter signed by the Director of the Division of Air Resource Management, Florida Department of Environmental Protection (Department), on behalf of the Governor of the State of Florida, is attached to this Pre-Hearing SIP Submittal.

b. Evidence that the State has adopted the plan in the State code or body of regulations; or issued the permit, order, consent agreement (hereafter "document") in final form. That evidence shall include the date of adoption or final issuance as well as the effective date of the plan, if different from the adoption/issuance date.

This Maintenance SIP relies on two air construction permits, Permit No. 0570008-080-AC, issued on January 15, 2015, and Permit No. 0570039-074-AC, issued on February 26, 2015. These two permits were made federally-enforceable as part of Florida's approved NAA Plan.

c. Evidence that the State has the necessary legal authority under State law to adopt and implement the plan.

The Department has the necessary legal authority to adopt and implement this proposed revision to Florida's SIP. References to the pertinent Florida Statutes and Florida Administrative Code (F.A.C.) rules may be found in the "Legal Authority" section of this submittal.

d. A copy of the actual regulation, or document submitted for approval and incorporation by reference into the plan, including indication of the changes made (*such as, redline/strikethrough*) to the existing approved plan, where applicable. The submittal shall include a copy of the official State regulation/document signed, stamped and dated by the appropriate State official indicating that it is fully enforceable by the State. The effective date of any regulation/document contained in the submission shall, whenever possible, be indicated in the regulation/document itself. *If the State submits an electronic copy, it must be an exact duplicate of the hard copy with changes indicated, signed documents need to be in portable document format, rules need to be in text format and files need to be submitted in manageable amounts (e.g., a file for each section or chapter, depending on size, and separate files for each distinct document) unless otherwise agreed to by the State and Regional Office.*

See air construction permits 0570008-080-AC and 0570039-074-AC issued by the Florida Department of Environmental Projection on January 15, 2015 and February 26, 2015, respectively, incorporated into Florida's SIP through the Hillsborough County SO_2 NAA plan.

e. Evidence that the State followed all of the procedural requirements of the State's laws and constitution in conducting and completing the adoption/issuance of the plan.

State law (Section 120.525, F.S.) requires the Department to give notice of public meetings, hearings, and workshops by publication in the Florida Administrative Register (FAR) not less than seven days before the event. Through publication in the FAR of the notice of opportunity to participate in a public hearing, if requested, at least 30 days before the event, the Department has

complied with all state procedural requirements relevant to the development of this proposed SIP revision. A copy of the notice of proposed SIP revision may be found in the "Public Participation" section of this submittal.

f. Evidence that public notice was given of the proposed change consistent with procedures approved by EPA, including the date of publication of such notice.

The Department has complied with all public hearing requirements of 40 CFR 51.102. Copies of all relevant notices and notification emails may be found in the "Public Participation" section of this submittal.

g. Certification that public hearing(s) were held in accordance with the information provided in the public notice and the State's laws and constitution, if applicable and consistent with the public hearing requirements in 40 CFR 51.102.

Certification of compliance with all state and federal public notice and hearing requirements will be provided in the "Letter of Submittal" for the final SIP revision.

h. Compilation of public comments and the State' response thereto.

Written comments received during the public notice period on this proposed SIP revision, and the Department's response thereto, will be included in the "Public Participation" section of this submittal.

2. Technical Support

a. Identification of all regulated pollutants affected by the plan.

This SIP revision addresses only the air pollutant sulfur dioxide (SO_2).

b. Identification of the locations of affected sources including the EPA attainment/nonattainment designation of the locations and the status of the attainment plan for the affected areas(s).

This SIP revision applies to the SO_2 nonattainment area in Hillsborough County defined as follows:

That portion of Hillsborough County encompassed by the polygon with the vertices using Universal Traverse Mercator (UTM) coordinates in UTM zone 17 with datum NAD83 as follows: (1) vertices – UTM Easting (m) 35881, UTM Northing 3076066; (2) vertices – UTM Easting (m) 355673, UTM Northing 3079275; (3) UTM Easting (m) 360300, UTM Northing 3086380; (4) vertices – UTM Easting (m) 366850, UTM Northing 3086692; (5) vertices – UTM Easting (m) 368364, UTM Northing 3083760; and (6) vertices – UTM Easting (m) 365708, UTM Northing 3079121.

c. Quantification of the changes in plan allowable emissions from the affected sources; estimates of changes in current actual emissions from affected sources or, where appropriate, quantification of changes in actual emissions from affected sources through calculations of the differences between certain baseline levels and allowable emissions anticipated as a result of the revision.

See the Redesignation Request section of this submittal.

d. The State's demonstration that the national ambient air quality standards, prevention of significant deterioration increments, reasonable further progress demonstration, and visibility, as applicable, are protected if the plan is approved and implemented. For all requests to redesignate an area to attainment for a national primary ambient air quality standard, under section 107 of the Act, a revision must be submitted to provide for the maintenance of the national primary ambient air quality standards for at least 10 years as required by section 175A of the Act.

See the Redesignation Request section of this submittal.

e. Modeling information required to support the proposed revision, including input data, output data, models used, justification of model selections, ambient monitoring data used, meteorological data used, justification for use of offsite data (where used), modes of models used, assumptions, and other information relevant to the determination of adequacy of the modeling analysis.

See Appendix C of this submittal.

f. Evidence, where necessary, that emission limitations are based on continuous emission reduction technology.

See air construction permits 0570008-080-AC and 0570039-074-AC issued by the Florida Department of Environmental Projection on January 15, 2015 and February 26, 2015, respectively, incorporated into Florida's SIP through the Hillsborough County SO_2 NAA plan.

g. Evidence that the plan contains emission limitations, work practice standards and recordkeeping/reporting requirements, where necessary, to ensure emission levels.

See air construction permits 0570008-080-AC and 0570039-074-AC issued by the Florida Department of Environmental Projection on January 15, 2015 and February 26, 2015, respectively, incorporated into Florida's SIP through the Hillsborough County SO_2 NAA plan.

h. Compliance/enforcement strategies, including how compliance will be determined in practice.

See air construction permits 0570008-080-AC and 0570039-074-AC issued by the Florida Department of Environmental Projection on January 15, 2015 and February 26, 2015, respectively, incorporated into Florida's SIP through the Hillsborough County SO_2 NAA plan.

i. Special economic and technological justifications required by any applicable EPA policies, or an explanation of why such justifications are not necessary.

Not Applicable.

3. Exceptions

Not applicable.

Legal Authority

Chapter 403 of the Florida Statutes (F.S.), entitled "Environmental Control," provides the legal framework for most of the activities of the air resource management program within the Florida Department of Environmental Protection (Department). Except as provided at sections 403.8055 and 403.201, F.S., for fast-track rulemaking and the granting of variances under Chapter 403, F.S., respectively, Chapter 120, F.S., Florida's "Administrative Procedure Act," sets forth the procedures the Department must follow for rulemaking, variances, and public meetings. The most recent version of the Florida Statutes can be found online at http://www.leg.state.fl.us/Statutes.

The principal sections of Chapter 403, F.S., that grant the Department authority to operate its air program are listed below. Authority to develop and update Florida's State Implementation Plan (SIP) and 111(d) Designated Facilities Plan is expressly provided by subsection 403.061(35), F.S., which provides that the Department shall have the power and the duty to control and prohibit pollution of air and water in accordance with the law and rules adopted and promulgated by it and, for this purpose, to "exercise the duties, powers, and responsibilities required of the state under the federal Clean Air Act, 42 U.S.C. ss. 7401 et seq."

403.031	Definitions, including the definition of "regulated air pollutant" (403.031(19)).
403.061	Authority to: promulgate plans to provide for air quality control and pollution abatement (403.061(1)); adopt rules for the control of air pollution in the state (403.061(7)); take enforcement action against violators of air pollution laws, rules and permits (403.061(8)); establish and administer an air pollution control program (403.061(9)); set ambient air quality standards (403.061(11)); monitor air quality (403.061(12)); require reports from air pollutant emission sources (403.061(13)); require permits for construction, operation, and modification of air pollutant emission sources (403.061(14)); and exercise the duties, powers, and responsibilities required of the state under the federal Clean Air Act (403.061(35)).
403.087	Authority to issue, deny, modify, and revoke permits.
403.0872	Authority to establish an air operating permit program as required by Title V of the Clean Air Amendments of 1990.
403.0877	Authority to require engineering certification of permit applications.
403.121	Authority to seek judicial and administrative remedies for violations.
403.131	Authority to seek injunctive relief for violations.
403.141	Authority to find civil liability for violations.
403.161	Authority to assess civil and criminal penalties for violations.
403.182	Authority for local pollution control programs.
403.201	Authority to grant variances.
403.8052	Authority to establish a Small Business Assistance Program for small-business sources of air pollutant emissions.
403.8055	Authority to adopt U.S. Environmental Protection Agency (EPA) standards by reference through a fast-track process.
403.814	Authority to allow use of general permits (permits-by-rule) for minor sources.

Other statutory authorities, outside of Chapter 403, F.S., for Florida's air program are as follows:

112.3143	Requirement that public officials disclose potential conflicts of interest.
112.3144	Requirement for disclosure of financial interests by public officials.
120.569	Authority of agency head to issue an emergency order in response to an immediate threat to public health, safety, or welfare.
316.2935	Authority to prohibit the sale and operation of motor vehicles whose emission control systems have been tampered with, and to prohibit the operation of motor vehicles that emit excessive smoke.
320.03	Authority to establish Air Pollution Control Trust Fund and use $1 fee on every motor vehicle license registration sold in the state for air pollution control purposes, including support of approved local air pollution control programs.
376.60	Authority to establish a fee for asbestos removal projects.

Current and historical versions of Florida Administrative Code (F.A.C.) rule sections and chapters back to January 1, 2006, may be accessed from the Florida Department of State (DOS) website https://www.flrules.org. The DOS website also provides access to materials adopted by reference since January 1, 2011. Department rule chapters containing State Implementation Plan (SIP) or 111(d) State Plan provisions are as follows:

62-204	Air Pollution Control – General Provisions
62-210	Stationary Sources – General Requirements
62-212	Stationary Sources – Preconstruction Review
62-243	Tampering with Motor Vehicle Air Pollution Control Equipment
62-252	Gasoline Vapor Control
62-256	Open Burning
62-296	Stationary Sources – Emission Standards
62-297	Stationary Sources – Emissions Monitoring

Other air-related Department rule chapters—not part of the SIP or 111(d) State Plan—include:

62-213	Operation Permits for Major Sources of Air Pollution (Title V)
62-214	Requirements for Sources Subject to the Federal Acid Rain Program
62-257	Asbestos Program

Notice of Opportunity to Submit Comments and Participate in Public Hearing

https://attendee.gotowebinar.com/register/6137668909786551298 United States (Toll-free): 1(877)309-2071, Access Code: 865-603-531. If you have any difficulty accessing the teleconference, please call the Florida Center's main number at (850)412-3730.

GENERAL SUBJECT MATTER TO BE CONSIDERED: This is a meeting of the Pediatric Cardiology Technical Advisory Panel to which all interested parties are invited. The purpose of this meeting is to organize Panel subcommittees and determine next steps for Panel meetings.

A copy of the agenda may be obtained by contacting: The agenda will be posted on the Agency website seven (7) days prior to the meeting: http://ahca.myflorida.com/SCHS/PCTAP/index.shtml.

If any person decides to appeal any decision made by the Board with respect to any matter considered at this meeting or hearing, he/she will need to ensure that a verbatim record of the proceeding is made, which record includes the testimony and evidence from which the appeal is to be issued.

For more information, you may contact: Adrienne Henderson, Florida Center for Health Information and Transparency at Adrienne.Henderson@ahca.myflorida.com or (850)412-3753.

DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

Board of Professional Engineers

The Florida Engineers Management Corporation Nominating Committee announces a telephone conference call to which all persons are invited.

DATE AND TIME: May 15, 2018, 10:00 a.m. or soon thereafter

PLACE: Florida Board of Professional Engineers, 2639 North Monroe St., Building B-112, Tallahassee, FL 32303

GENERAL SUBJECT MATTER TO BE CONSIDERED: nominate chair and vice chair for 2018-2019. If you would like to participate in the call, please contact Rebecca Sammons at (850)521-0500, ext. 114 at least 10 days prior to the date of the meeting. The call in number is: 1(888)392-4560 (you will need to contact Ms. Sammons for the participant code).

A copy of the agenda may be obtained by contacting: Rebecca Sammons.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 10 days before the workshop/meeting by contacting: Rebecca Sammons. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

If any person decides to appeal any decision made by the Board with respect to any matter considered at this meeting or hearing, he/she will need to ensure that a verbatim record of the proceeding is made, which record includes the testimony and evidence from which the appeal is to be issued.

For more information, you may contact: Rebecca Sammons, rsammons@fbpe.org.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

The Department of Environmental Protection, Division of Air Resource Management, announces a hearing, if requested, to which all persons are invited.

DATE AND TIME: June 1, 2018, 10:00 a.m.

PLACE: Department of Environmental Protection, Bob Martinez Center, 2600 Blair Stone Road, Room 195, Tallahassee, Florida

GENERAL SUBJECT MATTER TO BE CONSIDERED: Pursuant to 40 CFR 51.102, the Department of Environmental Protection (DEP) announces a public hearing and opportunity to offer comments on a proposed revision to Florida's State Implementation Plan (SIP) under the Clean Air Act. This proposed SIP revision consists of a request to redesignate the portion of Hillsborough County that is designated as "nonattainment" with respect to the 2008 revised sulfur dioxide (SO2) national ambient air quality standard (NAAQS) to "attainment" and a request to approve an associated maintenance SIP that will ensure the continued attainment of the 2010 SO2 NAAQS in the area. The materials comprising DEP's proposed SIP revision may be obtained through the Department's website at https://floridadep.gov/air/air-business-planning/content/air-regulatory-projects or by contacting Hastings Read at Hastings.Read@dep.state.fl.us. The materials may also be inspected during normal business hours at DEP, Division of Air Resource Management offices, Bob Martinez Center, 2600 Blair Stone Road, Tallahassee, Florida. A public hearing will be held, if requested, at the date, time and place given above. Any request for a public hearing must be submitted by letter or e-mail to Hastings Read, Department of Environmental Protection, Division of Air Resource Management, 2600 Blair Stone Road, MS #5500, Tallahassee, Florida 32399-2400, (Hastings.Read@dep.state.fl.us), and received no later than May 29, 2018. A copy of the agenda may be obtained by contacting: Mr. Read by letter or email at the above addresses or by calling (850)717-9017. It is not necessary that the hearing be held or attended for persons to comment on DEP's proposed submittal to EPA. Any comments must be submitted to: Hastings Read by letter or e-mail, with a copy to Terri Long, (Terri.Long@dep.state.fl.us), and received no later than May 29, 2018.

If no request for a public hearing is received, the hearing will be cancelled, and notice of the cancellation will be posted at the following website: https://floridadep.gov/events/month?field_county_tid=All&field_is_a_public_notice_value=Yes.

Persons may also contact: Terri Long at (850)717-9023 to find out if the hearing has been cancelled. Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 48 hours before the workshop/meeting by contacting: Terri Long at (850)717-9023 or Terri.Long@dep.state.fl.us. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, (800) 955-8771 (TDD) or (800) 955-8770 (Voice).

For more information, you may contact: Hastings Read by letter or e-mail, or by calling (850)717-9017.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

The Department of Environmental Protection, Division of Air Resource Management, announces a hearing, if requested, to which all persons are invited.

DATE AND TIME: June 1, 2018, 10:00 a.m.

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If no request for a public hearing is received, the hearing will be cancelled, and notice of the cancellation will be posted at the following website: https://floridadep.gov/events/month?field_county_tid=All&field_is_a_public_notice_value=Yes.

Persons may also contact: Terri Long at (850)717-9023 to find out if the hearing has been cancelled. Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 48 hours before the workshop/meeting by contacting: Terri Long at (850)717-9023 or Terri.Long@dep.state.fl.us. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

For more information, you may contact: Hastings Read by letter or e-mail, or by calling (850)717-9017.

DEPARTMENT OF HEALTH

Board of Clinical Social Work, Marriage and Family Therapy and Mental Health Counseling

The Board of Clinical Social Work, Marriage & Family Therapy and Mental Health Counseling announces a telephone conference call to which all persons are invited.

DATE AND TIME: June 6, 2018, 9:00 a.m., ET

PLACE: 1(888)670-3525 when prompted, enter conference code: 4552635641#

GENERAL SUBJECT MATTER TO BE CONSIDERED: Probable Cause Panel with a reconsideration.

A copy of the agenda may be obtained by contacting: www.floridasmentalhealthprofessions.gov. If any person decides to appeal any decision made by the Board with respect to any matter considered at this meeting, he/she will need to ensure that a verbatim record of the proceeding is made, which record includes the testimony and evidence upon which the appeal is to be made. Those who are hearing impaired, using TDD equipment can call the Florida Telephone Relay System at 1(800)955-8771. Persons requiring special accommodations due to disability or physical impairment should contact: the Board Office at (850)245-4474.

DEPARTMENT OF HEALTH

Division of Children's Medical Services

The Florida Department of Health announces a telephone conference call to which all persons are invited.

DATE AND TIME: May 22, 2018, 3:00 p.m. – 5:00 p.m.

PLACE: 1(888)670-3525, participant code: 2883350850

GENERAL SUBJECT MATTER TO BE CONSIDERED: Genetics and Newborn Screening Task Force. The purpose of

Public Participation

Documentation will be added upon completion of the 30-day comment period for the pre-hearing submittal and public notice.

Appendix A – Mosaic Riverview Air Construction Permit (0570008-080-AC)

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
BOB MARTINEZ CENTER
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT
GOVERNOR

CARLOS LOPEZ-CANTERA
LT. GOVERNOR

JONATHAN P. STEVERSON
SECRETARY

PERMITTEE

Riverview Facility
Mosaic Fertilizer, LLC
13830 Circa Crossing Drive
Lithia, Florida 33547

Permit No. 0570008-080-AC
Permit Expires: August 1, 2018
Riverview Facility
SO_2 Emissions Reduction Project
Hillsborough County

Authorized Representative:
Mr. Robert Fredere, Plant Manager

PROJECT

This is the final air construction permit for the SO_2 Emissions Reduction Project at the Riverview Facility, which include physical and operational changes to reduce ambient SO_2 emissions and ambient impacts from the facility.

The Riverview Facility is an existing phosphate fertilizer manufacturer categorized under Standard Industrial Classification Number (No.) 2874. The existing facility is located in Hillsborough County at 8813 U.S. Highway 41 South in Riverview, Florida. UTM Coordinates are: Zone 17, 363.23 kilometers (km) East and 3082.56 km North. Latitude is: 27°51'39" North; and, Longitude is: 82°23'21" West.

This final permit is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions); and Section 4 (Appendices). Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix CF of Section 4 of this permit

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of: Chapter 403 of the Florida Statutes (F.S.) and Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297 of the Florida Administrative Code (F.A.C.). This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and is not subject to the preconstruction requirements for major new source review in Chapter 62-212, F.A.C.

Upon issuance of this final permit, any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida

David L. Read, P.E.
2015.01.15
15:35:15 -05'00'

for: Jeffery F. Koerner, Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

JFK/dlr/sms

www.dep.state.fl.us

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this final air permit package (including the Final Determination and Final Permit with Appendices) was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on the date indicated below to the following persons.

Mr. Robert Fredere, Mosaic Fertilizer, LLC: robert.fredere@mosaicco.com
Mr. Rama Iyer, P.E., Mosaic Fertilizer, LLC: rama.iyer@mosaicco.com
Mr. Jeff Stewart, Mosaic Fertilizer, LLC: jeff.stewart@mosaicco.com
Ms. Kelley Boatwright, DEP SWD: kelley.boatwright@dep.state.fl.us
Ms. Heather Ceron, U.S. EPA Region 4: ceron.heather@epa.gov
Ms. Diana Lee, P.E., HCEPC: lee@epchc.org
Mr. Thomas G. Rogers, DEP OBP: tom.rogers@dep.state.fl.us

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

Lynn Scearce 2015.01.15 15:37:48 -05'00'

SECTION 1. GENERAL INFORMATION

FACILITY DESCRIPTION

This existing Mosaic Riverview facility consists of several industrial processes that convert insoluble rock containing phosphorus ore into a soluble form suitable for agricultural use. The processes consist of one phosphoric acid plant (two trains), two ammoniated phosphate (AP) plants, three sulfuric acid plants (SAP), one material handling system, one auxiliary boiler, two animal feed plants, a molten sulfur storage and handling system and emergency compression ignition reciprocating internal combustion engines. This facility consists of the emissions units shown below. The emission units affected by this permitting action are highlighted in yellow.

LIST OF EMISSION UNITS.

EU No.	Brief Description
Regulated Emissions Units	
004	No. 7 Sulfuric Acid Plant
005	No. 8 Sulfuric Acid Plant
006	No. 9 Sulfuric Acid Plant
007	No. 6 AP Plant
051	Conveyor No. 9 Transfer Points and Railcar Unloading
052	Conveyor No. 9 to Shipping Belt Conveyor
053	Vessel Loading Operation
055	No. 5 Granulation Plant
058	Conveyor No. 6 to Conveyor No. 7
059	Conveyor No. 7 to Conveyor No. 8
060	Screening Tower and Conveyor No. 8 to Conveyor No. 9
061	East Vessel Loading Facility - Shiphold/Chokefeed
063	Molten Sulfur Storage and Handling System – Tank #1, 2 and 3
066	Molten Sulfur Storage and Handling System -- Pit #7
067	Molten Sulfur Storage and Handling System -- Pit #8
068	Molten Sulfur Storage and Handling System -- Pit #9
073	Phosphoric Acid Production Facility
074	Molten Sulfur Storage and Handling System -- Truck Loading Station
075	AP Storage Building Nos. 2, 4, 5 & 6
076	Loadout between Buildings 2 & 4
077	Loadout adjacent to Building 6
078	Animal Feed Ingredient (AFI) Plant No. 1
079	Diatomaceous Earth (DE) Silo
080	Limestone Silo
081	Animal Feed Plant (AFI) Loadout System
103	Animal Feed Ingredient (AFI) Plant No. 2
104	Phosphogypsum Stack North (No. 1)
108	Phosphogypsum Stack South (No 2.)

EU No.	Brief Description
109	Clarifier and Storage Tanks
111	Existing Emergency Stationary RICE < or equal to 500 HP
112	Auxiliary Steam Boiler
113	Non-Emergency CI ICE
Miscellaneous Emissions Units and Activities	
105	Facility-Wide Fugitive Emissions: - Sulfur dioxides (SO_2), sulfur trioxides (SO_3), sulfuric acid mist (SAM) emissions from the 7, 8 & 9 Sulfuric Acid Plants - Fluoride emissions from the Phosphoric Acid Plant - Fluoride, ammonia (NH_3), particulate matter (PM) emissions from the Nos. 5 & 6 Granulation Plants - Hydrogen Fluoride emissions from the Phosphogypsum Stacks and Cooling Ponds *Note: For this emissions unit, Annual Operation Report (AOR) emissions estimates are required only for the Hydrogen Fluoride emissions from the Phosphogypsum Stacks and Cooling Ponds.*

PROPOSED PROJECT

The purpose of the project is to reduce SO_2 emissions and ambient impacts from the facility. Specifically, the permit requires:

- Elimination of the use of oil at the plant except during periods of natural gas curtailment or disruption.
- Changing/augmenting the catalysts in the converters in SAP Nos. 7, 8 and 9, which will lower SO_2 emissions while not increasing sulfuric acid mist (SAM) emissions. Note that the existing permitted capacities of the plants will remain the unchanged.
- Increasing the stack height of each SAP to no lower than 65 meters (213.25 feet) which is equivalent to approximately a 60-foot increase per stack.
- Comply with specific SO_2 emissions standards and caps based on a 24-hour block average as determined by CEMS data.

FACILITY REGULATORY CLASSIFICATION

- The existing facility is a major source of HAP.
- The existing facility is a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.
- The existing facility is a major stationary source in accordance with Rule 62-212.400 (PSD), F.A.C.
- This facility does not operate units subject to the acid rain provisions of the Clean Air Act (CAA)
- The facility operates units that are subject to the New Source Performance Standards (NSPS) at 40 Code of Federal Regulations, Part 60 (40 CFR 60), and the National Emissions Standards for Hazardous Air Pollutants (NESHAP) at 40 CFR 63.

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SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: The permitting authority for this project is the Office of Permitting and Compliance, Division of Air Resource Management, Florida Department of Environmental Protection (Department). The mailing address for the Office of Permitting and Compliance is 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Compliance Authority, the Environmental Protection Commission of Hillsborough County (EPCHC). The Compliance Authority's mailing address is:

   Environmental Protection Commission Hillsborough County
   3629 Queen Palm Drive
   Tampa, Florida 33619
   Telephone: 813/627-2600, Fax: 813/627-2660

3. Appendices: The following Appendices are attached as a part of this permit and the permittee must comply with the requirements of the appendices:
   a. Appendix CC Common Conditions;
   b. Appendix CF Citation Formats and Glossary of Common Terms; and
   c. Appendix GC General Conditions.

4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296 and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.

5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

6. Modifications: No emissions unit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

7. Title V Permit: This permit authorizes specific modifications and/or new construction on the affected emissions units as well as initial operation to determine compliance with conditions of this permit. A Title V operation permit is required for regular operation of the permitted emissions units. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

8. Objectionable Odors Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 62-296.320(2), F.A.C.]

   {Note: An objectionable odor is defined in Rule 62-210.200(Definitions), F.A.C., as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance.}

9. Unconfined Emissions of Particulate Matter: No person shall cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any activity, including vehicular movement; transportation of materials; construction, alteration, demolition or wrecking; or industrially related activities such as loading, unloading, storing or handling; without taking reasonable precautions to prevent such emissions. Any permit issued to a

facility with emissions of unconfined particulate matter shall specify the reasonable precautions to be taken by that facility to control the emissions of unconfined particulate matter. General reasonable precautions include the following: a. Paving and maintenance of roads, parking areas and yards; b. Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing; c. Application of asphalt, water, oil, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar activities; d. Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent re-entrainment, and from buildings or work areas to prevent particulates from becoming airborne; e. Landscaping or planting of vegetation; f. Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter; g. Confining abrasive blasting where possible; and h. Enclosure or covering of conveyor systems.
[Rule 62-296.320(4)(c), F.A.C.]

PREVIOUS APPLICABLE REQUIREMENTS

10. Effect on Other Permits: The conditions of this permit supplement all previously issued air construction and operation permits for these emissions units. Unless otherwise specified, these conditions are in addition to all other applicable permit conditions, rules and regulations. [Rule 62-4.070(1) & (3), Reasonable Assurance, F.A.C.]

A. SAP Nos. 7, 8 and 9 (EU Nos. 004, 005 and 006)

This subsection of the permit addresses the following emission units:

EU No.	Brief Description
004	No. 7 Sulfuric Acid Plant
005	No. 8 Sulfuric Acid Plant
006	No. 9 Sulfuric Acid Plant

Descriptions: Sulfuric Acid Plants (SAPs) Nos. 7, 8 and 9 have a design capacity of 3,200 tons per day (TPD), 2,700 TPD, and 3,400 TPD of 100% sulfuric acid, respectively. Each SAP recovers a portion of the waste heat (steam) for process use and to generate electricity. Waste heat recovery reduces plume visibility. There are two electrical generators at each SAP, rated at 35 megawatts (MW) and 36 MW for a total of 71 MW. These plants are sulfur burning, double-conversion, and double-absorption plants based on the Leonard-Monsanto design. Sulfur is burned with dried atmospheric oxygen to produce sulfur dioxide (SO_2). The sulfur dioxide is catalytically oxidized to sulfur trioxide (SO_3) over a catalyst bed. The sulfur trioxide is then absorbed in sulfuric acid. The remaining sulfur dioxide, not previously oxidized, is passed over a final converter bed of catalyst and the sulfur trioxide produced is then absorbed in sulfuric acid. SAP Nos. 7, 8 and 9 began operating in 1961, 1965 and 1974, respectively.

Air Pollution Control Systems and Measures: The control of SO_2 emissions is primarily by the process itself. Currently, a double-conversion, double-absorption plant efficiently converts SO_2 to SO_3 then SO_3 reacts in a mixture of water and sulfuric acid to produce sulfuric acid. In a double-absorption system, the conversion efficiency from SO_2 to SO_3 is at least 99.7%. All three plants currently use vanadium and cesium catalysts in the converters.

Monitors: Each SAP is equipped with an existing SO_2 continuous emissions monitoring system (CEMS). The SO_2 CEMS are required by the Standards of Performance for New Stationary Sources (NSPS).

Stack Parameters: Emissions not absorbed by each double absorption system are currently vented through 150-foot tall stack for each SAP. The stack exhaust gas characteristics for SAP Nos. 7, 8 and 9 are, respectively: exhaust gas temperatures of 170° F, 150° F and 152 °F; exhaust gas flow rates of 122,000, 105,000 and 149,000 actual cubic feet per minute and stack diameters of 7.5, 8.0 and 9.0 feet.

{Permitting notes: The SAPs are currently regulated under NSPS 40 CFR 60, Subpart H, Standards of Performance for Sulfuric Acid Plants, adopted and incorporated by reference in Rule 62-204.800(7)(b)10., F.A.C.; Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD), PSD-FL-209 (AC29-241660) - 1st BACT for SAP Nos. 8 and 9, PSD-FL-250 (0570008-025-AC) - 1st BACT for SAP No. 7, PSD-FL-315 (0570008-036-AC) - 2nd BACT for SAP Nos. 8 and 9; Rule 62-296.402, F.A.C., Sulfuric Acid Plants; and Rule 62-296.320, F.A.C., General Pollutant Emission Limiting Standards.}

Physical Changes

1. Stack Height Increase: The SAP Nos. 7, 8 and 9 all have stacks that are currently 150 feet high, with diameters of 7.5, 8.0 and 9.0 feet, respectively. In accordance with the work schedule in **Condition 3** of this subsection, all three stack heights shall be increased to a height not less than 65 meters (213.25 feet), with the discharge diameters remaining essentially the same or less at the exhaust point (same or better exhaust characteristics for dispersion). Within 45 days of commencing operation with the increased stack heights, the permittee shall notify the Division and the Compliance Authority that the work is complete and provide the final stack dimensions and design. [Rules 62-4.070(1) and (3) and 62-4.080, F.A.C.; and SO_2 Attainment SIP]

2. Converter Catalyst: All three SAPs are double-absorption plants with a four catalyst bed converter and waste heat boiler, cold and hot pass heat exchangers, economizers, and heat recovery systems. In accordance with the work schedule specified in **Condition 3** of this subsection, the permittee shall change/augment the catalyst to comply with the SO_2 emissions caps specified in **Conditions 4, 5, and 6** of this subsection. The permitted

SAP capacities will remain unchanged; the purpose of the catalyst work is to reduce SO_2 emissions and ambient impacts. Within 45 days of commencing operation following the turnaround (including catalyst installation and arrangement for each SAP), the permittee shall provide the following information to the Division and the Compliance Authority: the type of catalyst; the amount of catalyst, the catalyst arrangement within the convertor; and the initial expected SO_2 emissions rate in "lb/ton of 100% sulfuric acid produced" to be achieved by the catalyst formulation. [Rules 62-4.070(1) and (3) and 62-4.080, F.A.C.; and SO_2 Attainment SIP]

3. Work Schedule: The permittee shall conduct the required work in accordance with the following schedule, which is based on the facility's planned turnarounds.

Date Completed	SAP	SAP Project Work - Activity
November 2014	SAP No. 9 (EU No. 006)	Catalyst change/augmentation
November 2015	SAP No. 8 (EU No. 005)	Catalyst change/augmentation Increase stack height to a minimum of 213.25 feet
November 2016	SAP No. 7 (EU No. 004)	Catalyst change/augmentation Increase stack height to a minimum of 213.25 feet
November 2017	SAP No. 9 (EU No. 006)	Increase stack height to a minimum of 213.25 feet

Prudent planning will allow the permittee to conduct the catalyst changes/augmentation by the deadlines specified above. With regard to the stack height increases, the permittee shall notify the Department as soon as possible regarding any issues with the design, materials, labor, etc. that would cause substantive delays in meeting the given deadline. The Department may approve alternative deadlines for the stack height increases. [Rules 62-4.070(1) and (3) and 62-4.080, F.A.C.; SO_2 Attainment SIP]

SO_2 Emission Standards and Caps for SAPs

4. Individual SAP Emissions Standards: As determined by existing CEMS data, each SAP shall continue to comply with the following individual emissions standards, which are enforceable standards that allowed these units to avoid Rule 62-296.340(5)(c), F.A.C. (BART):

   - SAP No. 7: 400 lb SO_2/hour, 24-hour block average (midnight to midnight).
   - SAP No. 8: 315 lb SO_2/hour, 24-hour block average (midnight to midnight).
   - SAP No. 9: 425 lb SO_2/hour, 24-hour block average (midnight to midnight).

   These emissions standards apply at all times including periods when two or three SAPs are in operation. [Rule 62-296.340(5)(c), F.A.C. and Permit No. 0570008-061-AC to avoid BART; and SO_2 Attainment SIP]

5. Emission Cap when Two SAPs are Operating: Effective December 15, 2016, when any two SAPs operate within a 24-hour block averaging period and the third SAP is not in operation, the following SO_2 emissions cap also applies: 550 lb SO_2/hour, 24-hour block average (6:00 am to 6:00 am). Note that the individual emissions standards in **Condition 4** of this subsection remain in effect. *{Permitting Note: This new emissions cap reduces SO_2 emissions and ambient impacts in and around the SO_2 non-attainment area in Hillsborough County.}* [Rules 62-4.070(1) and (3) and 62-4.080, F.A.C.; and SO_2 Attainment SIP]

6. Emission Caps when Three SAPs are Operating: Effective December 15, 2016, when all three SAPs are in operation within the same 24-hour block averaging period, the following SO_2 emission cap also applies: 575 lb SO_2/hour, 24-hour block average (6:00 am to 6:00 am). Note that the individual emissions standards in **Condition 4** and the emissions cap for two operating SAPs in **Condition 5** of this subsection remain in effect. *{Permitting Note: This new emissions cap reduces SO_2 emissions and ambient impacts in and around the SO_2 non-attainment area in Hillsborough County.}* [Rules 62-4.070(1) and (3) and 62-4.080, F.A.C.; and SO_2 Attainment SIP]

7. Previous SO_2 Emission Limits: These new SO_2 limits and caps are in addition to previous permit limits. The SO_2 emissions standards and caps specified in this permit cannot vary or waive any SO_2 emissions standards related to any previous NSPS, NESHAP, maximum achievable control technology (MACT), best available control technology (BACT), prevention of significant deterioration (PSD), state implementation plan (SIP) requirements, or any previously issued air construction permit requirements. [Rules 62-4.070(1) and (3) and 62-4.080, F.A.C.; and SO_2 Attainment SIP]

Compliance Demonstration

8. Continuous Compliance Demonstration: The permittee shall demonstrate continuous compliance with the SO_2 emissions standards and caps established in **Specific Conditions 4, 5, and 6** of this subsection based on data collected by the existing SO_2 CEMS. The emissions standards and caps apply during all periods of operation including startup and shutdown. [Rules 62-4.070(3) and 62-4.080, F.A.C.; and SO_2 Attainment SIP]

9. SO_2 CEMS Requirements: The existing SO_2 CEMS shall comply with the quality assurance and quality control requirements specified in the most recent Title V air operation permit. [Rules 62-4.070(1) and (3) and 62-4.080, F.A.C.; and SO_2 Attainment SIP]

10. Semi-Annual Progress Reports: The permittee shall provide semiannual progress reports for the six-month periods ending June 30th and December 31st of each year on the status of the physical and operational changes required by the this permit. Reports shall be submitted to the Division and Compliance Authority within 30 days following the reporting period. The first progress report is due by January 30, 2015 and the last progress report is due by January 30, 2018. [Rules 62-4.070(1) and (3) and 62-4.080, F.A.C.; and SO_2 Attainment SIP]

Ongoing Compliance and Test Reports

11. Semiannual SO_2 CEMS Data Reports: The permittee shall submit semiannual emissions reports for the six-month periods ending June 30th and December 31st of each year summarizing the SO_2 data and demonstrating compliance with the SO_2 emissions standards and caps specified in **Specific Conditions 4, 5, and 6** of this subsection. Reports shall be submitted within 30 days following the six-month reporting period. The first report is due by July 30, 2018. Each report shall summarize each 24-hour block average SO_2 emissions rates showing compliance with the standards and caps during the reporting period along with any background information necessary to explain the emissions. [Rules 62-4.070(1) and (3) and 62-4.080, F.A.C.; and SO_2 Attainment SIP]

12. Emissions Exceedance Reporting: Within one business day of occurrence, the permittee shall notify the Compliance Authority of any exceedance of the SO_2 emissions standards and/or caps. Within 15 days of occurrence, the permittee shall submit a report to the Compliance Authority detailing the exceedance, identifying the likely cause, describing any corrective actions taken, and noting when the unit was returned to compliance. This reporting requirement is effective December 15, 2016. [Rules 62-4.070(1) and (3) and 62-4.080, F.A.C.; and SO_2 Attainment SIP]

B. Sulfuric Acid, Ammonium Phosphate, and Granulation Plants

This subsection of the permit addresses the following emission units:

EU No.	Brief Description
004	No. 7 Sulfuric Acid Plant
005	No. 8 Sulfuric Acid Plant
006	No. 9 Sulfuric Acid Plant
007	No. 6 AP Plant
055	No. 5 Granulation Plant

Fuel Oil Limitation

1. Elimination of Fuel Oil Use: Effective July 1, 2015, the Mosaic Riverview facility shall cease firing fuel oil in Emission Units 004, 005, 006, 007 and 055 except during periods of natural gas curtailment or disruption. [Rules 62-4.070(1) and (3) and 62-4.080, F.A.C.; and SO_2 Attainment SIP]

Appendix B – TECO Big Bend Station Air Construction Permit (0570039-074-AC)

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
BOB MARTINEZ CENTER
2600 BLAIRSTONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT
GOVERNOR

CARLOS LOPEZ-CANTERA
LT. GOVERNOR

JONATHAN P. STEVERSON
SECRETARY

PERMITTEE

Tampa Electric Company
Post Office Box 111
Tampa, Florida 33601-0111

Authorized Representative:
Mr. Ronald D. Bishop, Director

Air Permit No. 0570039-074-AC
Permit Expires: December 1, 2106
Minor Air Construction Permit

Big Bend Station
SO_2 Emissions Reduction Project

PROJECT

This is the final air construction permit, which specifies a sulfur dioxide (SO_2) emissions cap over the existing fossil fuel fired electric generating units (Units 1 – 4, combined) at the Tampa Electric Company (TEC) Big Bend Station, which will reduce SO_2 emissions and ambient impacts from the facility. The existing Big Bend Station is an electric power facility categorized under Standard Industrial Classification No. 4911. The existing facility is located in Hillsborough County at 13031 Wyandotte Road in Apollo Beach, Florida. The UTM coordinates are Zone 17, 363.15 kilometers (km) East and 3074.91 km North.

This final permit is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions); and Section 4 (Appendices). Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of Section 4 of this permit.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of: Chapter 403 of the Florida Statutes (F.S.) and Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297 of the Florida Administrative Code (F.A.C.). This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and is not subject to the preconstruction requirements for major new source review in Rule 62-212, F.A.C.

Upon issuance of this final permit, any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida

David L. Read, P.E.
2015.02.26
08:20:26 -05'00'

for Jeffrey F. Koerner, Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

www.dep.state.fl.us

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Air Permit package was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on the date indicated below to the following persons.

Mr. Ronald D. Bishop, Director, TEC: rdbishop@tecoenergy.com
Mr. Byron T. Burrows, P.E., Manager, TEC: btburrows@tecoenergy.com
Mr. Rob Velasco, P.E., TEC: ravelasco@tecoenergy.com
Ms. Diana M. Lee, P.E., EPCHC: lee@epchc.org
Ms. Justin Green, DEP Siting: justin.b.green@dep.state.fl.us
Ms. Diana Csank, Sierra Club: diana.csank@sierraclub.org
Ms. Alisa Coe, Earth Justice: acoe@earthjustice.org
Ms. Heather Ceron, US EPA Region 4: ceron.heather@epa.gov
Ms. Lynn Scearce, DEP OPC: lynn.scearce@dep.state.fl.us

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

Lynn Scearce 2015.02.26 09:22:04 -05'00'

FACILITY DESCRIPTION

The Big Bend Station is a nominal 1,892 megawatt (MW) electric generation facility. This facility consists of four fossil fuel fired electrical generating Units 1 – 4; four steam turbine electrical generators (STEG); two simple-cycle combustion turbines (SCCT) 4A and 4B sharing a common electrical generator; solid fuels, fly ash, limestone, gypsum, slag, bottom ash storage and handling facilities; and fuel oil storage tanks. The existing facility consists of the following regulated emissions units (EU).

EU No.	Emission Unit Description
Fossil Fuel Fired Steam Generator Units	
001	Fossil Fuel Fired Steam Generator Unit No. 1
002	Fossil Fuel Fired Steam Generator Unit No. 2
003	Fossil Fuel Fired Steam Generator Unit No. 3
004	Fossil Fuel Fired Steam Generator Unit No. 4
Solid Fuel Yard	
010	Solid Fuel Yard Fugitive Emissions
029	Fuel Blending Bin Cyclone Collectors (FH-032 through FH-035)
030	Fuel Mill Cyclone Collectors (FH-048 and FH-049)
046	Transloading and Off-site Transfer of Solid Fuels and Slag (by truck, rail and barge)
047	Railcar Unloading and Conveying System
Coal Bunkers with Roto-Clones	
015	Unit No. 1 Coal Bunker with Roto-Clone
016	Unit No. 2 Coal Bunker with Roto-Clone
017	Unit No. 3 Coal Bunker with Roto-Clone
039	Unit No. 4 Coal Bunker with Roto-Clone
Flyash Handling and Storage - Silo Nos. 1 - 2	
008	Fly Ash Silo No. 1 Baghouse
009	Fly Ash Silo No. 2 Baghouse
014	Fly Ash Silo No. 3 Baghouse
Limestone Handling and Storage	
012	Limestone Silo A Baghouses (2)
013	Limestone Silo B Baghouses (2)
023	Limestone Conveyor LB/LC Baghouse
050	Limestone Conveyor LD/LE Baghouse
Limestone Handling for FGD System for Units 1 & 2	
020	Limestone Conveyors LE/LF/LG/Silo C Belt Feeder Baghouse
021	Silo C Baghouse
Wastewater Treatment Plant	
022	Lime Silo for Wastewater Treatment Plant with one Baghouse
Surface Coating Operations	

EU No.	Emission Unit Description
032	Surface Coating of Miscellaneous Metal Parts
Coal Residual Storage and Transfer from the Polk Power Station	
037	Coal Residual Storage Facility
038	Coal Residual Transfer System
Simple-Cycle Combustion Turbines	
041	SCCT 4A with a common electric generator that it shares with SCCT 4B
042	SCCT 4B with a common electric generator that it shares with SCCT 4A
Engines	
043	SCCT Black Start Diesel Engine, 1,000 kilowatt
044	Coal Field Diesel Generator

PROPOSED PROJECT

The purpose of the project is to reduce SO_2 emissions and ambient impacts from the facility. Specifically, the permit establishes an SO_2 emissions cap of 3,162 pounds per hour (lb/hour) based on a 30-day rolling average over existing fossil fuel fired electrical generating units (Units 1 – 4, combined). In addition to the recent improvements to the wet FGD systems, TEC is replacing the existing fuel igniters (Permit No. 0570039-065-AC) and associated equipment to allow Units 1 - 4 to burn natural gas instead of fuel oil during startup, shutdown and flame stabilization. Only the following existing emissions units will be affected by this project.

EU ID	Emission Unit Description
001	Fossil Fuel Fired Steam Generator Unit No. 1
002	Fossil Fuel Fired Steam Generator Unit No. 2
003	Fossil Fuel Fired Steam Generator Unit No. 3
004	Fossil Fuel Fired Steam Generator Unit No. 4

FACILITY REGULATORY CLASSIFICATION

- The facility is a major source of hazardous air pollutants (HAP).
- The facility operates units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.
- The facility operates units subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.
- The facility does operate units subject to the New Source Performance Standards (NSPS) of 40 CFR 60.
- The facility does operate units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: The permitting authority for this project is the Office of Permitting and Compliance in the Division of Air Resource Management of the Department of Environmental Protection (Department). The Office of Permitting and Compliance mailing address is 2600 Blairstone Road (MS #5505), Tallahassee, Florida 32399-2400.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Environmental Protection Commission of Hillsborough County at: 3629 Queen Palm Drive, Tampa, Florida 33619. Phone: (813) 627-2600.
3. Appendices: The following Appendices are attached as a part of this permit: Appendix A (Citation Formats and Glossary of Common Terms); Appendix B (General Conditions); and Appendix C (Common Conditions).
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296 and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.
5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]
6. Modifications: No new emissions unit shall be constructed and no existing emissions unit shall be modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
7. Permit Expiration. The expiration date shown on the first page of this permit provides time to implement the new SO_2 emissions cap authorized by this permit, complete any necessary compliance testing, and obtain an operation permit. Notwithstanding this expiration date, all specific emissions limitations and operating requirements established by this permit shall remain in effect until the facility or emissions unit is permanently shut down. For good cause, the permittee may request that that a permit be extended. Pursuant to Rule 62-4.080(3), F.A.C., such a request shall be submitted to the Permitting Authority in writing before the permit expires. [Rules 62-4.070(4), 62-4.080 & 62-210.300(1), F.A.C.]
8. Application for Title V Permit: This permit specifies an SO_2 emissions cap over the existing fossil fuel fired electric generating units (Units 1 – 4, combined) at the Big Bend Station. A Title V air operation permit is required for regular operation of the permitted emissions units. The permittee shall apply for a Title V air operation permit revision at least 90 days prior to the permit expiration date of this permit. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220 and Chapter 62-213, F.A.C.]

B. Fossil Fuel Fired Steam Generator Units 1 – 4 (EU 001 – EU 004)

This section of the permit addresses the following emissions units.

EU ID	Emission Unit Description
001	Fossil Fuel Fired Steam Generator Unit No. 1
002	Fossil Fuel Fired Steam Generator Unit No. 2
003	Fossil Fuel Fired Steam Generator Unit No. 3
004	Fossil Fuel Fired Steam Generator Unit No. 4

Units 1 through 3 each have a design electrical generating capacity of 445 MW. Unit 4 has a design electrical generating capacity of 486 MW. The fuel fired in all four units consists of coal, or a coal/petroleum coke blend containing a maximum of 20% petroleum coke by weight, or coal blended with coal residual generated from the Polk Power Station, or a coal/petroleum coke blend further blended with coal residual generated from the Polk Power Station, and on-site generated fly ash. In addition to the fuels allowed to be burned during normal operation, each unit burns new No. 2 fuel oil during startup, shutdown, flame stabilization, and during the startup of an additional solid fuel mill on an already operating unit.

For each unit, nitrogen oxide (NO_X) emissions are controlled by low-NO_X burners and a selective catalytic reduction system, particulate matter (PM) emissions are controlled by a dry electrostatic precipitator, and sulfur dioxide (SO_2) emissions are controlled by wet flue gas desulfurization (FGD). Unit 4 also has a separate over-fire air system to further control NO_X emissions. Continuous opacity monitoring systems (COMS) are used to measure opacity. Units 1 through 4 are equipped with continuous emissions monitoring systems (CEMS) to measure NO_X, SO_2, and carbon dioxide (CO_2). Unit 4 is also equipped with CEMS to measure carbon monoxide (CO). These units began operation in 1970 (Unit 1), 1973 (Unit 2), 1976 (Unit 3), and 1985 (Unit 4).

{Permitting Note: Fossil Fuel Fired Steam Generator Units 1 - 4 are regulated under: the federal Acid Rain Program for Phase II SO_2 and NO_X; Rule 62-296.405, F.A.C., Fossil Fuel Steam Generators with More than 250 million Btu per Hour Heat Input; Rule 62-296.700(6), F.A.C., Reasonable Available Control Technology (RACT) PM – Operation and Maintenance Plan; Compliance Assurance Monitoring, adopted and incorporated by reference in Rule 62-204.800, F.A.C.; Rule 62-296.470, F.A.C., Clean Air Interstate Rule; and NESHAP Subpart UUUUU, the Mercury and Air Toxics Standards, in 40 CFR 63. Unit 4 is also regulated under NSPS Subpart Da of 40 CFR 60, Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978, adopted and incorporated by reference in Rule 62-204.800(8)(b)2., F.A.C.; Rule 212.400, F.A.C., PSD.}

PREVIOUS APPLICABLE REQUIREMENTS

1. Other Permits: The conditions of this permit supplement all previously issued air construction and operation permits for these emissions units. Unless otherwise specified, these conditions are in addition to all other applicable permit conditions and regulations. [Rule 62-4.070, F.A.C.]

EMISSIONS STANDARDS

2. SO_2 Emissions Cap: The combined emissions of SO_2 from all four fossil fuel fired steam generating units (EU 001 – EU 004, combined) shall not exceed 3,162 pounds per hour based on a 30-day rolling average. Compliance with this SO_2 emissions cap shall be demonstrated by data collected from the existing SO_2 CEMS. The new emissions cap applies at all times when these units are operating including periods of startup and shutdown. The effective date of this SO_2 emissions cap is within 180 days of completing construction of the last natural gas igniter authorized by Permit No. 0570039-065-AC, but no later than June 1, 2016. [Rules 62-4.070(1) and (3), and 62-4.080(1), F.A.C.; and SO_2 Attainment SIP]

   {Permitting Note: This new emissions cap reduces SO_2 emissions and ambient impacts in and around the SO_2 non-attainment area in Hillsborough County.}

MONITORING AND COMPLIANCE REQUIREMENTS

3. SO_2 CEMS: The permittee shall use the existing SO_2 CEMS data to demonstrate continuous compliance with the SO_2 emissions cap specified in Condition 2. The existing SO_2 CEMS shall continue to meet and follow the quality assurance and quality control requirements outlined in the facility's Title V air operation permit. [Rules 62-4.070(1) and (3), and 62-4.080(1), F.A.C.; and SO_2 Attainment SIP]

NOTIFICATIONS AND REPORTS

4. SO_2 Emissions Cap Exceedance: If an exceedance of the SO_2 emissions cap occurs, the permittee shall notify the Compliance Authority within one business day. The permittee shall submit a report to the Compliance Authority within 15 days of occurrence detailing the nature and cause of the exceedance, describing corrective actions taken, and identifying when the unit(s) was returned to compliance. [Rules 62-4.070(1) and (3), and 62-4.080(1), F.A.C.; and SO_2 Attainment SIP]

5. SO_2 Reports: The permittee shall submit semiannual reports summarizing the SO_2 data for the reporting period and demonstrating compliance with the SO_2 emissions cap. Reports shall be submitted within 30 days following the reporting period. The first report is due by January 30, 2016. Each report shall summarize each 30-day SO_2 emission rate during the reporting period along with any background information to explain emissions. [Rules 62-4.070(1) and (3), and 62-4.080(1), F.A.C.; and SO_2 Attainment SIP]

   {Permitting Note: The first report that is due on January 30, 2016 will be a status report on the progress of the SO_2 Emissions Reduction Project. Subsequent reports shall summarize each 30-day SO_2 emission rate and background data during the reporting period.}

4. Air Quality Modeling Demonstration

4.1 Model Selection and Control Options

The AERMOD modeling system (including the terrain processor, AERMAP, and the meteorological data processor, AERMET) was used to analyze the impact of the modified facilities on the ambient SO_2 concentrations in the nonattainment area. Federally enforceable permit emission limits were used as model inputs. The modeling demonstration utilized the most current versions of the AERMOD models available at the time that the modeling demonstration was performed. The model versions used are listed below in **Table 10**.

Table 10

Model Versions Used in the SO_2 Air Quality Modeling Attainment Demonstration	
Model	Version
AERMOD	14134
AERMET	14134
AERMAP	11103

A series of specific model features in AERMOD recommended by EPA, referred to as the regulatory options, were used in the modeling analysis.

4.2 Modeled Sources

This air quality modeling demonstration includes all remaining SO_2-emitting sources for the Mosaic facility as well as the TECO facility, the only significant sources of SO_2 emissions within 25 km of the nonattainment area (**Figure 1**). A number of other sources in the area were considered for inclusion but were determined to not have a significant contribution to SO_2 levels in the nonattainment area based on monitoring data. These sources are accounted for in the added background concentration. Stack parameters and other source characteristics for Mosaic and TECO were obtained from the construction permits and are summarized in **Table 11**. Maximum allowable individual unit emission rates are shown in **Table 12**. A series of emissions caps were developed considering one-unit, two-unit, and three-unit operation scenarios. As such, DEP evaluated a number operational scenarios that represent worst-case emissions distributions. Five distinct scenarios representing these different operations were evaluated:

- The three-unit operation cap;
- The two-unit operation cap;
- SAP7 operating alone at its individual limit;
- SAP8 operating alone at its individual limit;
- SAP9 operating alone at its individual limit.

Similarly, DEP developed for the TECO facility a four-unit cap on emissions. The stack configuration for these four units (150 m stacks spaced less than 120 m apart and over 2 km from the nonattainment area) results in the stacks acting as a single, distant point source for receptors within the nonattainment area. The five modeling scenarios for Mosaic were therefore run with

the emissions from the four TECO units distributed based on the relative maximum allowable heat input for each unit.

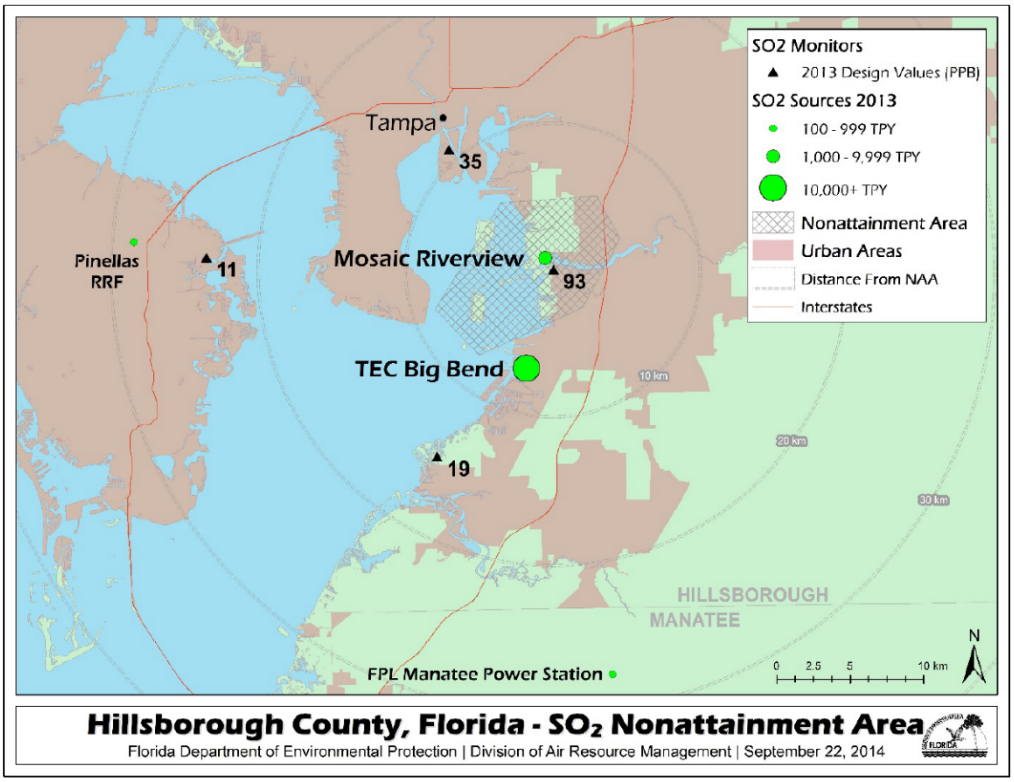

Figure 1. Hillsborough County, Florida SO_2 Nonattainment Area

Table 11

Hillsborough County SO_2 Attainment Demonstration – Modeled Source Parameters															
Source	Coordinates		Base Elevation		Flowrate		Diameter		Exit Velocity		Temperature		Stack Height	
	UTMx (m)	UTMy (m)	(ft)	(m)	(ft^3/min)	(m^3/sec)	(ft)	(m)	(ft/sec)	(m/sec)	(F)	(K)	(ft)	(m)
SAP7	363170.9	3082523.9	7.97	2.43	2,338.91	66.29	7.51	2.29	41.47	12.64	152.6	340.0	213.25	65.0
SAP8	363277.3	3082624.7	7.02	2.14	2,753.11	77.87	8.01	2.44	42.91	13.08	165.2	347.0	213.25	65.0
SAP9	363194.2	3082655.9	9.88	3.01	3,622.36	102.55	8.99	2.74	44.82	13.66	154.4	341.0	213.25	65.0
TBB12	361703.9	3075202.9	6.66	2.03	50,041.95	1,417.15	28.87	8.80	60.04	18.30	127.2	325.9	490.16	149.4
TBB3	361794.9	3075220.9	6.50	1.98	29,356.98	831.32	23.95	7.30	51.18	15.60	127.2	325.9	490.16	149.4
TBB4	361794.9	3075245.1	6.73	2.05	34,060.52	964.55	23.95	7.30	59.38	18.10	127.2	325.9	490.16	149.4
TBB41	361667.7	3075764.7	6.59	2.01	8,812.48	249.78	9.51	2.90	97.44	29.70	828.3	715.4	60.04	18.3
TBB42	361667.8	3075772.6	6.50	1.98	8,812.48	249.78	9.51	2.90	97.44	29.70	828.3	715.4	60.04	18.3

Table 12

Hillsborough County SO_2 Attainment Demonstration – Modeled SO_2 Emission Rates						
Source ID	**Type**	**Facility**	**Description**	**EU ID**	**Modeled Emission Rate**	
					grams/second	**pounds/hour**
SAP7	Point	Mosaic	SAP7 Individual Limit	4	52.34	415.37
SAP8	Point	Mosaic	SAP8 Individual Limit	5	41.21	327.10
SAP9	Point	Mosaic	SAP9 Individual Limit	6	55.61	441.33
TBB12	Point	TECO	FFSG Units 1-2	1 & 2	269.53	2,139.14
TBB3	Point	TECO	FFSG Unit 3	3	138.07	1,095.80
TBB4	Point	TECO	FFSG Unit 4	4	145.28	1,153.06
TBB41	Point	TECO	SCCT 4A	41	0.24	1.905
TBB42	Point	TECO	SCCT 4B	42	0.24	1.905

4.3 Modeled Emission Rate Averaging Times

If a compliance averaging time for a SIP emission limit is longer than the averaging time for the current applicable NAAQS (here, one hour), EPA guidance provides a method of calculating an "equivalent" longer-term emission limit where appropriate.[4] The method involves finding the "critical emission value" – the emission rate at which the model would predict ambient SO_2 concentrations at the level of the 1-hour SO_2 NAAQS – then adjusting this rate downward so as to achieve a comparable stringency to the modeled 1-hour average emission limit, based on the premise that a lower limit will sufficiently constrain the frequency and magnitude of occasional high emission rates within the chosen longer-term averaging period. The adjustment method suggested by EPA is to scale the longer-term average emission limit by the ratio of each source's historic 99th percentile 1-hour average emission rate to its 99th percentile longer-term average emission rate. This analysis along with an overall analysis of each unit's emissions variability was completed for both facilities and is summarized in **Table 13** and **Table 14**. Based on this analysis, DEP has adjusted both Mosaic's and TECO's 1-hour modeled emission limits in **Table 12** down to the "equivalent" longer-term average emission limits given in **Table 6** and **Table 8**. For reference, **Table 15** provides a summary of this adjustment calculation.

Table 13

Mosaic Source Emission Rate Variability Analysis			
Source	**99th Percentile Rate (lb/hr)**		**Ratio**
	1-Hr Average	**24-Hr Average**	**24-Hr/1-Hr**
SAP 7, 8, 9	992	956	0.963
Calculations based on CEMS data from 1/1/2010 – 12/31/2012. See Appendix B			

[4] Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711. *http://www.epa.gov/ttn/oarpg/t1pgm.html*

Table 14

TECO Source Emission Rate Variability Analysis			
Source	99th Percentile Rate (lb/hr)		Ratio
	1-Hr Average	30-Day Average	30-Day/1-Hr
FFSG Unit 1 - 4	4,222.9	3,624.0	0.721
Calculations based on CEMS data from 6/15/2011 – 6/15/2014. See Appendix B			

Table 15

Derivation of Compliance Emission Limits					
Source	Modeled Emissions Rate (lb/hr)	Averaging Time Adjustment Factor	Based on:	Compliance (Permitted) Limit (lb/hr)	Averaging Time
Mosaic Riverview					
SAP7	415.37	0.963	24-hour to 1-hour CEMS	400	24-hour
SAP8	327.1	0.963	24-hour to 1-hour CEMS	315	24-hour
SAP9	441.33	0.963	24-hour to 1-hour CEMS	425	24-hour
2-unit cap	571	0.963	24-hour to 1-hour CEMS	550	24-hour
3-unit cap	597	0.963	24-hour to 1-hour CEMS	575	24-hour
TECO Big Bend					
4-unit cap	4388	0.721	30-day to 1-hour CEMS	3162	30-day

Note: Compliance emission limits are less than or equal to the modeled rate x adjustment factor.

4.4 Meteorological Data Selection

The AERMET meteorological data used for this analysis consisted of a continuous five-year period of hourly surface weather observations and twice-daily upper air soundings from the Tampa National Weather Service Office at Tampa International Airport. The five-year period of meteorological data was from 2008 through 2012. This meteorological data set was compiled by DEP and processed using AERMINUTE in order to reduce the number of calms and missing winds in the surface data. EPA has established criteria for the use of meteorological data for modeling purposes that states that meteorological data should be 90% complete on a quarterly basis before any substitutions are made.[5] The 2008-2012 dataset satisfies the 90% completeness requirement.

4.5 Surface Characteristics

Prior to running AERMET, it is necessary to specify the surface characteristics of the location being modeled. This was done using the AERMET preprocessor, AERSURFACE. AERSUFACE utilized the 1992 National Land Cover Dataset (NLCD) for Florida to extract surface characteristics for a 1-km radius area around both the Tampa International Airport and the nonattainment monitor. Surface characteristics were computed monthly and surface roughness was varied over twelve sectors. The resulting average surface characteristics are summarized in **Table 16**. The values at both sites are very similar. In addition, the airport is just 20-km northwest of the nonattainment area, the land in between is generally flat, both areas have

[5] Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, EPA-454/R-99-005, *Meteorological Monitoring Guidance for Regulatory Modeling Applications,* (February 2000).

similar topography, the wind profiles are very similar, and both have the same proximity to the coast. Based on this analysis, the Tampa International Airport surface dataset was considered to be representative of the domain for this modeling demonstration.[6]

Table 16

Average Surface Characteristics Computed by AERSURFACE			
Location	**Albedo**	**Bowen Ratio**	**Surface Roughness (zo)**
Tampa International Airport	0.15	0.44	0.06
Hillsborough County SO_2 Nonattainment Area	0.14	0.31	0.31

4.6 Land Use Classification

Land-use classification was determined using Auer's method and confirmed with population density data.[7] The Auer method requires an analysis of the land use within a three-kilometer radius around a facility to determine if the majority of the land can be classified as either rural or urban. If more than fifty percent of the three-kilometer area consists of Auer land-use industrial, commercial, or residential land types, then urban dispersion coefficients are used in modeling; otherwise, rural dispersion coefficients are used. As shown in **Figure 2** below, rural land use constitutes a majority (76%) of the combined three-kilometer radii around each facility. According to the U.S. Census Bureau, the population density of the only census-designated place (CDP) in the nonattainment area, Gibsonton, was approximately 430 people/km^2 in 2010, which is below the EPA suggested urban threshold of 750 people/km^2.[8] The densest CDP within either facility's 3-km buffer is Progress Village to the northeast of Mosaic with a density of approximately 687 people/km^2 in 2010. Based on this analysis, the rural dispersion coefficients were used in AERMOD.

[6] DEP found that data sets associated with other airport locations in the vicinity of the nonattainment area have significant missing data, do not have one-minute data, or are not operated by or reviewed through the National Weather Service (NWS). The primary NWS site at the Tampa International Airport has complete data, including one-minute data. It is located within 19 km of the nonattainment area and is representative of the meteorology in the Tampa Bay area. In addition, the Tampa International Airport meteorological data set has been used for all air permitting modeling in this area, thus providing consistency of analysis.

[7] A.H. Auer, Jr., "Correlation of Land Use and Cover with Meteorological Anomalies." *Journal of Applied Meteorology* 17:636-643 (1978).

[8] State & County QuickFacts, United States Census Bureau. *http://quickfacts.census.gov/qfd/states/12/ 1225900.html*

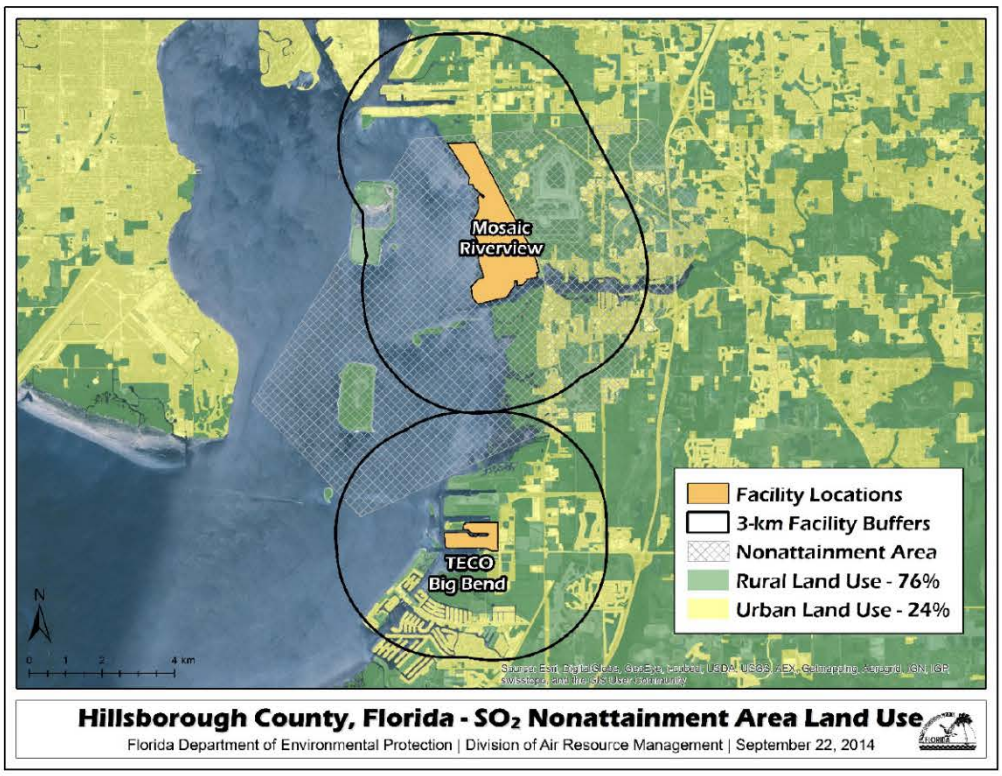

Figure 2. Hillsborough County, Florida – SO_2 Nonattainment Area Land Use

4.7 Terrain Data

Terrain elevations were incorporated into the modeling using AERMAP. For this modeling exercise, terrain data were extracted from National Elevation Dataset (NED) GeoTIFF files with a 1/3 arcsecond (~10m) grid spacing that were produced by the United States Geological Survey (USGS).

4.8 Building Downwash

For this air quality modeling demonstration, the EPA-approved Plume Rise Model Enhancements (PRIME) algorithm was utilized to determine the direction-specific building downwash parameters. Concentrations were predicted in both the near and far wake regions, with the plume mass captured by the near wake treated separately from the uncaptured primary plume, and reemitted to the far wake as a volume source. Direction-specific downwash parameters were used for all sources for which downwash was considered. The stacks associated with the project all satisfied the GEP stack height criteria. Modeled building parameters are available upon request.

4.9 Receptor Grid

A discrete Cartesian grid of 8,412 receptors with 100 meter spacing (50 meters along property boundaries) was used. The grid encompasses the entire nonattainment area, except facility property, extending up to 8.5 kilometers from the nonattainment monitor in an elongated pentagonal shape as depicted in **Figure 3**. The TECO facility property boundary is completely fenced, precluding the general public from accessing the facility. The Mosaic facility property boundary is comprised of two separate areas that utilize fencing and natural barriers such as wetlands and dikes to preclude public access. A large area of Mosaic-owned property to the south of the Mosaic facility was modeled as ambient air due to a lack of physical barriers to prevent public access to the property.

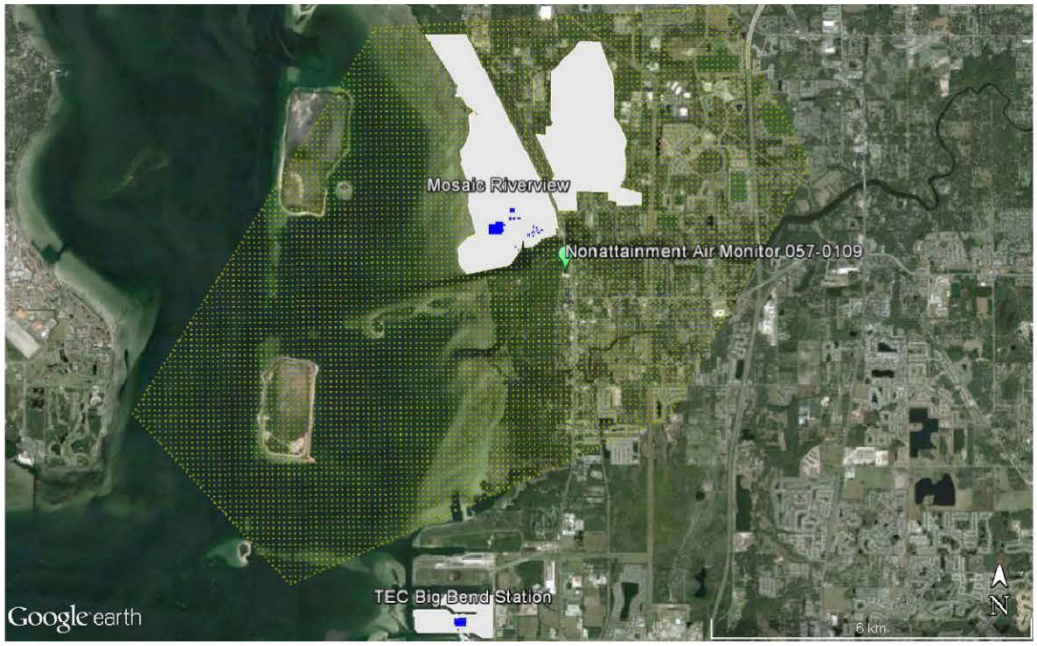

Figure 3. Hillsborough County, Florida Nonattainment Area Receptor Grid

4.10 Background Concentration

A set of background concentrations to account for all SO_2 sources not explicitly modeled was developed for each hour of the day by season from local monitoring data. The procedure followed is outlined in EPA's SO_2 National Ambient Air Quality Standards Designations Modeling TAD.[9] The data used were obtained from the Florida Air Monitoring and Assessment System (FAMAS) from monitoring station No. 12-057-0109 for the period January 2012 to

[9] SO_2 National Ambient Air Quality Standards Designations Modeling Technical Assistance Document. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711. *http://epa.gov/airquality/sulfurdioxide/pdfs!S02ModelingTAD.pdf*

December 2013. Due to a significant, multi-year decline in monitored SO_2 concentrations at this site – illustrated in **Table 17** – only the most recent two years of data were used rather than the recommended three years.

Table 17

2008 – 2014 Monitored SO_2 Design Values for Monitor ID: 12-057-0109																
Year	Ranked 1-hr Averages				Ranked 3-hr Averages				Ranked 24-hr Averages				Annual	99th Percentile		Design
	1st		2nd		1st		2nd		1st		2nd		Average	Complete	Valid	Value
2008	189	(01/01)	169	(09/05)	137	(01/01:18)	135	(01/01:15)	48	(01/01)	30	(03/24)	3.2	123	123	115
2009	136	(03/02)	134	(02/20)	117	(03/02:00)	109	(03/02:03)	40	(03/02)	27	(04/07)	3.2	104	104	118
2010	119	(12/27)	117	(12/26)	102	(12/27:00)	96	(12/27:03)	34	(12/27)	28	(12/01)	3.0	104	104	110
2011	105	(05/17)	105	(12/28)	72	(12/07:18)	66	(01/22:15)	22	(01/22)	20	(02/08)	2.0	102	102	103
2012	146	(10/27)	125	(12/21)	131	(10/27:09)	109	(10/27:12)	77	(10/27)	68	(12/21)	1.3	110	110	105
2013	83	(03/06)	82	(03/01)	52	(05/05:06)	49	(03/02:18)	19	(03/02)	14	(05/05)	1.5	68	68	93
2014	100	(10/16)	70	(02/15)	69	(10/16:18)	51	(10/04:15)	15	(10/04)	12	(10/16)	1.3*	56*	56*	78*
* Insufficient data to compute a valid average as of October 17, 2014.																

As shown in **Figure 3**, the monitor is approximately 1.0 km to the southeast of Mosaic and is also the nonattainment monitor. Due to its close proximity to the Mosaic facility, monitored concentrations at this station are strongly influenced by facility emissions as illustrated in **Figure 4**. The TECO facility is 6.5 km to the south of the monitor and has a significant impact on recorded concentrations as well. As a result, the data were filtered to remove measurements where the wind direction could transport pollutants from either Mosaic or TECO to the station.[10]

More specifically, the data were filtered to remove measurements where the hourly wind direction was in the range of 275° to 4° or 153° to 241° as shown in **Figure 5**.

The 99th percentile concentration for each hour by season was then input to AERMOD with the BACKGRND SEASHR keyword. The final set of background concentrations is summarized in **Table 18**.

[10] This is a common practice used for developing background concentrations. Details of the procedures are outlined in 40 CFR Part 51 Appendix W – EPA's *Guideline on Air Quality Models*.

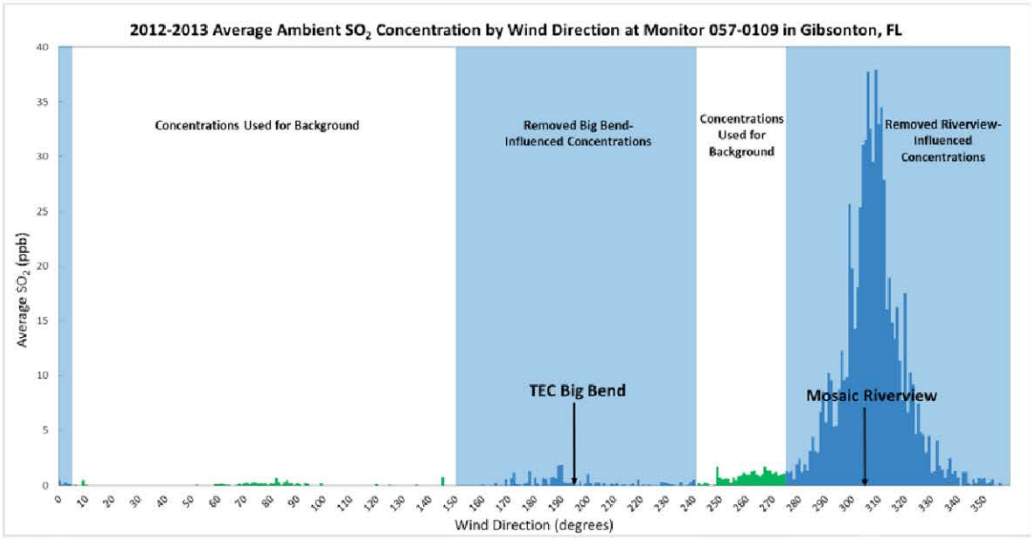

Figure 4. 2012-2013 Average Ambient SO_2 Concentration by Wind Direction at Monitor 057-0109 in Gibsonton, Florida

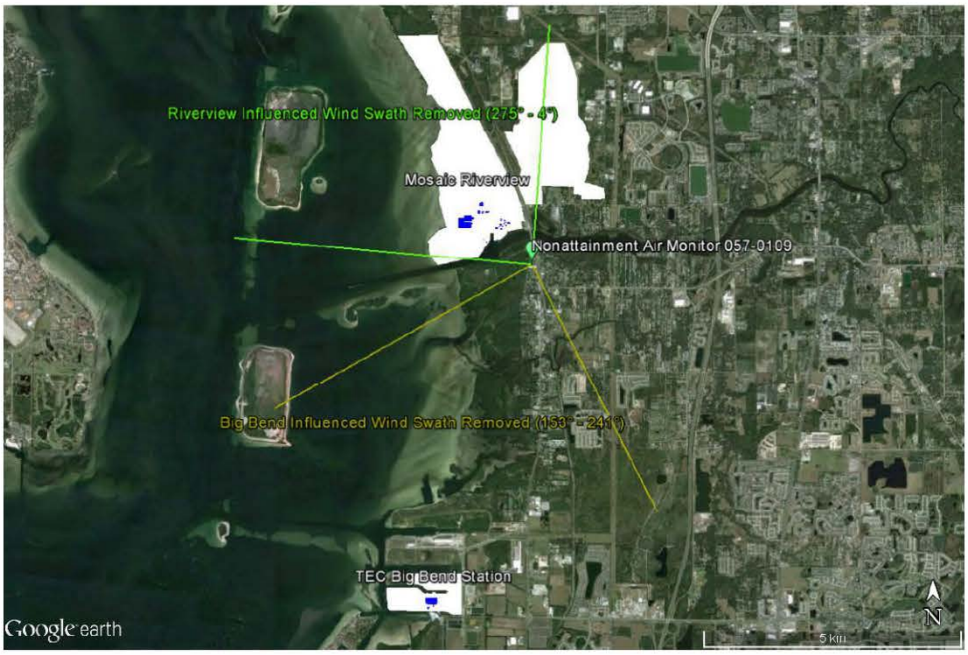

Figure 5. Data filtered to remove measurements where hourly wind direction in the range of 275° to 4° or 153° to 241°.

Table 18

SO_2 Background Concentrations by Hour-of-Day by Season for Monitor 057-0109 (ppb)									
Hour	**Winter**	**Spring**	**Summer**	**Fall**	**Hour**	**Winter**	**Spring**	**Summer**	**Fall**
0:00	2	5	2	7	12:00	5	6	13	4
1:00	1	3	4	4	13:00	5	6	7	4
2:00	5	2	2	3	14:00	6	7	9	2
3:00	3	2	1	2	15:00	6	3	4	2
4:00	2	1	1	1	16:00	9	4	3	2
5:00	1	2	1	1	17:00	3	6	3	1
6:00	2	2	1	1	18:00	3	7	5	3
7:00	2	3	2	1	19:00	2	6	6	4
8:00	3	3	3	3	20:00	6	5	2	7
9:00	5	4	8	9	21:00	3	4	2	7
10:00	3	3	10	4	22:00	3	15	10	4
11:00	7	5	11	3	23:00	3	9	4	4

4.11 Summary of Modeling Results

The EPA-recommended dispersion model AERMOD was used to evaluate the impact of the modified facilities on the ambient SO_2 values within the nonattainment area. The model was run from 2008-2012 and the 99th percentile (4th high) daily maximum 1-hour average concentration for each year at each receptor was averaged across all five years. In all modeling runs described below, all sources directly modeled (Mosaic and TECO) are included along with a background concentration to account for all other sources.

As stated in Section 4.2, DEP evaluated five operational scenarios at the Mosaic facility with the purpose of providing Mosaic with some operational flexibility. DEP believes that such flexibility can be allowed while maintaining compliance with the ambient air standard, especially given the close proximity in which the sulfuric acid plants are located. DEP was able to provide for this operational flexibility by setting multiple unit emission limits (caps) among the units, with each unit retaining an individual emissions limit. These caps were determined for the scenarios in which all three units are operating and when only two units are operating. Historically this facility has operated all three sulfuric acid plants, (SAP7, SAP8, and SAP9) simultaneously nearly 74% of the time. About 24% of the time only two of the three units are operated, and rarely, less than 2% of the time, only a single unit is in operation.

DEP completed a series of modeling runs to iteratively determine the maximum caps that would show compliance with the standard for each of the operational scenarios. The starting point for evaluation was to determine the limiting emission rate for each unit at its nominal maximum production considering the maximum allowable production of sulfuric acid at the plant and the relative quantity of catalysts in each unit. Based on this scenario, total SO_2 emissions of 600 lb/hr or less would result in compliance with the standard. This scenario best represents the operation of the facility at full production; however, DEP recognizes that the emissions cap allows, under certain situations, Mosaic to operate an individual unit above its nominal maximum while still keeping the total SO_2 emissions of the three units at or below 600 lb/hr. Keeping in mind that with three units in operation and production limited by permit, variations in

the distribution of emissions between the three units would not be extreme and would not occur continuously. In order to show that these variations of SO_2 emissions would not violate the standard, DEP conducted multiple modeling runs using different distributions of emissions among the units. These worst case variations are based on each unit emitting at their current individual emissions limit while the remainder of the cap is apportioned to the other units based on their relative production capacities. The results are summarized in **Table 19**.

It should be noted that the 600 lb/hr emissions cap that shows compliance is implicitly based on 1-hour average emission rates. As detailed in Section 4.3, DEP converted the modeled 600 lb/hr to an equivalently stringent 24-hour compliance period. The correction ratio (0.963) results in a 24-hour equivalent of 577.8 lb/hr that DEP rounded down to 575 lb/hr for the actual permit condition. As a result, the final modeling runs were completed using the 1-hour equivalent (to 575 lb/hr) emission rate of 597 lb/hr.

DEP also evaluated two-unit operation scenarios in order to determine an emissions cap that complies with the standard. In the case of two-unit operation, with any two units operating, an emissions cap of 575 lb/hr was determined to be necessary to meet the standard. This value was converted to a 24-hour compliance period using the conversion factor, giving 553.7 lb/hr, which DEP rounded down to 550 lb/hr as the allowable permit condition for two-unit operation. The allowable permitted value was converted back to the equivalent 1-hour emission rate of 571 lb/hr for the final modeling runs. Again, the extreme variations assumed that one of the two operating units was emitting at its current maximum allowable rate, while the second unit emitted the remainder of the 571 lb/hr cap. Finally, under one-unit operation, each unit was evaluated at its current maximum allowable emission rate. **Table 19** summarizes these results.

Table 19

Modeled Mosaic Emissions Scenarios and Results					
Emissions Distribution	**SAP7 Rate (lb/hr)**	**SAP8 Rate (lb/hr)**	**SAP9 Rate (lb/hr)**	**Total Cap (lb/hr)**	**Max Conc. (µg/m3)**
Catalyst Limited at Maximum Production	184.31	162.75	252.94	600	192.5
3-Unit Operation Scenarios					
run3a – SAP7 Max	415.37	80.39	101.24	597	196.2
run3b – SAP8 Max	130.86	327.10	139.04	597	195.8
run3c – SAP9 Max	84.43	71.24	441.33	597	188.9
2-Unit Operation Scenarios					
run2a – SAP7 and SAP8, 7 at Max	415.37	155.63	0	571	193.9
run2b – SAP7 and SAP8, 8 at Max	243.90	327.10	0	571	194.6
run2c – SAP8 and SAP9, 9 at Max	0	129.67	441.33	571	188.5
run2d – SAP7 and SAP9, 7 at Max	415.37	0	155.63	571	190.1
run2e – SAP8 and SAP9, 8 at Max	0	327.10	243.90	571	188.5
run2f – SAP7 and SAP9, 9 at Max	129.67	0	441.33	571	188.5
1-Unit Operation Scenarios					
run1a – SAP7 Max	415.37	0	0	415.37	188.4
run1b – SAP8 Max	0	327.10	0	327.10	188.4
run1c – SAP9 Max	0	0	441.33	441.33	188.4

The current individual allowable permit limits for SAP7, SAP8, and SAP9 are 400, 315, and 425 lb/hr, respectively, based on a 24-hour compliance period. For modeling purposes, DEP adjusted these values up to reflect an equivalent 1-hour modeled emission rate. While the sulfuric acid plants retain these individual limits, the use of more efficient catalysts necessitated for compliance with the standard under normal three-unit operation and the existing allowable production limits, make it unlikely that emissions could ever reach these levels.

Given the new allowable emission limitations contained in the enforceable permit and the modeling demonstration summarized above, DEP has reasonable assurance that ambient concentrations throughout the entire nonattainment area will be in compliance with the 1-hour SO_2 NAAQS.

The maximum predicted impact from each of the five operating scenarios is summarized in **Table 20**.

Table 20

Maximum Modeled SO_2 Impact in Nonattainment Area (µg/m3)							
Mosaic Scenario	Averaging Time	Max Predicted Impact		Background	Total Impact	SO_2 1-Hour NAAQS	Greater Than NAAQS?
		Mosaic	TECO				
Unmodified	1-Hour	425.50	0.82	20.40	446.72	196.4	Yes
3-Units	1-Hour	118.90	55.90	21.44	196.24	196.4	No
2-Units	1-Hour	123.59	52.22	18.83	194.65	196.4	No
SAP7 Only	1-Hour	0.33	170.84	17.26	188.43	196.4	No
SAP8 Only	1-Hour	0.25	170.84	17.26	188.35	196.4	No
SAP9 Only	1-Hour	0.33	170.84	17.26	188.43	196.4	No

Figure 6 presents the maximum of the 5-year average of 99th percentile maximum daily concentrations at each receptor in the nonattainment area for the catalyst-limited scenario alongside the current allowable emissions scenario, indicating a decrease in modeled ambient SO_2 concentrations of more than 55%. The area of highest concentration is found between the two sections of Mosaic-owned property where the emissions from sources at both facilities align.[11] As shown, the modeling results predict no violations of the revised SO_2 NAAQS within the nonattainment area for the proposed modifications.

[11] A secondary maximum is located near the edge of the modeled area, but is contained within the boundaries of the designated nonattainment area. DEP notes that EPA's proposed Data Requirements Rule (79 FR 27446) sets forth a regulatory process to address modeled SO_2 concentrations outside of designated nonattainment areas.

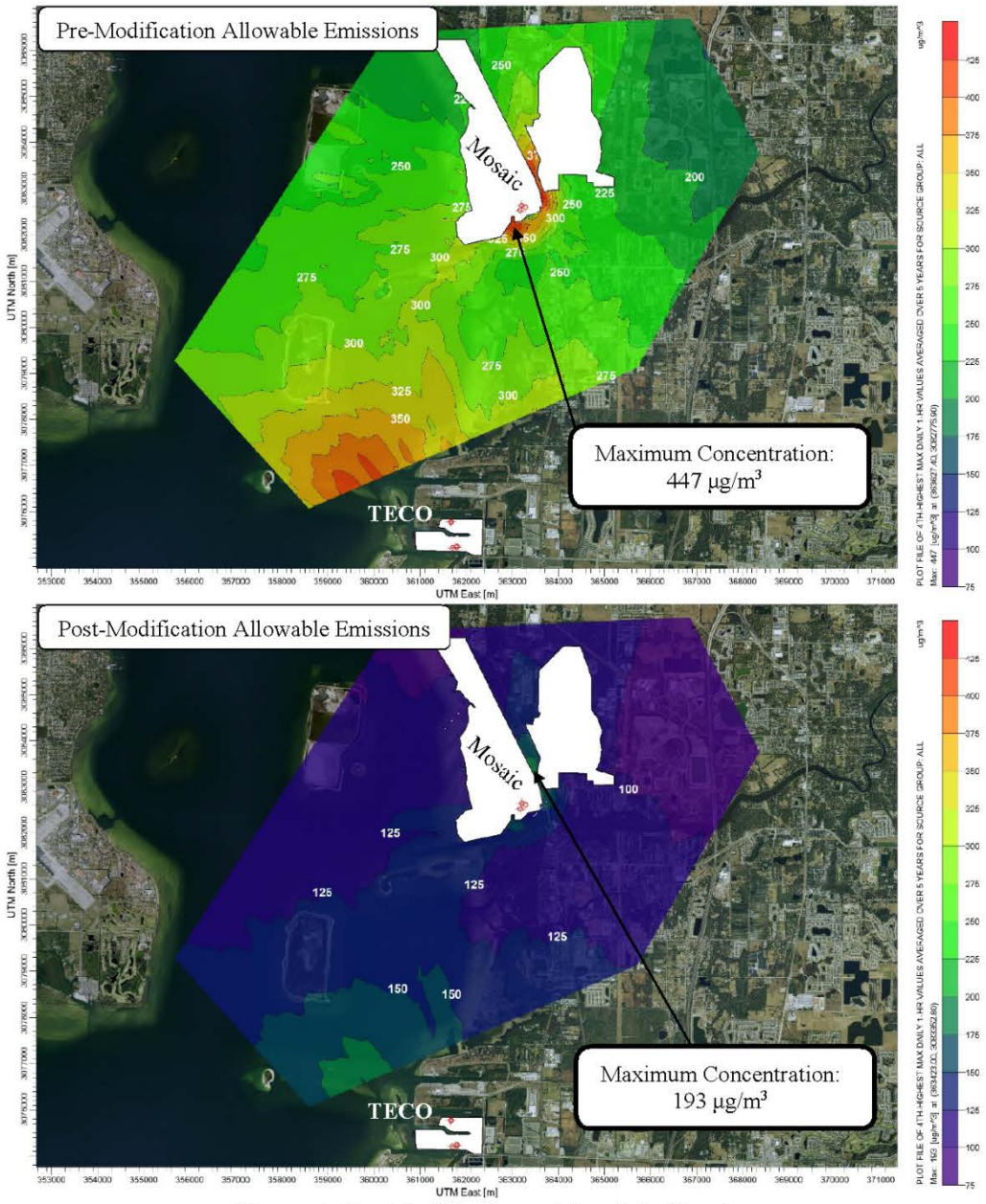

Figure 6. Pre-Modification and Post-Modification Modeling Maximum Allowable SO_2 Emissions

Appendix D – Attainment and Projected Emissions Inventory Development

The Hillsborough County SO_2 nonattainment area (NAA) attainment and projected emissions inventories consist of four source categories: Point, On-Road mobile, Area/Nonpoint, and Non-Road mobile. The data and methods used to estimate these source categories are described below for the creation of the attainment (2015) emissions inventory and projected future (2032, and four interim years in three-year increments) emissions inventories.

1. Point Sources

The only Point sources of SO_2 in the NAA are the Mosaic, Ajax, and Harsco facilities which combined account for over 99% of the SO_2 emissions in the NAA. The emissions from these sources and the nearby TECO facility were quantified using the facilities' Annual Operating Reports (AOR), which contain actual emissions measurements and calculations. These are summarized in **Tables 1-4** below.

Table 1

Summary of SO_2 Emission Sources from Mosaic's 2015 AOR		
Emission Unit Number	**Unit Description**	**SO_2 EMISSIONS (tons)**
EU004	No. 7 Sulfuric Acid Plant	668.33
EU005	No. 8 Sulfuric Acid Plant	532.19
EU006	No. 9 Sulfuric Acid Plant	529.11
EU007	No. 6 AP Plant	0.02
EU055	No. 5 AP Plant	0.04
EU063	Tank Nos. 1, 2, and 3 for molten sulfur storage	0
EU066	Sulfur Pit #7, Molten Storage/Handling System	0.02
EU067	Sulfur Pit #8, Molten Storage/Handling System	0.02
EU068	Sulfur Pit #9, Molten Storage/Handling System	0.02
EU074	Truck Loading Station for Molten Sulfur	0
EU111	Existing Emergency Stationary RICE	0.13
EU112	Auxiliary Boiler	0.002
EU113	Non-Emergency CI ICE	3.44
	Total 2011 Mosaic SO_2 Stack Emissions	**1733.32**

Table 2

Summary of SO_2 Emission Sources from Ajax's 2015 AOR		
Emission Unit Number	**Unit Description**	**SO_2 EMISSIONS (tons)**
EU005	Diesel Engine and Power Generator for RAP Crusher	0.05
EU006	Drum Mix Asphalt Plant	0.25
	Total 2011 Ajax SO_2 Stack Emissions	**0.30**

Table 3

Summary of SO_2 Emission Sources from Harsco's 2015 AOR		
Emission Unit Number	**Unit Description**	**SO_2 EMISSIONS (tons)**
EU001	Fluid Bed Slag Dryer	0.004
	Total 2011 Harsco SO_2 Stack Emissions	**0.004**

Table 4

Summary of SO_2 Emission Sources from TECO's 2015 AOR		
Emission Unit Number	**Unit Description**	**SO_2 EMISSIONS (tons)**
EU001	Fossil Fuel Fired Steam Generator Unit No. 1	1804.89
EU002	Fossil Fuel Fired Steam Generator Unit No. 2	1324.81
EU003	Fossil Fuel Fired Steam Generator Unit No. 3	1819.60
EU004	Fossil Fuel Fired Steam Generator Unit No. 4	2366.10
EU041	SCCT 4A: PWPS FT8-3 SwiftPac CT/Gen Peaking Unit	0.01
EU042	SCCT 4B: PWPS FT8-3 SwiftPac CT/Gen Peaking Unit	0.01
EU043	SCCT Black Start Emergency Diesel Engine	0.0004
EU044	Emergency Diesel Generator (1,046 HP)	0.0003
EU045	Emergency Diesel Generator and Fire Pump Diesel Engine	0.0003
EU051	Process Heaters (2-6 MMBtu/hour)	0.0007
EU053	Units 1&2 Emergency Diesel Generator (197 HP)	0.00005
	Total 2011 TECO SO_2 Stack Emissions	**7315.42**

The Department is not aware of and does not anticipate any future development within the NAA that would increase SO_2 emissions. Therefore, the 2032 inventory and each of the interim year inventories are identical to the 2015 inventory for Point sources.

2. On-Road Mobile Sources

The On-Road mobile source category was estimated by utilizing the most recent version of the Environmental Protection Agency's (EPA) Motor Vehicle Emission Simulator (MOVES), MOVES2014a. MOVES2014a is a state-of-the-science emission modeling system that estimates emissions from mobile sources for criteria pollutants, greenhouse gases, and air toxics. The model was run for Hillsborough County for the 2015 attainment inventory, the 2032 projected emissions inventory, and the interim years 2020, 2023, 2026, and 2029.

The Hillsborough County results of the MOVES2014a model runs for each year were then apportioned to the NAA by using the fraction of the county land area contained within the boundaries of the NAA (38.75 km^2/2760.86 km^2 or 1.40%). The MOVES2014a results are summarized in **Table 5**.

Table 5

Summary of MOVES2014a Results for Hillsborough County SO_2 Emissions (tons)						
Year	2015	2020	2023	2026	2029	2032
County	132.21	52.50	50.70	48.85	47.63	47.16
NAA Apportionment	1.86	0.74	0.71	0.69	0.67	0.66

3. Area/Nonpoint and Non-Road Sources

Given the small land area size of the NAA in Hillsborough County (just 38.75 km^2), it is expected that there are very few emissions of SO_2 from Area/Nonpoint and Non-Road sources. For this reason, the 2014 National Emissions Inventory (NEI) Version 2, which EPA developed, is considered to be a reasonable basis for these categories. The NEI is a comprehensive and detailed estimate of air emissions of both criteria and hazardous air pollutants from all air emissions sources. The NEI is prepared every three years by the EPA based primarily upon emission estimates and emission model inputs provided by State, Local, and Tribal air agencies for sources in their jurisdictions, and supplemented by data developed by the EPA.

Estimates for the 2015 attainment inventory for these categories were calculated by multiplying the 2014 data by the increase in population in Hillsborough County from 2014 to 2015. Estimates for the projected future emissions inventories for these categories were calculated by multiplying the 2014 data by the projected increase in population in Hillsborough County in each of these years. The population data for 2014 and 2015 were obtained from the US Census Bureau.[1] Population projections for 2032 and the interim years were developed by the Florida Bureau of Economic and Business Research.[2] For years where projections were not available, the projections were interpolated. Population data and projections are summarized in **Table 6**.

Table 6

Hillsborough County Population Data							
Year	**2014**	**2015**	**2020**	**2023**	**2026**	**2029**	**2032**
Hillsborough	1,319,511	1,350,904	1,463,205	1,537,133	1,608,653	1,675,358	1,737,037

The county level emissions were again apportioned to the NAA using the fraction of the county land area within the boundaries of the NAA. A summary of the Nonpoint and Non-Road source emissions from the 2014 NEI is provided in **Table 7** below.

[1] *https://www.census.gov/data/datasets/2017/demo/popest/counties-total.html*

[2] Population projections performed by: Florida Demographic Estimating Conference, February 2014 and the University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Bulletin 168, April 2014. *http://edr.state.fl.us/Content/population-demographics/data/Medium_Projections.pdf*

Table 7

Details of SO_2 Area/Nonpoint and Non-Road Source Categories (tons)							
Description	**Hillsborough County 2014**	**2015 NAA**	**2020 NAA**	**2023 NAA**	**2026 NAA**	**2029 NAA**	**2032 NAA**
Fires - Agricultural Field Burning	3.56						
Miscellaneous Non-Industrial NEC	0.89						
Fuel Comb - Comm/Institutional - Biomass	1.49						
Fuel Comb - Comm/Institutional - Natural Gas	0.85						
Fuel Comb - Comm/Institutional - Oil	3.51						
Fuel Comb - Comm/Institutional - Other	0.18						
Fuel Comb - Industrial Boilers, ICEs – Coal	331.94						
Fuel Comb - Industrial Boilers, ICEs – Oil	8.67						
Fuel Comb - Residential - Natural Gas	0.37						
Fuel Comb - Residential - Oil	0.95						
Fuel Comb - Residential - Other	0.06						
Fuel Comb - Residential - Wood	2.89						
Port and Underway Emissions	187.44						
Railroad Equipment	0.13						
Waste Disposal	69.17						
Area/Nonpoint Totals	**612.11**	**8.80**	**9.53**	**10.01**	**10.47**	**10.91**	**11.31**
Mobile - Non-Road Equipment - Diesel	7.43						
Mobile - Non-Road Equipment - Gasoline	3.79						
Mobile - Non-Road Equipment - Other	0.21						
Non-Road Mobile Totals	**11.42**	**0.16**	**0.18**	**0.19**	**0.20**	**0.20**	**0.21**