APPENDIX CAM

Compliance Assurance Monitoring (CAM) Requirements

Compliance Assurance Monitoring Requirements

Pursuant to Rule 62-213.440(1)(b)1.a., F.A.C., the CAM plan that is included in this appendix contains the monitoring requirements necessary to satisfy 40 CFR 64. Conditions 1. – 17. are generic conditions applicable to all emissions units that are subject to the CAM requirements. Specific requirements related to each emissions unit are contained in the attached tables, as submitted by the applicant and approved by the Department.

40 CFR 64.6 Approval of Monitoring.

1. The attached CAM plan, as submitted by the applicant, is approved for the purposes of satisfying the requirements of 40 CFR 64.3.
[40 CFR 64.6(a)]

2. The attached CAM plan include the following information:
(i) The indicator(s) to be monitored (such as temperature, pressure drop, emissions, or similar parameter);
(ii) The means or device to be used to measure the indicator(s) (such as temperature measurement device, visual observation, or CEMS); and
(iii) The performance requirements established to satisfy 40 CFR 64.3(b) or (d), as applicable.
[40 CFR 64.6(c)(1)]

3. The attached CAM plan describe the means by which the owner or operator will define an exceedance of the permitted limits or an excursion from the stated indicator ranges and averaging periods for purposes of responding to (see **CAM Conditions 5. - 9.)** and reporting exceedances or excursions (see **CAM Conditions 10. – 14.**).
[40 CFR 64.6(c)(2)]

4. The permittee is required to conduct the monitoring specified in the attached CAM plan and shall fulfill the obligations specified in the conditions below (see **CAM Conditions 5. - 17.**).
[40 CFR 64.6(c)(3)]

40 CFR 64.7 Operation of Approved Monitoring.

5. Commencement of operation. The owner or operator shall conduct the monitoring required under this appendix upon the effective date of this Title V permit.
[40 CFR 64.7(a)]

6. Proper maintenance. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.
[40 CFR 64.7(b)]

7. Continued operation. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this

part, including data averages and calculations, or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

[40 CFR 64.7(c)]

8. Response to excursions or exceedances.

a. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions, if allowed by this permit). Such actions may include initial inspection and evaluation, recording that operations returned to normal without operator action (such as through response by a computerized distribution control system), or any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.

b. Determination of whether the owner or operator has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include but is not limited to, monitoring results, review of operation and maintenance procedures and records, and inspection of the control device, associated capture system, and the process.

[40 CFR 64.7(d)(1) & (2)]

9. Documentation of need for improved monitoring. If the owner or operator identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the owner or operator shall promptly notify the permitting authority and, if necessary, submit a proposed modification to the Title V permit to address the necessary monitoring changes. Such a modification may include, but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters.

[40 CFR 64.7(e)]

40 CFR 64.8 Quality Improvement Plan (QIP) Requirements.

10. Based on the results of a determination made under **CAM Condition 8.a.,** above, the permitting authority may require the owner or operator to develop and implement a QIP. Consistent with **CAM Condition 4.**, an accumulation of exceedances or excursions exceeding 5 percent duration of a pollutant-specific emissions unit's operating time for a reporting period, may require the implementation of a QIP. The threshold may be set at a higher or lower percent or may rely on other criteria for purposes of indicating whether a pollutant-specific emissions unit is being maintained and operated in a manner consistent with good air pollution control practices.

[40 CFR 64.8(a)]

11. Elements of a QIP:

a. The owner or operator shall maintain a written QIP, if required, and have it available for inspection.

b. The plan initially shall include procedures for evaluating the control performance problems and, based on the results of the evaluation procedures, the owner or operator shall modify the plan to include procedures for conducting one or more of the following actions, as appropriate:

(i) Improved preventive maintenance practices.

(ii) Process operation changes.

(iii) Appropriate improvements to control methods.

(iv) Other steps appropriate to correct control performance.

(v) More frequent or improved monitoring (only in conjunction with one or more steps under **CAM Condition 11.b(i)** through **(iv)**, above).

[40 CFR 64.8(b)]

12. If a QIP is required, the owner or operator shall develop and implement a QIP as expeditiously as practicable and shall notify the permitting authority if the period for completing the improvements contained in the QIP exceeds 180 days from the date on which the need to implement the QIP was determined.

[40 CFR 64.8(c)]

13. Following implementation of a QIP, upon any subsequent determination pursuant to **CAM Condition 8.b.**, the permitting authority may require that an owner or operator make reasonable changes to the QIP if the QIP is found to have:

a. Failed to address the cause of the control device performance problems; or

b. Failed to provide adequate procedures for correcting control device performance problems as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.

[40 CFR 64.8(d)]

14. Implementation of a QIP shall not excuse the owner or operator of a source from compliance with any existing emission limitation or standard, or any existing monitoring, testing, reporting or recordkeeping requirement that may apply under federal, state, or local law, or any other applicable requirements under the Act.

[40 CFR 64.8(e)]

40 CFR 64.9 Reporting And Recordkeeping Requirements.

15. General reporting requirements.

a. On and after the date specified in **CAM Condition 5.** by which the owner or operator must use monitoring that meets the requirements of this appendix, the owner or operator shall submit monitoring reports semi-annually to the permitting authority in accordance with Rule 62-213.440(1)(b)3.a., F.A.C.

b. A report for monitoring under this part shall include, at a minimum, the information required under Rule 62-213.440(1)(b)3.a., F.A.C., and the following information, as applicable:

(i) Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken;

(ii) Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and

(iii) A description of the actions taken to implement a QIP during the reporting period as specified in **CAM Conditions 10.** through **14.** Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring.

[40 CFR 64.9(a)]

16. General recordkeeping requirements.

a. The owner or operator shall comply with the recordkeeping requirements specified in Rule 62-213.440(1)(b)2., F.A.C. The owner or operator shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan required pursuant to **CAM Conditions 10.** through **14.** and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained under this part (such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions).

b. Instead of paper records, the owner or operator may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.

[40 CFR 64.9(b)]

40 CFR 64.10 Savings Provisions.

17. It should be noted that nothing in this appendix shall:

a. Excuse the owner or operator of a source from compliance with any existing emission limitation or standard, or any existing monitoring, testing, reporting or recordkeeping requirement that may apply under federal, state, or local law, or any other applicable requirements under the Act. The requirements of this appendix shall not be used to justify the approval of monitoring less stringent than the monitoring which is required under separate legal authority and are not intended to establish minimum requirements for the purpose of determining the monitoring to be imposed under separate authority under the Act, including monitoring in permits issued pursuant to title I of the Act. The purpose of this part is to require, as part of the issuance of a permit under Title V of the Act, improved or new monitoring at those emissions units where monitoring requirements do not exist or are inadequate to meet the requirements of this part.

b. Restrict or abrogate the authority of the Administrator or the permitting authority to impose additional or more stringent monitoring, recordkeeping, testing, or reporting requirements on any owner or operator of a source under any provision of the Act, including but not limited to sections 114(a)(1) and 504(b), or state law, as applicable.

c. Restrict or abrogate the authority of the Administrator or permitting authority to take any enforcement action under the Act for any violation of an applicable requirement or of any person to take action under section 304 of the Act.

[40 CFR 64.10]

Lakeland Electric – Winston Peaking Station

Emissions Unit Nos. 001 - 020

20 GM EMD 20/645/E4B Diesel Engines
NOx Emissions Controlled By Selective Catalytic Reduction (SCR)

CAM Plan

ATTACHMENT WP-EU1-IV2

COMPLIANCE ASSURANCE MONITORING PLAN

Selective Catalytic Reduction for NO_x Control: Winston Peaking Station

I. Background

A. Emissions Unit

Description:	20 GM EMD 20/645/E4B Diesel Engines
Identification:	Emission Unit ID Nos. 001-020
Stack designation:	EU001 – EU020
Facility ID No.	1050352
Facility:	Winston Peaking Station Lakeland, Florida

B. Applicable Regulation, Emission Limit, and Monitoring Requirements

Regulation No.:	Permit No. 1050352-001-AV (proposed)
Regulated pollutant:	Nitrogen Oxides (NO_x)
Emission limit (NO_x):	13.9 lb/hr – peakload operation firing distillate oil 11.6 lb/hr – baseload operation firing distillate oil 5.6 lb/hr – baseload operation firing natural gas
C. Control Technology:	Selective Catalytic Reduction
D. Indicators:	Monitoring, maintenance, and replacement of SCR catalyst as required

II. Monitoring Approach

The key elements of the monitoring approach, including the indicators to be monitored, indicator ranges, and performance criteria, are presented in Table 1.

III. Monitoring Approach Justification

A. Background

This facility consists of 20 nominal 2.5-MW GM EMD 20/645/E4B diesel engines, associated generators, and a 294,000-gallon No. 2 fuel oil storage tank. Each engine uses Selective Catalytic Reduction (SCR), oxidation catalyst, and air/fuel ratio regulators for NO_x emission control. The units provide a nominal 50 MW of electrical power collectively. The fuel for the engines is distillate fuel oil with a maximum sulfur content of 0.05 percent by weight and natural gas. The facility can operate one single emission unit or all 20 emission units in combination.

B. Rationale for Selection of Performance Indicators

The formation of ammonium sulfate salts cause fouling of the SCR catalyst, which can be avoided by periodic monitoring of the SCR catalyst and replacement of the catalyst as required. Performance test for NO_x is conducted on the emissions units that operated for more than 4,000 hours since their last NO_x performance test. If the NOx emission during testing is found to be within 10 percent of the NO_x emission limit for any unit, then the catalyst for that unit will be opened up for visual inspection and maintenance, and will be replaced if required.

The flow of ammonia to the SCR system through flow rotameter is checked by the plant operator periodically while the emission unit is in operation. Ammonia flow is maintained at the same level as recorded during the most recent successful compliance test for NO_x emissions. Appropriate ammonia flow through flow rotameter is an indicator of proper operation of the SCR system.

The ammonia flow rotameter has high and low set points. The low set point is to make sure the emission unit is NO_x emission compliant and the high set point is to make sure the emission unit is compliant with Ammonia slip.

SCR system has three year performance warranty and ammonia slip to atmosphere is limited to 10 ppmvd @15% O_2. Selection of operating hours and ammonia flow to SCR through flow rotameter is made in a conservative way to satisfy the manufacturer's warranty for SCR and ammonia slip.

TABLE 1
MONITORING APPROACH, WINSTON PEAKING STATION

	Indicator No. 1	**Indicator No. 2**
I. Indicator	Compliance testing for NOx emissions.	Continuous monitoring of ammonia flow rotameter.
Measurement Approach	Each individual engine will be tested for NOx emissions every 4,000 individual engine operating hours. The engine will be tested within three (3) months after that engine surpassed 4,000 operating hours from its last test. A cumulative run time (hours) log shall be kept that contains this data for each individual engine. After the engine is tested, a new 4,000 operating hour timeframe begins. If emissions, based on the average of three 1-hour test runs, are within 10 percent of the emission limit stated in the permit, the catalyst for that engine shall be opened up for visual inspection and maintenance, and will be replaced if required.	Continuous monitoring of the rotameter, which has clearly marked high and low set points. The low set point is to pass the NO_x emission test and the high set point is to make sure the emission unit is compliant with the Ammonia slip. The high and low set points correspond to ammonia flow in gallons per minute. Rotameter is connected to an electronic flow meter with red and green lights. When the ammonia flow is below the low set point, the red light comes on. When the ammonia flow is above the low set point, the green lights turn on incrementally up to the high set point and an electronic signal is sent to the operator that the ammonia flow is sufficient.
II. Indicator Range		When the electronic flow meter red light is on, an electronic signal is sent to the operator and an alarm goes off. When the electronic flow meter light is green, the system lets the operator know that ammonia flow is sufficient. If an insufficient ammonia flow alarm is sounded, the control room operator will adjust the needle valve to correct ammonia flow to that particular engine. If ammonia flow cannot be corrected within 2 hours of the alarm, the engine will be shut down.
III. Performance Criteria A. Data Representativeness	Not applicable.	Not applicable.
B. Verification of Operational Status	Not applicable.	Not applicable.
C. QA/QC Practices and Criteria	Testing for NOx emissions shall be performed using EPA Method 7 or 7E at the stack and shall consist of three, 1-hour test runs.	The set points are checked annually by turning a fan on and making sure that the electronic flow meter stays red until the low set point and then turns green when it reaches the minimum set point for ammonia flow set during NO_x testing.
D. Monitoring Frequency	Based on engine operating hours.	Continuously monitored.
Data Collection Procedure	Engine operating hours and SCR catalyst inspection results are recorded. Test results will also be recorded. Two separate operating hours logs will be maintained for each engine – one for the total operating hours of the engine and one for the hours since a test, which will be zeroed after every test.	Not applicable.
Averaging Period	No average is taken.	No average is taken.