Seminole Electric
COOPERATIVE, INC.
IN PARTNERSHIP WITH THOSE WE SERVE

January 25, 2010

Ms. Trina Vielhauer
Chief, Bureau of Air Regulation
Florida Department of Environmental Protection
Division of Air Resource Management
111 South Magnolia Drive, Suite 4
Tallahassee, FL 32301

Re: Seminole Electric Cooperative, Inc.
Seminole Generating Station – Facility ID No. 1070025
Unit 2 Steam Turbine Upgrades
1070025-014-AC

Dear Ms. Vielhauer:

Seminole Electric Cooperative, Inc. (SECI) recently installed new and upgraded existing emission control systems at its Seminole Generating Station (SGS) Units 1 and 2 as authorized by Florida Department of Environmental Protection (FDEP) Air Construction Permit No. 1070025-004-AC. This air construction permit also authorized upgrades to the Unit 1 and Unit 2 steam turbines; reference Section 3., Specific Condition No. 6.

The steam turbine upgrades to Unit 1 have been completed. However, the steam turbine upgrades to Unit 2 are planned to take place during an outage in March of this year. Since Air Construction Permit No. 1070025-004-AC expired on December 31, 2009, the Department has requested the submittal of an air construction permit application for the Unit 2 steam turbine upgrade project.

The purpose of the Unit 2 steam upgrade project is to improve steam turbine blade efficiency to increase gross electrical output by approximately 13.6 megawatts. This increase in electrical output will partially offset the increased parasitic electric load caused by the new and upgraded emission control systems recently installed on Unit 2.

The planned Unit 2 steam turbine upgrades include replacement of the L-0 and L-1 low pressure (LP) turbine rotating blades, L-0 blade carriers, G-0 and G-1 stationary blades, inner-stage seal strips, rotor hub covers, and modifications to the inner casing horizontal joint. The replacement L-0 blades will be slightly longer thereby reducing kinetic energy exhaust losses. The exit area of the replacement L-0 blade carrier will be increased and the replacement L-1 blades will be shrouded to allow for more efficient blade geometry and to reduce blade tip losses. In addition, the inner casing horizontal joint will be modified to reduce the amount of steam that currently bypasses the turbine blades. The estimated cost of the Unit 2 upgrade project is $11,055,690.

The increase in Unit 2 electrical output resulting from the steam turbine upgrades is

16313 North Dale Mabry Highway P.O. Box 272000 Tampa, Florida 33688-2000
Telephone 813.963.0994 Fax 813.264.7906 www.seminole-electric.com

solely due to the improved efficiency of the steam turbine; i.e., a reduction in the Unit 2 heat rate (British thermal units per kilowatt-hr [Btu/kWh]). The upgraded steam turbine will generate additional electricity through improved use of the energy contained in the steam produced by Unit 2. The amount and characteristics (i.e., pressure and temperature) of the steam produced by Unit 2 will not change. There will be no increases in the Unit 2 boiler design heat input, fuel flow rate, or steam production rate.

SGS Unit 2 operates as a baseload unit. Accordingly, there will no change in the utilization (i.e., capacity factor) of Unit 2 due to the steam turbine upgrade project. Since there will no change in the Unit 2 boiler design and utilization, there will also be no changes to Unit 2 potential and future actual emission rates due to the steam turbine upgrade project. SECI does not request any changes to the Unit 2 emission limits or any other Unit 2 permit requirement specified by the current Title V air operation permit; reference Title V Air Operation Permit No. 1070025-013-AV.

A summary of Unit 2 historical actual (2004 through 2009), baseline, and projected actual emission rates is attached (Attachment 1) for your review. The projected actual emission rates reflect the recent upgrades and additions to the Unit 2 emission control systems and assume no demand-side growth. As noted above, there will be no changes to Unit 2 potential and future actual emission rates due to the steam turbine upgrade project.

A summary of the latest Unit 2 particulate matter stack test results is provided as Attachment 2.

The administrative and signature pages of the Department's *Application for Air Permit – Long Form* (DEP Form No. 62-210.900(1), Effective 3/16/08 are also attached (Attachment 3). As noted above, SECI plans to complete the Unit 2 steam turbine upgrades during an outage that is scheduled for March 2010. We would therefore appreciate your expeditious processing of this air construction permit application.

Please contact me at (813) 963-0994, Extension 1224 or by email at wmroddy@seminole-electric.com if you have any questions or need any additional information..

Sincerely,

Mike Roddy
Manager of Environmental Affairs

Attachments

Attachment 1: Emissions Summary

Seminole Electric Cooperative, Inc. - Seminole Generating Station Unit 2
Actual, Baseline, and Projected Actual Emission Rates

Design Heat Input 7,172 10^6 Btu/hr

A. Actual Emission Rates

Parameter	Basis	Units	2004[1]	2005	2006	2007	2008	2009[1,2]
Operating Hours	Plant Data	hrs/yr	7,033	8,415	8,054	7,802	8,233	7,210
Heat Input	CEMS	10^6 Btu/yr	39,583,424	50,573,650	48,998,552	48,623,780	50,839,489	45,703,994
Capacity Factor	Plant Data/CEMS	%	63.0	80.5	78.0	77.4	80.9	72.7
SO_2	CEMS	tons/yr	12,424	16,180	11,076	10,208	11,249	12,868
SO_2	CEMS	lb/10^6 Btu	0.63	0.64	0.45	0.42	0.44	0.56
NO_x	CEMS	tons/yr	9,183	12,037	11,784	9,628	10,015	2,080
NO_x	CEMS	lb/10^6 Btu	0.46	0.48	0.48	0.40	0.39	0.09
CO	Stack Test Data	tons/yr	1,236	1,669	2,292	3,317	4,086	2,445
CO	Stack Test Data	lb/10^6 Btu	0.062	0.066	0.094	0.136	0.161	0.107
PM/PM_{10}	Stack Test Data	tons/yr	254	391	490	579	502	434
PM/PM_{10}	Stack Test Data	lb/10^6 Btu	0.013	0.015	0.020	0.024	0.020	0.019
VOC	AP-42	tons/yr	44	60	57	57	61	TBD
VOC	AP-42	lb/10^6 Btu	0.0022	0.0024	0.0023	0.0023	0.0024	TBD
H_2SO_4 Mist	Stack Test Data	tons/yr	625	854	789	718	747	457
H_2SO_4 Mist	Stack Test Data	lb/10^6 Btu	0.032	0.034	0.032	0.030	0.029	0.020

B. Baseline Emission Rates[1]

Parameter	Basis	Units	Baseline
SO_2	2005/2006	tons/yr	13,628
NO_x	2005/2006	tons/yr	11,910
CO	2007/2008	tons/yr	3,702
PM/PM_{10}	2007/2008	tons/yr	540
VOC	2007/2008	tons/yr	59
H_2SO_4 Mist	2005/2006	tons/yr	822

C. Projected Actual Emission Rates[3]

Parameter	Basis	Units	Projected Actual	Change[4]
SO_2	2007/2008	tons/yr	10,729	-2,899
NO_x	[5]	tons/yr	1,741	-10,170
CO	2007/2008	tons/yr	3,702	0
PM/PM_{10}	2007/2008	tons/yr	540	0
VOC	2007/2008	tons/yr	59	0
H_2SO_4 Mist	2007/2008	tons/yr	732	-89

TBD - to be determined.

[1] Unit 2 had extended outages in 2004 and 2009 - these years therefore do not represent normal operations

[2] 2009 PM and H_2SO_4 mist emissions based on 9/15-18/2009 stack test data. 2009 CO emissions based on CEMS data.

[3] Assumes no demand-side growth.

[4] Projected Actual - Baseline

[5] Based on permit limit of 0.07 lb/10^6 Btu per Condition No. 8 of Air Construction Permit No. 1070025-012-AC and 2007/2008 average heat input

Attachment 2: 2009 Stack Test Data

1.0 Introduction

Catalyst Air Management, Inc. (Catalyst) was contracted by Seminole Electric Cooperative Inc. (SECI) to perform emissions testing for Unit 2 at the Palatka Generating Station.

The sampling program was conducted September 15 through 18, 2009. The testing was performed by Messrs. Mike Taylor, Will Roberson, Rick Derrera, Huedon Love, Dale Kendrick and Sam Snipes of Catalyst, with the assistance of personnel assigned by SECI. Mr. Kenny Thompson of SECI coordinated plant operation during the testing.

2.0 Summary of Test Results

A summary of test results developed by this source sampling program are presented in Tables 1 through 12. The summary tables are presented as follows:

3.0 Results of Testing

The individual test run results are shown in Tables 2 through 5 and are tabulated in Appendices 1 through 3.

TABLE 1
Summary of Emissions
SECI Unit 2

Pollutant	3-run Avg. Result	Permit Limit
Particulate	0.019 lb/mmBtu	0.03 lb/mmBtu
Ammonia	0.06 avg. ppmv @ 15% O_2	≤5 ppmv @ 15% O_2 *
Sulfuric Acid Mist	0.020 lb/mmBtu	0.096 lb/mmBtu combined units 1&2
VOC	0.00098 lb/ton of coal	1.06 lb/ton of coal
Mercury (Hg)	0.006 lb/hr 0.026 tons/yr **	0.059 tons/yr combined units 1&2

* Denotes a maintenance trigger, not an emission limit. ** See calculation – Appendix 5

Testing for Unit 1 has not been performed due to extended outage. However, considering the limited operation time, and assuming that Unit 2 data is representative of Unit 1, it is assumed that the results demonstrate that the SECI Unit 2 meets the emissions limits described in FDEP Permit # 1070025-004-AC.

TABLE 2
ISOKINETIC SAMPLING SUMMARY
EPA Method 5B - Particulate

Client: **Seminole Electric Cooperative**
Plant: **Palatka Unit 2**
Location: **Stack**

Run Number:		1	2	3
Date:		9/17/2009	9/17/2009	9/17/2009
Run Time:	Start	10:25	12:10	15:10
	End	12:47	14:26	17:26
Unit Load (MW):		663	664	664
Heat Input (mmBtu/Hr):		6293	6332	6282
DN - Nozzle Diameter:		0.312	0.312	0.312
Pbar - Barometric Pressure:		29.50	29.50	29.50
TT - Sampling Time:		120	120	120
VM - Meter Volume:		84.959	86.098	85.619
TM - Avg. Meter Temp (F):		89	91	91
PM - Avg. Delta H (in. of H2O):		1.488	1.515	1.498
Y - Meter Calibration Factor:		0.99	0.99	0.99
VMSTD - Std. Gas Volume (SCF):		80.057	80.865	80.364
Vlc - Volume Water Collected:		289	301	304
%M - Percent Moisture:		14.5	14.9	15.1
Bws - Mole Fraction, Dry:		0.145	0.149	0.151
%CO2 - Carbon Dioxide, Dry:		12.3	12.5	12.6
%O2 - Oxygen, Dry:		6.8	6.8	6.5
%EA - Excess Air		46.7	46.9	43.7
MD - Dry Molecular Weight:		30.24	30.28	30.28
MS - Wet Molecular Weight:		28.46	28.44	28.42
A - Stack Area, SQ.FT:		1149.09	1149.09	1149.09
PS - Static Press. (in. of H2O):		29.45	29.45	29.45
TS - Stack Temp. (F):		132	132	132
CP - Pitot Coefficient:		0.84	0.84	0.84
VS - Stack Gas Velocity (AFPS):		26.8	26.9	26.8
QS - Stack Gas Volume (DSCFM):		1,385,644	1,383,722	1,378,712
QA - Stack Gas Volume (ACFM):		1,844,976	1,852,050	1,850,605
%I - Isokinetic Ratio:		104.3	105.5	105.2
Mg - Catch weight:		44.2	48.7	51.6
Gr/DSCF - Emission Concentration:		0.009	0.009	0.010
LBS/MMBTU - Emission Rate:		0.018	0.019	0.020

Average Gr/DSCF 0.009
Average LBS/MMBTU **0.019**

Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit:

- For any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

Air Operation Permit – Use this form to apply for:

- An initial federally enforceable state air operation permit (FESOP); or
- An initial, revised, or renewal Title V air operation permit.

RECEIVED
JAN 27 2010
BUREAU OF AIR REGULATION

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: **Seminole Electric Cooperative, Inc.**	
2. Site Name: **Seminole Generating Station**	
3. Facility Identification Number: **01070025**	
4. Facility Location...: Street Address or Other Locator: **890 North U.S. Highway 17** City: **7 Miles North of Palatka** County: **Putnam** Zip Code: **32177-8647**	
5. Relocatable Facility? ☐ Yes ☒ No	6. Existing Title V Permitted Facility? ☒ Yes ☐ No

Application Contact

1. Application Contact Name: **Mike Roddy, Manager of Environmental Affairs**
2. Application Contact Mailing Address... Organization/Firm: **Seminole Electric Cooperative, Inc.** Street Address: **16313 North Dale Mabry Highway** City: **Tampa** State: **FL** Zip Code: **33618-1427**
3. Application Contact Telephone Numbers... Telephone: **(813) 963-0994** ext. **1224** Fax: **(813) 264-7906**
4. Application Contact Email Address: **wmroddy@seminole-electric.com**

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	3. PSD Number (if applicable):
2. Project Number(s):	4. Siting Number (if applicable):

APPLICATION INFORMATION

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

This air construction permit application requests authorization to install steam turbine upgrades to Unit 2 at the Seminole Generating Station. The purpose of the Unit 2 steam upgrade project is to improve steam turbine blade efficiency to increase gross electrical output by approximately 13.6 megawatts. This increase in electrical output will partially offset the increased parasitic electric load caused by the new and upgraded emission control systems recently installed on Unit 2.

The Unit 2 boiler design and utilization will not change, and there will be no changes to Unit 2 potential and future actual emission rates due to the steam turbine upgrade project.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
002	Steam Electric Generator No. 2	N/A	N/A

Application Processing Fee

Check one: ☐ Attached - Amount: $_____ ☒ Not Applicable

APPLICATION INFORMATION

Owner/Authorized Representative Statement
Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name: **Michael P. Opalinski, Sr. Vice President of Strategic Services**
2. Owner/Authorized Representative Mailing Address Organization/Firm: **Seminole Electric Cooperative, Inc.** Street Address: **16313 North Dale Mabry Highway** City: **Tampa** State: **FL** Zip Code: **33618-1427**
3. Owner/Authorized Representative Telephone Numbers Telephone: **(813) 963-0994** ext.**1233** Fax: **(813) 264-790**
4. Owner/Authorized Representative Email Address: **mopalinski@seminole-electric.com**
5. Owner/Authorized Representative Statement: *I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.* M.P. Opalinski Signature 1/21/2010 Date

APPLICATION INFORMATION

Application Responsible Official Certification **NOT APPLICABLE**

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:

2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):

   ☐ 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.

   ☐ For a partnership or sole proprietorship, a general partner or the proprietor, respectively.

   ☐ For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.

   ☐ The designated representative at an Acid Rain source, CAIR source, or Hg Budget source.

3. Application Responsible Official Mailing Address...
   Organization/Firm:
   Street Address:
   City: State: Zip Code:

4. Application Responsible Official Telephone Numbers...
   Telephone: ext. Fax:

5. Application Responsible Official E-mail Address:

6. Application Responsible Official Certification:

   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.

   Signature Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: **Thomas W. Davis**
   Registration Number: **36777**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Environmental Consulting & Technology, Inc.**
   Street Address: **3701 Northwest 98th Street**
   City: **Gainesville** State: **Florida** Zip Code: **32606-5004**
3. Professional Engineer Telephone Numbers...
   Telephone: **(352) 332 – 0444** ext. Fax: **(352) 332 - 6722**
4. Professional Engineer Email Address: **tdavis@ectinc.com**
5. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) 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

(2) 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.

(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, 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.

(4) If the purpose of this application is to obtain an air construction permit (check here ☒, 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 ☐, 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.

(5) 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 ☐, 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.

THOMAS W. DAVIS LICENSE No. 36777 STATE OF FLORIDA PROFESSIONAL ENGINEER

Signature

Date: 1/21/2010

(seal)

* Attach any exception to certification statement.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone **17** East (km) **438.8** North (km) **3,289.2**		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
3. Governmental Facility Code: **0**	4. Facility Status Code: **A**	5. Facility Major Group SIC Code: **49**	6. Facility SIC(s): **4911**
7. Facility Comment :			

Facility Contact

1. Facility Contact Name: **Brenda Atkins, Director of Plant Operations**
2. Facility Contact Mailing Address... Organization/Firm: **Seminole Electric Cooperative, Inc.** Street Address: **890 North Highway 17** City: **Palatka** State: **FL** Zip Code: **32177-8647**
3. Facility Contact Telephone Numbers: Telephone: **(386) 328-9255** ext. Fax: **(386) 328-5571**
4. Facility Contact Email Address: **batkins@seminole-electric.com**

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: ( ) - ext. Fax: ( ) -
4. Facility Primary Responsible Official E-mail Address:

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a "major source" and a "synthetic minor source."

1. ☐ Small Business Stationary Source	☐ Unknown
2. ☐ Synthetic Non-Title V Source	
3. ☒ Title V Source	
4. ☒ Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. ☐ Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. ☒ Major Source of Hazardous Air Pollutants (HAPs)	
7. ☐ Synthetic Minor Source of HAPs	
8. ☒ One or More Emissions Units Subject to NSPS (40 CFR 60)	
9. ☐ One or More Emissions Units Subject to Emission Guidelines (40 CFR 60)	
10. ☐ One or More Emissions Units Subject to NESHAP (40 CFR 61 or Part 63)	
11. ☐ Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:	