

Holtom, Jonathan

From: Vielhauer, Trina
Sent: Thursday, July 30, 2009 8:07 AM
To: Walker, Elizabeth (AIR); Holtom, Jonathan
Subject: FW: FPL Port Everglades Title V Permit Modification - 0110036-008AV

From: Stokes, Idayna [mailto:Idayna.Stokes@fpl.com]
Sent: Wednesday, July 29, 2009 4:32 PM
To: Vielhauer, Trina
Subject: FPL Port Everglades Title V Permit Modification - 0110036-008AV

Ms. Vielhauer,

Attached please find FPL Port Everglades Plant's Title V Permit Modification requesting revisions to the CAM Plan. Should you have any questions, please do not hesitate to contact me at the below numbers or Mr. Kevin Washington at 561-691-2877.

Thank you,

Idayna Stokes, QEP
Environmental Leader
FPL Port Everglades and Lauderdale Power Plants
Office: (954) 527-3507
Cell: (561) 654-6920

*Go Green: No trees were killed in the sending of this message.
However, a large number of electrons were terribly inconvenienced.*

7/30/2009

Holtom, Jonathan

From: Vielhauer, Trina
Sent: Thursday, May 07, 2009 10:02 AM
To: Walker, Elizabeth (AIR); Holtom, Jonathan
Subject: Everglades

Kevin Washington just called about a TV revision they just submitted for a CAM plan at Everglades. He will be sending us an email later today/tomorrow asking us to "sit on that" for awhile as they are doing additional testing that may change what they've submitted. I asked him to send us an email requesting we do this so we have something for the file to take it off the completeness review clock.

5/7/2009



Florida Power & Light Company, Port Everglades Plant
P.O. Box 13118, Fort Lauderdale, FL 33316

May 1, 2009

RECEIVED

MAY 06 2009

BUREAU OF AIR REGULATION

Mrs. Trina Vielhauer - Chief
Bureau of Air Regulation
Department of Environmental Protection
2600 Blair Stone Road
Mail Station #5505
Tallahassee, FL 32399-2400

Re: Title V Permit Modification; Port Everglades Power Plant, 0110036-008AV;

Dear Mrs. Vielhauer,

Project No.: 0110036-009-AV

FPL requests a modification to the above referenced permit to incorporate a revision to the Port Everglades Plant CAM Plan.

The original CAM Plan submitted to the Department in the fall of 2007 contained minimum Secondary Power values as a demonstration of compliance that were calculated by the Original Equipment Manufacturer from their engineering data. During the course of the Title V permit renewal in 2008 which incorporated the CAM Plan, the Department requested minimum power values that were associated with compliance testing, rather than OEM calculated values. FPL provided the Department a revised copy of the CAM Plan (Rev 1 November 2008) which contained power values that were observed during the original commissioning tests in 2005 and 2007. When the revision was supplied to the Department, FPL recognized that the minimum power values were overly conservative by a considerable margin. At the time, they were the only data available coincident with compliance testing and were not optimized for minimum power scenarios.

In March of this year FPL conducted a series of Particulate Matter tests to optimize the minimum number of TR sets in service, and the minimum Secondary Power values needed to demonstrate compliance with the PM standard of 0.03 lb/mmbtu. The CAM Plan has been revised (Rev. 2 April 22, 2009) to incorporate the new minimum power values and minimum number of TR sets in service to assure compliance with the PM standard for Units 3&4.

This CAM Plan revision (Rev 2) also contains revised minimum Secondary Power values for Units 1&2. During the analysis of the recent test data, FPL discovered that the minimum power values for Units 1&2 found in Rev 1 of the Plan were incorrect. FPL has included the correct Secondary Power values corresponding to the tested PM emissions from the 2005 tests in this revision.

FPL requests that the Title V permit, Appendix CAM, be revised to incorporate the new minimum Secondary Power values and minimum number of TR sets in service as follows:

Mrs. Trina Vielhauer
May 1, 2009
Page 2

From:

Appendix CAM, Page 8 of 9, II. Indicator Range, Indicator 1 - *For Units 001 and 002, an excursion is defined as any hourly average of the ESP power level less than 264 kilowatts. For Units 003 and 004, an excursion is defined as any hourly average of the ESP power level less than 524 kilowatts. An excursion will trigger an investigation of the occurrence, corrective actions, and a reporting/documentation requirement.*

To:

Appendix CAM, Page 8 of 9, II. Indicator Range, Indicator 1 - For Units 001 and 002, an excursion is defined as any hourly average of the ESP Secondary Power level less than 46 kilowatts. For Units 003 and 004, an excursion is defined as any hourly average of the ESP Secondary Power level less than 88 kilowatts. An excursion will trigger an investigation of the occurrence, corrective actions, and a reporting/documentation requirement.

And,

From:

Appendix CAM, Page 9 of 9, III Performance Criteria, G. Operational Requirements, Indicator 1 and Indicator 2 - *At least six (6) of the eight (8) TR sets installed on each of the four (4) ESP units shall be in service at all times when 100% fuel oil is being fired.*

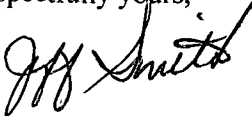
To:

Appendix CAM, Page 9 of 9, III Performance Criteria, G. Operational Requirements, Indicator 1 and Indicator 2 - At least six (6) of the eight (8) TR sets installed on Units 001 & 002 shall be in service at all times when 100% fuel oil is being fired. At least two (2) of the eight (8) TR sets installed on Units 003 & 004 shall be in service at all times when 100% fuel oil is being fired.

Included with this request are the revised CAM Plan (Rev 2 April 22, 2009), Purpose of Application, Responsible Official Certification, Professional Engineer Certification, and an updated Compliance Statement.

Thank you for your assistance in this matter, and, if you should have any questions, please do not hesitate to contact me at (954) 527-3601 or Kevin Washington at (561) 691-2877

Respectfully yours,



Jeff Smith
Plant General Manager/ Responsible Official
Florida Power & Light Port Everglades Plant

Attachments: (5)

RECEIVED

MAY 06 2009

BUREAU OF AIR REGULATION

Purpose of Application

This application for air permit is being submitted to obtain: (Check one)

Air Construction Permit

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

Air Operation Permit

- Initial Title V air operation permit.
- Title V air operation permit revision.
- Title V air operation permit renewal.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

**Air Construction Permit and Revised/Renewal Title V Air Operation Permit
(Concurrent Processing)**

- Air construction permit and Title V permit revision, incorporating the proposed project.
- Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

- I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

Revision to Title V Permit CAM Plan

Application Responsible Official Certification

Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the “application responsible official” need not be the “primary responsible official.”

1. Application Responsible Official Name: Rudy Sanchez
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input checked="" type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source, CAIR source, or Hg Budget source.
3. Application Responsible Official Mailing Address... Organization/Firm: Port Everglades Plant Street Address: 8100 Eisenhower Blvd. City: Ft. Lauderdale State: Fl. Zip Code: 33316
4. Application Responsible Official Telephone Numbers... Telephone: (954) 527 - 3601 ext. Fax: (954) 527 - 3636
5. Application Responsible Official E-mail Address: jeff_smith@fpl.com
6. Application Responsible Official Certification: <i>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</i> Signature: <u>Jeff A. Smith</u> Date: <u>5-1-09</u>

STATEMENT OF COMPLIANCE - TITLE V SOURCE

REASON FOR SUBMISSION (Check one to indicate why this statement of compliance is being submitted)

<input checked="" type="checkbox"/> Title V Permit Modification Annual Requirement	<input type="checkbox"/> Transfer of Permit
---	--

REPORTING PERIOD*	REPORT DEADLINE**
Jan 1, 2009 through April 30 of 2009 (year)	_____

*The statement of compliance must cover all conditions that were in effect during the indicated reporting period, including any conditions that were added, deleted, or changed through permit revision.

**See Rule 62-213.440(3)(a)2., F.A.C.

Facility Owner/Company Name: Jeff Smith, Plant Manager: Florida Power & Light Co. Port Everglades Plant

Site Name: Port Everglades Plant Facility ID No. 0110036 County: Broward

COMPLIANCE STATEMENT (Check only one of the following three options)

A. This facility was in compliance with all terms and conditions of the Title V Air Operation Permit and, if applicable, the Acid Rain Part, and there were no reportable incidents of deviations from applicable requirements associated with any malfunction or breakdown of process, fuel burning or emission control equipment, or monitoring systems during the reporting period identified above.

_____ **B.** This facility was in compliance with all terms and conditions of the Title V Air Operation Permit and, if applicable, the Acid Rain Part; however, there were one or more reportable incidents of deviations from applicable requirements associated with malfunctions or breakdowns of process, fuel burning or emission control equipment, or monitoring systems during the reporting period identified above, which were reported to the Department. For each incident of deviation, the following information is included:

1. Date of report previously submitted identifying the incident of deviation.
2. Description of the incident.

_____ **C.** This facility was in compliance with all terms and conditions of the Title V Air Operation Permit and, if applicable, the Acid Rain Part, EXCEPT those identified in the pages attached to this report and any reportable incidents of deviations from applicable requirements associated with malfunctions or breakdowns of process, fuel burning or emission control equipment, or monitoring systems during the reporting period identified above, which were reported to the Department. For each item of noncompliance, the following information is included:

1. Emissions unit identification number.
2. Specific permit condition number (note whether the permit condition has been added, deleted, or changed during certification period).
3. Description of the requirement of the permit condition.
4. Basis for the determination of noncompliance (for monitored parameters, indicate whether monitoring was continuous, i.e., recorded at least every 15 minutes, or intermittent).
5. Beginning and ending dates of periods of noncompliance.
6. Identification of the probable cause of noncompliance and description of corrective action or preventative measures implemented.
7. Dates of any reports previously submitted identifying this incident of noncompliance.

For each incident of deviation, as described in paragraph **B.** above, the following information is included:

1. Date of report previously submitted identifying the incident of deviation.
2. Description of the incident.

STATEMENT OF COMPLIANCE - TITLE V SOURCE

RESPONSIBLE OFFICIAL CERTIFICATION

I, the undersigned, am a responsible official (Title V air permit application or responsible official notification form on file with the Department) of the Title V source for which this document is being submitted. With respect to all matters other than Acid Rain program requirements, I hereby certify, based on the information and belief formed after reasonable inquiry, that the statements made and data contained in this document are true, accurate, and complete.

(Signature of Title V Source Responsible Official)


(Date)

Name: Jeff Smith

Title: Port Everglades Plant Manager

DESIGNATED REPRESENTATIVE CERTIFICATION (only applicable to Acid Rain source)

I, the undersigned, am authorized to make this submission on behalf of the owners and operators of the Acid Rain source or Acid Rain units 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.



(Signature of Acid Rain Source Designated Representative)

4-27-09

(Date)

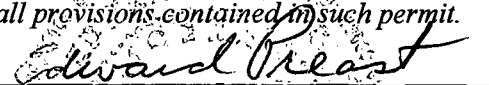
Name: Sheila M. Wilkinson

Title: General Manager II

{Note: Attachments, if required, are created by a responsible official or designated representative, as appropriate, and should consist of the information specified and any supporting records. Additional information may also be attached by a responsible official or designated representative when elaboration is required for clarity. This report is to be submitted to both the compliance authority (DEP district or local air program) and the U.S. Environmental Protection Agency(EPA) (U.S. EPA Region 4, Air and EPCRA Enforcement Branch, 61 Forsyth Street, Atlanta GA 30303).}

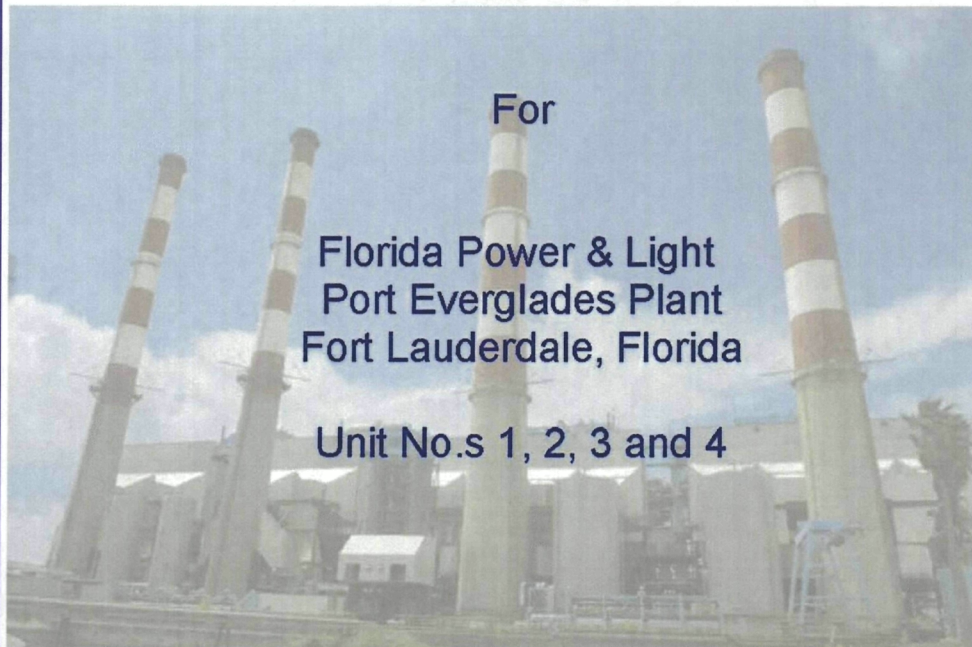
APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: Edward Preast Registration Number: 33225
2. Professional Engineer Mailing Address... P.O. Box 14000 JES/JB Organization/Firm: Florida Power & Light Co. Street Address: 700 Universe Blvd. City: Juno Beach State: FL Zip Code: 33408
3. Professional Engineer Telephone Numbers... Telephone: (561) 691-2679 ext. Fax: (561) 691-7049
4. Professional Engineer E-mail Address: ed.preast@fpl.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> (1) <i>To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> (2) <i>To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> (3) <i>If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> (4) <i>If the purpose of this application is to obtain an air construction permit (check here <input type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> (5) <i>If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input checked="" type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>  Signature _____ Date <u>April 24, 2009</u> (seal)

* Attach any exception to certification statement.

COMPLIANCE ASSURANCE MONITORING (CAM) PLAN



HRC Ref: C1144



Hamon Research-Cottrell, Inc.

Rev. 2 by FPL April 22, 2009

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1

INTRODUCTION

As part of the electrostatic precipitator (ESP) installations at the Port Everglades Plant, Florida Power & Light (FPL) is required to submit a Compliance Assurance Monitoring (CAM) plan that will be used to provide continuous assurance that the particulate matter (PM) emission standard is being met. The Units at Port Everglades are two 200 MW class steam boilers by Combustion Engineering designated as Units 1&2 , and two 400 MW class steam boilers by Foster Wheeler designated as Units 3&4. Each unit is capable of firing No. 6 residual fuel oil, natural gas, on-specification used oil, or a combination of each of these fuels. The particulate emission limits for each boiler is 0.03 lb./mmbtu steady state operation, and 0.1 lb./mmbtu while sootblowing. The operation of the ESP will be monitored, using power levels, to assure continuous compliance with the PM standard. This report discusses the theory and actual operation of this ESP, with regard to setting the minimum level of electrical operation to assure adequate ESP performance.

The impact of ESP power variations on particulate emissions is dependent on the range of power input. At moderate to high power levels, the ESP performance is relatively "flat" vs. power level. Further, certain conditions of low dust level or low process load can reduce ESP voltage, thereby actually reducing total ESP power levels, even though emissions are in fact lower. Therefore, although power levels are a reasonable indicator of ESP performance, operating conditions and power magnitude must be considered as well. The following report will discuss methodology for monitoring ESP power levels in order to demonstrate PM compliance.

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DISCUSSION

Theory

The operation of ESPs involves three (3) primary steps; 1) the suspended fly ash must be negatively charged, 2) then the fly ash is collected on grounded collecting plates, and 3) finally the fly ash is rapped off of the collecting plates into hoppers for transport to disposal. The fly ash charging is accomplished using an alternating series of negatively charged discharge electrodes and grounded collecting plates. A high voltage is applied to the discharge electrodes, typically in the 15-110 KV peak range using electrical transformer-rectifiers (TRs). This high voltage forces electrons off of the discharge electrodes onto gas molecules, creating gas ions. These ions actually glow at the corona generating tips of the discharge electrodes. Then as the negatively charged ions migrate toward the collecting plates, they encounter and charge dust particles in the inter-electrode gap. Once charged, the dust particles also migrate toward the grounded collecting plates. The dust then collects or forms a loose dust layer on the collecting plates. Lastly a series of rappers vibrate the internals to shake this dust layer off of the collecting plates and down into hoppers (under the influence of gravity). Ash conveying systems then carry the collected dust to disposal.

The ESP is a DC device utilizing TRs to convert low voltage AC power to high voltage DC. The TR can be compared to a fluid flow pump in that electrical current flow (Amperes) is equivalent to pump flow (gallons/min), and electrical voltage is equivalent to pumping pressure. Thus like a fluid flow pump, flow depends on applied pressure and resistance to flow. The applied TR voltage will thus fluctuate depending on a number of variables;

- electrode geometry
- dust levels in the flue gas
- flue gas temperature
- quantity of flue gas
- build-ups on internal electrodes
- dust resistivity and ESP sparking

The ESP is not designed to, and does not operate at a constant static condition of voltage and current. Instead it has automatic controls to adjust power to variations in the above conditions, and to hold power tight up against the sparking level in the ESP. In an ESP sparking is controlled primarily from the resistivity of the fly ash. If the resistivity is low or optimum, the electricity can flow through the collected dust layer to the grounded collecting plate. However, if the resistivity is high, the collected dust layer resists the flow of electricity. This results in a high voltage on the surface of the dust layer, in close proximity to zero voltage on the collecting plate. An electrical breakdown occurs in the collected dust layer, and this disturbance then creates a spark back to the negatively charged electrode from the grounded electrode. The conditions of resistivity and sparking, are what control the power input levels possible with an ESP.

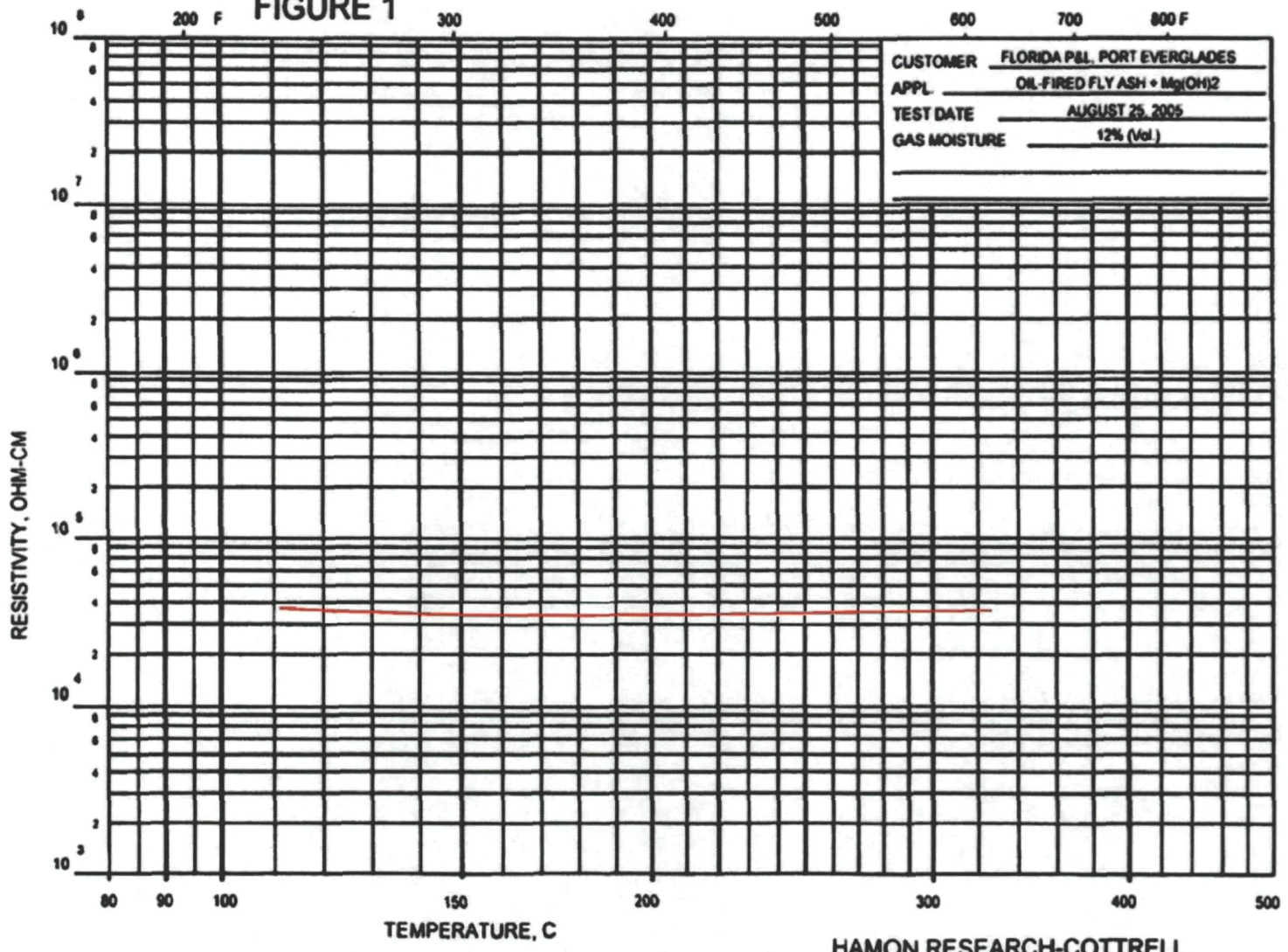
In modern ESPs, spark control is accomplished by control algorithms. Here the automatic voltage control responds automatically to sparking inside the ESP. It then adjusts TR power levels down and up depending on the internal condition of the ESP process.

Again drawing analogy to other common devices, the ESP in general works somewhat like a fluorescent light bulb in that a certain minimum or starting voltage is required for the device to function. At low voltages (less than about 18 KV for the particular electrode geometry at FPL), the ESP does not function electrically at all. Below this corona starting voltage, there is no electrical flow across the air gap between the discharge and collecting electrodes. Once the voltage increases above this level, then there is a constant cause and effect relationship that increased voltage (or pushing strength) causes increased current (or flow). However the corona starting point and the slope of this curve will depend on the amount of particulate in the flue gases. A low dust loading actually causes the ESP to operate at lower voltage (Note that power, kilowatts, is the product of current x voltage x cosine of conduction angle). This means that a lower power at low process load or with lower ash content oil, could erroneously be judged to imply higher particulate emissions (i.e. because the voltage is lower) when in fact lower particulate emissions were occurring.

A second incongruity in looking at power levels as a predictor of particulate emissions is that the size of the ESP is not taken into account. ESPs are sized depending upon particulate resistivity. If the resistivity is increased, then there is more sparking and lower power in the TRs. The ESP must be larger to get the same particulate emissions, with higher sparking levels. In the case of actual operation, this process occurs quite often. This happens each time the boiler load on the ESP is reduced. When boiler load (or the resulting flue gas volume) drops, the ESP gets proportionally larger in treatment time. However, the gas temperature generally drops because there is proportionally more heat exchange surface to flue gas volume ratio in the boiler.

Looking at Figure 1, resistivity measurements on Florida Power & Light, Port Everglades oil-fired fly ash, the resistivity can be seen to be very low and fairly flat across the temperature range. Every process observed to date, has shown lower particulate emissions at low boiler flue gas volume than high. This is because the increase in treatment time of the ESP is a greater impact on particulate emissions, than the power level. This implies that the ESP is performing more poorly per unit of collecting surface. However, this does not mean that the ESP is performing poorly, in terms of particulate emissions. This is because the performance of ESPs is related both to power density on the collecting surface, and the size of the ESP. Thus, even though the power is lower, this is occurring at a time when the boiler flue gas volume is greatly reduced. In effect during these time periods when the boiler is at 20 - 70% load, the ESP is proportionally 1.5 to 4 times larger.

FIGURE 1



CUSTOMER	FLORIDA P&L, PORT EVERGLADES
APPL.	OIL-FIRED FLY ASH + Mg(OH) ₂
TEST DATE	AUGUST 25, 2005
GAS MOISTURE	12% (Vol.)

HAMON RESEARCH-COTTRELL

5

Studies have been conducted on Hamon Research-Cottrell ESPs of similar electrode geometry, fly ash inlet loading (note that oil-firing has a low ESP inlet fly ash loading because there is very low ash content in oil), and oil-fired fly ash resistivity. These studies start with laboratory analysis of different electrode types and geometries. This is followed up with installations similar to the FPL Port Everglades' ESP installations. Many ESPs with the same electrode design used at FPL, were installed by HRC during the time frame 1976 to 2005. HRC has compiled considerable data on the power consumed by a properly operating ESP, and in fact have sizing standards concerning how low an ESP can go in power and still have good operation.

For the FP&L-Port Everglades Unit No.s 1 and 2, the boilers are equipped with an ESP for each boiler. The ESP has a total of 154,176 FT² of collecting surface, with all fields in-service. Compliance with the Particulate Matter emission standard of 0.03 LB/MMBTU was demonstrated with four (4) TRs (out of eight total) out-of-service.

To be conservative, FP&L will consider two (2) TRs (out of 8 total) out of service as compliance with particulate matter emission standard. Thus the collecting surface in service will be $\frac{6}{8} \times 154,176 = 115,362$ FT².

For the FP&L-Port Everglades Unit No.s 3 and 4, the boilers are equipped with an ESP for each boiler. The ESP has a total of 254,534 FT² of collecting surface, with all fields in-service. Compliance with the Particulate Matter emission standard of 0.03 LB/MMBTU was demonstrated with six (6) TRs (out of eight total) out-of-service.

FP&L will consider six (6) TRs (out of eight total) out of service as compliance with the Particulate Matter Emission Standard. Thus the collecting surface in service will be $\frac{2}{8} \times 254,534 = 63,634$ FT².

Actual Data - Unit No.s 1 and 2

Actual test data from the site was obtained during source tests performed in June, 2005. This data showed the ESP to be able to achieve particulate emissions compliance, which is less than 0.03 LB/MMBTU with multiple TR sets out of service and at very low power levels.

TRs In Service	Secondary Power Level (Kw)	Particulate Emissions (LB./MMBTU)
All (8)	Not Measured	Not Measured
7	242	0.019
6	46	0.025
4	34	0.031

The above particulate emissions were obtained using EPA Method 17.

Actual Data - Unit No.s 3 and 4

Actual test data from the site was obtained during 100% oil, full-load tests performed in March, 2009. This data showed the ESP to be able to achieve particulate emission compliance well below the limit of 0.03 LB/MMBTU with multiple TR sets out of service and at very low power levels.

TRs In Service	Secondary Power Level (Kw)	Particulate Emissions (LB./MMBTU)
All (8)	535	0.004
6	384	0.003
4	240	0.001
2	88	0.002

The above particulate emissions were obtained using EPA Method 17.

3

PROCEDURE

The following procedure shall be utilized to assure the ESP is operating properly, within normal variations in power. Note that this procedure is written in terms of secondary kilowatts. Monitoring secondary kilowatts reflects both current and voltage values. If either secondary voltage is low or secondary current is low, the product secondary kilowatts will also be low.

I. The permittee shall monitor and record the following on a "daily" basis, during any operation of the boiler/ESPs. This results in a maximum of 365 recorded power levels per year. Recording power levels up to 365 times per year is quite sufficient to see trends occurring in the performance of the unit. The following will be recorded;

A. The total power in secondary kilowatts, to the ESP system for each day (the sum of all TR sets operating at the time of the reading).

B. Unit power output (MW).

C. Unit percent oil burn.

II. Operational Requirements

A. At least six (6) of the eight (8) TRs installed on Units 1 & 2, will be in service at all times when 100% oil is being fired. At least two (2) of the eight (8) TRs installed on Units 3 & 4, will be in service at all times when 100% oil is being fired.

B. The total combined power input (in kilowatts) to all fields of the Unit 1 & 2 ESP system, for any day when the emissions unit is in operation at 70% to 100% of full boiler load firing 100% oil, shall be no less than 264 kilowatts.

The total combined power input (in kilowatts) to all fields of the Unit 3 & 4 ESP system, for any day when the emissions unit is in operation at 70% to 100% of full boiler load firing 100% oil, shall be no less than 88 kilowatts.

C. During periods when the boiler is at reduced load (0 - 70%) while firing 100% oil, secondary power deviations (below 46 kilowatts for Units 1 and 2, and 88 kilowatts for Units 3 and 4) are not significant. The proportional large size of the ESP during low load conditions is more than sufficient to offset any variations in power consumption.

D. When the total combined secondary power is found to be less than 46 kilowatts per ESP for Units 1 and 2 and 88 kilowatts per ESP for Units 3 and 4, with the unit at 70 -100% of full load and while firing 100% oil fuel, FPL will investigate the cause and take corrective action.

E. FPL, at its discretion, can reduce load or replace 100% oil firing with a portion of natural gas firing.