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BUREAU OF AIR REGULATION

October 11, 2006

Mr. Michael Halpin, Professional Engineer
Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation
2600 Blair Stone Road, MS 5505
Tallahassee, FL 32399-2400

Re: Seminole Electric Cooperative, Inc.
Seminole Generating Station Unit 3
Response to Comment Letter

Dear Mike:

This letter is in response to the September 4, 2006 letter that Mr. Williams of Palatka, Florida sent to Governor Bush (and copied to many others) concerning Seminole's proposal to license an additional coal-fired unit at the existing Seminole Generating Station in Putnam County. As explained in more detail below (and in Seminole's pending Site Certification Application), Seminole is substantially modernizing its existing operations at the Seminole Generating Station, and is proposing a new Unit 3 which utilizes advanced technology and state of the art emission controls.

About Seminole

Seminole is a non-profit generation and transmission cooperative that generates and transmits electric power for ten member cooperatives that provide electricity in 46 of Florida's 67 counties. Seminole was created under the federal Rural Electrification Act, which was passed in 1936 to provide affordable electricity in predominantly rural areas. Seminole and the network of Florida electric cooperatives reliably and efficiently serve approximately 1.6 million individuals and businesses in two-thirds of the counties in Florida.

The SGS Site

Seminole Generating Station (SGS) Units 1 and 2, in Putnam County, originally were approved under the Power Plant Siting Act (PPSA) by the Governor and Cabinet, sitting as the Siting Board, in 1979. Both coal-fired units were in commercial operation by the end of 1984. The air emission limitations originally applicable to Units 1 and 2 were based on a Best Available Control Technology (BACT) demonstration pursuant to

the federal Clean Air Act Prevention of Significant Deterioration (PSD) program, and Subpart Da of the federal New Source Performance Standards. Over the years, Seminole has continued to undertake environmental improvements to both units and many of the site's common facilities.

Seminole's flue gas desulphurization (FGD) system conversion project, completed in 2000, is a prime example of Seminole's continuous improvement process. New equipment was added to Seminole's existing FGD system to force a chemical reaction in the process and convert a previously unusable waste product into a reusable material known as synthetic gypsum. Seminole successfully brought a new industry and an additional one-hundred jobs to Putnam County in the form of Lafarge Gypsum Corporation. Lafarge processes the synthetic gypsum into wallboard at a new multi-million dollar production facility located adjacent to the Seminole Generating Station. The final product is shipped to building industry customers and contractors at various locations across the eastern seaboard. Benefits to Seminole, our customers and citizens of the State of Florida include the elimination of more than 600,000 tons per year of material from entering the solid waste stream, enhanced power plant emission controls, and reduced operation costs which result in reduced electric rates for customers in two thirds of the counties in the state of Florida.

Seminole's Recent Units 1 and 2 Pollutant Control Upgrade Application

Earlier in 2006, Seminole requested and received approval to install several air pollution control upgrades and efficiency improvements on Units 1 and 2 to meet upcoming requirements under new federal air regulations through emission reductions. Several features of these upgrades were designed such that they can perform better than required under the new federal regulations that are now applicable. In fact, these air pollution control retrofits can and will be operated in a manner that achieve air emission reductions that more than offset air emission increases of NO_x, SO₂, mercury and sulfuric acid mist emitted by Unit 3. These improvements include the following:

- Installation of advanced design low NO_x burner and modified overfire air systems on Units 1 and 2, to meet an annual average emission limitation of 0.46 lb/mmBtu, as applicable in 2008 pursuant to Title IV of the federal Clean Air Act and corresponding state regulations.
- Installation of a state-of-the-art, urea-based selective catalytic reduction (SCR) control systems on Units 1 and 2, designed to be capable of achieving substantial nitrogen oxides (NO_x) reductions (to 0.07 lb/mmBtu).
- Upgrades to the flue gas desulfurization (FGD) systems for Units 1 and 2 to achieve up to 95% post-combustion SO₂ removal efficiency.
- Substantial reductions in mercury emissions from Units 1 and 2 due to the combined effect of the new SCRs and FGD upgrades.

- An alkali injection air pollution control system for Units 1 and 2 to control for potential SO₃ formation by the new SCR systems.
- A carbon burnout (CBO) system to produce a final fly ash product that will have substantially lower carbon and ammonia levels, and therefore be suitable for beneficial reuse, while also recovering energy to improve the heat rate of Units 1 and 2.

The SGS Unit 3 Project - - Environmental Enhancements

Seminole has proposed to integrate SGS Unit 3 into the existing, certified SGS site. The addition of SGS Unit 3 will increase the total output capability of the SGS by almost 60 percent while also, due to the pollution control features of Unit 3 (in combination with significant pollution control upgrades to Units 1 and 2), result in several very significant improvements in overall SGS environmental performance.

SGS Unit 3 will feature advanced supercritical pulverized coal technology with state-of-the-art air emission controls. The Unit 3 air pollution control equipment will include wet FGD for SO₂ removal, selective catalytic reduction (SCR) for control of nitrogen oxides (NO_x), electrostatic precipitator (ESP) for collection and removal of fine particles, a wet ESP for control of sulfuric acid mist (SAM), and mercury removal through application of the above technologies.

With Unit 3, most process wastewater streams from Units 1 and 2, as well as Unit 3, will be treated and recycled as make-up water to the FGD scrubber system. Wastewater from the two existing units and Unit 3 will be treated as necessary in a proposed zero liquid discharge (ZLD) system that will remove dissolved solids from the wastewater and maximize reuse. With Unit 3, the only SGS industrial wastewater proposed to be discharged to the St. Johns River from Units 1, 2, and 3 will be cooling tower blowdown, and as a result, there will be a substantial reduction in the mass loading of pollutants discharged into the Lower St. Johns River. Also, due to the enhanced reuse of wastewater, Seminole is not requesting an increase in the existing limitations on consumptive use of groundwater.

The SGS Unit 3 Project - - Technology Selection

SGS Unit 3 will achieve superior performance by employing supercritical technology. This means that the boiler operates at very high temperatures and pressures; the boiler water readily converts directly to steam, and a steam drum is not required. The result is substantially improved plant efficiency, lower air emissions, and less fuel consumption. Recent advancements in designing components that can withstand the higher pressure and temperature inherent in supercritical technology now have made supercritical technology a reliable and highly efficient option. Coupled with the sophisticated pollution control equipment for Unit 3, and the extensive retrofits on Units


1 and 2, Seminole's Unit 3 project represents a very modern alternative to earlier generations of coal technology.

Seminole proposed the SGS Unit 3 configuration after an extensive consultation with a national engineering firm (Burns and McDonnell) that assisted in assessing available technologies, including nuclear, circulating fluidized bed (CFB), integrated gasification combined cycle, and other options. Seminole also issued an all source RFP that afforded tremendous flexibility for potential suppliers to propose all manner of technologies. Seminole proposed SGS Unit 3 only after undergoing this deliberative and thorough process.

Much of the technology suggested in Mr. Williams letter appears to be somewhat anecdotal and speculative in nature, as opposed to based on verifiable engineering principles. We are not aware of any experience in reliably and safely producing base load quantities of electric power in the manner suggested by Mr. Williams. However, his ideas appear to be somewhat related to a new technology being developed by Jupiter Oxygen Corporation known as Oxy-fuel Technology. I have attached a news article that references Jupiter Oxygen Corporations most recent developments. Review of the article indicates that the initial application of this system to a coal plant is being attempted as a retrofit to a 25 megawatt plant located in Orrville, Ohio. It should be noted that this system has not been installed to date, has not been tested in commercial operation and has not been scaled up in size to accommodate the 750 megawatt need currently required by Seminole. Due to its obligation to provide reliable electric power to its member cooperatives in the near term, Seminole at this time must proceed with technology that has undergone sophisticated engineering analysis that has demonstrated commercial viability. Of further note, the emission limits for regulated air pollutants proposed in Seminole's draft Unit 3 air permit, are very similar to the limits considered to be achievable by Jupiter's Oxy-fuel process. Therefore, by this measure, Seminole has already proposed a 21st Century Plant based on proven technology.

Seminole understands and appreciates public participation in the licensing process, and remains committed to thoughtfully evaluating all comments and suggestions.

Sincerely,



James R. Frauen
Project Director SGS3

Attachment – Jupiter Announces World's First Oxy-fuel Clean Coal Retrofit

9/25/2006: Press Release from Jupiter Oxygen

Jupiter Announces World's First Oxy-fuel Clean Coal Retrofit

Ohio Power Plant to use Oxy-fuel Technology for Ultra Low Emissions

(CSRwire) CHICAGO--(BUSINESS WIRE)--Sept. 25, 2006--Jupiter Oxygen, with the Ohio Air Quality Development Authority and Orrville Utilities announced today that work will begin on the world's first oxy-fuel clean coal retrofit of an operating electric power plant. At the Orrville, Ohio 25 megawatt plant, Jupiter will utilize its patented Oxy-fuel technology combined with the National Energy Technology Laboratory's Integrated Pollutant Removal (IPR) technology to create the first-of-its-kind Oxy-fuel clean coal electric power plant. When the \$34 million retrofit is completed in 2008, the plant will meet FutureGen's 2020 goals for ultra-low emissions of mercury, NOx, SOx, and particulates, as well as be CO2 capture ready.

With a 250-year supply and 35% of the known reserves, the United States is essentially the Saudi Arabia of coal. Unfortunately, coal does not naturally burn cleanly, and it is difficult to attain permits for the construction of new coal-fired plants. This makes the development and use of clean coal technology important to America's drive to become energy independent. Jupiter Oxygen's combustion technology has been used commercially since 1997 and is now emerging as the most promising technology for use in coal-fired power plants. Unlike most clean coal technologies being developed, Jupiter's process can be designed into new plants, or used to retrofit the existing 600 coal fueled electric power plants in operation throughout the United States.

"This innovative technology promises great economic benefits by providing existing power plants the capacity to modernize and deliver clean and economical power to our country and helps reduce the need to construct costly new facilities," stated Ralph Regula (R-Ohio 16th).

"Developing a clean and cost effective way to convert coal to energy is vital to America's future. I am pleased to have been in a position to help secure the initial funding for this project."

"This is a major step in the advancement of clean coal technology and Jupiter's Oxy-fuel process," stated Dietrich Gross, CEO, Jupiter Oxygen. "We are confident that the Orrville retrofit project will show the nation that we can safely use coal to meet our country's need for electricity."

"We are excited to have had our plant chosen for this first of its kind Oxy-fuel clean coal power plant," stated Dan Preising, Director of Utilities, Orrville Utilities. "It is important to find a way to make our country's existing fleet of power plants cleaner and safer for our environment."

The good news for consumers is that not only will Jupiter's Oxy-fuel technology reduce greenhouse gas emissions from coal burning power plants, it will do so at a cost that will not affect them financially. In fact, the fuel savings and increased power plant efficiencies give Jupiter's technology a clear cost advantage over other clean coal technologies, especially coal gasification.

For new coal-fired power plants with carbon capture, the production cost for electricity is projected to be 1.7 cents per kwh. The total cost of electricity, including amortization and capital expenses, is projected to be only 5.1 cents per kwh. Each of these cost figures is lower than those of alternative clean coal technologies, which do not achieve the same results as Jupiter's Oxy-fuel/IPR hybrid technology.

Jupiter's patented process uses oxygen instead of air to burn the coal necessary to create the steam needed for power generation. Rather than reducing emissions of a single pollutant, the combined Jupiter Oxygen/IPR hybrid system combines technologies into a multi-pollutant control "package" that has been demonstrated to be an exceptionally effective environmental control system. In fact, testing shows that it is both practical and efficient to capture virtually all pollutants. The results indicated a 95% CO2 capture rate, 90% removal of all mercury, 99+% sulfur removal, 99+% particulate capture including more than 80% of the PM 2.5 particulate and a combustion level for NOx of only .088 Lbs/ MMBtu.

Headquartered in Chicago, Illinois, Jupiter Oxygen is a privately held company that has developed a revolutionary technology that makes it practical and cost effective to operate environmental friendly coal and other fossil fueled electric power plants. Jupiter's technology is the innovative application of oxygen instead of air for fossil fuel combustion, which removes the barriers for carbon capture. Jupiter's Oxy-fuel technology is patented in the United States and many other countries, and patents are pending throughout the world. The technology has been successfully used in commercial furnaces since 1997. Additional information on Jupiter Oxygen can be found at www.jupiteroxxygen.com.

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