



Environmental Consulting & Technology, Inc.

October 23, 2012

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NORTHEAST DISTRICT
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Mr. Khalid AlNahdy
District Air Program Administrator
Florida Department of Environmental Protection
Northeast District
7777 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256

**Re: Gainesville Regional Utilities
South Energy Center at Shands - Facility ID 0010129
Request for Modification of Air Construction Permit Conditions**

Dear Mr. AlNahdy:

The Gainesville Regional Utilities (GRU) South Energy Center (SEC) at Shands is located at 1390 Southwest 14th Avenue in Gainesville, Alachua County, Florida. The SEC, which provides steam and power to the adjacent Shands Cancer Hospital at the University of Florida, includes one natural gas-fired Solar Turbines combustion turbine generator (CTG). Approval to install this CTG was issued by the Department on July 25, 2007 – reference Air Construction Permit No. 0010129-001-AC.

On behalf of GRU, this letter requests approval to utilize Solar's gas turbine exchange program which involves replacement of the existing turbine with an identical unit that has been overhauled at a Solar Turbines central overhaul facility. Such turbine overhauls are typically conducted every 30,000 operating hours in order to maintain the life expectancy of the turbine. GRU plans to replace the SEC gas turbine in December 2012 using the Solar Turbines gas turbine exchange program. GRU also plans to utilize Solar's gas turbine exchange program in the event of a major malfunction of the SEC gas turbine.

Gas turbines are designed with requirements for certain maintenance and/or repair activities to maintain the life expectancy of the gas turbine. One such maintenance/repair activity is to overhaul the gas producer and power turbine modules. An overhaul is the complete disassembly, inspection, rework, reassembly and test of a gas turbine to return the unit to its original thermodynamic and mechanical performance. In preparation for an overhaul and to minimize the costs associated with downtime, the Solar Turbines gas turbine exchange program involves the shipment of a like-kind exchange gas turbine (also referred to as the gas producer module and power turbine module or as the gas turbine core) to the customer's site. The exchange gas turbine has identical horsepower, heat rate, and emissions characteristics as the module being replaced. The original CTG package including the control system, fuel system, lubrication system, driven equipment, structures, enclosures, skids, inlet and exhaust ducting, etc., remains in place.

When the exchange is performed, the existing gas turbine core is removed by qualified Solar Turbines service technicians and replaced with the exchange gas turbine core. The removed gas turbine core is then transported to centralized facilities that have specialized,

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state-of-the-art equipment located in a controlled environment. The removed gas turbine core's major components are thoroughly inspected for damage, wear, or other signs of deterioration. Should rework of a particular component be required, an identical or functionally equivalent part is used in the rebuild as specified in the gas turbine engineering drawings in order to ensure that configuration is controlled per released standards, while at the same time expediting the overhaul process. Functionally equivalent parts are also used when a design evolution has occurred and the original part is no longer available.

The newly overhauled gas turbine core is then placed in the Solar Turbines exchange fleet for future deployment. Prior to leaving an overhaul facility, the overhauled gas turbine core is tested to ensure that the original customer performance specifications (heat rate, power, etc.) and emission levels are met. It is standard industry practice to replace the gas producer and power turbine modules with a unit provided by a central overhaul facility. Although an infrequent occurrence, if an overhauled gas turbine is unavailable from their overhaul facility Solar Turbines will provide a new gas turbine as the exchange unit.

The SEC CTG is currently subject to New Source Performance Standard Subpart KKKK, Standards of Performance for Stationary Combustion Turbines. The replacement gas turbine will remain subject to the same NSPS Subpart KKKK requirements. The SEC CTG is dedicated to providing power to the Shands Cancer Hospital at the University of Florida. Accordingly, utilization of the replacement gas turbine will not increase from current levels. Since the replacement gas turbine will have the same emissions characteristics as the gas turbine being replaced, there will be no changes in potential or projected actual emission rates due to use of the replacement gas turbine. The replacement gas turbine will comply with all applicable requirements of Air Construction Permit No. 0010129-001-AC.

To allow use of the Solar Turbines gas turbine exchange program, GRU requests a revision to previously issued Air Construction Permit No. 0010129-001-AC to include the following additional permit condition:

Section B, **GAS TURBINE EXCHANGE PROGRAM**

21. Gas Turbine Exchange Program: At intervals of approximately 30,000 operating hours and in the event of a major malfunction, the gas turbine may be replaced with a like-kind gas turbine that is either new or that has been overhauled by Solar Turbines at a central overhaul facility. The replacement gas turbine shall have the same maximum heat input rates and emissions characteristics as the gas turbine being replaced. Performance testing and compliance demonstrations for the replacement gas turbine shall be conducted in accordance with Conditions 7 through 17.

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In support of this air construction permit condition revision request, a completed Application for Air Permit - Long Form (Application Information section only, including Responsible Official and Professional Engineer certifications), and a \$250 permit processing fee check are enclosed.

Please contact Regina Embry at (352) 393-1299 (email at embryrg@gru.com) if you have any questions regarding this permit revision request.

Sincerely,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.



Thomas W. Davis, P.E.
Principal Engineer

Enclosure

cc: Regina Embry, GRU