



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

November 6, 2009

Electronically Sent – Received Receipt Requested

Mr. Timothy Bachand, P.E., Manager of Engineering
City of Lakeland, Department of Electric Utilities
3030 East Lake Parker Drive
Lakeland, Florida 33805

Re: Project No. 1050004-027-AC
City of Lakeland, C.D. McIntosh, Jr. Power Plant, Unit 3
Installation of Selective Catalytic Reduction (SCR) and Sorbent Injection Systems
Authorization for Initial Sulfuric Acid Mist (SAM) Testing

Dear Mr. Bachand:

Original Permit No. 1050004-019-AC authorized the installation of SCR and sorbent injection systems on existing Unit 3 (EU-006). The SCR catalyst will convert additional sulfur compounds to SAM. Use of the new sorbent injection system is intended to mitigate and maintain SAM emissions below the significant emissions rate (7 tons/year) for the Prevention of Significant Deterioration (PSD) of Air Quality. Specific Condition 15 in Section 3 of this permit requires initial performance tests to determine the amount of SAM control provided by the sorbent injection system. The condition requires a series of tests to be conducted under various operating conditions to establish performance curves and determine the level of SAM control for a given sorbent injection rate under the given conditions. It requires the series of initial tests to be completed within 90 days of completing construction of the SCR system.

On November 4th, Mr. Brett Galbraith, Plant Environmental Engineer, contacted Mr. Jeff Koerner, Administrator of the New Source Review Section, to discuss several ongoing issues related to conducting the required performance testing for Unit 3. This was followed up by a letter from Ms. Farzie Shelton, Assistant General Manager of Technical Support, received by electronic mail on November 4th. In summary, the plant provided a test protocol in September detailing the series of tests that would be conducted to satisfy the requirements of Specific Condition 15 and to determine appropriate sorbent injection rates for the control of SAM emissions. The original test protocol identified nine individual locations for testing: a single location at the stack; and (because of split duct work) dual points before/after the SCR and before/after the electrostatic precipitator (ESP). Preliminary sampling indicated widely varying and inconsistent data. It is possible that the difficulties are due to heavy fly ash loading at some of the sampling points and/or erratic cyclonic flows caused by the arrangement of equipment and flow obstructions. The plant does not believe that this data will be useful in determining appropriate performance levels for the sorbent injection system. Therefore, the plant proposes to conduct the following initial SAM tests at the stack: three, 1-hour runs at full load with no sorbent injection; and three, 1-hour runs at full load with sorbent injection as recommended by the vendor. Controlled sulfur dioxide (SO₂) emissions would be provided by data collected by the continuous emissions monitoring system (CEMS) on the stack.

Permit File Scanning Request from Elizabeth

Priority: -ASAP (Public Records Request, etc.) -Place in Normal Scanning Queue

Facility ID	Project#	Type	PSD #	Submittal Date	Batch #
1050004	077	AC		SEP 15 2010	

- File Approved For Disposal Correspondence Intent Permit Draft
 Return File to BAR Amendment Application OGC Proposed

Document Date 11-6-09

Letter of Authorization - DRAFT

Based on the information provided, the Department authorizes the following initial SAM performance testing:

1. The permittee shall conduct at least two, 1-hour test runs at each of the following operating scenarios to determine SAM emissions.

Scenario	Load	Sorbent Injection
1A	95% load	Off
1B	95% load	ON
2A	85% load	Off
2B	85% load	ON
3A	75% load	Off
3B	75% load	ON
4A*	65% load	Off
4B*	65% load	ON

The operator shall use best efforts to maintain the designated unit load throughout the test run for each operating scenario.

* For these initial tests, the 65% load condition is optional and should be based on whether the unit will be operated for any significant amount of time at this load level.

2. All test runs shall be conducted while injecting ammonia for the control of nitrogen oxides (NO_x).
3. The sorbent injection rate used for each operating scenario shall be determined by the equipment vendor.
4. For each SAM test run the operator shall:
 - a. Record the ammonia injection rate;
 - b. Record the sorbent injection rate;
 - c. Determine the fuel firing rate and heat input rate;
 - d. Use the stack CEMS to determine controlled NO_x and SO₂ emissions; and
 - e. Attempt to sample uncontrolled SO₂ emissions before the flue gas desulfurization system. If unable to gather meaningful uncontrolled SO₂ data for these initial tests, the permittee shall determine the uncontrolled SO₂ emissions by actual fuel flow and sulfur content.
5. Appropriate reference test methods shall be used to determine SAM and SO₂ emissions as necessary for the given operating conditions.
6. At a minimum, the permittee shall submit a test report within 45 days of completing the initial performance tests to include the following information for each SAM test run: the load; the heat input rate; the test method with any variations noted; the fuel blend fired and the average sulfur content; the actual sorbent injection rate; the controlled SO₂ emissions rate as determined by the CEMS; the uncontrolled SO₂ emissions rate as determined by stack test (if not available, then as determined by fuel flow and sulfur content); the ammonia injection rate for NO_x control by the SCR; the controlled NO_x emissions rate as determined by CEMS; the stack opacity as determined by the continuous opacity monitoring system (COMS). The report shall discuss the relative influence of operating parameters and how the sorbent injection rate will be adjusted for differing operating scenarios.
7. Until the test results are known, the permittee shall continue to operate the sorbent injection system based on the sorbent injection rate recommended by the equipment vendor. Once the tests results are known, the

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permittee may begin to operate the sorbent injection system based on the performance indicated by the data collected during the initial tests such that SAM emissions increases from the project will be less than 7 tons/year. The permittee shall identify and monitor the operating conditions that would result in an adjustment of the sorbent injection rate.

8. The Department requires additional performance tests to satisfy the requirements of Condition 15. Within 60 days of conducting this initial round of performance tests, the permittee shall propose a new schedule and revised test protocol for conducting the originally proposed tests including the determination of the SAM conversion rate across the SCR catalyst.

The Department will clarify the revised testing and reporting requirements in the pending request for an extension of Permit No. 1050004-019-AC.

Nothing in this action waves any federal requirements of the applicable New Source Performance Standards (NSPS) for this unit.

The Department will consider the above-noted action final unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, of the Florida Statutes (F.S.). Mediation under Section 120.573, F.S., will not be available for this proposed action.

A person whose substantial interests are affected by the proposed decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Department's Office of General Counsel, MS #35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000. Petitions filed by the applicant or any of the parties listed below must be filed within 14 days of receipt of this notice. Petitions filed by any other person must be filed within 14 days of receipt of this proposed action. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name, address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when each petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and, (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the permitting authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the permitting authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

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Any party to this order has the right to seek judicial review of it under Section 120.68, F.S., by the filing of a Notice of Appeal, under Rule 9.110 of the Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station #35, 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 of Appeal must be filed within thirty days from the date this notice is filed with the Clerk of the permitting authority.

Executed in Tallahassee, Florida.



Trina L. Vielhauer, Chief
Bureau of Air Regulation

TLV/jfk

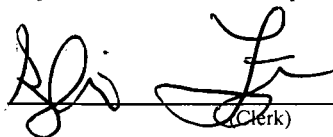
CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this authorization was sent by electronic mail (or a link to this document was made available electronically on a publicly accessible server) with received receipt requested before the close of business on 11/6/09 to the persons listed below.

- Mr. Timothy Bachand, Lakeland Electric (timothy.bachand@lakelandelectric.com)
- Ms. Farzie Shelton, Lakeland Electric (farzie.shelton@lakelandelectric.com)
- Mr. Bret Galbraith, Lakeland Electric (bret.galbraith@lakelandelectric.com)
- Mr. Bill Schroeder, DEP Southwest District (bill.schroeder@dep.state.fl.us)
- Ms. Cindy Zhang-Torres, DEP Southwest District (cindy.zhang-torres@dep.state.fl.us)
- Ms. Vickie Gibson, DEP BAR Reading File (victoria.gibson@dep.state.fl.us)

Clerk Stamp

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


(Clerk)

11/6/09
(Date)

Livingston, Sylvania

From: Trickey, Tom [Tom.Trickey@lakelandelectric.com]
Sent: Thursday, November 12, 2009 7:39 PM
To: Livingston, Sylvania
Cc: Bachand, Timothy
Subject: RE: Authorization: City of Lakeland - C.D. MCINTOSH, JR. POWER PLANT; 1050004-027-AC
Attachments: Tom Trickey

Sylvia,

Responsibility has been transferred from Tim Bachand to me.

Thanks,
Tom Trickey

From: Bachand, Timothy
Sent: Friday, November 06, 2009 4:58 PM
To: Trickey, Tom; Marshall, Steve
Subject: FW: Authorization: City of Lakeland - C.D. MCINTOSH, JR. POWER PLANT; 1050004-027-AC

FYI
Tim

From: Livingston, Sylvania [mailto:Sylvia.Livingston@dep.state.fl.us]
Sent: Friday, November 06, 2009 4:46 PM
To: Bachand, Timothy
Cc: Shelton, Farzie; Galbraith, Bret; bill.shroeder@dep.state.fl.us; zhang-torres@dep.state.fl.us; Gibson, Victoria; Koerner, Jeff; Walker, Elizabeth (AIR)
Subject: Authorization: City of Lakeland - C.D. MCINTOSH, JR. POWER PLANT; 1050004-027-AC

Dear Sir/ Madam:

Attached is the official **Authorization** for the request referenced below. Click on the link displayed below to access the permit project documents and send a "reply" message verifying receipt of the document(s) provided in the link; this may be done by selecting "Reply" on the menu bar of your e-mail software, noting that you can view the documents, and then selecting "Send".

Note: We must receive verification that you are able to access the documents. Your immediate reply will preclude subsequent e-mail transmissions to verify accessibility of the document(s).

Click on the following link to access the documents:

http://ARM-PERMIT2K.dep.state.fl.us/adh/prod/pdf_permit_zip_files/1050004.027.AC.F_pdf.zip

Owner/Company Name: LAKELAND ELECTRIC
Facility Name: C.D. MCINTOSH, JR. POWER PLANT
Project Number: 1050004-027-AC
Permit Status: FINAL
Permit Activity: CONSTRUCTION
Facility County: POLK
Processor: Jeff Koerner



Farzie Shelton, ChE; REM

Associate GM Technical Support

RECEIVED

NOV 09 2009

BUREAU OF AIR REGULATION

CERTIFIED MAIL

November 4, 2009

Mr. Jeff Koerner, P.E.
New Source Review Supervisor
Air Resource Management
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

**RE: Lakeland Electric – C.D. McIntosh, Jr. Power Plant
Unit 3 SCR Compliance Test Protocol Revision – Permit No. 1050004-019-AC**

Dear Mr. Koerner:

Lakeland Electric (Lakeland) is in the process of performance testing for the selective catalytic reduction and sorbent injection systems on Unit 3 (E.U. 006) at our C.D. McIntosh, Jr. Power Plant facility. Due to problems detailed below and discussed earlier this week with Mr. Errin Pichard of the Emissions Monitoring Section of DARM and Mr. Bill Schroeder of the Southwest District Air Compliance Section, Lakeland Electric is requesting an immediate change to the previously submitted test protocol for sulfuric acid mist (SAM) emissions testing.

The initial performance test, Specific Condition 15. of permit no. 1050004-019-AC, is required to determine the sulfuric acid mist (SAM) emissions rate under a variety of operating scenarios and demonstrate the use of the sorbent injection system on reducing SAM emissions. The results of the performance test will be used to develop a correlation curve/logarithm between sorbent injection rates, operating conditions, and emissions. Each test scenario was originally to consist of a series of 1-hour test runs using EPA Method 8A (EPA CTM-013) for SAM and EPA Method 6C for SO₂, but after our stack test company, Analytical Testing Consultants, Inc. (ATC), further evaluated the logistics of our site setup along with the sampling locations, ATC and Lakeland have decided a change in the test protocol is required at this time.

The original protocol called for 9 separate locations for testing; dual points due to each set of duct work before and after the SCR and before and after the ESP with a single location at the stack. Because many of these points lie before any flyash control equipment (e.g., ESP), the stack testers were worried that some of their SAM emission rates recorded would be eschew due to a build up of particulate matter on the probe. In addition, the heavy fine particulate loading at several sampling locations and the extreme negative pressures at some of these same sampling locations in ATC's opinion based on experience, will impact the collection of accurate and representative results. Another problem surfaced while performing some preliminary testing for SO₂ and SAM emissions, the emission rates at each location varied considerably and consistent emission rates could not be recorded at the same sampling location over a short period of time. Due to this inconsistent variability, our engineering group believes they will not be able to correlate any type of logarithm for the sorbent injection

City of Lakeland • Department of Electric Utilities

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Mr. Jeff Koerner, P.E.
New Source Review Section
Air Resource Management
November 4, 2009

system with that of any performance test results taken from port locations around the SCR, ESP, and air preheater. ATC believes that this inconsistency in the preliminary measurements is a direct result from the poor locations for sampling due to erratic cyclonic flow which results from the port holes close proximity to the SCR, ESP, or air preheater.

Alternatively, Lakeland proposes performing two (2) sets of data collection for the SCR initial performance test for SAM emissions monitoring. The first data set would be collected at full load (364 MW gross output) at the stack outlet with the sorbent injection system off and consist of 3, 1-hour runs of EPA method 8A (EPA CTM-013) for SAM emissions collection, Method 1 or 1A for stack traverse points, Method 2 for stack velocity, Method 3A or 3B for oxygen concentration, and Method 4 for moisture content. Concurrent SO₂ CEMS data would also be collected during this time frame. The second data set would be collected at full load again, but with the sorbent injection system on and once again consist of 3, 1-hour runs at the stack of EPA method 8A along with the other methods listed immediately above.

TEST SET	EMISSION MONITORED	METHOD/LOCATION	SORBENT OPERATION
#1	SAM	8A/STACK	OFF
#1	SO ₂	CEMS/STACK	OFF
#2	SAM	8A/STACK	ON
#2	SO ₂	CEMS/STACK	ON

With the two (2) above data sets, Lakeland will be able to calculate the future SAM emissions from Unit 3 resulting from the conversion of SO₂ to SO₃ over the SCR catalyst at full load (the obvious worst case scenario). This difference in SAM emission rates measured from each test to that of our baseline actual emissions will allow Lakeland to satisfy the Department's requirement under Rule 62-210.300, F.A.C.; that the SCR installation did not equal or exceed the respective SAM significant emission rates for PSD. With this information, Lakeland will also have the ability to develop a logarithm which correlates sorbent injection with load and unit temperature which will be submitted to the Department. Lakeland could also discuss with the Department the option of performing an additional set of tests later to develop an algorithm that more resembles the original protocol submittal, but due to testing deadlines, Lakeland is requesting this substitute in the interim.

Lakeland has multiple reasons why it wants to push forward with certification of its SCR on Unit 3. The first is the respective 90 and 60 day clocks which started from the date of completing construction (S.C. 15) and will start with the commencement of operation (S.C. 18). The second is NO_x and SAM reduction. Lakeland wishes to approve and start the SCR system as soon as possible so that reductions in NO_x and SAM emissions may be significantly reduced without delay. The third is stack test company availability. Lakeland has ATC on site at this moment, and if testing can not be completed while ATC is on site, this will push Lakeland closer to the above cited deadlines. If this testing is delayed, Lakeland will be unable to run the SCR and reduce the NO_x emissions from its unit.

Lakeland is aware that the changes requested may require Department approval, therefore, we request that you contact us immediately to discuss any permitting changes which may be required.

I appreciate your assistance in this matter and please contact me to discuss any questions the Department may have regarding any aspect of the testing procedure and I will attempt to answer all of your questions. If the Department would like to discuss the matter with our stack test company that is something that can easily be

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Mr. Jeff Koerner, P.E.
New Source Review Section
Air Resource Management
November 4, 2009

arranged. I am also forwarding a hard copy of this request to your office and the Southwest District office for your records.

Should you have any questions concerning this submittal or require any other information I can be reached at (863) 834-6603.

Sincerely,

A handwritten signature in black ink that reads "Farzie Shelton". The signature is stylized with a long horizontal stroke extending to the left.

Farzie Shelton

cc: Ms. Danielle Henry
Air Compliance Supervisor
Florida Department of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637

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