STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

ONGOING DATA REQUIREMENTS
ANNUAL REPORT

ANNUAL REVIEW OF FACILITY EMISSIONS AND REQUEST TO TERMINATE ONGOING DATA REQUIREMENTS FOR LAKELAND ELECTRIC MCINTOSH UNDER EPA'S DATA REQUIREMENTS RULE FOR THE 2010 ONE-HOUR SO_2 NAAQS

July 1, 2021

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1. Background

On August 21, 2015, the U.S. Environmental Protection Agency (EPA) promulgated the "Data Requirements Rule" (DRR) (80 Fed. Reg. 51,052; codified at 40 C.F.R. Part 51, Subpart BB), which requires states to evaluate compliance with the 2010 one-hour sulfur dioxide (SO_2) National Ambient Air Quality Standard (NAAQS) in areas surrounding certain large SO_2 sources. Pursuant to the DRR, states could choose to perform area characterizations around the specified sources using either air quality monitoring or air dispersion modeling. The Florida Department of Environmental Protection (Department) opted to characterize all areas of Florida using air dispersion modeling.

Pursuant to the ongoing data requirements of the DRR in 40 CFR 51.1205, the Department must submit an annual report to EPA documenting the SO_2 emissions of sources in areas that EPA designated unclassifiable/attainment based on modeling of actual SO_2 emissions resulting in maximum modeled concentrations below the one-hour SO_2 NAAQS. The three facilities still subject to the ongoing data requirements are:

- Jacksonville Electric Authority's (JEA) Northside Generating Station/St. Johns River Power Park (NGS/SJRPP);
- WestRock CP, LLC's Fernandina Beach Mill (WestRock); and
- Lakeland Electric's C.D. McIntosh Power Plant (McIntosh).

Section 2 of this report documents SO_2 emissions decreases at JEA and WestRock and confirms that the areas around these facilities remain in attainment of the one-hour SO_2 NAAQS.

The DRR states in 40 CFR 51.1205(c) that "[a]ny air agency that demonstrates that an area would meet the 2010 SO_2 NAAQS with allowable emissions is not required pursuant to paragraph (b) of this section to submit future annual reports for the area." **Section 3** of this report summarizes updated modeling demonstrating that with current maximum allowable SO_2 emissions, the area around McIntosh is meeting the 2010 one-hour SO_2 NAAQS. Therefore, pursuant to 40 CFR 51.1205(c), the Department is requesting EPA's approval to terminate the ongoing data requirements under the DRR for the 2010 one-hour SO_2 NAAQS for McIntosh.

2. Annual SO_2 Emissions Review

The Department's DRR modeling demonstrations for JEA and WestRock, submitted to EPA on January 13, 2017, used actual SO_2 emissions from 2012 to 2014. Emissions for these facilities have substantially decreased in 2018 to 2020 compared to 2012 to 2014 (**Table 1**)[1].

[1] All emissions data is from the facility's CEMS. Hourly CEMS data for 2012 – 2014 were reported directly to the Department for DRR modeling purposes. 2018 – 2020 data are from the facility's Annual Operating Report (AOR) submissions to the Department. Rule 62-210.370, F.A.C., requires that facilities report their annual emissions using CEMS if available. 2020 AOR data is preliminary.

Table 1. Comparison of 2012 – 2014 and 2018 – 2020 SO_2 emissions (tons per year) for DRR facilities requiring annual review.

County	Facility	2012	2013	2014	2012-2014 Average	2018	2019	2020[a]	2018-2020 Average	Percent Change
Duval	JEA	13,835	16,459	20,978	17,091	2,474	1,917	2,387	2,259	-86.8%
Nassau	WestRock (Total)	3,573	3,671	3,797	3,680	1,741	989	633	1,121	-69.5%
Nassau	WestRock #4 Recovery Boiler[b]	101	98	103	101	25	13	11	16	-84.2%
Nassau	WestRock #5 Power Boiler[b]	82	68	73	74	16	13	9	13	-82.4%
Nassau	WestRock #5 Recovery Boiler[b]	76	103	113	97	54	24	33	37	-61.9%
Nassau	WestRock #7 Power Boiler[b]	3,314	3,402	3,507	3,408	1,641	933	576	1,050	-69.2%

[a]2020 emissions data are preliminary.
[b]In the DRR modeling for WestRock, only these units were modeled using actual emissions; all other units were modeled using maximum allowable emission rates.

In 2014, the Department permitted JEA to reintroduce fly ash into Boilers 1 and 2 at NGS, which acts as an additional SO_2 control, thus reducing emissions. In 2016, the Department incorporated MATS provisions into the facility's Title V permit. In 2018, JEA retired both units at SJRPP, reducing emissions to just those from NGS.

SO_2 emissions decreases at WestRock are primarily due to implementation of controls and limits to comply with the Nassau County Nonattainment Area State Implementation Plan (NAA SIP). In 2015, as part of the Nassau County NAA SIP, the Department issued an air construction permit to WestRock to implement a variety of controls, including improvements to the recovery boilers, installation and operation of a piping system and to transport non-condensable gases for combustion in the No. 7 Power Boiler, and a scrubber system to remove total reduced sulfur from the non-condensable gas stream prior to combustion, decreasing SO_2 emissions. **Table 1** also gives emissions at the unit level for emissions units that were modeled using actual emissions; emissions units not listed were modeled using allowable emission rates.

The decrease in SO_2 emissions at JEA and WestRock is largely due to implementation of controls and lower permitted SO_2 emission limits; therefore, SO_2 emissions would not be expected to increase back to levels seen in 2012 to 2014. As such, the Department finds the DRR modeling submitted on January 13, 2017 to be conservative and no additional modeling is needed to characterize the air quality for these areas. The Department recommends that the areas around JEA and WestRock retain their unclassifiable/attainment designations. These areas will continue to be subject to the ongoing data requirements under the DRR.

3. McIntosh Maximum Allowable SO_2 Emissions Modeling Demonstration

Lakeland Electric owns and operates the C. D. McIntosh, Jr. Power Plant (McIntosh), an electric generating facility in Lakeland, Florida operating under Title V Permit No. 1050004-054-AV issued by the Florida Department of Environmental Protection (Department) on February 3, 2021. In 2018, the Department issued permit no. 1050004-048-AC (**Appendix A**) authorizing the construction of a new simple cycle turbine (EU034). Upon completion of this project, the permit required McIntosh to shutdown Unit 2 (EU005), a fossil fuel fired steam generator. Unit 2 was retired on June 22, 2020 (**Appendix B**). Additionally, McIntosh permanently shut down Unit 3 (EU006) on April 4, 2021 (**Appendix C**). **Appendix D** includes excerpts from the Title V permit relevant to the remaining SO_2 sources at McIntosh – two simple cycle peaking units (EU004 and EU034), and McIntosh Unit 5 combined-cycle combustion turbine (EU028). Page 2 of the Title V permit also states that Unit 2 was retired on June 22, 2020 and is no longer included in the permit.

The Department has completed a modeling demonstration that accounts for these changes with a maximum allowable SO_2 emission rate scenario for McIntosh effective April 4, 2021. This report summarizes the Department's modeling demonstration, which indicates that the area is in attainment of the 2010 SO_2 NAAQS.

3.1. Model Selection

EPA recommends the use of the American Meteorological Society/Environmental Protection Agency Regulatory Modeling System (AERMOD), including the pre-processing programs AERMET, AERMINUTE, AERMAP, and AERSURFACE, for all regulatory modeling of inert pollutants in the near field.[2] Accordingly, the Department utilized the latest version of AERMOD (v.19191) using the regulatory default options for characterizing the area around McIntosh.

3.2. Modeled Facilities

McIntosh is one of three DRR-applicable facilities in Polk County. The other two facilities, Mosaic Fertilizer's Bartow (Mosaic Bartow) and New Wales (Mosaic New Wales) facilities, are 19 km and 30 km south of McIntosh respectively. Initial modeling indicated that the distances between these three facilities were too large to include all three in a single combined DRR modeling demonstration for all of Polk County. Instead, three individual modeling demonstrations were performed and each facility was evaluated separately for inclusion as a background source with respect to the other two facilities. For this Lakeland DRR modeling demonstration, both Mosaic Bartow and Mosaic New Wales were included.

There are also a variety of smaller nearby SO_2 sources in both Polk County and adjacent Hillsborough County. Appendix W states, and the Modeling TAD reiterates, that the number of sources to explicitly model should be small except in unusual cases. An analysis of emissions

[2] *See* Appendix W to 40 C.F.R. 51, Section 3.2.

data and spatial proximity was performed for all nearby sources to determine which sources to explicitly include in the modeling demonstration. All sources within 20 km of the primary facility that had 2019 SO_2 emissions of at least 100 tons were automatically included. All other sources within 35 km were then subjected to a widely used screening procedure known as 20d. This method suggests that if a source's annual emissions in tons (Q) is less than its distance from the primary source in kilometers (d) multiplied by 20, then it is unlikely to have a significant concentration gradient in the area of concern. Finally, for all sources not already identified for inclusion, the Department considered emissions data, stack parameters, and spatial proximity (both to other sources and the background monitor), and used professional judgment to determine whether they should be included.

The Department determined that, in addition to Bartow and New Wales, Mosaic Fertilizer's South Pierce facility (Mosaic South Pierce) is the only other source that has the potential to cause a significant concentration gradient in the area of interest (**Figure 1**). All other sources in the area (**Table 2**) are represented in the added monitored background concentrations discussed in **Section 3.9**.

Figure 1: 2019 SO_2 emission sources in and around Lakeland, Florida.

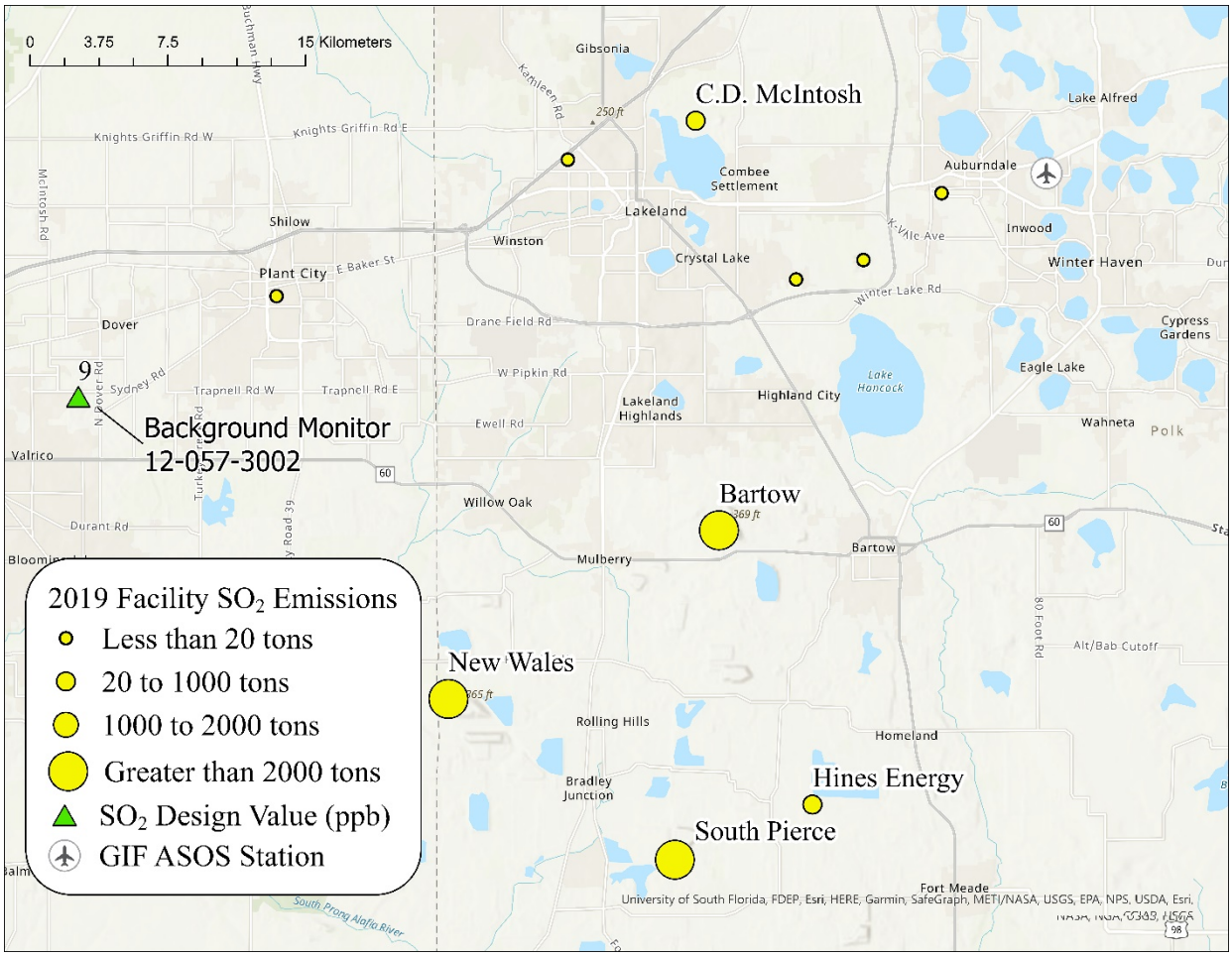


Table 2: 2019 sources of SO_2 emissions within 35 kilometers of McIntosh.

Facility ID	Facility Name	Distance from McIntosh (km) (d)	20d	2019 SO_2 Emissions (tons) (Q)	Q > 20d
105-0004	Lakeland Electric McIntosh [a]	0	0	848.16	Yes
105-0216	Wheelabrator Ridge Energy	10	200	16.56	No
105-0046	Mosaic Fertilizer Bartow [a]	19	380	4,130.76	Yes
057-0005	Mosaic Fertilizer Plant City	24	480	0	No
105-0059	Mosaic Fertilizer New Wales [a]	30	600	4,555.96	Yes
105-0234	Duke Hines Energy Complex	33	660	26.63	No
105-0055	Mosaic Fertilizer South Pierce [a]	35	700	2,043.79	Yes

a. Explicitly Modeled Facility

3.3. Meteorological Input Data

Florida has a relatively dense network of high-quality National Weather Service (NWS) Automated Surface Observing System (ASOS) stations for use in air dispersion modeling demonstrations. Hourly meteorological surface observations for 2017-2019 from the nearest representative NWS ASOS station at Winter Haven Municipal Airport (GIF) were processed with AERMET v.19191. The raw data were retrieved from the National Climatic Data Center's (NCDC) file transfer protocol site in the standard integrated surface hourly data format (ISHD) along with the TD-6405 ASOS 1-minute wind data. Upper air parameters were derived from twice daily radiosonde observations (RAOB) from the nearest NWS atmospheric sounding location in Ruskin, Florida (TBW) downloaded from the National Oceanic and Atmospheric Administration's (NOAA) Earth System Research Laboratory (ESRL) website. Missing 12Z soundings were filled with archived modeled soundings from NOAA's Air Resources Laboratory (ARL) website prior to processing in AERMET.

Default options and settings were used when processing AERMET with the exception of the following:

- ASOS1MIN – Include ASOS 1-minute wind data processed by AERMINUTE v.14337
- THRESH_1MIN 0.5 – Minimum wind speed threshold: 0.5 m/s
- METHOD WIND_DIR RANDOM – Wind directions are randomized to correct rounding
- NWS_HGT WIND 10 – Sets ASOS anemometer height to 10 m

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.[3] The 2017-2019 GIF dataset satisfies this completeness requirement.

3.3.1. Surface Characteristics

AERMET requires information about the surface characteristics of the land surrounding the meteorological station. The Department used the recommended AERMET preprocessing program AERSURFACE v.20060 to extract estimates of the Bowen ratio, surface roughness, and

[3] 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).

albedo from the 2016 National Land Cover Dataset (NLCD) for Florida. Per EPA guidance, because the Bowen ratio is dependent upon surface moisture and precipitation patterns, each year was classified as wet, dry, or average by comparing the annual precipitation to the 1981-2010 climatological record at the site. The default seasonal categories for each month were changed to reflect the subtropical climate of Polk County. All inputs to AERSURFACE are summarized in **Table 3**.

Table 3: AERSURFACE inputs for 2017-2019 GIF AERMET dataset.

Parameter	Value
Coordinate System	LATLON
Meteorological Station Latitude (Degrees)	28.062
Meteorological Station Longitude (Degrees)	-81.754
Horizontal Datum	NAD83
Radius of Study Area for Surface Roughness (km)	1
Number of Sectors	12
Temporal Resolution	Monthly
Continuous Snow Cover for at Least One Month	No
Late Autumn or Winter Without Snow	0
Transitional Spring	3,4
Midsummer	5,6,7,8,9
Autumn	1,2,10,11,12
Located at an Airport	VARYAP
Arid Region	No
Average Surface Moisture 2017	Wet
Average Surface Moisture 2018	Wet
Average Surface Moisture 2019	Dry

3.3.2. Site Representativeness

The surface characteristics were also extracted for the area around McIntosh so that a comparison could be done to determine if the meteorological data recorded at GIF are representative of the meteorological conditions in the modeling domain. The resulting average surface characteristics at both sites are similar and are summarized in **Table 4**. In addition, the airport is just 16 km east of McIntosh, the land in between is generally flat, and both areas have similar topography. Based on this analysis, the GIF meteorological dataset was considered to be representative of the domain for this modeling demonstration.

Table 4: Average surface characteristics from AERSURFACE for Lakeland.

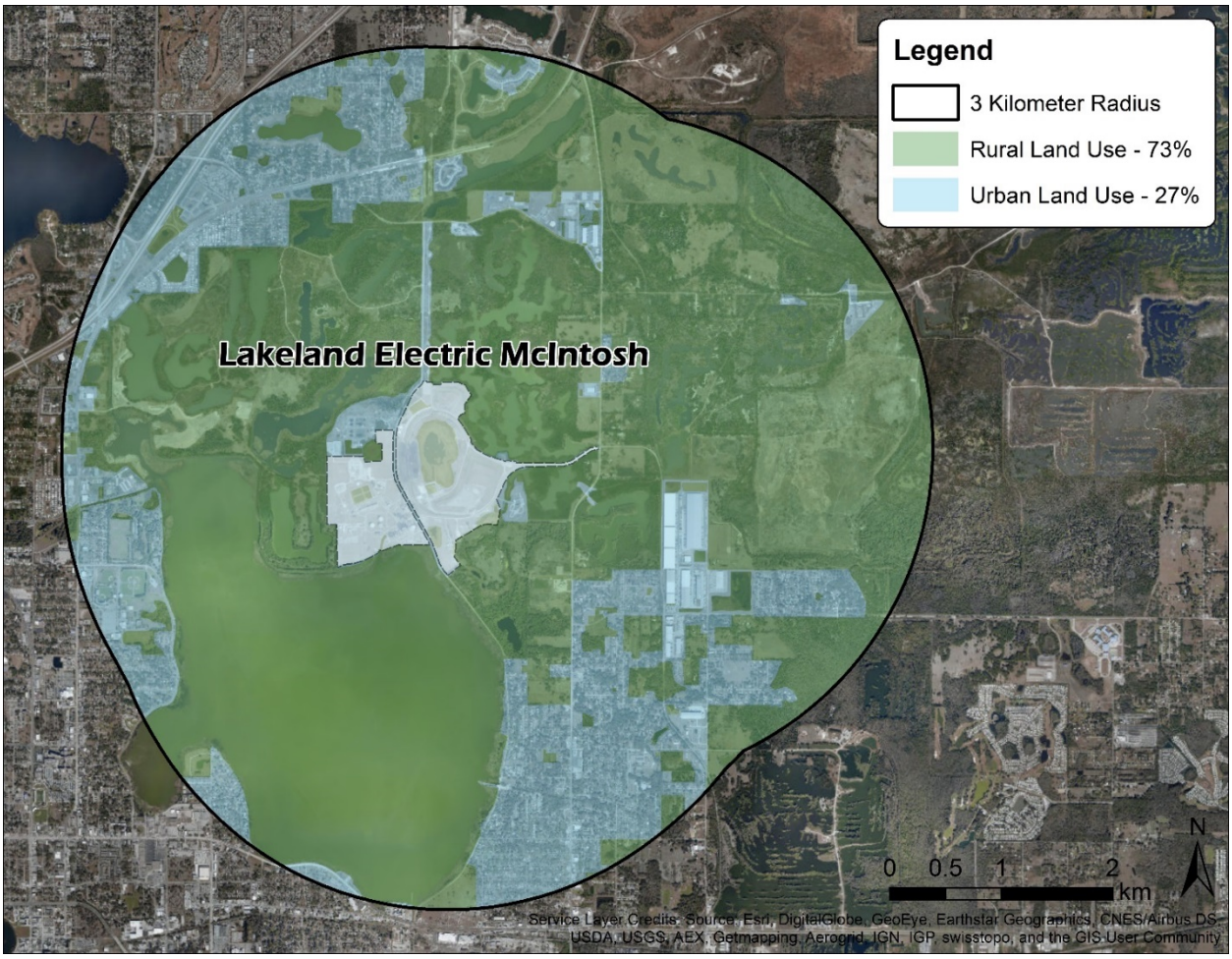
Location	Albedo	Bowen Ratio	Surface Roughness (z_o)
Winter Haven Municipal Airport	0.15	0.38	0.028
Lakeland Electric McIntosh	0.15	0.42	0.047

3.4. Rural/Urban Determination

AERMOD contains different dispersion coefficients for rural and urban settings. Appendix W outlines two methods for determining whether the area should be considered rural or urban. The

Department chose the land-use classification approach employing Auer's method.[4] The Auer method requires an analysis of the land use within a 3 km radius around a facility to determine whether the majority of the land is classified as rural or urban. If more than fifty percent of the area consists of Auer land-use industrial, commercial, or residential land types, then urban dispersion coefficients are used in the model; otherwise, rural dispersion coefficients are used. As shown in **Figure 2** below, rural land use constitutes a majority (73%) of the 3 km radius around McIntosh.

Figure 2: Land use classification around McIntosh in Lakeland.



3.5. Terrain Elevations

Terrain elevations were determined using the AERMOD terrain preprocessor AERMAP v.18081. AERMAP extracted elevations and hill heights for all sources, buildings, and receptors from the United States Geological Survey (USGS) National Elevation Dataset (NED) with a 10-meter horizontal resolution.

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

3.6. Receptor Placement

According to EPA's March 2011 Memo *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard* and reiterated in the Modeling TAD, it is expected that the distance from the source to the area of the maximum ground-level one-hour impact of SO_2 will be approximately 10 times the source release height.[5] Based on this guidance, the Department developed a uniform method for receptor grid placement for all DRR sources in Florida. As a conservative approach, a dense grid of receptors was placed from the primary facility's tallest stack (if multiple stacks are the tallest, the most centrally located was chosen) to the greater of 20 times the tallest stack height at the primary facility or 2,500 meters. Receptor density then decreased in 2,500-meter intervals. Receptors located within McIntosh's fence line were removed and receptors were placed with 50-meter spacing along the fence line.

In the initial DRR modeling high concentrations were found in an area of insufficiently dense receptor placement near the northwest corner of the receptor grid. Accordingly, an additional nested grid of receptors with 100 m spacing was placed in this area to fully resolve the highest concentrations. Although in the updated modeling high concentrations no longer occur in this area, these receptors were retained to ensure that the maximum modeled concentrations were being captured in the receptor network. The Modeling TAD describes a process for removing receptors placed in areas that it would not be feasible to place an actual monitor, such as bodies of water, that is unique to the DRR. The Department chose not to employ this process. The receptor grid used in the modeling demonstration is described below in **Table 5**, **Table 6**, and **Figure 3.**

Table 5: Lakeland DRR modeling demonstration main receptor grid description.

Receptor Grid Parameter	**Value/Description**
Description of Unit at Grid Center	Unit 5
Unit UTM Zone	17N
Unit UTM Easting (m)	408,848.00
Unit UTM Northing (m)	3,106,897.00
Actual Stack Height (m)	91.40
Expected Distance to Max Concentration (m)	914
20 Times Stack Height (m)	1,828
100 m Receptor Spacing - Extent from the Origin (m)	2,500
250 m Receptor Spacing - Extent from the Origin (m)	5,000
500 m Receptor Spacing - Extent from the Origin (m)	7,500
Plant Boundary Receptor Spacing (m)	50

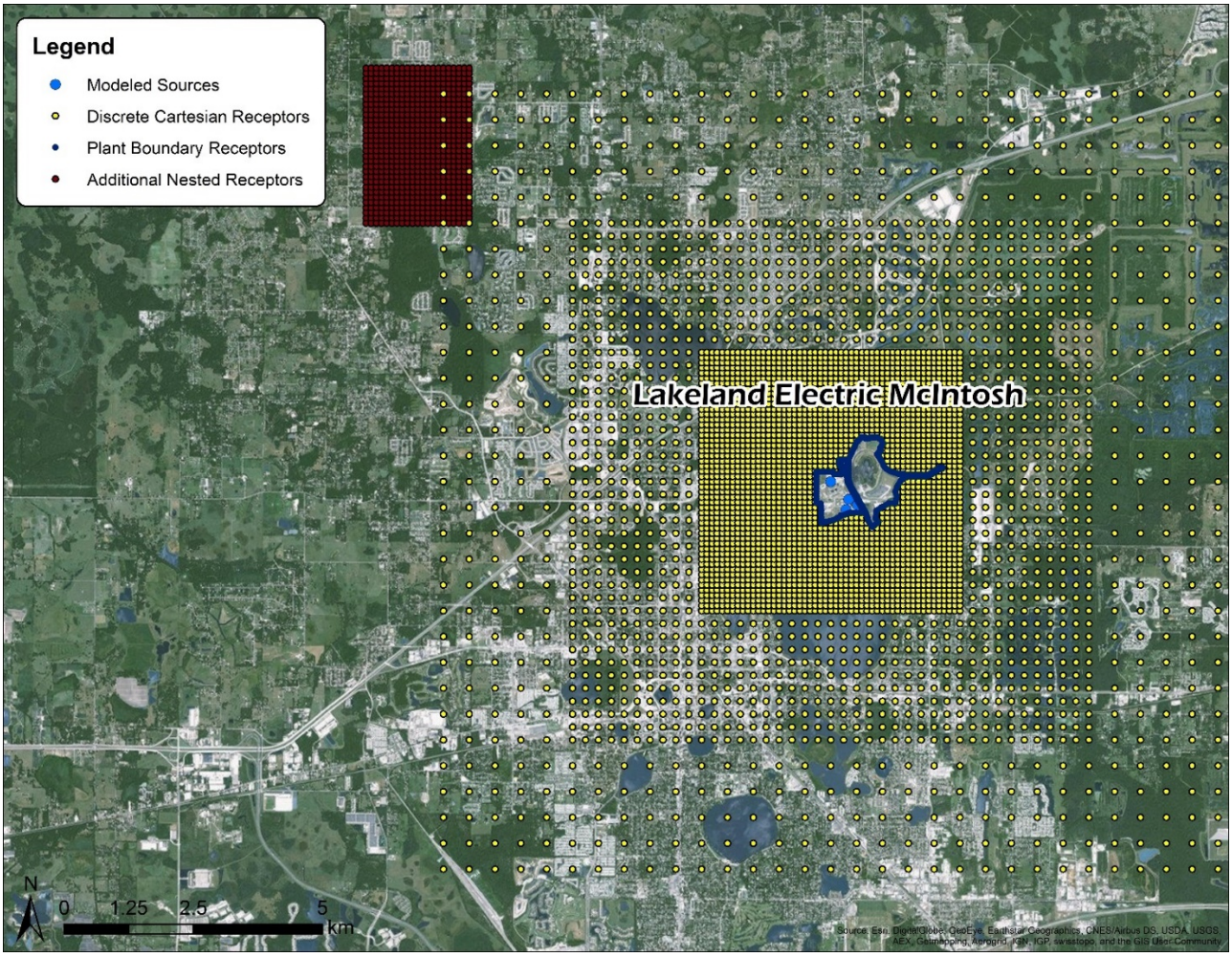
[5] Applicability of Appendix W Modeling Guidance for the 1-hr NO_2 National Ambient Air Quality Standard. Tyler Fox Memorandum dated June 28, 2010, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency Research Triangle Park, North Carolina 27711, available at: http://www.epa.gov/ttn/scram/ClarificationMemo_AppendixW_Hourly-NO2-NAAQS_FINAL_06-28-2010.pdf.

Receptor Grid Parameter	Value/Description
Total Receptors	4,472

Table 6: Lakeland DRR modeling demonstration nested receptor grid description

Receptor Grid Parameter	Value/Description
UTM Zone	17N
SW Corner UTM Easting (m)	399,848.00
SW Corner UTM Northing (m)	3,111,897.00
Total East-West Extent (m)	2,000
Total North-South Extent (m)	3,000
Receptor Spacing (m)	100
Total Receptors	651

Figure 3: Receptor grid placement for the Lakeland DRR modeling demonstration.



3.7. Building Downwash

Building downwash effects on emitted plumes were simulated using the Plume Rise Model Enhancements (PRIME) algorithm v.04274 in AERMOD. PRIME predicts concentrations 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. Eleven significant structures onsite at McIntosh were included in the downwash analysis. Direction-specific downwash parameters for all stacks at McIntosh were calculated and input to AERMOD by EPA's Building Profile Input Program for PRIME (BPIPPRM).

3.8. Source Parameters and Emissions Data

The Department chose to use maximum permitted short-term emission rates for all modeled sources. A variety of small, intermittent emissions sources including fire pumps and emergency generators at all facilities were not included because their emissions are not "continuous or frequent enough to contribute significantly to the annual distribution of maximum daily 1-hour concentrations."[6]

3.8.1. McIntosh Modeled Units

With the shutdown of Units 2 and 3, SO_2 emissions from McIntosh are from three combustion turbines, one simple-cycle peaker (SCCT 1 – EU004), one combined-cycle (CCCT 5 – EU028), and the newly constructed simple-cycle peaker (SCCT 2 – EU034).

Traditional modeling demonstrations require the use of the calculated good engineering practice (GEP)[7] stack height for all sources in the model. The DRR is different in that the purpose is to replicate actual ambient concentrations of SO_2. As such, the use of actual stack heights for those stacks that exceed their calculated GEP height is permitted if the source is characterized using actual hourly emissions data.[8] The stack for Unit 5 is the only stack at McIntosh that exceeds GEP height. Since all units were modeled using allowable emission rates, the GEP stack height was used. A summary of the modeled stack parameters for McIntosh is presented below in **Table 7**.

Table 7: McIntosh units' Lakeland DRR modeling parameters.

Unit Description	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temp (K)	SO_2 Emission Rate (lb/hr)
CCCT 5 – EU028	68.70[a]	6.10	20.56	359.30	127.00
SCCT 1 – EU004	10.70	4.10	26.34	755.40	164.01
SCCT 2 – EU034	15.20	6.9	23.85	810.9	9.94

a. Actual stack height is 91.4 m.

[6] *See* Modeling TAD, Section 5.5.
[7] Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, EPA-450/4-80-023R, *Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) (Revised),* (June 1985).
[8] *See* Modeling TAD, Section 6.1.

The emission rate for McIntosh's SCCT1 (EU004) is derived from the 0.5% sulfur content permit limit for No. 2 fuel oil. The oil flow rate has a physical limit of 2,310 gal/hr, which combined with the sulfur limit results in an hourly SO_2 emission rate of 164.01 lb/hr.[9] The emission rate for SCCT2 (EU034) is derived from the 2.0 grains S/100 scf natural gas permit limit. The natural gas flow rate has a physical limit of 1.74 $MMft^3$/hr, which combined with the sulfur limit results in an hourly emission rate of 9.94 lb/hr.[10]

3.8.2. Mosaic Bartow Modeled Units

Mosaic Bartow is a phosphate fertilizer manufacturing plant that has three sulfuric acid plants (SAPs) on site that account for the vast majority of the facility's SO_2 emissions. The SAPs burn elemental sulfur to create SO_2 which is then oxidized to SO_3 over a catalyst bed and absorbed into sulfuric acid. A portion of the SO_2 is not oxidized and is emitted to the atmosphere. Emissions from all three SAPs are monitored by CEMS. Actual stack heights are less than or equal to the calculated GEP stack height for all units. A summary of the modeled stack parameters for Mosaic Bartow is presented below in **Table 8**.

Table 8: Mosaic Bartow units' Lakeland DRR modeling parameters.

Unit Description	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temp (K)	SO_2 Emission Rate (lb/hr)
No. 4 SAP	60.96	2.07	18.60	355.37	380.36
No. 5 SAP	60.96	2.07	18.60	355.37	375.3
No. 6 SAP	60.96	2.07	18.60	355.37	368.14

3.8.3. Mosaic New Wales Modeled Units

Mosaic New Wales is a phosphate fertilizer manufacturing plant that has five sulfuric acid plants (SAPs) on site that account for the vast majority of the facility's SO_2 emissions. The SAPs burn elemental sulfur to create SO_2 which is then oxidized to SO_3 over a catalyst bed and absorbed into sulfuric acid. A portion of the SO_2 is not oxidized and is emitted to the atmosphere. The Department chose to characterize the five SAPs using maximum allowable emissions. New Wales has a cap on the five SAPs of 1,090 lb/hr. Through modeling many different scenarios, it was determined that the worst-case modeled concentrations occur when SAPs 1 and 2 operate at their maximum permitted emission rates and the remainder of the emissions come from SAP 5.

There are also three ammonium phosphate fertilizer plants (DAP and GMAP), an animal feed ingredient (AFI) plant, and a sulfur handling system on-site that contribute a small amount of additional SO_2 emissions. These five units were characterized using their maximum permitted short-term emission rates.

[9] See Title V Permit No. 1050004-054-AV Condition A.5. SO_2 = (0.005) x (7.1 lb/gal) x (2 lb SO_2/lb S) x (2,310 gal/hr) = 164.01 lb/hr.
[10] See Title V Permit No. 1050004-054-AV Condition G.3.a. SO_2 = (2.0 gr S/100 ft^3) x (1.74 x 10^6 ft^3/hr) x (1 lb/7,000 gr) x (2 lb SO_2/lb S) = 9.94 lb/hr).

The stack heights for all units at Mosaic New Wales are less than or equal to the GEP height for each. A summary of the modeled stack parameters for Mosaic New Wales is presented below in **Table 9**.

Table 9: Mosaic New Wales units' Lakeland DRR modeling parameters.

Unit Description	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temp (K)	SO_2 Emission Rate (lb/hr)
No. 1 SAP	60.96	2.59	15.24	349.82	504.58
No. 2 SAP	60.96	2.59	15.24	349.82	505.09
No. 3 SAP	60.96	2.59	15.24	349.82	0
No. 4 SAP	60.66	2.59	15.24	349.82	0
No. 5 SAP	60.66	2.59	15.24	349.82	98.0
No. 1 DAP	40.54	2.13	14.93	333.60	0.016
No. 2 DAP	52.13	1.83	17.97	336.30	0.04
GMAP Plant	40.55	1.83	33.42	355.80	0.02
Sulfur Handling	12.20	1.00	1.00	330.00	2.80
AFI Plant	52.44	2.44	20.22	347.40	0.079

3.8.4. Mosaic South Pierce Modeled Units

Mosaic South Pierce is a smaller phosphate fertilizer manufacturing plant with just two SAPs on site. Again, both units were characterized using maximum allowable emissions rates and actual stack heights are less than or equal to the calculated GEP stack height for each. A summary of the modeled stack parameters for Mosaic South Pierce is presented below in **Table 10**.

Table 10: Mosaic South Pierce units' Lakeland DRR modeling parameters.

Unit Description	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temp (K)	SO_2 Emission Rate (lb/hr)
No. 4 SAP	43.89	2.74	12.10	355.37	514.93
No. 5 SAP	43.89	2.74	12.10	355.37	513.35

3.8.5. Modeled Emission Rate Averaging Times

If a compliance averaging time for an emission limit is longer than the averaging time for the applicable NAAQS (here, one hour), EPA guidance provides a method of calculating an "equivalent" longer-term emission limit where appropriate.[11] 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 one-hour average emission rate to its 99th percentile longer-term average emission rate. The premise of this method is that a longer-term emission limit allows a higher level of emissions variability than the short-term limit. Thus, a larger short-term limit needs to be input to the model in order to account for this variability. The SO_2 emission limits for several of the modeled sources are based on longer-term averaging periods so this adjustment process was

[11] 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, available at: http://www.epa.gov/ttn/oarpg/t1pgm.html

used. The analysis was performed using CEMS data from 2012-2014 and is summarized in **Table 11**.

Table 11: Emissions variability analysis and equivalent emission rate calculations for all sources.

Unit Description	99th Percentile Rate (lb/hr) – 1-hr	99th Percentile Rate (lb/hr) – Long-Term	Ratio	Permitted Limit (lb/hr)	Equivalent Limit (lb/hr)
Bartow SAP 4	408.57	393.97	0.964	433.33 24-hr	449.51
Bartow SAP 6	441.98	431.91	0.977	433.33 24-hr	443.53
Bartow SAP 5	436.59	434.92	0.996	433.33 24-hr	435.07
New Wales SAP 1	419.22	412.13	0.983	496.00 24-hr	504.58
New Wales SAP 2	444.41	436.63	0.982	496.00 24-hr	505.09
New Wales SAP 3	408.25	400.62	0.981	496.00 24-hr	505.61
New Wales SAP 4	452.58	452.14	1.00	483.30 3-hr	483.30
New Wales SAP 5	458.06	457.90	1.00	483.30 3-hr	483.30
South Pierce SAP 4	51.96	50.45	0.971	500 24-hr	514.93
South Pierce SAP 5	47.49	46.26	0.974	500 24-hr	513.35

3.9. Background Concentrations

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.[12] The data used were obtained from the Florida Air Monitoring and Assessment System (FAMAS) for monitoring station No. 12-057-3002 for the period January 2017 to December 2019. As shown in **Figure 1**, the monitor is 33 km southwest of McIntosh in a rural area away from any large sources of SO_2. In order to avoid double-counting the emissions from the explicitly modeled sources, Appendix W recommends filtering the data to remove measurements when the wind direction could transport pollutants from these sources. In this case, any measurement recorded when the wind direction was from 23° to 111° was removed from the background calculation as shown in **Figure 4**. The 99th percentile (2nd high) concentration for each hour by season was then averaged across the three years and the resulting array was input to AERMOD with the BACKGRND SEASHR keyword. The final set of background concentrations is summarized in **Table 12**.

[12] *See* Modeling TAD, Section 8.1

Figure 4: 2012-2014 average SO_2 concentrations by wind direction for monitor 12-057-3002.

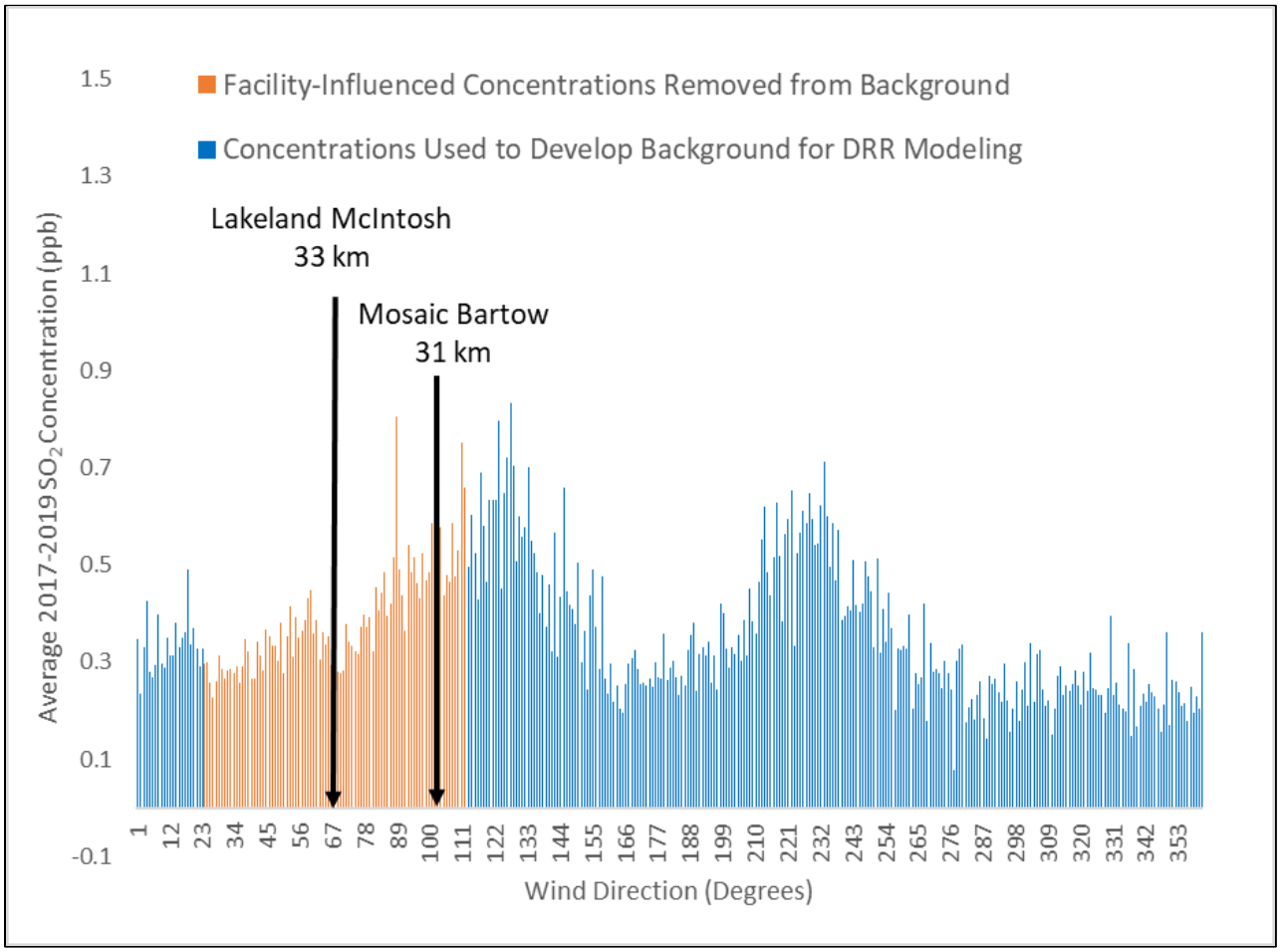


Table 12: 2017-2019 SO_2 background concentrations (ppb) by hour-of-day by season for the modeling demonstration.

Hour	Winter	Spring	Summer	Autumn	Hour	Winter	Spring	Summer	Autumn
0:00	1.40	0.87	0.51	0.67	12:00	2.26	2.53	1.87	1.45
1:00	0.85	1.21	0.50	0.59	13:00	3.27	1.84	1.61	1.72
2:00	0.92	0.80	0.35	0.68	14:00	1.96	2.08	1.52	1.37
3:00	0.84	0.50	0.42	0.70	15:00	2.37	1.81	1.54	1.79
4:00	0.80	0.54	0.38	0.56	16:00	2.13	1.76	1.52	1.53
5:00	0.86	0.40	0.34	0.53	17:00	2.52	1.99	1.05	1.24
6:00	0.83	0.59	0.50	0.54	18:00	2.79	2.89	0.81	1.23
7:00	0.91	2.81	4.20	0.83	19:00	2.37	2.58	1.26	0.73
8:00	1.31	5.02	4.43	2.29	20:00	1.35	2.46	0.66	0.82
9:00	3.68	7.08	4.34	2.24	21:00	1.12	1.94	1.38	0.58
10:00	3.63	4.38	3.27	1.59	22:00	0.79	1.00	0.85	0.69
11:00	3.52	3.08	3.00	1.86	23:00	1.05	0.81	0.88	0.53

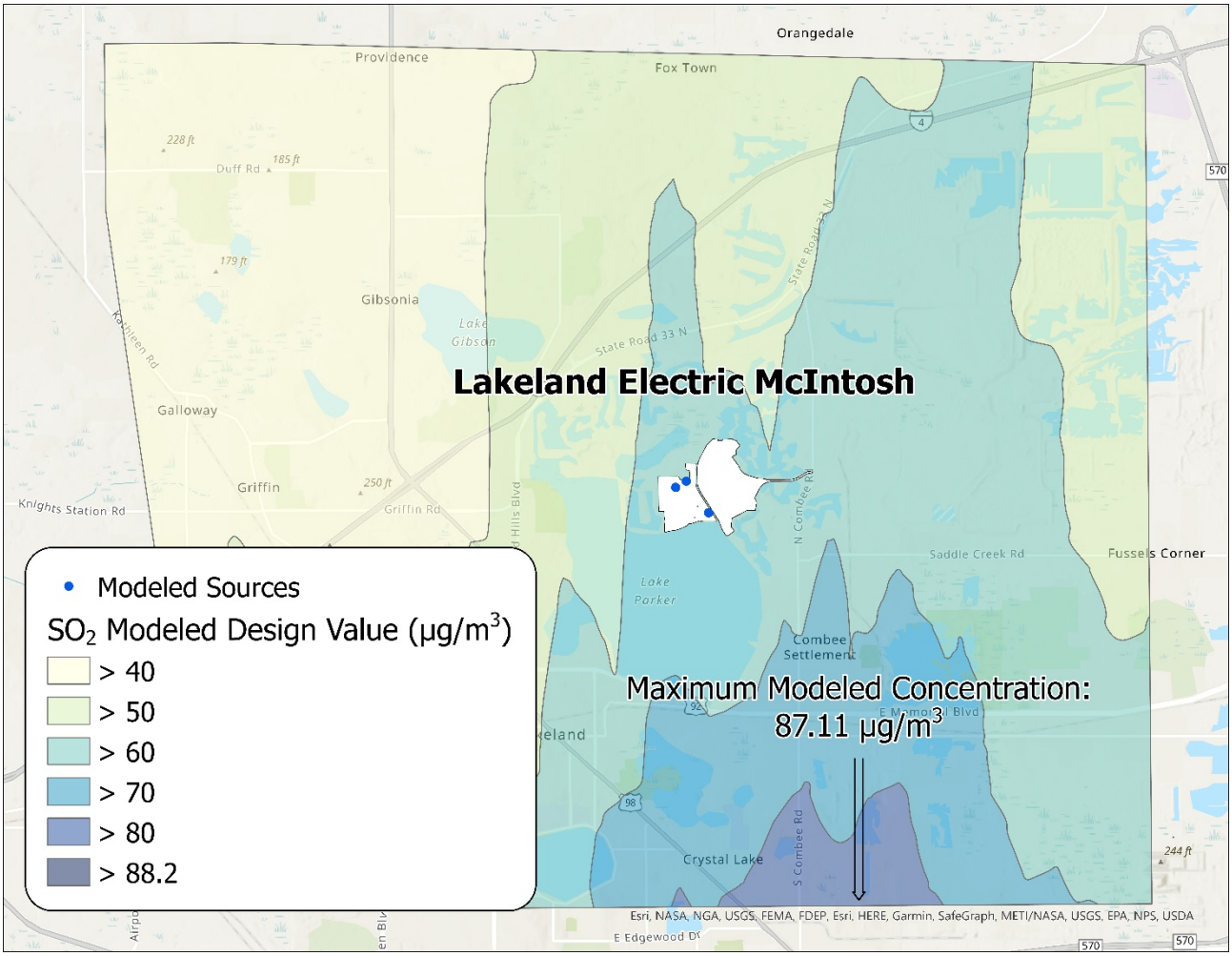
3.10. Modeling Summary and Results

The results of the maximum allowable SO_2 emissions modeling demonstration are summarized in **Table 13** and **Figure 5** and indicate that all areas around McIntosh are in attainment of the one-hour SO_2 NAAQS. As shown in the figure, modeled concentrations are increasing south of McIntosh. This is because with the shutdown of McIntosh's Units 2 and 3, the SO_2 concentrations in the modeling domain are now dominated by emissions from Mosaic Bartow to the south. The concentration contributed by McIntosh's emissions decreases significantly with distance at receptors south of McIntosh. The contribution from McIntosh at the receptor with the maximum modeled concentration is only 0.05 $\mu g/m^3$, while the concentration due to Mosaic Bartow is 55.85 $\mu g/m^3$, and Mosaic South Pierce contributes 23.17 $\mu g/m^3$. The Department demonstrated that the area around and north of Mosaic Bartow is in attainment of the SO_2 NAAQS using maximum permitted emissions in Florida's request to redesignate the Hillsborough-Polk area to attainment, submitted to EPA October 9, 2019, and approved by EPA effective March 23, 2020 (85 Fed. Reg. 9,666). Because there are no other significant sources of SO_2 between McIntosh and Bartow that could influence SO_2 concentrations, the Department expects that the area south of the modeling domain towards the Bartow facility is also meeting the SO_2 NAAQS. As this modeling demonstration uses maximum allowable emission rates, the Department is no longer required to submit annual reports for this facility and requests EPA's approval to terminate the ongoing data requirements under the DRR for McIntosh.

Table 13: Maximum modeled SO_2 design value for McIntosh's maximum emission limits after the shutdown of Units 2 and 3, effective April 2021.

UTM 17N Easting (m)	UTM 17N Northing (m)	McIntosh ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total ($\mu g/m^3$)	1-Hour SO_2 NAAQS ($\mu g/m^3$)	Percent of NAAQS
411,848.00	3,099,397.00	0.05	7.76	87.11	196.4	44.4%

Figure 5: Modeled SO_2 design values in the modeling demonstration.



Appendix A – Lakeland McIntosh Air Construction Permit (1050004-048-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

Noah Valenstein
Secretary

PERMITTEE

Lakeland Electric
3030 East Lake Parker Drive
Lakeland, FL 33805

Authorized Representative:
Michael Lunday, Plant Manager

Air Permit No. 1050004-048-AC
Permit Expires: 12/31/2021
Minor Air Construction Permit
C.D. McIntosh, Jr. Power Plant
Simple Cycle Combustion Turbine
Installation

PROJECT

This is the final air construction permit, which authorizes the installation of a 120 Megawatts (MW) Siemens Westinghouse 501D5A simple cycle combustion turbine. The facility is also proposing to retire McIntosh Unit 2, a nominal 115 MW fossil-fueled fired steam electric generating unit as part of this project. The proposed work will be conducted at the existing C.D. McIntosh, Jr. Power Plant, which is a power plant categorized under Standard Industrial Classification No. 4911. The existing facility is in Polk County at 3030 East Lake Parker Drive in Lakeland, Florida. The UTM coordinates are Zone 17, 409.0 kilometers (km) East and 3,106.2 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.). The permittee is authorized to conduct the proposed work in accordance with the conditions of this permit. 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 review requirements for major stationary sources in Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

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 Lyle Read, P.E.
2018.07.23 13:22:35 -04'00'

For:
Syed Arif, P.E., Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Construction 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. Michael Lunday, Lakeland Electric: michael.lunday@lakelandelectric.com
Mr. Nedin Bahtic, P.E., Lakeland Electric: nedin.bahtic@lakelandelectric.com
Mr. Kennard F. Kosky, P.E., Golder Associates Inc.: kkosky@golder.com
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Tess Fields, Sierra Club: tess.fields@sierraclub.org
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Ms. Alisa Coe, Earth Justice: acoe@earthjustice.org
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.

2018.07.23 13:24:18 -04'00'

SECTION 1. GENERAL INFORMATION

FACILITY DESCRIPTION

This facility consists of: a 20 MW simple-cycle combustion turbine peaking unit (Unit 1); two fossil fuel fired electric generating units, 114.7 MW (Unit 2) and 364 MW (Unit 3); a 370 MW combined-cycle combustion turbine (Unit 5); and, three stationary diesel fuel-fired reciprocating internal combustion engines.

Simple cycle combustion turbine peaking Unit 1 is fired with natural gas with a maximum heat input rate of 330 million Btu per hour (MMBtu/hour) or No. 2 fuel oil with a maximum sulfur content of 0.5 percent by weight and a maximum heat input rate of 320 MMBtu/hr. Fossil fuel fired steam electric generator Unit 2 is fired with natural gas with a maximum heat input rate of 1,184.5 million Btu per hour (MMBtu/hour), No. 2 fuel oil or No. 6 fuel oil, both with a maximum heat input rate of 1,115 MMBtu/hr. Fossil fuel fired steam electric generator Unit 3 is fired with coal and natural gas, both with a maximum heat input rate of 3,640 MMBtu/hr. McIntosh Unit 5, a combined-cycle combustion turbine, is fired with natural gas with a maximum heat input rate of 2,407 MMBtu/hour or No. 2 or superior grade fuel oil with a maximum sulfur content of 0.05 percent by weight and a maximum heat input rate of 2,236 MMBtu/hr. The three diesel engines are: a 25-horsepower non-emergency diesel engine-driven sump pump manufactured by Lister and used at the coal tunnel; a 300-horsepower diesel engine-driven emergency fire water pump designated as UPS Diesel No. 32; and, a 500-horsepower diesel engine-driven black-start generator used to start up the combustion turbines.

The facility consists of the following existing emissions units (EU).

EU No.	Emission Unit Description
004	Gas Turbine Peaking Unit 1
005	McIntosh Unit 2 – Fossil Fuel Fired Steam Generator
006	McIntosh Unit 3 – Fossil Fuel Fired Steam Generator
008	Diesel Drive Coal Tunnel Sump Engine
010	Fire water UPS diesel No. 32
011	CT Startup Diesel
028	McIntosh Unit 5 – 370 MW Combined Cycle Stationary Combustion Turbine

PROPOSED PROJECT

On May 3, 2018, Lakeland Electric (LE) submitted an application (Link to Application) seeking authorization to install a new Siemens Westinghouse 501D5A simple cycle combustion turbine (CT) at the C.D. McIntosh Jr. Power Plant (McIntosh Power Plant). This CT is a nominal 120 MW simple cycle combustion turbine-electrical generator set. LE is also proposing to retire McIntosh Unit 2, a nominal 115 MW fossil-fueled fired steam electric generating unit as part of this project.

The following new EU will be added by this project.

EU No.	Description
034	Gas Turbine Peaking Unit 2

The following existing EU will be deleted by this project.

EU No.	Description
005	McIntosh Unit 2 - Fossil Fuel Fired Steam Generator

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 (CAA).

- The facility is a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400(PSD), F.A.C.
- The facility does operate units subject to the New Source Performance Standards (NSPS) of Title 40 Part 60 of the Code of Federal Regulations (40 CFR 60).
- The facility does operate units subject to the National Emissions Standards of 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 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 Southwest District Office at: 13051 N Telecom Parkway, Suite 101, Temple Terrace, Florida 33637-0926.
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); Appendix C (Common Conditions); Appendix D (Common Testing Requirements); Appendix E (NSPS Subpart A); and Appendix F (NSPS Subpart GG).
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: The permittee shall notify the Compliance Authority upon commencement of construction. 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. Construction and Expiration: The expiration date shown on the first page of this permit provides time to complete the physical construction activities 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 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(3) & (4), 62-4.080 & 62-210.300(1), F.A.C.]
8. Source Obligation:
   a. At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.
   b. At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

   [Rule 62-212.400(12), F.A.C.]

9. Application for Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V air operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V air operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. 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 and Chapter 62-213, F.A.C.]

10. Shutdown of McIntosh Unit 2: Upon completion of commissioning and testing of the new CT (EU 034), the existing McIntosh Unit 2 (EU 005) shall be permanently shut down. The Title V permit revision required by **Specific Condition 9** of this section shall reflect the shutdown of McIntosh Unit 2. The turbine "becomes operational" for the purposes of Rule 62-210.200(166), F.A.C., when the combustion turbine is first ready for normal dispatch to deliver power to the electric grid. [Rule 62-210.200(PTE), F.A.C. and Application No. 1050004-048-AC]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

A. EU 034, Simple Cycle Peaking Combustion Turbine

This section of the permit addresses the following emissions unit.

EU No.	Emission Unit Description
034	Gas Turbine Peaking Unit 2

This EU is a nominal 120 MW simple cycle combustion turbine-electrical generator set consisting of a Siemens Westinghouse Model No. 501D5A unit. The primary fuel is natural gas and distillate fuel oil is fired as a backup fuel. Stack height is 50 feet, stack exit dimensions are 33.5 feet by 12 feet, resulting in an equivalent diameter of 22.6 feet, volumetric flow rate is 1,887,100 actual cubic feet per minute (acfm) and exit temperature is 1,000 degrees Fahrenheit (°F).

{Permitting Note: The combustion turbine is subject to: Phase II of the federal Acid Rain Program; 40 CFR 60, Subpart A (General Provisions); and 40 CFR 60, Subpart GG (Standards of Performance for Stationary Gas Turbines).}

EQUIPMENT

1. Combustion Turbine: The permittee is authorized to install a new 120 MW Siemens Westinghouse Model 501D5A simple cycle combustion turbine-electrical generator set. [Application No. 1050004-048-AC]

PERFORMANCE RESTRICTIONS

2. Permitted Capacity: Based on 100% base load, a higher heating value (HHV) and a compressor inlet air temperature of 32° F, the maximum allowable heat input rates are as follows

   a. Natural Gas: 1,776 MMBtu/hr.

   b. Distillate Fuel Oil: 1,726 MMBtu/hr.

   [Rule 62-210.200(PTE), F.A.C. and Application No. 1050004-048-AC]

3. Authorized Fuels:

   a. The combustion turbine shall fire only natural gas with maximum sulfur content of 2 grains of sulfur per 100 dry standard cubic feet of gas (monthly average) or distillate oil with a maximum sulfur content of 0.0015% by weight.

   b. The combustion turbine shall fire no more than 1,350,084 MMBtu of natural gas during any consecutive 12-month period (equivalent to approximately 812 hours/year at base load and 59°F turbine inlet). The combustion turbine shall fire no more than 565,550 MMBtu of distillate oil during any consecutive 12-month period (equivalent to approximately 350 hours/year at base load and 59°F turbine inlet). If distillate oil is fired in any 12-month period, the amount of total natural gas that can be fired is reduced by 1.8 times the heat input used for distillate oil firing. The permittee shall install, calibrate, operate and maintain a monitoring system to measure and accumulate the following for each fuel fired: quantity, heat input rate and hours of operation.

   [Rule 62-210.200(PTE), F.A.C. and Application No. 1050004-048-AC]

EMISSIONS STANDARDS

4. Nitrogen Oxides (NOx) Emissions: NOx emissions shall not exceed: 25.0 parts per million by volume, dry (ppmvd) corrected to 15% oxygen based on a 24-hour block average when firing natural gas; 42.0 ppmvd corrected to 15% oxygen based on a 24-hour block average when firing distillate oil; and 56 tons/year based on a 12-month rolling sum total. [Application No. 1050004-048-AC]

5. Carbon Monoxide (CO) Emissions: CO emissions shall not exceed 10 ppmvd corrected to 15% oxygen at base load, based on a 24-hour block average. [Application No. 1050004-048-AC]

CONTROL TECHNOLOGY

6. Water Injection: The permittee shall install, calibrate, operate, and maintain a water injection system to reduce NO_X emissions from this CT. The system shall be designed and operated so as to meet the NO_X limits of this permit. [Rule 62-210.200(PTE), F.A.C. and Application No. 1050004-048-AC]

EXCESS EMISSIONS

*{Permitting Note: The following condition applies only to the emissions standards in **Specific Conditions. 4** and **5** of this subsection. Rule 62-210.700, F.A.C. (Excess Emissions) cannot vary or supersede any federal provision of the NSPS, NESHAP, or Acid Rain programs.}*

7. Excess Emissions Allowed: Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted provided:

   a. Best practices to minimize emissions are adhered to; and

   b. The duration of excess emissions shall be minimized but in no case exceed two hours in any 24-hour period unless specifically authorized by the Department for longer duration.

   Excess emissions that are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited.

   [Rule 62-210.700(1), F.A.C.]

TESTING REQUIREMENTS

8. Continuous compliance Demonstration: Continuous compliance with the emissions standard for emissions of NOx and CO shall be demonstrated using continuous emissions monitoring systems (CEMS). [Rule 62-4.070(3), F.A.C., and Application No. 1050004-048-AC]

9. Annual Compliance Tests: An annual emissions test is not required for NOx and CO as long as they are measured by CEMS and, the CEMS meet the performance specifications, quality assurance, and quality control measures of 40 CFR part 60 or 40 CFR. part 75, adopted and incorporated in Rule 62-204.800, F.A.C. [Rule 62-297.310(8)(a)5b, F.A.C.]

10. Test Requirements: The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. Tests shall be conducted in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rule 62-297.310(9), F.A.C.]

11. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources *{Note: The method shall be based on a continuous sampling train.}*
20	Determination of NO_X, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rules 62-204.800, F.A.C.; and Appendix A of 40 CFR 60]

MONITORING REQUIREMENTS

12. CO, NOx and O_2 CEMS: The permittee shall install, calibrate, operate, and maintain in the exhaust stack of this emissions unit to measure and record the emissions of NOx and CO from the CT, and the oxygen (O2) content of the flue gas at the location where NOx and CO are monitored, in a manner sufficient to demonstrate compliance with the emission limits of this permit.

    a. The NOx and O_2 monitor shall be certified pursuant to 40 CFR Part 75 and shall be operated and maintained in accordance with the applicable requirements of 40 CFR Part 75, Subparts B and C. Record keeping, and reporting shall be conducted pursuant to 40 CFR Part 75, Subparts F and G. Relative Accuracy Test Audit (RATA) tests required for the NOx monitor shall be performed using EPA Method 20 or 7E in Appendix A of 40 CFR 60. The RATA tests required for the oxygen monitor shall be performed using EPA Method 3, 3A or 3B, of Appendix A of 40 CFR 60. The span for the oxygen monitor shall not be greater than 21%. For each CEMS, the permittee shall conduct RATAs in accordance with the regulations of 40 CFR 75 for NOx and Performance Specification 4 or 4A for CO.

    b. The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of section 7 shall be made each calendar quarter and reported semi-annually to the Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10, of Appendix A of 40 CFR 60. The Method 10 analysis shall be based on a continuous sampling train, and the ascarite trap may be omitted or the interference trap of section 10.1 may be used in lieu of the silica gel and ascarite traps. The span for the CO monitor shall not be greater than 100 ppmvd corrected to 15% O_2.

    c. For purposes of determining compliance with the NOx emission limits based on a 24-hour block average, missing data shall not be substituted pursuant to 40 CFR 75. Instead the block average shall be determined using the remaining hourly data in the 24-hour block. However, the permittee's record keeping for the EU-034 NOx emissions cap (tons/year) shall be in full agreement with data submitted for inclusion on EPA's Acid Rain website which includes all documented exclusions reported to the Department in a quarterly report. The permittee may exclude start up, shutdown, and Part 75 missing data from the ppmvd calculations. However, this data will need to be recorded for the tons/year calculations for netting purposes and as required by the Acid Rain website.

    d. The CO, NOx and O_2 data shall be recorded by the CEMS during episodes of startup, shutdown and malfunction. No valid monitoring data shall be excluded from the mass-based (tons/year) NOx emissions limits. Monitoring data collected during startup, shutdown and malfunctions may be excluded in accordance with the following conditions when determining compliance with concentration-based (ppmvd) CO and NOx emissions limits. CO and NOx emissions data recorded during these episodes may be excluded from the 24-hour block average calculated to demonstrate compliance with the emission limits of this permit as provided in this paragraph. Periods of data excluded for startup and shutdown shall not exceed two hours (120 minutes) in any operating day. Periods of data excluded for malfunctions shall not exceed two hours (120 minutes) in any operating day. All periods of data excluded for any startup, shutdown or malfunction episode shall be consecutive for each episode. Periods of data excluded for all startup, shutdown or malfunction episodes shall not exceed four hours (240 minutes) in any operating day. An operating day is defined as a day (midnight to midnight) that contains operation of this emissions unit. The owner or operator shall minimize the duration of data excluded for startup, shutdown and malfunctions, to the extent practicable. Data recorded during startup, shutdown or malfunction events shall not be excluded if the startup, shutdown or malfunction episode was caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented.

e. The 24-hour block averages are calculated as follows: starting at midnight of each operating day, a 24-hour block average shall be calculated from 24 valid hourly average emission rate values. Each hourly value shall be computed using at least one data point in each fifteen-minute quadrant of an hour, where the unit combusted fuel during that quadrant of an hour. Notwithstanding this requirement, an hourly value shall be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant of an hour). A valid hourly emission rate shall be calculated for each hour in which at least two measurements are obtained at least 15 minutes apart. The permittee shall use all valid measurements or data points collected during an hour to calculate the hourly averages. All data points collected during an hour shall be, to the extent practicable, evenly spaced over the hour. If the CEMS measures concentration on a wet basis, the CEM system shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Alternatively, the owner or operator may develop through manual stack test measurements a curve of moisture contents in the exhaust gas versus load for each allowable fuel and use these typical values in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Final results of the CEMS shall be expressed as ppmvd corrected to 15% oxygen. Monitoring data shall be excluded from the 24-hour block average for the following periods: startup, shutdown, or malfunction as defined in Rules 62-210.200 and 62-210.700, F.A.C.; when fuel is not fired in the unit; CEMS quality assurance checks; or when the CEMS is out of control.

f. For the annual (tons/year) emissions limit for NOx, measurements shall be in pounds (converted to tons) and be based on a 12-month rolling total starting at the first day of each calendar month. Each monthly total shall be calculated by adding the pounds per day for each valid operating day (all fuels) within the calendar month. This monthly total shall be combined with the emissions from the previous valid 11 calendar months and shall comprise a 12-month rolling total.

g. CEMS data collected during seasonal or other major combustor tuning sessions shall be excluded from the CEMS compliance demonstration for short term emission standards provided the tuning session is performed in accordance with the manufacturer's specifications. All valid emissions data shall be used to demonstrate compliance with annual emissions caps. A "major tuning session" would occur after completion of initial construction, a combustor change-out, a major repair or maintenance to a combustor, or other similar circumstances. "Seasonal tuning", where minor adjustments are performed, is also required to compensate for changes in average ambient conditions. Prior to performing any major or seasonal tuning session, the permittee shall provide the Compliance Authority with advance notice that details the activity and proposed tuning schedule. The notice shall be by telephone, facsimile transmittal, or electronic mail.

h. Note that the twelve month rolling emissions totals required to be reported for NOx do not exclude any data.

[Rule 62-4.070(3), F.A.C.; 40 CFR 60, Subparts A & GG; 40 CFR 60, Appendices A, B & F; 40 CFR 75, Subparts B, C, F & G]

RECORDS AND REPORTS

13. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rule 62-297.310(10), F.A.C.]

14. Periodic Emissions Monitoring:

a. *Malfunction Notification*: If emissions in excess of a standard (subject to the specified averaging period) occur due to malfunction, the permittee shall notify the Compliance Authority within one working day of the following: the nature, extent, and duration of the excess emissions; the cause of the excess emissions;

and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident.

b. *Semi-Annual Report*: Within 30 days following the end of each semi-annual period, the permittee shall submit a report to the Compliance Authority summarizing periods of emissions in excess of the limits in this permit limit or the limits in 40 CFR 60, Subpart GG limit, following the NSPS format in 40 CFR 60.7(c), Subpart A. In addition, the report shall summarize the NO_X and CO CEMS system monitor availability for the previous semi-annual period.

[Rules 62-4.130 & 62-210.700(5), F.A.C.; and 40 CFR 60.7 & 60.334(j)(5)]

15. Fuel Sulfur Records: The permittee shall demonstrate compliance with the fuel sulfur limits specified in this permit by maintaining the following records of the sulfur contents.

a. *Natural Gas Sulfur Limit*: Compliance with the fuel sulfur limit for natural gas shall be demonstrated by keeping reports obtained from the vendor indicating the average sulfur content of the natural gas being supplied from the pipeline for each month of operation. Methods for determining the sulfur content of the natural gas shall be ASTM methods D4084-82, D4468-85, D5504-01, D6228-98 and D6667-01, D3246-81 or more recent versions.

b. *Fuel Oil Sulfur Limit*: Compliance with the fuel oil sulfur limit shall be demonstrated by taking a sample, analyzing the sample for fuel sulfur, and reporting the results to the Compliance Authority before initial startup. Sampling the fuel oil sulfur content shall be conducted in accordance with ASTM D4057-88, Standard Practice for Manual Sampling of Petroleum and Petroleum Products, and one of the following test methods for sulfur in petroleum products: ASTM methods D5453-00, D129-91, D1552-90, D2622-94, or D4294-90. More recent versions of these methods may be used. For each subsequent fuel delivery, the permittee shall maintain a permanent file of the certified fuel sulfur analysis from the fuel vendor.

The above methods shall be used to determine the fuel sulfur content in conjunction with the provisions of 40 CFR 75 Appendix D.

[Rule 62-210.200(PTE), F.A.C.]

OTHER REQUIREMENTS

16. NSPS Provisions: The combustion turbine is subject to applicable requirements in Subpart A (General Provisions) and Subpart GG (Stationary Gas Turbines) of 40 CFR 60 (see attached appendices). [Rule 62-4.070(3), F.A.C., and Application No. 1050004-048-AC]

Appendix B – Lakeland McIntosh Unit 2 - Documentation of Permanent Shutdown

LAKELAND ELECTRIC
POWERED FOR LIFE

SUBMITTED ELECTRONICALLY

June 23, 2020

(*via e-mail: David.Read@dep.state.fl.us*)
Mr. David Read, P.E., Permitting Section Administrator
Division of Air Resource Management
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399

RE: **C.D. McIntosh, Jr. Power Plant**
ID No. 1050004
ORIS 0676

Subject: **Unit 2 Retirement**

Dear Mr. Read:

This submittal is to notify DEP and EPA that Lakeland Electric retired McIntosh Unit 2 (EU 005) on June 22, 2020. EPA Form 7610-20 is attached.

Air Construction Permit 1050004-048-AC that authorized the installation of Lakeland Electric's new generating unit, McIntosh Gas Turbine 2 (MGT2; EU 034), required that McIntosh Unit 2 be permanently shut down once the commissioning and testing of MGT2 is completed. MGT2 commenced its commercial operation also on June 22, 2020.

If you should have any questions, please feel free to contact me at (863) 834-8180 or at nedin.bahtic@lakelandelectric.com.

Sincerely,

Nedin Bahtic

Nedin Bahtic, P.E.
Environmental Coordinator

cc: Lynn Scearce, FDEP (Lynn.Scearce@dep.state.fl.us)
FDEP Southwest District Air Permitting Office (SWD_Air_Permitting@dep.state.fl.us)
FDEP Southwest District Air Compliance Office (SWD_AIR@dep.state.fl.us)
Craig Hillock, EPA (hillock.craig@epa.gov)
Charles Frushour, EPA (frushour.charles@epa.gov)

501 E. Lemon St. ✦ Lakeland, Florida 33801
Phone: 863.834.6300 ✦ Fax: 863.834.6344

United States Environmental Protection Agency
Acid Rain, CSAPR, and Texas SO_2 Programs

OMB Nos. 2060-0258 and 2060-0667
Approval Expires 03/31/2022

Retired Unit Exemption

For more information, see instructions and refer to 40 CFR 72.8, 97.405, 97.505, 97.605, 97.705, 97.805, and 97.905, or a comparable state regulation, as applicable.

This submission is: ☒ **New** ☐ **Revised**

STEP 1
Identify the unit by plant (source) name, State, plant code and unit ID#.

Plant (Source) Name	State	Plant Code	Unit ID#
C.D. McIntosh, Jr. Power Plant	FL	676	2

STEP 2
Indicate the program(s) that the unit is subject to.

☒ Acid Rain
☐ CSAPR NO_x Annual
☐ CSAPR NO_x Ozone Season Group 1
☐ CSAPR NO_x Ozone Season Group 2
☐ CSAPR SO_2 Group 1
☐ CSAPR SO_2 Group 2
☐ Texas SO_2

STEP 3
Identify the date on which the unit was (or will be) permanently retired.

June 22, 2020

STEP 4
If the unit is subject to the Acid Rain Program, identify the first full calendar year in which the unit meets (or will meet) the requirements of 40 CFR 72.8(d).

Calendar year starting January 1, 2021

STEP 5 Read the applicable special provisions.

Acid Rain Program Special Provisions

(1) A unit exempt under 40 CFR 72.8 shall not emit any sulfur dioxide and nitrogen oxides starting on the date that the exemption takes effect. The owners and operators of the unit will be allocated allowances in accordance with 40 CFR part 73 subpart B.

(2) A unit exempt under 40 CFR 72.8 shall not resume operation unless the designated representative of the source that includes the unit submits a complete Acid Rain permit application under 40 CFR 72.31 for the unit not less than 24 months prior to the date on which the unit is first to resume operation.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 72.8 shall comply with the requirements of the Acid Rain Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) For any period for which a unit is exempt under 40 CFR 72.8, the unit is not an affected unit under the Acid Rain Program and 40 CFR parts 70 and 71 and is not eligible to be an opt-in source under 40 CFR part 74. As an unaffected unit, the unit shall continue to be subject to any other applicable requirements under 40 CFR parts 70 and 71.

(5) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 72.8 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time prior to the end of the period, in writing by the Administrator or the permitting authority. The owners and operators bear the burden of proof that the unit is permanently retired.

EPA Form 7610-20 (revised 03-2019)

(6) On the earlier of the following dates, a unit exempt under 40 CFR 72.8(b) or (c) shall lose its exemption and become an affected unit under the Acid Rain Program and 40 CFR parts 70 and 71: (i) the date on which the designated representative submits an Acid Rain permit application under paragraph (2); or (ii) the date on which the designated representative is required under paragraph (2) to submit an Acid Rain permit application. For the purpose of applying monitoring requirements under 40 CFR part 75, a unit that loses its exemption under 40 CFR 72.8 shall be treated as a new unit that commenced commercial operation on the first date on which the unit resumes operation.

CSAPR NO_X Annual Trading Program Special Provisions

(1) A unit exempt under 40 CFR 97.405 shall not emit any NO_X, starting on the date that the exemption takes effect.

(2) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 97.405 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time before the end of the period, in writing by the Administrator. The owners and operators bear the burden of proof that the unit is permanently retired.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 97.405 shall comply with the requirements of the CSAPR NO_X Annual Trading Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) A unit exempt under 40 CFR 97.405 shall lose its exemption on the first date on which the unit resumes operation. Such unit shall be treated, for purposes of applying allocation, monitoring, reporting, and recordkeeping requirements under 40 CFR part 97 subpart AAAAA, as a unit that commences commercial operation on the first date on which the unit resumes operation.

CSAPR NO_X Ozone Season Group 1 Trading Program Special Provisions

(1) A unit exempt under 40 CFR 97.505 shall not emit any NO_X, starting on the date that the exemption takes effect.

(2) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 97.505 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time before the end of the period, in writing by the Administrator. The owners and operators bear the burden of proof that the unit is permanently retired.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 97.505 shall comply with the requirements of the CSAPR NO_X Ozone Season Group 1 Trading Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) A unit exempt under 40 CFR 97.505 shall lose its exemption on the first date on which the unit resumes operation. Such unit shall be treated, for purposes of applying allocation, monitoring, reporting, and recordkeeping requirements under 40 CFR part 97 subpart BBBBB, as a unit that commences commercial operation on the first date on which the unit resumes operation.

CSAPR NO_X Ozone Season Group 2 Trading Program Special Provisions

(1) A unit exempt under 40 CFR 97.805 shall not emit any NO_X, starting on the date that the exemption takes effect.

(2) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 97.805 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time before the end of the period, in writing by the Administrator. The owners and operators bear the burden of proof that the unit is permanently retired.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 97.805 shall comply with the requirements of the CSAPR NO_X Ozone Season Group 2 Trading Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) A unit exempt under 40 CFR 97.805 shall lose its exemption on the first date on which the unit resumes operation. Such unit shall be treated, for purposes of applying allocation, monitoring, reporting, and recordkeeping requirements under 40 CFR part 97 subpart EEEEE, as a unit that commences commercial operation on the first date on which the unit resumes operation.

CSAPR SO_2 Group 1 Trading Program Special Provisions

(1) A unit exempt under 40 CFR 97.605 shall not emit any SO_2, starting on the date that the exemption takes effect.

(2) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 97.605 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time before the end of the period, in writing by the Administrator. The owners and operators bear the burden of proof that the unit is permanently retired.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 97.605 shall comply with the requirements of the CSAPR SO_2 Group 1 Trading Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) A unit exempt under 40 CFR 97.605 shall lose its exemption on the first date on which the unit resumes operation. Such unit shall be treated, for purposes of applying allocation, monitoring, reporting, and recordkeeping requirements under 40 CFR part 97 subpart CCCCC, as a unit that commences commercial operation on the first date on which the unit resumes operation.

CSAPR SO_2 Group 2 Trading Program Special Provisions

(1) A unit exempt under 40 CFR 97.705 shall not emit any SO_2, starting on the date that the exemption takes effect.

(2) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 97.705 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time before the end of the period, in writing by the Administrator. The owners and operators bear the burden of proof that the unit is permanently retired.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 97.705 shall comply with the requirements of the CSAPR SO_2 Group 2 Trading Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) A unit exempt under 40 CFR 97.705 shall lose its exemption on the first date on which the unit resumes operation. Such unit shall be treated, for purposes of applying allocation, monitoring, reporting, and recordkeeping requirements under 40 CFR part 97 subpart DDDDD, as a unit that commences commercial operation on the first date on which the unit resumes operation.

Texas SO_2 Trading Program Special Provisions

(1) A unit exempt under 40 CFR 97.905 shall not emit any SO_2, starting on the date that the exemption takes effect.

(2) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 97.905 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time before the end of the period, in writing by the Administrator. The owners and operators bear the burden of proof that the unit is permanently retired.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 97.905 shall comply with the requirements of the Texas SO_2 Trading Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) A unit exempt under 40 CFR 97.905 shall lose its exemption on the first date on which the unit resumes operation. A retired unit that resumes operation will not receive an allowance allocation under 40 CFR 97.911. The unit may receive allowances from the Supplemental Allowance Pool pursuant to 40 CFR 97.912. All other provisions of 40 CFR part 97 subpart FFFFF regarding monitoring, reporting, recordkeeping and compliance will apply on the first date on which the unit resumes operation.

STEP 6 Read the statement of compliance and the applicable certification statements, sign, and date.

Statement of compliance

I certify that the unit identified above at STEP 1 was (or will be) permanently retired on the date identified at STEP 3 and will comply with the applicable Special Provisions listed at STEP 5.

Certification by designated representatives or alternate designated representatives

I am authorized to make this submission on behalf of the owners and operators of the source and unit for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Name Stephen Reinhart	Title Plant Manager
Owner Company Name City of Lakeland - Lakeland Electric	
Email stephen.reinhart@lakelandelectric.com	Phone 863-834-8640
Signature [signature]	Date 6/22/2020

Certification by certifying officials of units subject only to the Acid Rain Program for which no designated representative has been authorized

I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Name	Title
Owner Company Name	
Email	Phone
Signature	Date

EPA Form 7610-20 (revised 03-2019)

Appendix C – Lakeland McIntosh Unit 3 - Documentation of Permanent Shutdown

LAKELAND ELECTRIC
POWERED FOR LIFE

SUBMITTED ELECTRONICALLY

April 9, 2021

(*via e-mail: David.Read@FloridaDEP.gov*)
Mr. David Read, P.E., Permitting Section Administrator
Division of Air Resource Management
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399

RE: **C.D. McIntosh, Jr. Power Plant**
ID No. 1050004
ORIS 0676

Subject: **Unit 3 Retirement**

Dear Mr. Read:

This letter is to notify the DEP and EPA that the McIntosh Unit 3 (EU 006) was permanently shut down and officially retired on April 4, 2021. EPA form 7610-20 is attached.

If you have any questions regarding this submittal, please contact our Environmental Coordinator, Nedin Bahtic, at (863) 834-8180 or nedin.bahtic@lakelandelectric.com.

Sincerely,

Stephen Reinhart
Plant Manager

cc: Hastings Read, FDEP (Hastings.Read@FloridaDEP.gov)
Lynn Scearce, FDEP (Lynn.Scearce@FloridaDEP.gov)
FDEP Southwest District Air Permitting Office (SWD_Air_Permitting@dep.state.fl.us)
FDEP Southwest District Air Compliance Office (SWD_AIR@dep.state.fl.us)
Craig Hillock, EPA (hillock.craig@epa.gov)
Charles Frushour, EPA (frushour.charles@epa.gov)

501 E. Lemon St. ✦ Lakeland, Florida 33801
Phone: 863.834.6300 ✦ Fax: 863.834.6344

United States Environmental Protection Agency
Acid Rain, CSAPR, and Texas SO_2 Programs

OMB Nos. 2060-0258 and 2060-0667
Approval Expires 03/31/2022

Retired Unit Exemption

For more information, see instructions and refer to 40 CFR 72.8, 97.405, 97.505, 97.605, 97.705, 97.805, and 97.905, or a comparable state regulation, as applicable.

This submission is: ☒ **New** ☐ **Revised**

STEP 1
Identify the unit by plant (source) name, State, plant code and unit ID#.

Plant (Source) Name	State	Plant Code	Unit ID#
C.D. McIntosh, Jr. Power Plant	FL	676	3

STEP 2
Indicate the program(s) that the unit is subject to.

☒ Acid Rain
☐ CSAPR NO_X Annual
☐ CSAPR NO_X Ozone Season Group 1
☐ CSAPR NO_X Ozone Season Group 2
☐ CSAPR SO_2 Group 1
☐ CSAPR SO_2 Group 2
☐ Texas SO_2

STEP 3
Identify the date on which the unit was (or will be) permanently retired.

April 4, 2021

STEP 4
If the unit is subject to the Acid Rain Program, identify the first full calendar year in which the unit meets (or will meet) the requirements of 40 CFR 72.8(d).

Calendar year starting January 1, 2022

STEP 5 Read the applicable special provisions.

Acid Rain Program Special Provisions

(1) A unit exempt under 40 CFR 72.8 shall not emit any sulfur dioxide and nitrogen oxides starting on the date that the exemption takes effect. The owners and operators of the unit will be allocated allowances in accordance with 40 CFR part 73 subpart B.

(2) A unit exempt under 40 CFR 72.8 shall not resume operation unless the designated representative of the source that includes the unit submits a complete Acid Rain permit application under 40 CFR 72.31 for the unit not less than 24 months prior to the date on which the unit is first to resume operation.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 72.8 shall comply with the requirements of the Acid Rain Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) For any period for which a unit is exempt under 40 CFR 72.8, the unit is not an affected unit under the Acid Rain Program and 40 CFR parts 70 and 71 and is not eligible to be an opt-in source under 40 CFR part 74. As an unaffected unit, the unit shall continue to be subject to any other applicable requirements under 40 CFR parts 70 and 71.

(5) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 72.8 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time prior to the end of the period, in writing by the Administrator or the permitting authority. The owners and operators bear the burden of proof that the unit is permanently retired.

EPA Form 7610-20 (revised 10-2020)

(6) On the earlier of the following dates, a unit exempt under 40 CFR 72.8(b) or (c) shall lose its exemption and become an affected unit under the Acid Rain Program and 40 CFR parts 70 and 71: (i) the date on which the designated representative submits an Acid Rain permit application under paragraph (2); or (ii) the date on which the designated representative is required under paragraph (2) to submit an Acid Rain permit application. For the purpose of applying monitoring requirements under 40 CFR part 75, a unit that loses its exemption under 40 CFR 72.8 shall be treated as a new unit that commenced commercial operation on the first date on which the unit resumes operation.

CSAPR NO_X Annual Trading Program Special Provisions

(1) A unit exempt under 40 CFR 97.405 shall not emit any NO_X, starting on the date that the exemption takes effect.

(2) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 97.405 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time before the end of the period, in writing by the Administrator. The owners and operators bear the burden of proof that the unit is permanently retired.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 97.405 shall comply with the requirements of the CSAPR NO_X Annual Trading Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) A unit exempt under 40 CFR 97.405 shall lose its exemption on the first date on which the unit resumes operation. Such unit shall be treated, for purposes of applying allocation, monitoring, reporting, and recordkeeping requirements under 40 CFR part 97 subpart AAAAA, as a unit that commences commercial operation on the first date on which the unit resumes operation.

CSAPR NO_X Ozone Season Group 1 Trading Program Special Provisions

(1) A unit exempt under 40 CFR 97.505 shall not emit any NO_X, starting on the date that the exemption takes effect.

(2) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 97.505 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time before the end of the period, in writing by the Administrator. The owners and operators bear the burden of proof that the unit is permanently retired.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 97.505 shall comply with the requirements of the CSAPR NO_X Ozone Season Group 1 Trading Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) A unit exempt under 40 CFR 97.505 shall lose its exemption on the first date on which the unit resumes operation. Such unit shall be treated, for purposes of applying allocation, monitoring, reporting, and recordkeeping requirements under 40 CFR part 97 subpart BBBBB, as a unit that commences commercial operation on the first date on which the unit resumes operation.

CSAPR NO_X Ozone Season Group 2 Trading Program Special Provisions

(1) A unit exempt under 40 CFR 97.805 shall not emit any NO_X, starting on the date that the exemption takes effect.

(2) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 97.805 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time before the end of the period, in writing by the Administrator. The owners and operators bear the burden of proof that the unit is permanently retired.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 97.805 shall comply with the requirements of the CSAPR NO_X Ozone Season Group 2 Trading Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) A unit exempt under 40 CFR 97.805 shall lose its exemption on the first date on which the unit resumes operation. Such unit shall be treated, for purposes of applying allocation, monitoring, reporting, and recordkeeping requirements under 40 CFR part 97 subpart EEEEE, as a unit that commences commercial operation on the first date on which the unit resumes operation.

CSAPR SO_2 Group 1 Trading Program Special Provisions

(1) A unit exempt under 40 CFR 97.605 shall not emit any SO_2, starting on the date that the exemption takes effect.

(2) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 97.605 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time before the end of the period, in writing by the Administrator. The owners and operators bear the burden of proof that the unit is permanently retired.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 97.605 shall comply with the requirements of the CSAPR SO_2 Group 1 Trading Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) A unit exempt under 40 CFR 97.605 shall lose its exemption on the first date on which the unit resumes operation. Such unit shall be treated, for purposes of applying allocation, monitoring, reporting, and recordkeeping requirements under 40 CFR part 97 subpart CCCCC, as a unit that commences commercial operation on the first date on which the unit resumes operation.

CSAPR SO_2 Group 2 Trading Program Special Provisions

(1) A unit exempt under 40 CFR 97.705 shall not emit any SO_2, starting on the date that the exemption takes effect.

(2) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 97.705 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time before the end of the period, in writing by the Administrator. The owners and operators bear the burden of proof that the unit is permanently retired.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 97.705 shall comply with the requirements of the CSAPR SO_2 Group 2 Trading Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) A unit exempt under 40 CFR 97.705 shall lose its exemption on the first date on which the unit resumes operation. Such unit shall be treated, for purposes of applying allocation, monitoring, reporting, and recordkeeping requirements under 40 CFR part 97 subpart DDDDD, as a unit that commences commercial operation on the first date on which the unit resumes operation.

Texas SO_2 Trading Program Special Provisions

(1) A unit exempt under 40 CFR 97.905 shall not emit any SO_2, starting on the date that the exemption takes effect.

(2) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 97.905 shall retain, at the source that includes the unit, records demonstrating that the unit is permanently retired. The 5-year period for keeping records may be extended for cause, at any time before the end of the period, in writing by the Administrator. The owners and operators bear the burden of proof that the unit is permanently retired.

(3) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 97.905 shall comply with the requirements of the Texas SO_2 Trading Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.

(4) A unit exempt under 40 CFR 97.905 shall lose its exemption on the first date on which the unit resumes operation. A retired unit that resumes operation will not receive an allowance allocation under 40 CFR 97.911. The unit may receive allowances from the Supplemental Allowance Pool pursuant to 40 CFR 97.912. All other provisions of 40 CFR part 97 subpart FFFFF regarding monitoring, reporting, recordkeeping and compliance will apply on the first date on which the unit resumes operation.

STEP 6 Read the statement of compliance and the applicable certification statements, sign, and date.

Statement of compliance

I certify that the unit identified above at STEP 1 was (or will be) permanently retired on the date identified at STEP 3 and will comply with the applicable Special Provisions listed at STEP 5.

Certification by designated representatives or alternate designated representatives

I am authorized to make this submission on behalf of the owners and operators of the source and unit for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Name Stephen Reinhart	Title Plant Manager
Owner Company Name City of Lakeland - Lakeland Electric	
Email stephen.reinhart@lakelandelectric.com	Phone 863-834-8640
Signature Stephen J. Reinhart	Date 4/9/2021

Certification by certifying officials of units subject only to the Acid Rain Program for which no designated representative has been authorized

I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Name	Title
Owner Company Name	
Email	Phone
Signature	Date

EPA Form 7610-20 (revised 10-2020)

Lakeland Electric
C.D. McIntosh, Jr. Power Plant

Facility ID No. 1050004
Polk County

Title V Air Operation Permit Revision

Permit No. 1050004-054-AV
(2nd Renewal of Title V Air Operation Permit No. 1050004-049-AV)

Permitting Authority:

State of Florida
Department of Environmental Protection
Division of Air Resource Management
Office of Permitting and Compliance
2600 Blair Stone Road
Mail Station #5505
Tallahassee, Florida 32399-2400

Telephone: (850) 717-9000
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Compliance Authority:

Southwest District Office
13051 North Telecom Parkway
Temple Terrace, Florida 33637-0926

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Title V Air Operation Permit Revision

Permit No. 1050004-054-AV

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FLORIDA DEPARTMENT OF Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
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PERMITTEE:
Lakeland Electric
501 East Lemon Street
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Permit No. 1050004-054-AV
C.D. McIntosh, Jr Power Plant
Facility ID No. 1050004
Title V Air Operation Permit Revision

The purpose of this permit is to revise the Title V air operation permit for the above referenced facility. The existing C.D. McIntosh, Jr. Power Plant is in Polk County at 3030 East Lake Parker Drive, Lakeland, Florida. UTM Coordinates are: Zone 17, 409.0 kilometers (km) East and 3,106.2 km North. Latitude is: 28° 04' 50" North; and Longitude is: 81° 55' 32" West.

The Title V air operation permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, 62-213 and 62-214. The above named permittee is hereby authorized to operate the facility in accordance with the terms and conditions of this permit.

Executed in Tallahassee, Florida.

1050004-049-AV Effective Date: November 26, 2018
1050004-051-AV Effective Date: March 11, 2019
1050004-054-AV Effective Date: February 3, 2021
Renewal Application Due Date: April 15, 2023
Expiration Date: November 26, 2023

David Lyle Read, P.E.

Digitally signed by David Read
Date: 2021.02.03 08:01:27 -05'00'

For:
Syed Arif, P.E., Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

SA/dlr/jcb

SECTION I. FACILITY INFORMATION.

Subsection A. Facility Description.

This facility consists of two fossil fuel fired steam generators, three diesel powered engines, and two gas turbines. McIntosh Unit 2 (EU 005) is a nominal 114.7-megawatt (MW) fossil-fuel-fired steam generator that fires natural gas, propane, No. 2 fuel oil or No. 6 fuel oil, with a maximum heat input rate of 1,184.5 million British thermal units per hour (MMBtu/hour) and was retired on June 22, 2020 and replaced with Gas Turbine Peaking Unit 2. Gas Turbine Peaking Unit 2 (EU 034) is a nominal 120 MW simple cycle combustion turbine-electrical generator set whose primary fuel is natural gas and distillate fuel oil is fired as a backup fuel. McIntosh Unit 3 (EU 006) is a nominal 364 MW fossil-fuel-fired steam generator that fires coal, low sulfur fuel oil, propane, and natural gas, with a maximum heat input rate of 3,640 MMBtu/hour. Gas Turbine Peaking Unit 1 (EU 004) is a nominal 20 MW gas turbine that fires natural gas or No. 2 fuel oil. McIntosh Unit 5 is a 370 MW combined cycle stationary combustion turbine (CCCT) with a heat recovery steam generator (HRSG). The CCCT fires natural gas or No. 2 (or superior grade) fuel oil. The three diesel engines (EU 008, EU 010, and EU 011) consist of: a 25-horsepower (HP) non-emergency diesel-fired engine; a 300-HP emergency diesel-fired fire pump; and a 500-HP black-start diesel-fired engine. Also, included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

Subsection B. Summary of Emissions Units.

EU No.	Brief Description
Regulated Emissions Units	
004	Gas Turbine Peaking Unit 1
006	McIntosh Unit 3 – Fossil-Fuel-Fired Steam Generator
008	Diesel Drive Coal Tunnel Sump Engine (25 HP)
010	Fire Water UPS Diesel Engine No. 32 (300 HP)
011	CT Startup Diesel Engine (500 HP)
028	McIntosh Unit 5 - 370 MW CCCT
034	Gas Turbine Peaking Unit 2
035	Coal Handling and Storage Activities
Unregulated Emissions Units and Activities (see Appendix U, List of Unregulated Emissions Units and/or Activities)	
002	Diesel Engine Peaking Unit 2 (Limited Use Engines under 40 CFR 63 Subpart ZZZZ)
003	Diesel Engine Peaking Unit 3 (Limited Use Engines under 40 CFR 63 Subpart ZZZZ)
007	Tanks with Greater Than 10,000-gallon Capacity Installed Prior to July 23, 1984
014	General Purpose Painting
015	Parts Cleaning
016	Sand Blasting (Maintenance only)
018	Three Cooling Towers (Units 2 and 3)
019	Northside Waste Water Treatment Facility - Wastewater Treatment Processes and Tanks
020	Northside Waste Water Treatment Facility - Four Emergency Diesel Generators
021	Northside Waste Water Treatment Facility - Chemical and Petroleum Storage
022	Northside Waste Water Treatment Facility - Miscellaneous Activities
026	Limestone Handling and Storage System

027	Fly Ash Handling and Storage System
029	1.05-million-gallon Storage Tank for McIntosh Unit 5
030	Mechanical Draft Cooling Tower
033	Portable Pumps and Welding Equipment

Also included in this permit are miscellaneous insignificant emissions units and/or activities (see Appendix I, List of Insignificant Emissions Units and/or Activities).

Subsection C. Applicable Regulations.

Based on the Title V air operation permit renewal application received September 16, 2020, this facility is a major source of hazardous air pollutants (HAP). The existing facility is a prevention of significant deterioration (PSD) major source of air pollutants in accordance with Rule 62-212.400, F.A.C. A summary of applicable regulations is shown in the following table.

Regulation	EU Nos.
Federal Rule Citations	
40 CFR 60, Subpart A, NSPS General Provisions	006, 028, 034 & 035
40 CFR 60, Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971	006
40 CFR 60, Subpart Y, Standards of Performance for Coal Preparation and Processing Plants	035
40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines	028, 034
40 CFR 63, Subpart A, NESHAP General Provisions	006, 008, 010, & 011
40 CFR 63, Subpart ZZZZ, NESHAP for Stationary Reciprocating Internal Combustion Engines	008, 010, & 011
40 CFR 63, Subpart UUUUU, NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units	006
Acid Rain, Phase II	006, 028 & 034
State Rule Citations	
Chapter 62-4, F.A.C., Permits	All
Rule 62-204.800, F.A.C., Federal Regulations Adopted by Reference	004, 006, 008, 010, 011, 028 & 034
Rule 62-210.300, F.A.C., Permits Required	004, 006, 008, 010, 011, & 028 & 034
Rule 62-212.400, F.A.C., PSD	006 & 028
Chapter 62-213, F.A.C., Operation Permits for Major Sources of Air Pollution	All
Chapter 62-214, F.A.C., Requirements for Sources Subject to the Federal Acid Rain Program	006, 028 & 034

Rule 62-296.405, F.A.C., Fossil Fuel Steam Generators with More than 250 MMBtu/Hour Heat Input	006 & 034
Rule 62-297.310, F.A.C., General Emissions Test Requirements	004, 006, 008, 010, 011, & 028 & 034

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The specific conditions in this section apply to the following emissions unit:

EU No.	Brief Description
004	Gas Turbine Peaking Unit 1

Gas Turbine Peaking Unit 1 consists of a gas turbine, which drives a generator producing electrical power at a nominal nameplate rating of 20 MW. The gas turbine is fired with natural gas or No. 2 fuel oil with a maximum sulfur content of 0.5% by weight. The maximum fuel firing rate is 320 million cubic feet per hour (MMcf/hour) of natural gas (approximately 330 MMBtu/hour) or 2,310 gallons per hour of No. 2 fuel oil (approximately 320 MMBtu/hour). Gas Turbine Peaking Unit 1 began commercial service in 1973. The stack parameters are: height, 35 feet; diameter (rectangular), 13'2" x 10'11" feet; exit temperature, 900 degrees Fahrenheit (°F); actual stack gas flow rate (while firing gas), 742,174 actual cubic feet per minute (acfm); and actual stack gas flow rate (while firing oil), 682,334 acfm.

{Permitting Note: This emissions unit is regulated under Rule 62-210.300, F.A.C., Permits Required. This unit is not subject to 40 CFR 60, Subpart GG, Standards of Performance for New Stationary Gas Turbines.}

Essential Potential to Emit (PTE) Parameters

A.1. Permitted Capacity.
- a. *Heat Input*. The maximum heat input rate of the turbine is 330 MMBtu/hour (lower heating value [LHV]) at 30°F while firing natural gas and 320 MMBtu/hour (LHV) at 30°F while firing No. 2 fuel oil.
- b. *Firing Rate*. The maximum firing rate of the turbine is 320 million cubic feet per hour of when firing natural gas or 2,310 gallons per hour when firing No. 2 fuel oil.

[Rules 62-4.160(2), and 62-210.200(PTE), F.A.C.; and Permit No. AO53-244727]

A.2. Emissions Unit Operating Rate Limitation After Testing. See the related testing provisions in Appendix TR, Facility-wide Testing Requirements. [Rule 62-297.310(3), F.A.C.]

A.3. Methods of Operation - Fuels. Only natural gas or distillate (No. 2) fuel oil shall be fired in the combustion turbine. [Rule 62-213.410, F.A.C.; and Permit No. AO53-244727]

A.4. Hours of Operation. This emissions unit may operate continuously (i.e., 8,760 hours/year). [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.; and Permit No. AO53-244727]

Emission Limitations and Standards

A.5. Sulfur Dioxide – Sulfur Content. The sulfur content of the No. 2 fuel oil shall not exceed 0.5%, by weight. [Rule 62-213.440, F.A.C.; and Permit No. AO53-244727]

Monitoring of Operations

A.6. Fuel Sulfur Monitoring. The permittee shall demonstrate compliance with the liquid fuel sulfur limit by means of a fuel analysis provided by the vendor or the permittee upon each fuel delivery. [Rule 62-213.440, F.A.C.; and Permit No. AO53-244727]

Test Methods and Procedures

A.7. Test Methods. When required, tests shall be performed in accordance with the following reference method:

Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources

The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Appendix A of 40 CFR 60]

A.8. Common Testing Requirements. Unless otherwise specified, tests shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]

A.9. Fuel Sulfur Test Methods. The fuel sulfur content, percent by weight, for liquid fuels shall be evaluated using either ASTM D2622-92, ASTM D4294-90, or both ASTM D4057-88 and ASTM D129-91, or the respective successor ASTM method(s). [Rule 62-213.440, F.A.C.; and Permit No. AO53-244727]

Recordkeeping and Reporting Requirements

A.10. Other Reporting Requirements. See Appendix RR, Facility-wide Reporting Requirements, for additional reporting requirements. [Rule 62-213.440(1)(b), F.A.C.]

A.11. Sulfur Content Records. The permittee shall maintain records of the sulfur content, in percent by weight, of No. 2 fuel oil delivered for use in the gas turbine. These records can be vendor supplied documentation that the delivered fuel oil meets the specification in Condition **A.5**. These records shall be maintained for a minimum of two years and made available to the Department upon request. [Permit No. AO53-244727]

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Subsection C. The specific conditions in this section apply to the following emissions unit:

EU No.	Brief Description
028	McIntosh Unit 5 – 370 MW Combined Cycle Stationary Combustion Turbine

McIntosh Unit 5 is a nominal 250-megawatt (MW) Westinghouse 501G combustion turbine (CT) operating in combined cycle mode with a heat recovery steam generator (HRSG) and 120 MW steam electric turbine. The total combined nominal output of the unit is 370 MW. The CT is fired with natural gas or No. 2 (or superior grade) distillate fuel oil with a maximum of 0.05% sulfur content, by weight. Emissions of NO_X are controlled by dry low NO_X combustors (DLN), water injection (for oil firing), and a SCR system (for gas firing). An oxidation catalyst was installed in 2003 to control emissions of CO and volatile organic compounds (VOC). The stack parameters are: height, 300 feet; diameter, 20 feet; exit temperature, 187°F; actual stack gas flow rate (for gas firing), 1,271,428 acfm; and actual stack gas flow rate (for oil firing), 1,291,502 acfm.

This emissions unit has a CEMS for NO_X emissions. Combined cycle operation began in January 2002.

{Permitting Note: This emissions unit is regulated under Acid Rain, Phase II; 40 CFR 60, Subpart A, NSPS General Provisions, and Subpart GG, Standards of Performance for Stationary Gas Turbines, both adopted and incorporated by reference in Rule 62-204.800, F.A.C.; and Rule 62-212.400, F.A.C. (PSD and BACT).

This emissions unit is subject to the federal Acid Rain provisions. However, it is not required to operate and maintain continuous monitoring devices for opacity or SO_2 because it is defined as a "gas-fired" unit under 40 CFR 72.2. There are no opacity monitoring requirements, but the permittee must follow procedures in Appendix D of 40 CFR 75 to estimate hourly SO_2 mass emissions.}

Essential Potential to Emit (PTE) Parameters

C.1. Permitted Capacity. The maximum heat input rates, based on the lower heating values (LHV) of each fuel to Unit 5 at ambient conditions of 59°F, 60% relative humidity, 100% load, and 14.7 pounds per square inch (psi) pressure shall not exceed:

a. 2,407 MMBtu/hour when firing natural gas; nor
b. 2,236 MMBtu/hour when firing No. 2 (or superior grade) distillate fuel oil.

These maximum heat input rates will vary depending upon ambient conditions and the CT characteristics. Manufacturer's curves approved by the Department, attached in Appendix W501G McIntosh #5, Lakeland FL – Maximum Heat Input as a Function of Compressor Inlet Temperature (dated 01/05/2001), for the heat input correction to other temperatures may be utilized to establish heat input rates over a range of temperatures for compliance determination. Monitoring required under 40 CFR 60.334(a) shall satisfy periodic monitoring requirements for heat input. [Rules 62-4.160(2), 62-210.200(PTE) & 62-213.440(1)(b)1b, F.A.C.; and Permit No. 1050004-010-AC (PSD-FL-245C)]

C.2. Emissions Unit Operating Rate Limitation After Testing. See the related testing provisions in Appendix TR, Facility-wide Testing Requirements. [Rule 62-297.310(3), F.A.C.]

C.3. Methods of Operation – Fuels. Only pipeline natural gas or No. 2 (or superior grade) distillate fuel oil, with a maximum sulfur content of 0.05% by weight, shall be fired in this emissions unit. [Permit No. 1050004-004-AC (PSD-FL-245)]

C.4. Hours of Operation. This emissions unit may operate continuously (i.e., 8,760 hours/year). [Rule 62-210.200(PTE), F.A.C.; and Permit No. 1050004-004-AC (PSD-FL-245)]

C.5. Fuel Usage as Heat Input – Fuel Oil. Fuel usage as heat input from fuel oil shall not exceed 599×10^9 Btu (LHV) per year (rolled monthly). [Permit No. 1050004-004-AC (PSD-FL-245)]

Control Technology

C.6. DLN Combustors. The permittee shall tune, operate, and maintain DLN combustors to reduce emissions of NO_X while firing natural gas. [Permit No. 1050004-004-AC (PSD-FL-245)]

C.7. SCR System and Oxidation Catalyst. The permittee shall tune, operate, and maintain the SCR equipment and operate an oxidation catalyst. The oxidation catalyst shall be designed for a minimum 90% destruction efficiency at base load. [Permit No. 105004-014-AC (modification to PSD-FL-245)]

C.8. Water Injection for Oil Firing. A water injection system shall be used for control of NO_X emissions when firing No. 2 (or superior grade) distillate fuel oil. [Permit No. 1050004-004-AC (PSD-FL-245)]

C.9. Circumvention. No person shall circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. [Rule 62-210.650, F.A.C.]

Emission Limitations and Standards

Unless otherwise specified, the averaging times for Conditions **D.10** – **D.14** are based on the specified averaging time of the applicable test method.

C.10. Visible Emissions. Visible emissions shall not exceed 10% opacity. [Permit No. 1050004-004-AC (PSD-FL-245)]

C.11. NO_X Emissions. NO_X emissions shall not exceed 7.5 parts per million by volume, dry, corrected to 15% oxygen (ppmvd @ 15% O_2) when firing natural gas and 15 ppmvd @ 15% O_2 when firing fuel oil, on the basis of a 3-hour average, as measured by the CEMS. In addition, NO_X emissions calculated as nitrogen dioxide (NO_2) (at ISO conditions) shall not exceed 71.1 lb/hour when firing natural gas and 148 lb/hour when firing fuel oil, to be demonstrated by stack tests. [Permit No. 1050004-004-AC (PSD-FL-245)]

C.12. CO Emissions. The concentration of CO in the exhaust gas shall be additionally controlled by the use of an oxidation catalyst with a minimum of 90% CO removal efficiency (based upon design at base load). The CO emissions shall be tested annually at full load and shall not exceed 2 ppmvd @ 15% O_2 when firing natural gas, as measured by EPA Method 10. The oxidation catalyst shall be maintained according to manufacturer's recommendations. However, in the event that CO emissions exceed 2 ppmvd @ 15% O_2 (as demonstrated by annual testing below), the permittee shall implement a remedy and re-test within 90 days of operation. Should the re-test in CO emissions exceed 2 ppmvd @ 15% O_2, the remedy shall be to completely replace the oxidation catalyst. [Permit No. 1050004-014-AC (modification to PSD-FL-245)]

C.13. SO_2 Emissions. SO_2 emissions (at ISO conditions) shall not exceed 8 lb/hour when firing pipeline natural gas and 127 lb/hour when firing No. 2 (or superior grade) distillate fuel oil with a maximum sulfur content of 0.05% by weight, as measured by applicable compliance methods. Emissions of SO_2 shall not exceed 38.4 tons/year. [Permit No. 1050004-010-AC (PSD-FL-245C)]

C.14. VOC Emissions. VOC emissions shall be additionally controlled through the use of an oxidation catalyst. CO emissions shall be employed as a surrogate for VOC emissions and no further annual testing will be required. [Permit No. 1050004-014-AC (modification to PSD-FL-245)]

Excess Emissions

Rule 62-210.700 (Excess Emissions), F.A.C. cannot vary any requirement of an NSPS, NESHAP, or Acid Rain program provision.

C.15. Excess Emissions Allowed. Excess emissions from this emissions unit resulting from startup, shutdown, malfunction, or fuel switching shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized. Excess emissions shall in no case exceed four hours in any 24-hour period for cold startup or two hours in any 24-hour period for other reasons unless specifically authorized by the Department for longer duration. During any calendar day in which a startup, shutdown, or fuel change occurs, the following alternative NO_X limit applies:

a. 100 lb/hour on the basis of a 24-hour average; and
b. 200 lb/hour on the basis of a 24-hour average if fuel oil is fired during a startup or shutdown within the 24-hour period.

[Rule 62-210.700(1), F.A.C.; and Permit No. 1050004-014-AC (modification to PSD-FL-245)]

C.16. Excess Emissions Prohibited. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. [Rule 62-210.700(1), F.A.C.]

Monitoring of Operations

C.17. Fuel Oil Monitoring Schedule. The following monitoring schedule for No. 2 (or superior grade) fuel oil shall be followed. For all bulk shipments of No. 2 (or superior grade) fuel oil received at the C.D. McIntosh, Jr. Power Plant, an analysis which reports the sulfur content and the nitrogen content of the fuel shall be provided by the vendor. The analysis shall also specify the methods by which the analysis was conducted and shall comply with the requirements of 40 CFR 60.335(b)(9)(i) and (10)(i). [Permit No. 1050004-004-AC (PSD-FL-245)]

C.18. Natural Gas Monitoring Schedule. The following custom monitoring schedule for natural gas is approved in lieu of the daily sampling requirements of 40 CFR 60.334(i)(2):

a. Monitoring of natural gas nitrogen content shall not be required.
b. Analysis of the sulfur content of natural gas shall be conducted using one of the EPA-approved ASTM reference methods for the measurement of sulfur in gaseous fuels, or an approved alternate method. Monitoring of the sulfur content of the natural gas shall be conducted semiannually.
c. Should any sulfur analysis indicate noncompliance with 40 CFR 60.333, the permittee shall notify the Department of such excess emissions and the custom fuel monitoring schedule shall be reexamined. The sulfur content of the natural gas will be monitored weekly during the interim period while the monitoring schedule is reexamined.
d. The permittee shall notify the Department of any change in natural gas supply for reexamination of this monitoring schedule. A substantial change in natural gas quality (i.e., sulfur content variation of greater than one grain per 100 cubic feet of natural gas) shall be considered as a change in the natural gas supply. Sulfur content of the natural gas will be monitored weekly by the natural gas supplier during the interim period when this monitoring schedule is being reexamined.
e. Records of sampling analyses and natural gas supply pertinent to this monitoring schedule shall be retained by the permittee for a period of 5 years, and shall be made available for inspection by the appropriate regulatory personnel.
f. The permittee may obtain the sulfur content of the natural gas from the fuel supplier (Florida Gas Transmission or Gulfstream), provided the approved test methods are used.

[Permit No. 1050004-004-AC (PSD-FL-245)]

Continuous Monitoring Requirements

C.19. NO_X CEMS. The permittee shall certify, operate, calibrate, and maintain a continuous monitoring system for continuously monitoring NO_X (expressed as NO_2) in accordance with 40 CFR 75 in a manner sufficient to demonstrate compliance with the emission limits of this permit. A NO_X-diluent CEMS (consisting of a NO_X pollutant concentration monitor and an O_2-diluent gas monitor) shall have an automated data acquisition and handling system for measuring and recording NO_X concentration (in ppm), O_2 concentration (in percent O_2), and NO_X emission rate (in lb/MMBtu) discharged to the atmosphere, except as provided in 40 CFR 75.12 and 75.17 and Subpart E of Part 75. The permittee shall account for total NO_X emissions, both NO and NO_2, either by monitoring for both NO and NO_2, or by monitoring for NO only and adjusting the emissions data to account for NO_2. Periods when NO_X emissions (ppmvd @ 15% O_2) are above the BACT standards listed in Condition **D.11** shall be reported to the Department's Southwest District Office pursuant to Rule 62-4.160(8), F.A.C. Following the format of 40 CFR 60.7, periods of startup, shutdown, malfunction, and fuel switching shall be monitored, recorded, and reported as excess emissions when emission levels exceed the BACT

standards listed in Condition **D.11**. [40 CFR 60.7 and 40 CFR 75; and Permit No. 1050004-004-AC (PSD-FL-245)]

C.20. CEMS In Lieu of Water-to-Fuel Ratio. The NO_X CEMS shall be used in lieu of the water/fuel monitoring system for reporting excess emissions in accordance with 40 CFR 60.334(j)(1). Calibration of the water/fuel monitoring device required in 40 CFR 60.334(b)(4) will be replaced by the 40 CFR 75 certification tests of the NO_X CEMS. Upon request from the Department, the CEMS emissions rates for NO_X on Unit 5 shall be corrected to ISO conditions to demonstrate compliance with the NO_X standard established in 40 CFR 60.332. [Permit No. 1050004-004-AC (PSD-FL-245)]

C.21. Missing Data Substitution. When NO_X monitoring data is not available, substitution for missing data shall be handled as required by Title IV (40 CFR 75) to calculate any specified average time. [Permit No. 1050004-004-AC (PSD-FL-245)]

C.22. Continuous Monitoring System. The monitoring devices shall comply with the certification and quality assurance, and any other applicable requirements of 40 CFR 60.13, including certification of each device in accordance with 40 CFR 60, Appendix B, Performance Specifications and 40 CFR 60.7(a)(5) or 40 CFR 75. Quality assurance procedures must conform to all applicable sections of 40 CFR 60, Appendix F or 40 CFR 75. [Permit No. 1050004-004-AC (PSD-FL-245)]

Test Methods and Procedures

C.23. Test Methods. When required, tests shall be performed in accordance with the following reference methods:

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
7E	Determination of Nitrogen Oxide Emissions
9	Visual Determination of the Opacity of Emissions
10	Determination of Carbon Monoxide Emissions
18, 25 and/or 25A	Determination of Volatile Organic Concentrations
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
ASTM D2880-71 or D4294 (or latest version) for the sulfur content of liquid fuels and D1072-80, D3031-81, D4084-82 or D3246-81 (or latest version)	Methods for Evaluating Fuel Sulfur Content

The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Appendix A of 40 CFR 60]

C.24. Annual Compliance Tests. During each calendar year (January 1st to December 31st), this emissions unit shall be tested to demonstrate compliance with the emission limitations and standards for VE, NO_X, and CO. The NO_X RATA test data may be used to demonstrate compliance with the annual testing requirements, provided the testing requirements (notification, procedures & reporting) of Chapter 62-297, F.A.C., 40 CFR 60, and 40 CFR 75, are met. In addition to the annual compliance tests, this emissions unit shall be tested prior to permit renewal to demonstrate compliance with the emission limitations for these pollutants. [Rule 62-297.310(8), F.A.C.]

C.25. Common Testing Requirements. Unless otherwise specified, tests shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]

C.26. Compliance with the Allowable Emission Limiting Standards – Each Fuel. Compliance with the allowable emission limiting standards shall be determined within 60 days after achieving the maximum production rate, for each fuel, at which this unit will be operated, but not later than 180 days after initial operation of the unit for that fuel, and annually thereafter as indicated in this permit, by using the reference methods as described in the latest edition of 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. [Permit No. 1050004-004-AC (PSD-FL-245)]

C.27. Compliance Testing. Initial (I) performance tests shall be performed on Unit 5 while firing natural gas as well as while firing fuel oil. Initial tests shall also be conducted after any modifications (and shakedown period not to exceed 100 days after restarting the CT) of air pollution control equipment, including installation of Ultra-Low NO_X burners (ULN) or hot SCR. [Permit No. 1050004-004-AC (PSD-FL-245)]

C.28. Continuous Compliance with the NO_X Emission Limits. Continuous compliance with the NO_X emission limits shall be demonstrated with the CEMS, based on the applicable averaging time of 24-hour block average (DLN or ULN technology) or a 3-hour average (if SCR is used). Based on CEMS data, a separate compliance determination is conducted at the end of each operating day (or 3-hour period when applicable) and a new average emission rate is calculated from the arithmetic average of all valid hourly emission rates from the previous operating day (or 3-hour period when applicable). Valid hourly emission rates shall not include periods of startup (including fuel switching), shutdown, or malfunction as defined in Rule 62-210.200, F.A.C., where emissions exceed the applicable NO_X standard. These excess emissions periods shall be reported as required. A valid hourly emission rate shall be calculated for each hour in which at least two NO_X concentrations are obtained at least 15 minutes apart. [Permit No. 1050004-004-AC (PSD-FL-245)]

C.29. Compliance with the SO_2 and PM/PM_{10} Emission Limits. The use of pipeline natural gas and No. 2 (or superior grade) distillate fuel oil with maximum sulfur content of 0.05% (by weight), is the method for determining compliance for SO_2 and PM/PM_{10}. For the purposes of demonstrating compliance with the 40 CFR 60.333 SO_2 standard and the 0.05% sulfur limit, fuel oil analysis using ASTM D2880-71, or D4294 (or latest version) for the sulfur content of liquid fuels and D1072-80, D3031-81, D4084-42, or D3246-81 (or latest version) for sulfur content of gaseous fuels shall be utilized in accordance with the EPA-approved custom fuel monitoring schedule in Conditions **D.17** and **D.18**. The applicant is responsible for ensuring that the procedures above are used for determination of fuel sulfur content. Analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency pursuant to 40 CFR 60.335(b)(11). [Permit No. 1050004-004-AC (PSD-FL-245)]

C.30. Compliance with CO Emissions/Performance Criteria. Annual compliance testing for CO may be conducted concurrently with the annual RATA testing for NO_X required pursuant to 40 CFR 75 (required for gas only). [Permit No. 1050004-004-AC (PSD-FL-245)]

C.31. Compliance with the VOC Emissions/Performance Criteria. The CO emission limit will be employed as a surrogate and no annual testing for VOC emissions is required. [Permit No. 1050004-004-AC (PSD-FL-245)]

Recordkeeping and Reporting Requirements

C.32. Other Reporting Requirements. See Appendix RR, Facility-wide Reporting Requirements, for additional reporting requirements. [Rule 62-213.440(1)(b), F.A.C.]

C.33. Reporting Schedule. The following reports and notifications shall be submitted to the Compliance Authority:

Report	Reporting Deadline	Related Condition
Excess Emissions	Quarterly	**D.34.**

Report	Reporting Deadline	Related Condition
NSPS 40 CFR 60.7(c)	Semi-Annually	**D.35.**

[Rule 62-213.440(1)(b), F.A.C.]

C.34. Quarterly Excess Emissions Report. In the case of excess emissions resulting from malfunctions, the owner or operator shall notify the Compliance Authority in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(5), F.A.C.]

C.35. NSPS Excess Emissions. The owner or operator shall submit excess emission and monitoring system performance reports to the Compliance Authority semi-annually for each 6-month period in each calendar year. All reports shall be postmarked by the 30th day following the end of each 6-month period. Each report shall include the information required in 40 CFR 60.7(c). [40 CFR 60.7(c)]

C.36. SSM Records. The owner or operator shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of this emissions unit, any malfunction of the air pollution control equipment, or any periods during which a CMS or monitoring device is inoperative. [40 CFR 60.7(b)]

Miscellaneous Requirements

C.37. Operating Procedures. Operating procedures shall include good operating practices and proper training of all operators and supervisors. The good operating practices shall meet the guidelines and procedures as established by the equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant-specific equipment. [Permit No. 1050004-004-AC (PSD-FL-245)]

C.38. Compliance Plan. Based on the application for Permit No. 1050004-016-AV, initial compliance has been demonstrated for natural gas firing, but not for distillate fuel oil firing. **Appendix CP, Compliance Plan**, for McIntosh Unit 5 is attached as a part of this permit. [Rule 62-213.440(2), F.A.C.]

C.39. NSPS Requirements – Subpart A. This emissions unit shall comply with all applicable requirements of 40 CFR 60, Subpart A, General Provisions, which have been adopted and incorporated by reference in Rule 62-204.800, F.A.C. Subpart A is attached as an appendix to this permit. [40 CFR 60.1(a)]

C.40. NSPS Requirements – Subpart GG. This emissions unit shall comply with all applicable requirements of 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines, which have been adopted and incorporated by reference in Rule 62-204.800, F.A.C. Subpart GG is attached as an appendix to this permit. [40 CFR 60.330(a)]

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Subsection G. The specific conditions in this section apply to the following emissions unit:

EU No.	Emission Unit Description
034	Gas Turbine Peaking Unit 2

This EU is a nominal 120 MW simple cycle combustion turbine-electrical generator set consisting of a Siemens Westinghouse Model No. 501D5A unit. The primary fuel is natural gas and distillate fuel oil is fired as a backup fuel. Stack height is 50 feet, stack exit dimensions are 33.5 feet by 12 feet, resulting in an equivalent diameter of 22.6 feet, volumetric flow rate is 1,887,100 actual cubic feet per minute (acfm) and exit temperature is 1,000 degrees Fahrenheit (ºF).

{Permitting Note: The combustion turbine is subject to: Phase II of the federal Acid Rain Program; 40 CFR 60, Subpart A (General Provisions); and 40 CFR 60, Subpart GG (Standards of Performance for Stationary Gas Turbines).}

G.1. Permitted Capacity: Based on 100% base load, a higher heating value (HHV) and a compressor inlet air temperature of 32° F, the maximum allowable heat input rates are as follows
a. Natural Gas: 1,776 MMBtu/hr.
b. Distillate Fuel Oil: 1,726 MMBtu/hr.
[Rule 62-210.200(PTE), F.A.C. and Permit No. 1050004-048-AC]

G.2. Emissions Unit Operating Rate Limitation After Testing. See the related testing provisions in Appendix TR, Facility-wide Testing Requirements. [Rule 62-297.310(3), F.A.C.]

G.3. Methods of Operation - Fuels. The permittee shall install, calibrate, operate and maintain a monitoring system to measure and accumulate the following for each fuel fired: quantity, heat input rate and hours of operation.
a. Natural Gas: The combustion turbine shall fire only natural gas with maximum sulfur content of 2 grains of sulfur per 100 dry standard cubic feet of gas (monthly average). The combustion turbine shall fire no more than 1,350,084 MMBtu of natural gas during any consecutive 12-month period (equivalent to approximately 812 hours/year at base load and 59°F turbine inlet).
b. Distillate Full Oil: The combustion turbine shall fire only distillate oil with a maximum sulfur content of 0.0015% by weight. The combustion turbine shall fire no more than 565,550 MMBtu of distillate oil during any consecutive 12-month period (equivalent to approximately 350 hours/year at base load and 59°F turbine inlet). If distillate oil is fired in any 12-month period, the amount of total natural gas that can be fired is reduced by 1.8 times the heat input used for distillate oil firing. The permittee shall install, calibrate, operate and maintain a monitoring system to measure and accumulate the following for each fuel fired: quantity, heat input rate and hours of operation.

Emission Limitations and Standards

G.4. Nitrogen Oxides (NOx) Emissions: NOx emissions shall not exceed: 25.0 parts per million by volume, dry (ppmvd) corrected to 15% oxygen based on a 24-hour block average when firing natural gas; 42.0 ppmvd corrected to 15% oxygen based on a 24-hour block average when firing distillate oil; and 56 tons/year based on a 12-month rolling sum total. [Permit No. 1050004-048-AC]

G.5. Carbon Monoxide (CO) Emissions: CO emissions shall not exceed 10 ppmvd corrected to 15% oxygen at base load, based on a 24-hour block average and 90 tons/year based on a 12-month rolling total while burning all fuels monitored using CEMS. [Permit No. 1050004-048-AC]

Monitoring of Operations

G.6. CO, NOx and O_2 CEMS: The permittee shall install, calibrate, operate, and maintain in the exhaust stack of this emissions unit to measure and record the emissions of NOx and CO from the CT, and the oxygen (O2) content of the flue gas at the location where NOx and CO are monitored, in a manner sufficient to demonstrate compliance with the emission limits of this permit.

a. The NOx and O_2 monitor shall be certified pursuant to 40 CFR Part 75 and shall be operated and maintained in accordance with the applicable requirements of 40 CFR Part 75, Subparts B and C. Record keeping, and reporting shall be conducted pursuant to 40 CFR Part 75, Subparts F and G. Relative Accuracy Test Audit (RATA) tests required for the NOx monitor shall be performed using EPA Method 20 or 7E in Appendix A of 40 CFR 60. The RATA tests required for the oxygen monitor shall be performed using EPA Method 3, 3A or 3B, of Appendix A of 40 CFR 60. The span for the oxygen monitor shall not be greater than 21%. For each CEMS, the permittee shall conduct RATAs in accordance with the regulations of 40 CFR 75 for NOx and Performance Specification 4 or 4A for CO.

b. The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of section 7 shall be made each calendar quarter and reported semi-annually to the Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10, of Appendix A of 40 CFR 60. The Method 10 analysis shall be based on a continuous sampling train, and the ascarite trap may be omitted or the interference trap of section 10.1 may be used in lieu of the silica gel and ascarite traps. The span for the CO monitor shall not be greater than 100 ppmvd corrected to 15% O_2.

c. For purposes of determining compliance with the NOx emission limits based on a 24-hour block average, missing data shall not be substituted pursuant to 40 CFR 75. Instead the block average shall be determined using the remaining hourly data in the 24-hour block. However, the permittee's record keeping for the EU-034 NOx emissions cap (tons/year) shall be in full agreement with data submitted for inclusion on EPA's Acid Rain website which includes all documented exclusions reported to the Department in a quarterly report. The permittee may exclude start up, shutdown, and Part 75 missing data from the ppmvd calculations. However, this data will need to be recorded for the tons/year calculations for netting purposes and as required by the Acid Rain website.

d. The CO, NOx and O_2 data shall be recorded by the CEMS during episodes of startup, shutdown and malfunction. No valid monitoring data shall be excluded from the mass-based (tons/year) NOx and CO emissions limits. Monitoring data collected during startup, shutdown and malfunctions may be excluded in accordance with the following conditions when determining compliance with concentration-based (ppmvd) CO and NOx emissions limits. CO and NOx emissions data recorded during these episodes may be excluded from the 24-hour block average calculated to demonstrate compliance with the emission limits of this permit as provided in this paragraph. Periods of data excluded for startup and shutdown shall not exceed two hours (120 minutes) in any operating day. Periods of data excluded for malfunctions shall not exceed two hours (120 minutes) in any operating day. All periods of data excluded for any startup, shutdown or malfunction episode shall be consecutive for each episode. Periods of data excluded for all startup, shutdown or malfunction episodes shall not exceed four hours (240 minutes) in any operating day. An operating day is defined as a day (midnight to midnight) that contains operation of this emissions unit. The owner or operator shall minimize the duration of data excluded for startup, shutdown and malfunctions, to the extent practicable. Data recorded during startup, shutdown or malfunction events shall not be excluded if the startup, shutdown or malfunction episode was caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented.

e. The 24-hour block averages are calculated as follows: starting at midnight of each operating day, a 24-hour block average shall be calculated from 24 valid hourly average emission rate values. Each hourly value shall be computed using at least one data point in each fifteen-minute quadrant of an hour, where the unit combusted fuel during that quadrant of an hour. Notwithstanding this requirement, an hourly value shall be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant of an hour). A valid hourly emission rate shall be calculated for each hour in which at least two measurements are obtained at least 15 minutes apart. The permittee shall use all valid measurements or data points collected during an hour to calculate the hourly averages. All data points collected during an hour shall be, to the extent practicable, evenly spaced over the hour. If the CEMS measures concentration on a wet basis, the CEM system shall include provisions to determine the

moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Alternatively, the owner or operator may develop through manual stack test measurements a curve of moisture contents in the exhaust gas versus load for each allowable fuel and use these typical values in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Final results of the CEMS shall be expressed as ppmvd corrected to 15% oxygen. Monitoring data shall be excluded from the 24-hour block average for the following periods: startup, shutdown, or malfunction as defined in Rules 62-210.200 and 62-210.700, F.A.C.; when fuel is not fired in the unit; CEMS quality assurance checks; or when the CEMS is out of control.

f. For the annual (tons/year) emissions limit for NOx, measurements shall be in pounds (converted to tons) and be based on a 12-month rolling total starting at the first day of each calendar month. Each monthly total shall be calculated by adding the pounds per day for each valid operating day (all fuels) within the calendar month. This monthly total shall be combined with the emissions from the previous valid 11 calendar months and shall comprise a 12-month rolling total.

g. CEMS data collected during seasonal or other major combustor tuning sessions shall be excluded from the CEMS compliance demonstration for short term emission standards provided the tuning session is performed in accordance with the manufacturer's specifications. All valid emissions data shall be used to demonstrate compliance with annual emissions caps. A "major tuning session" would occur after completion of initial construction, a combustor change-out, a major repair or maintenance to a combustor, or other similar circumstances. "Seasonal tuning", where minor adjustments are performed, is also required to compensate for changes in average ambient conditions. Prior to performing any major or seasonal tuning session, the permittee shall provide the Compliance Authority with advance notice that details the activity and proposed tuning schedule. The notice shall be by telephone, facsimile transmittal, or electronic mail.

h. Note that the twelve-month rolling emissions totals required to be reported for NOx do not exclude any data.

[Rule 62-4.070(3), F.A.C.; 40 CFR 60, Subparts A & GG; 40 CFR 60, Appendices A, B & F; 40 CFR 75, Subparts B, C, F & G and Permit No. 1050004-048-AC]

Test Methods and Procedures

G.7. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources *{Note: The method shall be based on a continuous sampling train.}*
20	Determination of NOx, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rules 62-204.800, F.A.C.; and Appendix A of 40 CFR 60; and Permit No. 1050004-048-AC]

G.8. Common Testing Requirements. Unless otherwise specified, tests shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]

G.9. Test Requirements: The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. Tests shall be conducted in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rule 62-297.310(9), F.A.C. and Permit No. 1050004-048-AC]

G.10. Annual Compliance Tests: An annual emissions test is not required for NOx and CO as long as they are measured by CEMS and, the CEMS meet the performance specifications, quality assurance, and quality control measures of 40 CFR part 60 or 40 CFR. part 75, adopted and incorporated in Rule 62-204.800, F.A.C. [Rule 62-297.310(8)(a)5b, F.A.C. and Permit No. 1050004-048-AC]

G.11. Continuous Compliance Demonstration: Continuous compliance with the emissions standard for emissions of NOx and CO shall be demonstrated using continuous emissions monitoring systems (CEMS). [Rule 62-4.070(3), F.A.C., and Permit No. 1050004-048-AC]

Recordkeeping and Reporting Requirements

G.12. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rule 62-297.310(10), F.A.C.]

G.13. Periodic Emissions Monitoring:

a. *Malfunction Notification*: If emissions in excess of a standard (subject to the specified averaging period) occur due to malfunction, the permittee shall notify the Compliance Authority within one working day of the following: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident.

b. *Semi-Annual Report*: Within 30 days following the end of each semi-annual period, the permittee shall submit a report to the Compliance Authority summarizing periods of emissions in excess of the limits in this permit limit or the limits in 40 CFR 60, Subpart GG limit, following the NSPS format in 40 CFR 60.7(c), Subpart A. In addition, the report shall summarize the NO_X and CO CEMS system monitor availability for the previous semi-annual period.

[Rules 62-4.130 & 62-210.700(5), F.A.C.; and 40 CFR 60.7 & 60.334(j)(5); and Permit No. 1050004-048-AC]

G.14. Fuel Sulfur Records: The permittee shall demonstrate compliance with the fuel sulfur limits specified in this permit by maintaining the following records of the sulfur contents.

a. *Natural Gas Sulfur Limit*: Compliance with the fuel sulfur limit for natural gas shall be demonstrated by keeping reports obtained from the vendor indicating the average sulfur content of the natural gas being supplied from the pipeline for each month of operation. Methods for determining the sulfur content of the natural gas shall be ASTM methods D4084-82, D4468-85, D5504-01, D6228-98 and D6667-01, D3246-81 or more recent versions.

b. *Fuel Oil Sulfur Limit*: Compliance with the fuel oil sulfur limit shall be demonstrated by taking a sample, analyzing the sample for fuel sulfur, and reporting the results to the Compliance Authority before initial startup. Sampling the fuel oil sulfur content shall be conducted in accordance with ASTM D4057-88, Standard Practice for Manual Sampling of Petroleum and Petroleum Products, and one of the following test methods for sulfur in petroleum products: ASTM methods D5453-00, D129-91, D1552-90, D2622-94, or D4294-90. More recent versions of these methods may be used. For each subsequent fuel delivery, the permittee shall maintain a permanent file of the certified fuel sulfur analysis from the fuel vendor.

The above methods shall be used to determine the fuel sulfur content in conjunction with the provisions of 40 CFR 75 Appendix D.

[Rule 62-210.200(PTE), F.A.C.; and Permit No. 1050004-048-AC]

Other Requirements

G.15. NSPS Provisions: The combustion turbine is subject to applicable requirements in Subpart A (General Provisions) and Subpart GG (Stationary Gas Turbines) of 40 CFR 60 (see attached appendices). [Rule 62-4.070(3), F.A.C., and Permit No. 1050004-048-AC]

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