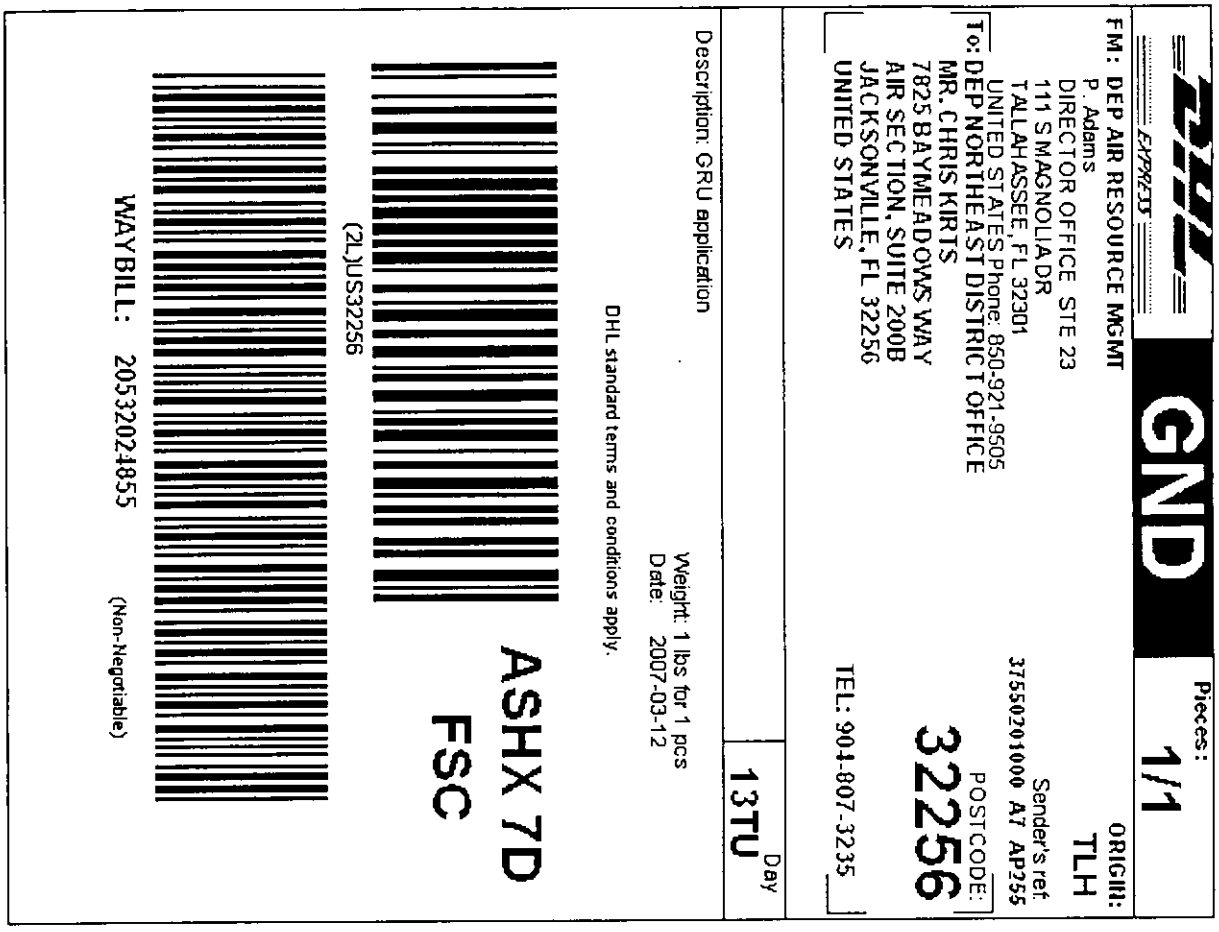

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UNITED STATES

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Phone#: 904-807-3235

Sent By: P. Adams
Phone#: 850-921-9505

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STRATEGIC PLANNING

Via Overnight Delivery

February 22, 2007

Mr. Jeff Koerner
Florida Dept. of Environmental Protection
Bureau of Air Regulation
Air Permitting North
111 So. Magnolia Drive
Tallahassee, FL 32301

Re: Gainesville Regional Utilities
Deerhaven Generating Station – Unit 2
Air Construction Permit Application - Air Quality Control System Addition

Dear Mr. Koerner:

Enclosed are four (4) copies of the air construction permit application for the above-referenced project.

If you have any questions pertaining to this application or the project please contact me at jonynasye@gru.com or 352-393-1284. If I am not available please contact Mr. Tom Davis (ECT) at Tdavis@ectinc.com or 352-332-0444 or Mr. Tim Bates at Batestc@gru.com or 352-393-1751.

Sincerely,

Yolanta E. Jonynas

Yolanta E. Jonynas
Licensing Manager

xc: C. Allen, GRU
T. Bates, GRU
D. Beck, GRU
R. Embry, GRU, wo. enc.
C. Kirts, FDEP – NE District
R. Klemans, GRU, wo. enc.
D. Mallery, GRU, wo. enc.
D. Moffet, GRU
R. Nance, GRU, wo. enc.
E. Walters, GRU, wo. enc.
DH2AQCS1.0

DH2AQCSACPermitapp022107

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1.0 INTRODUCTION

The City of Gainesville, Gainesville Regional Utilities (GRU) operates a nominal 251 megawatt (MW) coal-fired steam electrical generating unit (EGU) at its Deerhaven Generating Station (DGS) located in Gainesville, Alachua County, Florida. Operation of DGS Unit 2 is currently authorized by Florida Department of Environmental Protection (FDEP) Title V Final Permit No. 0010006-003-AV. Final Permit No. 0010006-003-AV was issued with an effective date of January 1, 2005, and an expiration date of December 31, 2009.

In March 2005 the U.S. Environmental Protection Agency (EPA) promulgated the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR) to limit emissions of sulfur dioxide (SO_2), nitrogen oxides (NO_x), and mercury (Hg) from electric generating units by means of a two-phase cap and trade system. On June 29, 2006, the Florida Environmental Regulatory Commission (ERC) adopted modified versions of these EPA rules. Specifically, Florida opted into EPA's cap and trade model rule but made modifications to the methodology for allocating NO_x and mercury allowances to individual units to address Florida-specific issues. On January 5, 2006, GRU received approval from the Gainesville City Commission to retrofit DGS Unit 2 with air quality control systems (AQCS) as one means of complying with the new regulations by the required deadlines recognizing that the purchase of emission credits (allowances) is also a viable option for complying with the requirements. CAIR affords a regulated facility the flexibility to evaluate market conditions to determine whether it will install controls, operate existing controls, or purchase allowances generated by other plants. Therefore, GRU is not required by regulation to install nor operate the proposed AQCS to meet CAIR requirements.

The emission control equipment planned for DGS Unit 2 includes the following air quality control systems:

- Selective catalytic reduction (SCR) system to reduce NO_x emissions.
- A circulating dry scrubber (CDS) to reduce (SO_2) emissions.

- Baghouse (fabric filter) to reduce particulate matter (PM) emissions. The baghouse is an integral part of the CDS.
- Ancillary support equipment including new material (urea, lime, and CDS by-product) handling and storage.

These emission control systems will also have the co-benefit of controlling Hg, hydrogen chloride (HCl), hydrogen fluoride (HF), and sulfuric acid mist (H_2SO_4 mist) emissions. The emission control systems planned for DGS Unit 2 will result in a significant reduction in actual emission rates. Following installation and operation of the DGS Unit 2 AQCS, controlled emission rates will be well below the current FDEP and EPA allowable rates. Provisions have been made in the design of the AQCS for activated carbon injection in the future if needed for additional mercury control.

This air construction permit application constitutes GRU's request for FDEP approval to retrofit the emission controls systems described above for DGS Unit 2. GRU plans to commence construction on the DGS Unit 2 AQCS retrofit project in July of this year with a target completion date of April 2009. The AQCS is anticipated to be fully operational by mid-May 2009. To attain this schedule, FDEP's expeditious processing of this air construction permit application will be appreciated.

The remainder of this air construction permit application is organized as follows:

- Section 2.0—Site Location and Description
- Section 3.0—Project Overview
- Section 4.0—Regulatory Status of Unit 2
- Section 5.0—Description of Emission Control Systems
- Section 6.0—New Source Review Applicability
- Section 7.0—Ambient Air Quality Impact Screening Analysis

Appendix A provides FDEP's Application for Air Permit—Long Form (FDEP Form No. 62-210.900[1] Effective 02/02/06).

2.0 SITE LOCATION AND DESCRIPTION

2.1 SITE LOCATION

The DGS is located at 10001 Northwest 13th Street in Gainesville, Alachua County, Florida. Figure 2-1 shows the site location and nearby prominent geographical features, and the location of the DGS within the state of Florida.

2.2 SITE DESCRIPTION

The DGS includes two fossil fuel-fired steam EGUs (Unit 1 and 2) and other components as described below. Unit 1 has a nominal generation capacity of 75 MW and commenced commercial operation in 1972. Unit 2 has a nominal generation capacity of 251 MW and commenced commercial operation in 1981. Unit 1 is fired with natural gas, residual fuel oils (Nos. 4, 5, or 6), distillate fuel oils (Nos. 1 and 2), propane (for ignition during startups), on-specification used oil, or any combinations of these fuels. Unit 2 is primarily fired with coal but may also fire natural gas or distillate fuel oils (Nos. 1 and 2), or any combination of these fuels.

Major components of the DGS include the following:

- Coal receiving, storage, handling, and feed preparation equipment.
- One natural gas/fuel oil-fired boiler (Unit 1).
- One coal-fired boiler (Unit 2) equipped with PM control equipment.
- Three simple-cycle combustion turbines, one equipped with low-NO_x burners and a steam injection system. These are fired with natural gas or distillate fuel.
- Fly ash handling equipment.
- Water treatment facilities.

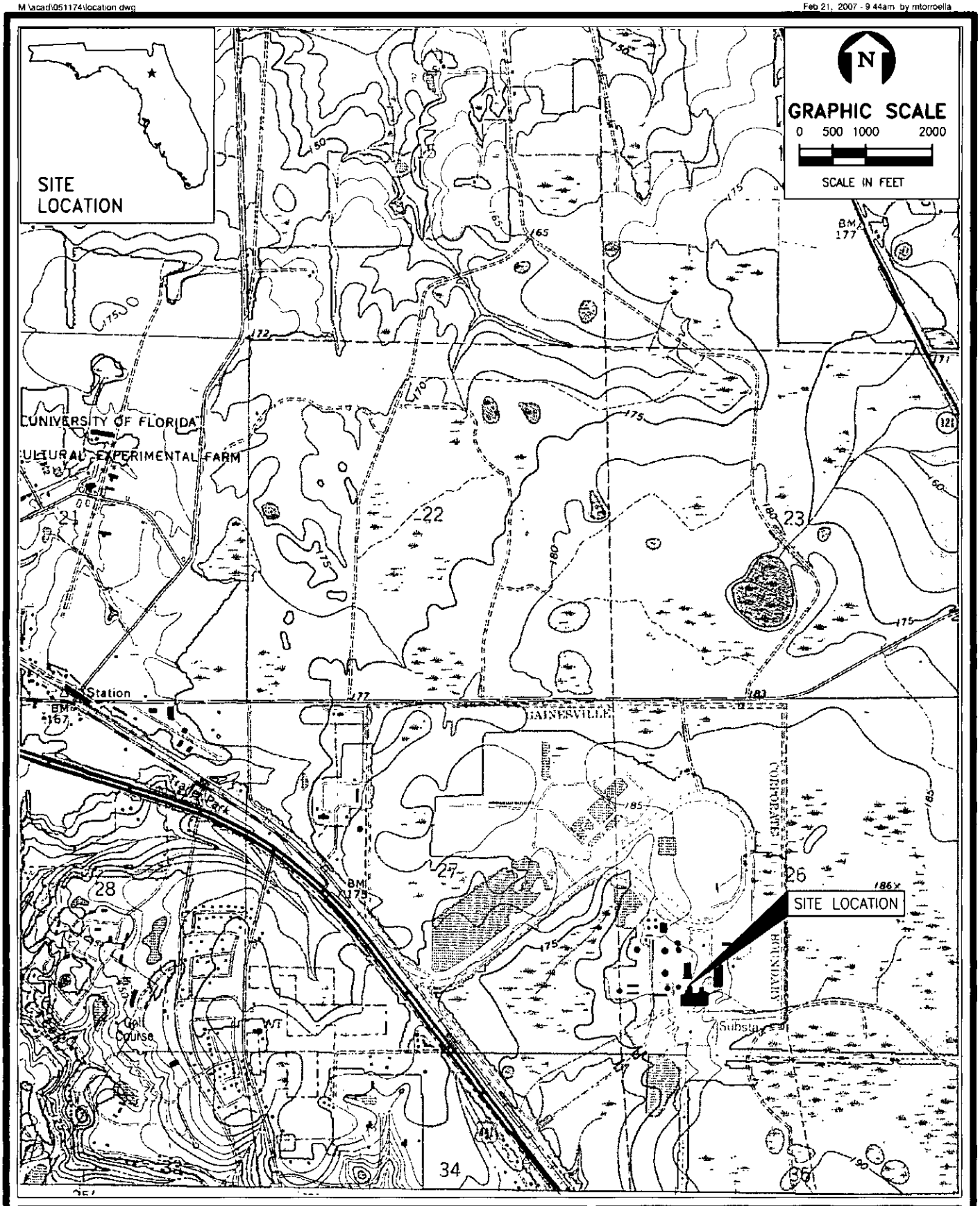

FIGURE 2-1.

GENERAL AREA MAP

DEERHAVEN GENERATING STATION

Sources: USGS Quod: Alachua, FL, 1993; ECT, 2006.

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3.0 PROJECT OVERVIEW

The DGS Unit 2 AQCS retrofit project includes the installation of emission control systems, refurbishment of the existing Unit 2 steam turbine, and use of a bituminous coal with higher sulfur and ash content than is currently being used. A detailed description of the proposed emission control systems is provided in Section 4.0 of this report. Discussions of the steam turbine upgrade and proposed fuels are provided in the following sections.

3.1 STEAM TURBINE REFURBISHMENT

Concurrent with the AQCS project, the Unit 2 steam turbine may be refurbished by replacing the high- and intermediate pressure rotor along with the associated stationary elements. The steam turbine refurbishment will increase the efficiency of the steam turbine in order to recover power lost due to the parasitic load associated with the operation of the new AQCS.

There will be no changes to the existing electrical generator (i.e., no expansion in steam generating capability) and no increase in maximum heat input to the boiler or steam flow capability of the turbine. Likewise, the capacity factor of Unit 2 will not increase as a result of the steam turbine refurbishment since Unit 2 is a base load unit.

3.2 FUELS

DGS Unit 2 is currently fired with low sulfur eastern bituminous coal to comply with the SO_2 emission limitations of New Source Performance Standard Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971.

Following installation and operation of the AQCS, Unit 2 will be capable of firing a variety of eastern bituminous coal blends, including medium sulfur coal, and comply with the NSPS Subpart D, CAIR, and CAMR requirements, as well as achieving significant reductions in actual SO_2 emissions. Accordingly, the Unit 2 AQCS project will provide the flexibility to burn a blend of coals up to a medium sulfur coal.

4.0 REGULATORY STATUS OF UNIT 2

Key air quality related regulatory requirements applicable to DGS Unit 2 are briefly described in the following sections.

4.1 AIR PERMITS

DGS Unit 2 was initially constructed and operated under the authority of Florida Power Plant Siting Act (FPPSA) Certification No. PA 74-04 dated May 16, 1978. Initial Title V Air Operation Permit No. 0010006-01-AV, issued with an effective date of January 1, 2000 and an expiration date of December 31, 2004, authorized continued operation of the DGS, including Unit 2. This air operation permit was subsequently revised in June 2002 and recently renewed in 2005. The current DGS Title V Air Operation Permit, Permit No. 0010006-003-AV, was issued with an effective date of January 1, 2005 and an expiration date of December 5, 2009.

4.2 NEW SOURCE REVIEW

DGS Unit 2 commenced initial operation after December 27, 1977 and therefore consumes increment under the Prevention of Significant Deterioration (PSD) New Source Review (NSR) regulatory program.

4.3 NEW SOURCE PERFORMANCE STANDARDS

DGS Unit 2 is subject to NSPS Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971. As required by NSPS Subpart D, the unit is equipped with continuous emissions monitoring systems (CEMS) for measuring NO_x and opacity.

4.4 ACID RAIN PROGRAM/CAIR/CAMR/CLEAN AIR VISIBILITY RULE

DGS Unit 2 is regulated under the Acid Rain Program (ARP) under Phase I (NO_x Early Election) and Phase II. As required by the ARP DGS Unit 2 is equipped with continuous emissions monitoring systems (CEMS) for measuring SO_2, NO_x, CO_2, and opacity.

In addition to the above requirements, DGS Unit 2 will be subject to the future effective requirements of the CAIR and CAMR as previously noted.

DGS Unit 2 is not subject to the requirements of the Regional Haze Rule (a/k/a the Clean Air Visibility Rule [CAVR]).

5.0 DESCRIPTION OF EMISSION CONTROL SYSTEMS

Descriptions of the SCR, CDS, and fabric filter emission controls systems planned for DGS Unit 2 are provided in the following sections. Descriptions of the urea, lime, and CDS by-product management systems are also provided.

5.1 SELECTIVE CATALYTIC REDUCTION

OVERVIEW

The selective catalytic reduction (SCR) NO_x removal process functions by reacting NO_x contained in the flue gas with ammonia in the presence of a catalyst at a temperature between 613 and 800 degrees Fahrenheit (°F) to produce nitrogen (N_2) and water (H_2O). NH_3 is injected upstream of the catalyst bed where the following primary reactions take place:

$$4NH_3 + 4NO + O_2 \rightarrow 4N_2 + 6H_2O \quad (1)$$

$$4NH_3 + 2NO_2 + O_2 \rightarrow 3N_2 + 6H_2O \quad (2)$$

The DGS Unit 2 SCR system will tie into the ductwork at the outlet of the existing hot-side electrostatic precipitator which is expected to remain in-service after installation of the AQCS. Ammonia mixer plates and patented Delta Wing™ mixers will be located within the inlet duct to the two SCR reactors. The SCR outlet duct will connect to the existing air heaters.

The SCR system is designed so that flue gas flows through it whenever the DGS Unit 2 is operating i.e., there are no bypasses. The SCR system contains instrumentation to measure flue gas pressures, temperatures and NO_x concentrations at various locations in the ductwork and reactors. NO_x control is initiated when the temperature at the outlet of the reactor reaches the minimum short-term operating temperature specified by the catalyst vendor and ammonia flow is started through the injection nozzles.

CATALYST SYSTEM

The DGS Unit 2 flue gas will flow through the three layers (two active and one future layer) of honeycomb catalyst. This SCR design provides sufficient space with margin to

accommodate plate or honeycomb type catalyst and meet the performance requirements without using the spare catalyst level. The catalyst handling system will consist of a catalyst-rotating device, catalyst module lift device (supplied by the catalyst vendor), electric and manual hoists, and a catalyst cart and rail system. Provisions have been made in the catalyst design for removable test samples of catalyst material that can be used to monitor and predict catalyst activity during the catalyst life. The design life of the catalyst is 24,000 hours.

Gaseous arsenic is one of the predominant catalyst deactivation mechanisms in coal-fired SCR applications. Introducing calcium oxide (CaO) to the fuel reduces the gaseous arsenic in the flue gas and decreases its harmful effect on the catalyst. For the DGS Unit 2 SCR system, an addition rate of 0.51 weight percent CaO is expected to reduce the concentration of arsenic in the flue gas to within acceptable limits, subsequently ensuring the catalyst for a minimum 24,000 hours of operation. This optional CaO addition may be provided from lime or limestone.

A permanent sampling grid will be provided above and below the catalyst layers as well as between layers. These grids will allow sampling of the gas stream from outside the SCR while the unit is operating. A moveable NO_x probe will be provided in each SCR reactor inlet and outlet. A sampling/NO_x analyzer system will be connected to each probe to measure the inlet and outlet NO_x and provide a process control signal for the ammonia injection system.

AMMONIA SYSTEM

A urea-based ammonia system will be provided to supply ammonia for the SCR catalyst to remove NO_x. The system is sized to produce ammonia for two SCRs at full load. The urea to ammonia (U2A) system will use urea that is dissolved into water and the solution will be injected into heated in-line hydrolysers at a controlled rate and under conditions to provide the required amount of ammonia. The process will produce a gaseous mixture of ammonia, carbon dioxide and water vapor, which will be mixed into the flue gas stream.

STARTUP AND SHUTDOWN PROCEDURES

The objective of the SCR startup is to warm the reactor in a controlled procedure to the minimum catalyst operating temperature before injecting ammonia. The minimum and maximum catalyst operating temperatures for the DGS Unit 2 SCR system are 613°F and 800°F, respectively. When the temperature of the SCR reactor outlet and the last catalyst layer reaches the minimum operating temperature for ammonia injection, the ammonia control valve is permitted to open.

When the SCR system is to be shut down, the flow of ammonia is stopped and the ammonia injection piping purged with steam. Once the ammonia has been purged from the piping and the catalyst, DGS Unit 2 can be shutdown using current shutdown procedures.

SCR PERFORMANCE

The DGS Unit 2 SCR control system is designed to achieve a target outlet NO_x emission rate of 0.07 pounds per million British thermal units ($lb/10^6$ Btu) with an ammonia slip concentration of no more than 5.0 parts per million at 3% O_2. The target SCR controlled NO_x emission is ten times lower than the current NSPS Subpart D limit of 0.7 $lb/10^6$ Btu.

5.2 CIRCULATING DRY SO_2 SCRUBBER

OVERVIEW

The Circulating Dry Scrubber (CDS) will be installed down stream of the existing DGS Unit 2 induced draft (ID) fans. This flue gas desulfurization (FGD) system will remove the acidic constituents of the flue gas, primarily SO_2 and SO_3 and to a lesser extent CO_2, HCl and HF, by reaction with hydrated lime. The system includes the CDS vessel, adsorbent preparation and injection, water injection, product recycle injection and a flue gas recycle system. To assure a high level of SO_2 removal, a portion of the solid products exiting the CDS vessel (i.e., primarily reaction products such as $CaSO_3$, $CaSO_4$, $CaCO_3$, $CaCl_2$ and CaF_2 and inerts) will be separated from the flue gas in the baghouse and recycled to the vessel inlet at a high ratio to the inlet solids.

The dominant CDS equations are as follows:

$$Ca(OH)_2 + SO_2 \leftrightarrow CaSO_3 \times \tfrac{1}{2}H_2O + \tfrac{1}{2} H_2O \quad (1)$$

$$Ca(OH)_2 + SO_3 \leftrightarrow CaSO_4 \times \tfrac{1}{2} H_2O + \tfrac{1}{2} H_2O \quad (2)$$

$$CaSO_3 \times \tfrac{1}{2}H_2O + \tfrac{1}{2}O_2 \leftrightarrow CaSO_4 \times \tfrac{1}{2} H_2O \quad (3)$$

$$Ca(OH)_2 + CO_2 \leftrightarrow CaCO_3 + H_2O \quad (4)$$

$$Ca(OH)2 + 2HCI = CaCl2 + 2H20 \quad (5)$$

$$Ca(OH)2 + 2HF = CaF2 + 2H2O \quad (6)$$

The CDS is designed so that flue gas flows through it whenever the DGS Unit 2 is operating (i.e., there are no bypasses). It contains instrumentation to measure flue gas pressures, temperatures and SO_2 concentrations at various locations in the ductwork.

The DGS Unit 2 flue gas will first pass through a group of venturi nozzles. The venturi nozzles serve to accelerate the flue gas just prior to the injection of high-pressure water, recycled solids, and adsorbent (i.e., lime). The reactor acts as a fluidized bed, assuring maximum contact between the pollutants in the flue gas and the adsorbent solids. The reactor is characterized by high turbulences and optimal chemical and physical heat and mass transfer rates. Water is added to bring the flue gas closer to the saturation temperature where the SO_2 absorption is most effective. The high dust load leaving the reactor is captured in the baghouse (fabric filter).

SO_2 will be measured at the inlet and outlet of the CDS reactor. These measurements will be used to vary the quantity of fresh lime that is introduced into the reactor. The final residue of the CDS process is a moist product (following the addition of water in the pin mixers described below in Section 5.4) which may be landfilled or potentially re-utilized.

SORBENT PREPARATION AND INJECTION

Hydrated lime, $Ca(OH)_2$, is the adsorbent used in the CDS process. Lime (CaO) will be delivered to the DGS via truck or rail and subsequently hydrated to increase its reactivity before injection in the CDS. Within the hydrator, the lime is mixed with water and agi-

tated until the hydration reaction is complete. The quantity of fresh lime that is introduced into the CDS is controlled by inlet and outlet SO_2 concentrations.

ASH RECYCLE

A portion of the material captured in the baghouse will be recycled back into the CDS to maintain the fluidized bed, while the excess material will be pneumatically transported out of the system to a storage silo. The amount of solids recycled is dependent upon the differential pressure within the CDS and the volumetric flue gas flow rate.

FLUE GAS RECIRCULATION

In order to ensure that the CDS is constantly fluidized, a portion of the flue gas stream downstream of the two booster fans will be recirculated to the inlet duct of the CDS during boiler operation at reduced loads. The amount of flue gas recirculated is accomplished through the positions of the two recirculation dampers.

CDS STARTUP AND SHUTDOWN

The objective of the CDS start-up is to warm the reactor in a controlled procedure to the minimum inlet temperature and minimum flue gas flow rates. When the minimum temperature and flow rate have been achieved, the four sub-systems of the CDS (sorbent injection, ash recirculation, flue gas recirculation and water injection) are placed into automatic mode.

A normal shutdown sequence for the CDS system occurs as follows:

- Shutdown the process water injection system.
- Shutdown the product recirculation system.
- Shutdown the lime sorbent dosing system (after baghouse bags are coated with fresh lime).

Fuel firing can continue without the CDS in service, but SO_2 removal will cease without the fluidized bed, lime sorbent and water injection systems in operation. Once the boiler is shut down, standard NFPA purge requirement clear the CDS and ductwork of any potentially explosive gases.

CDS PERFORMANCE

The DGS Unit 2 CDS control system is designed to achieve a target outlet SO_2 emission rate of 0.12 lb/10^6 Btu. The target CDS controlled SO_2 emission is ten times lower than the current NSPS Subpart D limit of 1.2 lb/10^6 Btu.

5.3 FABRIC FILTER

OVERVIEW

For particulate removal, one pulse-jet baghouse containing ten (10) compartments will be installed between the outlet of the CDS and inlet of the booster fans at DGS Unit 2. The fabric filter is designed so that flue gas flows through it whenever the DGS Unit 2 is operating; i.e., there are no bypasses.

Particulate contained in the raw flue gas as well as reaction products from the CDS are captured in the pulsejet fabric filter. The pulsejet fabric filter is multicompartmented, consisting of two parallel trains with centrally located inlet and outlet plenums. Each parallel train of compartments is served by an air slide utilizing heated air. The air slide conveys a significant portion of the collected particulate back to the CDS to maintain a high solids environment and improve overall reagent utilization. The balance of the collected particulate goes to surge bins (one per air slide) from which it is pneumatically conveyed to a common ash silo equipped with redundant pug mills The ash can then be loaded into trucks.

FABRIC FILTER BAGS

Each compartment will contain one cylindrical bag bundle with 984 filter bags per bundle. This equates to a total of 9,840 bags installed, with an additional 2 percent included as startup spares. The filter bags for this project will be fabricated from heavy weight 18 oz/yd nominal weight PPS, self supported with fused seam. The design air-to-cloth ratio is 4:1 or less with one compartment off-line for maintenance.

BAG CLEANING SYSTEM

The pulsejet fabric filter utilizes bags fabricated from felted polyphenyl sulfide fabric that is appropriate for this application. During operation the incoming particulate laden flue gas passes from outside of each bag creating a filter cake. With the passage of time, this cake thickens and tends to increase pressure drop. An automatic cleaning system is utilized to dislodge this filter cake, thus maintaining the desired overall pressure drop. The motive force for cleaning is pressurized air that is introduced at the top of the bags, just above the tubesheet. This flow of pressurized air travels counter to the normal flow of flue gas, thus dislodging the accumulated filter cake and assisting its downward drop into the collecting hoppers below. Redundant low-pressure positive displacement blowers provide the pressurized air.

STARTUP AND SHUTDOWN PROCEDURES

Before starting the baghouse system, the compressed air and ash removal (air slide) systems must be in operation. With the baghouse control system in manual, boiler load is increased until the minimum baghouse inlet temperature is achieved. Module inlet and outlet dampers are opened and the control system is placed into automatic mode. The system can be operated at low flow (approximately 50 percent) to monitor baghouse differential pressure. When differential pressure is acceptable, the flue gas flow can be increased to design conditions by increasing fan motor speed.

Shutdown of the baghouse system begins by placing the baghouse into manual mode. The dust removal system (including air slides) continues to operate to remove particulate from the baghouse hoppers. Once the boiler is shut down, standard NFPA purge requirements clear the baghouse of any potentially explosive gases. The compressed air system to the baghouse continues to operate after the boiler is shut down. While DGS Unit 2 is down, the filter bags do not have to be cleaned as the remaining cake will protect the bags during the next startup. The normal shutdown procedure for the air slide system occurs in the opposite order of start up.

BOOSTER FANS

Two 50 percent booster fans are provided for the DGS Unit 2 AQCS. The fans serve two functions. They provide the additional motive force to overcome the additional pressure drop imposed on the system by the addition of the SCRs, the CDS, and the baghouse. They also allow the CDS to operate at reduced Unit 2 loads by recycling a portion of flue gas from the baghouse outlet to the CDS vessel inlet, thereby keeping the solids bed in the vessel fluidized. The discharge of the booster fans ties into the ductwork upstream of the stack.

FABRIC FILTER PERFORMANCE

The DGS Unit 2 fabric filter control system is designed to achieve a target outlet filterable PM emission rate of 0.015 lb/10^6 Btu. The target fabric filter controlled PM emission is 6.7 times lower than the current NSPS Subpart D limit of 0.1 lb/10^6 Btu.

5.4 UREA, LIME, AND CDS BY-PRODUCT HANDLING AND STORAGE

OVERVIEW

Reagents associated with the DGS Unit 2 AQCS include urea for the SCR NO_x control system, and lime for the SO_2 CDS control system. Solid materials generated by the DGS Unit 2 AQCS consist of the reaction products (primarily calcium sulfate, calcium sulfite, unreacted lime and inerts) from the SO_2 CDS control system. A discussion of the handling and storage of the AQCS reagents and by-product are provided in the following sections.

UREA

Granular or prilled urea will be delivered by truck and transferred pneumatically directly to the urea to ammonia (U2A) dissolver tank where the urea is dissolved in water. The urea/water solution will then be injected into a heated in-line reactor at controlled rates to produce the appropriate amounts of gaseous ammonia and water vapor. The gaseous ammonia and water vapor stream will then be injected into the SCR control system. Accordingly, there will be no emissions associated with the unloading and processing of urea.

LIME

The lime unloading and storage system includes equipment for the pneumatic unloading of pebble lime from railcars or trucks, transport to a storage silo, and transport from the storage silo into two lime day bins.

Lime will be received in 100 ton railcars that have bottom hopper outlets. Lime may also be received in 25 ton maximum capacity trucks that have self-unloading blower systems. A roofed enclosure with partial walls parallel to the track for wind and rain protection is provided to protect the unloading operation from weather exposure.

For railcar unloading, unloading pans are provided that are clamped to each of three hopper outlet flanges, and a vacuum conveying system removes lime from the railcar hopper, one hopper section at a time, into a filter receiver. From the filter receiver, lime is fed through an airlock, into an airlock hopper, which discharges through another airlock into a positive pressure pneumatic conveyor. The vacuum and pressure conveying systems each have two blowers, one blower is spare.

The vacuum conveyor system is also designed to unload two positive pressure pneumatic trucks by having the truck discharge line connect to the vacuum conveyor line. The unloading building also provides for one or two self-unloading pressure differential trucks to unload. Two independent conveying pipes and hoses are provided so both trucks can unload at the same time.

The positive pressure lime conveyor discharges into the lime storage silo. The silo has a vibrating bin outlet, to assure continuous flow from the silo and has a bin vent to exhaust filtered air from the silo. From the vibrating bin discharger, lime discharges through a diverter gate to either of two airlock hoppers. Each hopper feeds an independent positive pressure conveyor that transports lime into either of two lime day bins. Two blowers are provided, one acts as a spare.

The positive pressure conveyor discharges lime into either of two day bins, selected by a diverter in the convey line. Both day bins are provided with a bin vent filter. Two con-

veying pipes with hoses to connect to self-unloading pressure differential trucks are also provided to use as emergency sources of lime for the day bins.

Pebble lime from the day bins is conveyed to hydrators equipped with scrubbers where it is wetted to approximately 1 to 2 percent moisture. Hydrated lime is then conveyed by a positive pressure pneumatic conveyor into the hydrated lime silo. A bin vent filter is provided for the silo to vent filtered conveying air from the silo. Hydrated lime discharges from the silo through an airlock, and then into a feeder hopper, which discharges through another airlock into the conveying line. A positive pressure conveyor transports hydrated lime to the turbo reactor. The conveyor has two blowers, with one acting as a spare.

PM emission sources associated with the lime handling and storage system consists of: (1) railcar unloading filter receiver, (2) lime storage silo, (3) two lime day bin silos, (4) two lime hydrator scrubbers, and (5) hydrated lime storage silo. The railcar unloading filter receiver and each of the storage silos will be equipped with bin vent fabric filters designed to achieve an outlet PM concentration of 0.01 grains PM per dry standard cubic foot (gr PM/dscf).

CDS BYPRODUCT

A portion of the CDS byproducts will be collected by the CDS fabric filter and pneumatically transferred to a CDS byproduct storage silo which will be equipped with a bin vent fabric filter designed to achieve an outlet PM concentration of 0.01 gr PM/dscf.

CDS byproduct will then be transferred into two pin mixers where it will be mixed with water prior to being loaded into trucks. There are no significant PM emissions associated with the wet pin mixer operation.

CALCIUM OXIDE ADDITION SYSTEM FOR FUEL CONDITIONING

Calcium oxide in the form of lime or limestone may be added to the coal conveying system, as needed, to condition the fuel and enhance the life of the SCR catalyst.

6.0 NEW SOURCE REVIEW APPLICABILITY

The existing DGS is located in an attainment area and is classified as a *major facility.* A modification to an existing major facility located an attainment area which has a net emissions increase equal to or exceeding the significant emission rates listed in Rule 62-210.200(277), F.A.C., will be subject to PSD NSR.

For changes to existing emission units, such as the DGS Unit 2 AQCS, the determination of a net emission increase is based on a comparison of actual-to-projected actual emission rates. A significant emissions increase of a PSD pollutant will occur if the difference between the *baseline actual emissions* and *projected actual emissions* equals or exceeds the significant emissions rate for that pollutant. As defined by Rule 62-210.200(36), F.A.C., baseline actual emissions for an existing electric utility steam generating unit means the average rate, in tons per year, at which the unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the 5-year period immediately preceding the date a complete permit application is received by FDEP. Baseline actual emissions include fugitive emissions, to the extent quantifiable, as well as emissions associated with startups and shutdowns.

Projected actual emissions, as defined by Rule 62-210.200(247), F.A.C., means the maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a PSD pollutant in any one of the 5 years following the date the unit resumes regular operation after the project, or in any one of the 10 years following that date, if the project involves increasing the emissions unit's design capacity or its potential to emit that PSD pollutant and full utilization of the unit would result in a significant emissions increase or a significant net emissions increase at the major stationary source. Emissions that the unit could have accommodated during the 24-month baseline period and that are unrelated to the modification are excluded. As noted previously in Section 3.1, there will be no changes to the existing DGS Unit 2 electrical steam generator and no increase in maximum heat input to the boiler or steam flow capability of the turbine. Since DGS Unit 2 is a base load unit, there will also be no change in Unit 2 utilization (i.e., capacity factor) due to the AQCS project. Accordingly, the applicable period for determining projected

actual emissions for the DGS Unit 2 AQCS project is the 5 years following installation of the additional emission controls.

The DGS Unit 2 AQCS project will result in substantial reductions in actual emissions of NO_x, SO_2, PM/PM_{10}, fluorides (i.e., HF) and H_2SO_4. No changes are planned to the DGS Unit 2 combustion process. Accordingly, no change in actual emissions of combustion related pollutants (i.e., CO and VOC) will result due to the AQCS project. Discussions of baseline actual emissions and projected actual emissions are provided in the following sections.

6.1 BASELINE ACTUAL EMISSIONS

As an ARP affected emission unit, DGS Unit 2 is equipped with CEMS for measuring SO_2, NO_x, CO_2, and opacity. The ARP CEMS data was used to develop baseline actual emissions for SO_2 and NO_x. GRU conducts annual stack testing of DGS Unit 2 for filterable PM using EPA Reference Method 5. This stack test data (i.e., the average emission rate in $lb/10^6$ MMBtu) together with the annual heat input was used to develop baseline actual emissions for PM. Baseline actual emissions of Hg and the PSD acid gases (i.e., HF and H_2SO_4) were developed using GRU emission estimates prepared pursuant to the Toxic Release Inventory (TRI) regulatory program.

6.2 PROJECTED ACTUAL EMISSIONS

As noted previously, there will be no change in DGS Unit 2 utilization due to the AQCS project. Projected DGS Unit 2 actual annual emissions during the 5 year period following installation of the AQCS for SO_2, NO_x, and PM were estimated using the AQCS target emission rates (in units of $lb/10^6$ Btu) previously shown in Section 5.0 and the highest DGS Unit 2 heat input over the 2002 to 2006 period (i.e., the 2006 heat input). The projected actual emissions also include PM/PM_{10} emissions associated with the AQCS material handling activities. As previously noted in Section 5.3, the final residue of the CDS process is a dry product which may be landfilled or potentially re-utilized. If landfilled onsite, approximately nine trucks per day will transport the CDS byproduct to the onsite landfill. Fugitive PM/PM_{10} emissions associated with this activity will be negligible.

DGS Unit 2 currently combusts coal containing approximately 0.8 weight percent sulfur to comply with the requirements of NSPS Subpart D. As noted in Section 3.2, a blend of coals, including medium sulfur coal, may be combusted in the future following installation of the AQCS project. The DGS Unit 2 AQCS will be capable of removing over 90 percent of H_2SO_4 and HF. Projected actual emissions of H_2SO_4 were conservatively estimated by applying a ratio of 3.125 to the historical 2-year (2004 to 2005) average actual H_2SO_4 emission rate and applying the AQCS H_2SO_4 removal efficiency of 90 percent. The 3.125 ratio represents the use of medium sulfur coal containing 2.5 weight percent sulfur compared to the current coal sulfur content of 0.8 weight percent. No significant changes in coal fluoride or mercury contents are expected. Accordingly, projected actual emissions of HF and Hg were estimated using the historical 2 year (2004 to 2005) average actual HF and Hg emission rates and applying AQCS removal efficiencies of 90 percent (for HF) and 80 percent (for Hg).

Table 6-1 provides a summary of baseline and projected actual emission rates. Details of the GRU DGS Unit 2 PM stack test data are provided in Table 6-2. As shown in Table 6-1, there will be a net reduction in all PSD pollutants due to the DGS Unit 2 AQCS. Accordingly, the DGS Unit 2 AQCS project is not subject to PSD NSR.

Table 6-1. Analysis of Net Emission Rates

A. Baseline Actual Emissions

Year	Heat Input (10^6 Btu/yr)	SO_2 (ton/yr)	NO_x (ton/yr)	PM (ton/yr)	PM_{10}[1] (ton/yr)	H_2SO_4 (ton/yr)	HF (ton/yr)	Hg (ton/yr)
2002	14,157,614	7,147.4	3,315.9	270.6	181.3	83.3	27.0	0.051
2003	14,976,624	7,678.8	3,666.3	308.3	206.5	83.0	29.0	0.044
2004	13,331,383	6,951.7	3,322.8	116.9	78.3	80.3	25.3	0.038
2005	15,642,246	8,042.9	3,932.5	96.9	64.9	103.3	33.0	0.025
2006	15,710,352	8,119.3	3,691.9	151.0	101.2	93.5	29.9	0.045
02 - 03 Average	N/A	N/A	N/A	289.4	193.9	N/A	N/A	N/A
05 - 06 Average	15,676,299	8,081.1	3,812.2	N/A	N/A	98.4	31.4	0.035

B. Projected Actual Emissions[2]

	Heat Input (10^6 Btu/yr)	SO_2[3] (ton/yr)	NO_x[3] (ton/yr)	PM[3] (ton/yr)	PM_{10}[4] (ton/yr)	H_2SO_4[5] (ton/yr)	HF[6] (ton/yr)	Hg[7] (ton/yr)
2006 Heat Input	15,710,352	942.6	549.9	117.8	108.4	30.7	3.1	0.0070
AQCS Material Handling	N/A	N/A	N/A	6.0	6.0	N/A	N/A	N/A
AQCS By-Product Truck Traffic	N/A	N/A	N/A	Neg.	Neg.	N/A	N/A	N/A
Totals	15,710,352	942.6	549.9	123.8	114.4	30.7	3.1	0.0070

C. Estimated Net Change in Actual Emissions[2]

	SO_2 (ton/yr)	NO_x (ton/yr)	PM (ton/yr)	PM_{10} (ton/yr)	H_2SO_4 (ton/yr)	HF (ton/yr)	Hg (ton/yr)
	-7,138.5	-3,262.4	-165.6	-79.5	-67.6	-28.3	-0.028
PSD Significant Emission Rate	40	40	25	15	7	3	0.1

[1] PM_{10} assumed equal to 67% of PM per AP-42, Table 1.1-6 for bituminous coal-fired units equipped with an ESP.

[2] Based on use of AQCS. Projected actual emissions will remain approximately the same as baseline actual emissions if current fuel is combusted and the AQCS is not in use.

[3] Emissions based on 2006 heat input and target AQCS performance for SO_2 (0.12 lb/10^6Btu), NO_x (0.07 lb/10^6Btu), and PM (0.015 lb/10^6Btu).

[4] PM_{10} assumed equal to 92% of PM per AP-42, Table 1.1-6 for bituminous coal-fired units equipped with a baghouse.

[5] Based on use of medium (2.5% S) sulfur coal and AQCS H_2SO_4 mist control efficiency of 90%.

[6] Based on AQCS HF control efficiency of 90%

[7] Based on AQCS Hg control efficiency of 80%.

Sources: ECT, 2007.
GRU, 2007.

Table 6-2. Unit 2 Historical PM Stack Test Data

Soot Blowing	14	hours/day
Non-Soot Blowing	10	hours/day

Year	Soot Blowing ($lb/10^6$ Btu)	Non-Soot Blowing ($lb/10^6$ Btu)	Weighted Average* ($lb/10^6$ Btu)
2002	0.0446	0.0318 0.0268	0.0382
2003	0.0535	0.0240 0.0238	0.0412
2004	0.0190	0.0160 0.0150	0.0175
2005	0.0127	0.0097 0.0142	0.0124
2006	0.0215	0.0145 0.0176	0.0192

*Based on 14 hours/day of soot blowing and 10 hours per day of non-soot blowing.

Sources: ECT, 2007.
GRU, 2007.

7.0 AMBIENT AIR QUALITY IMPACT SCREENING ANALYSIS

Dispersion modeling, using a conservative screening methodology, was conducted to assess maximum DGS Unit 2 ambient air quality impacts for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and particulate matter less than ten microns (PM_{10}) for current conditions and following installation of the AQCS. This assessment of ambient air quality impacts was performed since the DGS Unit 2 stack temperature and velocity will be lower then current levels following installation and operation of the AQCS.

The ambient air quality impact assessment was conducted using the EPA SCREEN3 (Version dated 96043) dispersion model. The SCREEN3 model employs a suite of hypothetical worst-case meteorological conditions and receptors located downwind (i.e., the SCREEN3 model does not consider actual wind directions) to generate estimates of maximum air quality impacts. The SCREEN3 model was developed by EPA to provide conservative estimates of air quality impacts; i.e., the model will over-estimate air quality impacts compared to refined modeling.

The DGS Unit 2 screening modeling analysis evaluated air quality impacts for: (a) current DGS Unit 2 stack parameters and allowable emission rates; i.e., NSPS Subpart D limits, and (b) future DGS Unit 2 stack parameters and expected emissions following installation of the AQCS.

Table 7-1 provides the current and future DGS Unit 2 stack parameters and emission rates. The SCREEN3 model results are summarized in Table 7-2. The screening model results demonstrate that maximum ambient air quality impacts due to emissions from DGS Unit 2 are currently well below the National and Florida Ambient Air Quality Standards and will be significantly lower following installation of the AQCS.

Table 7-1. Stack Parameters and Emission Rates

Unit	Heat Input (10^6 Btu/hr)
2	2,428

A. Current Stack Data and Allowable Emissions*

Stack	UTM Coordinates		Elevation		NO_x			PM			SO_2		
	Easting (m)	Northing (m)	(ft)	(m)	(lb/10^6 Btu)	(g/s)	(lb/hr)	(lb/10^6 Btu)	(g/s)	(lb/hr)	(lb/10^6 Btu)	(g/s)	(lb/hr)
Unit 2	365,700	3,292,600	185.0	56.388	0.7	214.1	1,699.6	0.1	30.6	242.8	1.2	367.1	2,913.6

Stack	Height		Diameter		Temperature		Area		Flow Rate		Velocity	
	(ft)	(m)	(ft)	(m)	(°F)	(K)	(ft^2)	(m^2)	(ft^3/min)	(m^3/min)	(ft/sec)	(m/s)
Unit 2	350.0	106.7	18.5	5.6	352.0	450.9	268.80	24.97	766,500	21,705	47.53	14.49

B. Future Stack Data and Expected Emissions†

Stack	UTM Coordinates		Elevation		NO_x			PM			SO_2		
	Easting (m)	Northing (m)	(ft)	(m)	(lb/10^6 Btu)	(g/s)	(lb/hr)	(lb/10^6 Btu)	(g/s)	(lb/hr)	(lb/10^6 Btu)	(g/s)	(lb/hr)
Unit 2	365,700	3,292,600	185.0	56.388	0.07	21.4	170.0	0.015	4.6	36.4	0.12	36.7	291.4

Stack	Height		Diameter		Temperature		Area		Flow Rate		Velocity	
	(ft)	(m)	(ft)	(m)	(°F)	(K)	(ft^2)	(m^2)	(ft^3/min)	(m^3/min)	(ft/sec)	(m/s)
Unit 2	350.0	106.7	18.5	5.6	178.0	354.3	268.80	24.97	761,439	21,562	47.21	14.39

C. GEP Height and Dominant Downwash Structure

	Height		Maximum Dimension	
	(ft)	(m)	(ft)	(m)
DH2 GEP Height	482.3	147.0		
Unit 2 Boiler	192.9	58.8	235.9	71.9

*Emission rates reflect NSPS Subpart D limits. Stack parameters taken from DGS Title V Renewal Application dated June 2004.
†Emission rates reflect expected performance of the DGS Unit 2 AQCS. Stack parameters from BPEI DFGD Material Balance dated February 2, 2007.

Sources: ECT, 2007.
GRU, 2007.

Table 7-2. SCREEN3 Model Results

A. Current Stack Parameters and Allowable Emissions

SCREEN3 Modeled Emission Rate	10.0	grams per second
DH2 SO_2 Emission Rate (NSPS Subpart D Limit)	367.1	grams per second
DH2 NO_x Emission Rate (NSPS Subpart D Limit)	214.1	grams per second
DH2 PM Emission Rate (NSPS Subpart D Limit)	30.6	grams per second

Scenario	SO_2 Impacts*				NO_2 Impact	PM_{10} Impact	
	1-Hour (ug/m^3)	3-Hour (ug/m^3)	24-Hour (ug/m^3)	Annual (ug/m^3)	Annual (ug/m^3)	24-Hour (ug/m^3)	Annual (ug/m^3)
SCREEN3 (10 g/s)	8.32	7.48	3.33	0.67	0.67	3.33	0.67
DH Unit 2 - Current NSPS Subpart D Limits	305	275	122	24	14	10.2	2.0
NAAQS	N/A	1,300	365	80	100	150	50
FAAQS	N/A	1,300	260	60	100	150	50

B. Future (after AQCS) Stack Parameters; NSPS Subpart D and Expected AQCS Emissions

SCREEN3 Modeled Emission Rate	10.0	grams per second
DH2 SO_2 Emission Rate (AQCS)	36.7	grams per second
DH2 NO_x Emission Rate (AQCS)	21.4	grams per second
DH2 PM Emission Rate (AQCS)	4.6	grams per second

Scenario	SO_2 Impacts*				NO_2 Impact	PM_{10} Impact	
	1-Hour (ug/m^3)	3-Hour (ug/m^3)	24-Hour (ug/m^3)	Annual (ug/m^3)	Annual (ug/m^3)	24-Hour (ug/m^3)	Annual (ug/m^3)
SCREEN3 (10 g/s)	13.10	11.79	5.24	1.05	1.05	5.24	1.05
DH Unit 2 - Current NSPS Subpart D Limits	481	433	192	38	22	16.0	3.2
DH Unit 2 - Following AQCS	48	43	19	4	2	2.4	0.5
NAAQS	N/A	1,300	365	80	100	150	50
FAAQS	N/A	1,300	260	60	100	150	50

*SCREEN3 1-hour results adjusted to 3-hour, 24-hour, and annual averages using EPA recommended multiplication factors of 0.9, 0.4, and 0.08, respectively.

NAAQS - National Ambient Air Quality Standards
FAAQS - Florida Ambient Air Quality Standards

Source: ECT, 2007.

APPENDIX A

FDEP APPLICATION FOR AIR PERMIT—LONG FORM

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 any air construction permit at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air permit. Also use this form to apply for an air construction permit:

- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment area (NAA) new source review, or maximum achievable control technology (MACT) review; or
- Where the applicant proposes to assume a restriction on the potential emissions of one or more pollutants to escape a federal program requirement such as PSD review, NAA new source review, Title V, or MACT; or
- Where the applicant proposes 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/renewal Title V air operation permit.

Air Construction Permit & Title V Air Operation Permit (Concurrent Processing Option) – Use this form to apply for both an air construction permit and a revised or renewal Title V air operation permit incorporating the proposed project.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: **City of Gainesville, GRU**
2. Site Name: **Deerhaven Generating Station**
3. Facility Identification Number: **0010006**
4. Facility Location...
   Street Address or Other Locator: **10001 NW 13th Street**
   City: **Gainesville** County: **Alachua** Zip Code: **32653**
5. Relocatable Facility? ☐ Yes ☒ No
6. Existing Title V Permitted Facility? ☒ Yes ☐ No

Application Contact

1. Application Contact Name: **Yolanta E. Jonynas**
2. Application Contact Mailing Address...
   Organization/Firm: **City of Gainesville, GRU**
   Street Address: **P.O. Box 147117 (A136)**
   City: **Gainesville** State: **FL** Zip Code: **32614-7117**
3. Application Contact Telephone Numbers...
   Telephone: **(352) 393-1284** ext. Fax: **(352) 334-3151**
4. Application Contact Email Address: **jonynasye@gru.com**

Application Processing Information (DEP Use)

1. Date of Receipt of Application: 02/23/07
2. Project Number(s): 0010006-005-AC
3. PSD Number (if applicable):
4. Siting Number (if applicable):

APPLICATION INFORMATION

Purpose of Application

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

Air Construction Permit

[x] 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 application requests approval to retrofit the following emission control systems on Deerhaven Generating Station Unit 2:

- **Selective catalytic reduction (SCR) system to reduce nitrogen oxides (NO_x) emissions;**
- **A circulating dry scrubber (CDS) to reduce sulfur dioxide (SO_2) emissions;**
- **Fabric filter (FF) to reduce particulate matter (PM) emissions. The fabric filter is an integral part of the CDS; and**
- **Ancillary support equipment including new material (urea, lime, hydrated lime, and CDS by-product) handling and storage.**

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Proc. Fee
005	2,428 MMBtu/hr Steam Boiler No. 2	N/A	N/A
009	Lime, Hydrated Lime, and Dry Circulating Scrubber By-Product Handling and Storage Activities	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 :
   George K. Allen, Assistant General Manager – Energy Supply

2. Owner/Authorized Representative Mailing Address...
   Organization/Firm: **City of Gainesville, GRU**
   Street Address: **P.O. Box 147117 (A132)**
   City: **Gainesville** State: **Florida** Zip Code: **32614-7117**

3. Owner/Authorized Representative Telephone Numbers...
   Telephone: **(352) 393-1789** ext. Fax: **(352) 334-2786**

4. Owner/Authorized Representative Email Address: allengk@gru.com

5. Owner/Authorized Representative Statement:

   I, the undersigned, am the owner or authorized representative of the facility 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 requirements identified in this application to which the facility 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.

George K. Allen — Signature

2/20/07 — Date

APPLICATION INFORMATION

Application Responsible Official Certification N/A

Complete if applying for an initial/revised/renewal Title V permit or concurrent processing of an air construction permit and a revised/renewal Title V 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.

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 Email 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
Signature

2/21/07
Date

(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) **365.70** North (km) **3,292.60**		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
3. Governmental Facility Code: **4**	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: **Yolanta E. Jonynas**
2. Facility Contact Mailing Address... Organization/Firm: **City of Gainesville, GRU** Street Address: **P.O. Box 147117 (A136)** City: **Gainesville** State: **Florida** Zip Code: **32614-7117**
3. Facility Contact Telephone Numbers: Telephone: **(352) 393-1284** ext. Fax: **(352) 334-3151**
4. Facility Contact Email Address: **jonynasye@gru.com**

Facility Primary Responsible Official **N/A**

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 Email Address:

FACILITY INFORMATION

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 Part 60)	
9. ☐ One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. ☐ One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. ☐ Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:	

FACILITY INFORMATION

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
NOX	**A**	**N**
SO2	**A**	**N**
CO	**A**	**N**
PM10	**A**	**N**
PM	**A**	**N**
VOC	**A**	**N**
H106 (Hydrogen Chloride)	**A**	**N**
H107 (Hydrogen Fluoride)	**A**	**N**
HAPS (Total)	**A**	**N**

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps N/A

1. Pollutant Subject to Emissions Cap	2. Facility Wide Cap [Y or N]? (all units)	3. Emissions Unit ID No.s Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

7. Facility-Wide or Multi-Unit Emissions Cap Comment:

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID:_____ [x] Previously Submitted, Date **June 2004**
2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID:_____ [x] Previously Submitted, Date: **June 2004**
3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID:_____ [x] Previously Submitted, Date: **June 2004**

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location:
   ☐ Attached, Document ID:_____ [x] Not Applicable (existing permitted facility)
2. Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL):
   [x] Attached, Document ID: **Sections 3.0 and 5.0**
3. Rule Applicability Analysis:
   [x] Attached, Document ID: **Sections 4.0 and 6.0**
4. List of Exempt Emissions Units (Rule 62-210.300(3), F.A.C.):
   ☐ Attached, Document ID:_____ [x] Not Applicable (no exempt units at facility)
5. Fugitive Emissions Identification:
   ☐ Attached, Document ID:_____ [x] Not Applicable
6. Air Quality Analysis (Rule 62-212.400(7), F.A.C.):
   ☐ Attached, Document ID:_____ [x] Not Applicable
7. Source Impact Analysis (Rule 62-212.400(5), F.A.C.):
   ☐ Attached, Document ID:_____ [x] Not Applicable
8. Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.):
   ☐ Attached, Document ID:_____ [x] Not Applicable
9. Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.):
   ☐ Attached, Document ID:_____ [x] Not Applicable
10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.):
    ☐ Attached, Document ID:_____ [x] Not Applicable

FACILITY INFORMATION

Additional Requirements for FESOP Applications N/A

1. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.):
   ☐ Attached, Document ID:_____ ☐ Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications N/A

1. List of Insignificant Activities (Required for initial/renewal applications only):
   ☐ Attached, Document ID:_____ ☐ Not Applicable (revision application)
2. Identification of Applicable Requirements (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought):
   ☐ Attached, Document ID:_____
   ☐ Not Applicable (revision application with no change in applicable requirements)
3. Compliance Report and Plan (Required for all initial/revision/renewal applications):
   ☐ Attached, Document ID:_____
   Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.
4. List of Equipment/Activities Regulated under Title VI (If applicable, required for initial/renewal applications only):
   ☐ Attached, Document ID:_____
   ☐ Equipment/Activities On site but Not Required to be Individually Listed
   ☐ Not Applicable
5. Verification of Risk Management Plan Submission to EPA (If applicable, required for initial/renewal applications only) :
   ☐ Attached, Document ID:_____ ☐ Not Applicable
6. Requested Changes to Current Title V Air Operation Permit:
   ☐ Attached, Document ID:_____ ☐ Not Applicable

Additional Requirements Comment

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Fossil Fuel-Fired Steam Boiler Unit No. 2

3. Emissions Unit Identification Number: **005 (Internal ID: DH-2)**

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
A	**N/A**	**N/A**	**49**	☒ Yes ☐ No

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: **251** MW

11. Emissions Unit Comment:
Dry Bottom, Wall-fired Boiler

Field 10 is based on:
295,000 kVA @ 1.0 power factor
250.75 MW @ 0.85 power factor

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:

High Efficiency Hot-Side Electrostatic Precipitator (ESP)

Selective Catalytic Reduction (SCR)

Dry Circulating Scrubber (CDS)

Medium Temperature (180°F <T <250°F) Fabric Filter (FF)

2. Control Device or Method Code(s): **010, 139, 119, 017**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: **2,428** million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	7 days/week
52 weeks/year	**8,760** hours/year
6. Operating Capacity/Schedule Comment:	
Field 3 maximum heat input based on coal-firing. Maximum heat input is 900 MMBtu/hr for No. 1 or 2 fuel oil-firing, and 591 MMBtu/hr for natural gas-firing.	

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **DH-2**	2. Emission Point Type Code: **1**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **N/A**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **N/A**		
5. Discharge Type Code: **V**	6. Stack Height: **350** feet	7. Exit Diameter: **18.5** feet
8. Exit Temperature: **178** °F	9. Actual Volumetric Flow Rate: **761,439** acfm	10. Water Vapor: **N/A** %
11. Maximum Dry Standard Flow Rate: **N/A** dscfm	12. Nonstack Emission Point Height: **N/A** feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: **Fields 8 and 9 based on preliminary Babcock Power Environmental (BPE) Dry Flue Gas Desulfurization (DFGD) Material Balance dated February 2, 2007.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 3

1. Segment Description (Process/Fuel Type): **Bituminous Coal Burned**		
2. Source Classification Code (SCC): **1-01-002-02**	3. SCC Units: **Tons Burned**	
4. Maximum Hourly Rate: **93.4**	5. Maximum Annual Rate: **818,049**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **2.50**	8. Maximum % Ash: **17.0**	9. Million Btu per SCC Unit: **26**
10. Segment Comment: **Unit 2 can co-fire coal, natural gas, and Nos. 1 and 2 fuel oil. Field 9 value based on nominal coal heat content of 13,000 Btu/lb.**		

Segment Description and Rate: Segment 2 of 3

1. Segment Description (Process/Fuel Type): **Natural Gas Burned**		
2. Source Classification Code (SCC): **1-01-006-01**	3. SCC Units: **Million Cubic Feet Burned**	
4. Maximum Hourly Rate: **0.57**	5. Maximum Annual Rate: **4,978**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **1,040**
10. Segment Comment: **Unit 2 can co-fire coal, natural gas, and Nos. 1 and 2 fuel oil. Field 4 maximum hourly rate based on 591 MMBtu/hr heat input and nominal natural gas heat content of 1,040 Btu/ft^3.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment **3** of **3**

1. Segment Description (Process/Fuel Type): **Distillate Fuel Oils Burned**		
2. Source Classification Code (SCC): **1-01-005-01**	3. SCC Units: **Thousand Gallons Burned**	
4. Maximum Hourly Rate: **6.43**	5. Maximum Annual Rate: **56,314**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **0.05**	8. Maximum % Ash: **0.05**	9. Million Btu per SCC Unit: **140**
10. Segment Comment: **Unit 2 can co-fire coal, natural gas, and Nos. 1 and 2 fuel oil. Field 4 maximum hourly rate based on 900 MMBtu/hr heat input and nominal distillate fuel oil heat content of 140,000 Btu/gal.**		

Segment Description and Rate: Segment __ of __

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
NOX	**139**		**EL**
SO2	**119**	**017**	**EL**
PM	**010**	**017**	**EL**
PM_{10}	**010**	**017**	**NS**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **NOX**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **1,700** lb/hour **5,317** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **3,812** tons/year	8.b. Baseline 24-month Period: From: **1/2005** To: **12/2006**
9.a. Projected Actual Emissions (if required): **550** tons/year	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

0.7 lb/MMBtu (NSPS Subpart D) x 2,428 MMBtu/hr = 1,700 lb/hr

0.5 lb/MMBtu (Phase II annual average) x 2,428 MMBtu/hr = 1,214 lb/hr
[(1,214 lb/hr x 8,760 hr/yr) / 2,000 lb/ton] = 5,317 tons/yr

11. Potential, Fugitive, and Actual Emissions Comment:

Potential emissions set equal to allowable emissions.
See Section 6.0 (Table 6-1) for data shown in Fields 8a. through 9.a.

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions **1** of **3**

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.7 lb/MMBtu**	4. Equivalent Allowable Emissions: **1,700** lb/hour **5,317** tons/year
5. Method of Compliance: **Annual stack test using EPA Reference Methods 7, 7A, 7C, 7D, &E, or CEMS**	
6. Allowable Emissions Comment (Description of Operating Method): **40 CFR Part 60, Subpart D, 60.44(a)(3) – Solid Fuels** **Title V Permit No. 00100006-003-AV, Condition B.7(a)(3)** **Annual emissions are limited by Phase II NOx Compliance Plan (0.5 lb/MMBtu ann. avg.)** **Allowable emissions are prorated when different fuels are burned simultaneously.**	

Allowable Emissions Allowable Emissions **2** of **3**

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.3 lb/MMBtu**	4. Equivalent Allowable Emissions: **728** lb/hour **3,190** tons/year
5. Method of Compliance: **Annual stack test using EPA Reference Methods 7, 7A, 7C, 7D, &E, or CEMS**	
6. Allowable Emissions Comment (Description of Operating Method): **40 CFR Part 60, Subpart D, 60.44(a)(2) – Liquid Fuels** **Title V Permit No. 00100006-003-AV, Condition B.7(a)(2)** **Allowable emissions are prorated when different fuels are burned simultaneously.**	

Allowable Emissions Allowable Emissions **3** of **3**

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.2 lb/MMBtu**	4. Equivalent Allowable Emissions: **486** lb/hour **2,127** tons/year
5. Method of Compliance: **Annual stack test using EPA Reference Methods 7, 7A, 7C, 7D, &E, or CEMS**	
6. Allowable Emissions Comment (Description of Operating Method): **40 CFR Part 60, Subpart D, 60.44(a)(1) – Gaseous Fuels** **Title V Permit No. 00100006-003-AV, Condition B.7(a)(1)** **Allowable emissions are prorated when different fuels are burned simultaneously.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **SO2**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **2,914** lb/hour **12,762** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **8,081** tons/year	8.b. Baseline 24-month Period: From: **1/2005** To: **12/2006**
9.a. Projected Actual Emissions (if required): **943** tons/year	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

1.2 lb/MMBtu (NSPS Subpart D) x 2,428 MMBtu/hr = 2,913.6 lb/hr
[(2,913.6 lb/hr x 8,760 hr/yr) / 2,000 lb/ton] = 12,762 tons/yr

11. Potential, Fugitive, and Actual Emissions Comment:

Potential emissions set equal to allowable emissions.
See Section 6.0 (Table 6-1) for data shown in Fields 8a. through 9.a.

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions **1** of **2**

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **1.2 lb/MMBtu**	4. Equivalent Allowable Emissions: **2,914** lb/hour **12,762** tons/year
5. Method of Compliance: **Annual stack test using EPA Reference Methods 6, 6A, 6B, 6C or CEMS**	
6. Allowable Emissions Comment (Description of Operating Method): **40 CFR Part 60, Subpart D, 60.43(a)(2) – Solid Fuels** **Title V Permit No. 00100006-003-AV, Condition B.5(a)(2)** **Allowable emissions are prorated when different fuels are burned simultaneously.**	

Allowable Emissions Allowable Emissions **2** of **2**

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.8 lb/MMBtu**	4. Equivalent Allowable Emissions: **1,942** lb/hour **8,508** tons/year
5. Method of Compliance: **Annual stack test using EPA Reference Methods 6, 6A, 6B, 6C or CEMS**	
6. Allowable Emissions Comment (Description of Operating Method): **40 CFR Part 60, Subpart D, 60.43(a)(1) – Liquid Fuels** **Title V Permit No. 00100006-003-AV, Condition B.5(a)(1)** **Allowable emissions are prorated when different fuels are burned simultaneously.**	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **243** lb/hour **1,064** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: **0**
8.a. Baseline Actual Emissions (if required): **289** tons/year	8.b. Baseline 24-month Period: From: **1/2002** To: **12/2003**
9.a. Projected Actual Emissions (if required): **124** tons/year	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

0.1 lb/MMBtu (NSPS Subpart D) x 2,428 MMBtu/hr = 242.8 lb/hr
[(242.8 lb/hr x 8,760 hr/yr) / 2,000 lb/ton] = 1,064 tons/yr

11. Potential, Fugitive, and Actual Emissions Comment:

Potential emissions set equal to allowable emissions.
See Section 6.0 (Table 6-1) for data shown in Fields 8a. through 9.a.

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions **1** of **1**

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.1 lb/MMBtu**	4. Equivalent Allowable Emissions: **243** lb/hour **1,064** tons/year
5. Method of Compliance: **Annual stack test using EPA Reference Methods 5 or 17.**	
6. Allowable Emissions Comment (Description of Operating Method): **40 CFR Part 60, Subpart D, 60.42(a)(1)** **Title V Permit No. 00100006-003-AV, Condition B.4(a)(1)**	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **163** lb/hour **713** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** to tons/year	
6. Emission Factor: **0.67 x PM** Reference: **AP-42, Table**	7. Emissions Method Code: **5**
8.a. Baseline Actual Emissions (if required): **194** tons/year	8.b. Baseline 24-month Period: From: **1/2002** To: **12/2003**
9.a. Projected Actual Emissions (if required): **114** tons/year	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

0.1 lb/MMBtu (NSPS Subpart D) x 2,428 MMBtu/hr x .67 = 162.7 lb/hr
[(162.7 lb/hr x 8,760 hr/yr) / 2,000 lb/ton] = 713 tons/yr

11. Potential, Fugitive, and Actual Emissions Comment:

See Section 6.0 (Table 6-1) for data shown in Fields 8a. through 9.a.

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions of **N/A**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation **1** of **2**

1. Visible Emissions Subtype: **VE20**	2. Basis for Allowable Opacity: [x] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: **20** % Exceptional Conditions: **27** % Maximum Period of Excess Opacity Allowed: **6** min/hour	
4. Method of Compliance: **EPA Reference Method 9 or COMS**	
5. Visible Emissions Comment: **40 CFR Part 60, Subpart D, 60.42(a)(2). Title V Permit 0010006-003-AV, Condition B.4.(a)(2). Opacity standards do not apply during startup, shutdown, and malfunction per 40 CFR Part 60, Subpart A, 60.11(c).**	

Visible Emissions Limitation: Visible Emissions Limitation **2** of **2**

1. Visible Emissions Subtype: **VE**	2. Basis for Allowable Opacity: [x] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **EPA Reference Method 9 or COMS**	
5. Visible Emissions Comment: **Rule 62-210.700(1), F.A.C. allows excess emissions for up to 2 hours in any 24-hour period.**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor **1** of **5**

1. Parameter Code: **VE**	2. Pollutant(s):
3. CMS Requirement:	[x] Rule [ ] Other
4. Monitor Information... Manufacturer: **Spectrum** Model Number: **Spectrum 41**	Serial Number: **0347-8005**
5. Installation Date: **10/21/2004**	6. Performance Specification Test Date: **12/17/2004**
7. Continuous Monitor Comment: **40 CFR Part 75.10(a)(4), 40 CFR Part 75.14(a), and 40 CFR Part 60.45(a).**	

Continuous Monitoring System: Continuous Monitor **2** of **5**

1. Parameter Code: **CO2**	2. Pollutant(s):
3. CMS Requirement:	[x] Rule [ ] Other
4. Monitor Information... Manufacturer: **Siemens** Model Number: **Ultramat 6E**	Serial Number: **N1-S8-0790**
5. Installation Date: **10/21/2004**	6. Performance Specification Test Date: **12/16/2004**
7. Continuous Monitor Comment: **40 CFR Part 75.10(a)(3)(i), 40 CFR Part 75.13(a), and 40 CFR Part 60.45(a).**	

FACILITY INFORMATION

EMISSIONS UNIT INFORMATION
Section [1] of [2]

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor **3** of **5**

1. Parameter Code: **FLOW**	2. Pollutant(s):
3. CMS Requirement:	[x] Rule [ ] Other
4. Monitor Information... Manufacturer: **Monitor Labs** Model Number: **Ultra Flow 150** Serial Number: **1500232**	
5. Installation Date: **10/21/2004**	6. Performance Specification Test Date: **10/16/2004**
7. Continuous Monitor Comment: **40 CFR Part 75.10(a)(1 and 40 CFR Part 75.11(a).**	

Continuous Monitoring System: Continuous Monitor **4** of **5**

1. Parameter Code: **EM**	2. Pollutant(s): **NOX**
3. CMS Requirement:	[x] Rule [ ] Other
4. Monitor Information... Manufacturer: **Thermo-Environmental Instruments, Inc.** Model Number: **42C** Serial Number: **0427508531**	
5. Installation Date: **10/21/2004**	6. Performance Specification Test Date: **12/16/2004**
7. Continuous Monitor Comment: **40 CFR Part 75.10(a)(2), 40 CFR Part 75.12(a) and (b), and 40 CFR Part 60.45(a).**	

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor **5** of **5**

1. Parameter Code: **EM**	2. Pollutant(s): **SO2**
3. CMS Requirement:	[x] Rule [ ] Other
4. Monitor Information... Manufacturer: **Thermo-Environmental Instruments, Inc.** Model Number: **43C**	Serial Number: **0425408089**
5. Installation Date: **12/21/2004**	6. Performance Specification Test Date: **12/16/2004**
7. Continuous Monitor Comment: **40 CFR Part 75.10(a)(1), 40 CFR Part 75.11(a) and (g), and 40 CFR Part 60.45(a).**	

Continuous Monitoring System: Continuous Monitor of

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule [ ] Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

FACILITY INFORMATION

EMISSIONS UNIT INFORMATION
Section [1] of [2]

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [x] Attached, Document ID: **Attachment A** [ ] Previously Submitted, Date

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [x] Attached, Document ID: **Attachment B** [ ] Previously Submitted, Date ____

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [x] Attached, Document ID: **Section 5.0** Previously Submitted, Date _____

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _____
   [x] Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _____
   [x] Not Applicable

6. Compliance Demonstration Reports/Records
   [ ] Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   [ ] Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   [ ] To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   [x] Not Applicable

   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   [ ] Attached, Document ID: _____ [x] Not Applicable

FACILITY INFORMATION

EMISSIONS UNIT INFORMATION
Section [1] of [2]

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e))
   ☐ Attached, Document ID: _____ [x] Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.)
   ☐ Attached, Document ID: _____ [x] Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only)
   ☐ Attached, Document ID: _____ [x] Not Applicable

Additional Requirements for Title V Air Operation Permit Applications **N/A**

1. Identification of Applicable Requirements
   ☐ Attached, Document ID: _____
2. Compliance Assurance Monitoring
   ☐ Attached, Document ID: _____ ☐ Not Applicable
3. Alternative Methods of Operation
   ☐ Attached, Document ID: _____ ☐ Not Applicable
4. Alternative Modes of Operation (Emissions Trading)
   ☐ Attached, Document ID: _____ ☐ Not Applicable
5. Acid Rain Part Application
   ☐ Certificate of Representation (EPA Form No. 7610-1)
   ☐ Copy Attached, Document ID:
   ☐ Acid Rain Part (Form No. 62-210.900(1)(a))
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Not Applicable

FACILITY INFORMATION

Additional Requirements Comment

Attachment A includes a general arrangement profile, general arrangement plan, and isometric views of the DGS Unit 2 AQCS. All drawings are preliminary.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Lime, Hydrated Lime, and Circulating Dry Scrubber (CDS) By-Product Handling and Storage.

3. Emissions Unit Identification Number: **009**

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
C	**N/A**	**N/A**	**49**	☐ Yes ☒ No

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:

Emission unit includes activities associated with the pneumatic handling and storage of lime, hydrated lime, and CDS by-product. Storage facilities include one lime storage silo, two lime day tanks, one hydrated lime storage silo, and one CDS by-product storage silo.

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:

   Medium Temperature (180°F <T <250°F) Fabric Filter (FF)

2. Control Device or Method Code(s): **017**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: **24** hours/day **52** weeks/year	7 days/week **8,760** hours/year
6. Operating Capacity/Schedule Comment:	

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:	2. Emission Point Type Code:	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code:	6. Stack Height: feet	7. Exit Diameter: feet
8. Exit Temperature: °F	9. Actual Volumetric Flow Rate: acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: Dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment **1** of **2**

1. Segment Description (Process/Fuel Type): **Hydrated Lime Used in Circulating Dry Scrubber (CDS)**		
2. Source Classification Code (SCC): **3-05-016-15**	3. SCC Units: **Tons**	
4. Maximum Hourly Rate: **6**	5. Maximum Annual Rate: **50,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **Field 4, Maximum Hourly Rate, is approximate and based on 8,760 hours per year. Field 5, Maximum Annual Rate, is approximate.**		

Segment Description and Rate: Segment **2** of **2**

1. Segment Description (Process/Fuel Type): **Circulating Dry Scrubber (CDS) By-Product (Waste Ash)**		
2. Source Classification Code (SCC): **3-05-102-98**	3. SCC Units: **Tons**	
4. Maximum Hourly Rate: **9**	5. Maximum Annual Rate: **82,000**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **Field 4, Maximum Hourly Rate, is approximate and based on 8,760 hours per year. Field 5, Maximum Annual Rate, is approximate.**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM/PM10	**017**		**NS**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **99+**
3. Potential Emissions: **1.3** lb/hour **6.0** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** to tons/year	
6. Emission Factor: **0.01 gr / dscf** Reference: **Engineering Estimate**	7. Emissions Method Code: **5**
8.a. Baseline Actual Emissions (if required): **289** tons/year	8.b. Baseline 24-month Period: From: **1/2002** To: **12/2003**
9.a. Projected Actual Emissions (if required): **124** tons/year	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

Railcar Unloading
(0.01 gr/dscf) x (1,382 dscf/min) x (1 lb/7,000 gr) x (60 min/hr) = 0.12lb/hr
(0.12lb/hr) x (8,760 hr/yr) x (1 ton/2,000 lb) = 0.52 ton/yr

Lime Silo
(0.01 gr/dscf) x (1,382 dscf/min) x (1 lb/7,000 gr) x (60 min/hr) = 0.12lb/hr
(0.12 lb/hr) x (8,760 hr/yr) x (1 ton/2,000 lb) = 0.52 ton/yr

Lime Day Bin Silos – Total for Two Silos
(0.01 gr/dscf) x (2,000 dscf/min) x (1 lb/7,000 gr) x (60 min/hr) = 0.18 lb/hr
(0.18 lb/hr) x (8,760 hr/yr) x (1 ton/2,000 lb) = 0.76 ton/yr

Lime Hydrator Scrubbers – Total for Two Scrubbers
0.68 lb/hr (Vendor Data)
(0.72 lb/hr) x (8,760 hr/yr) x (1 ton/2,000 lb) = 3.1 ton/yr

Hydrated Lime Silo
(0.01 gr/dscf) x (1,050 dscf/min) x (1 lb/7,000 gr) x (60 min/hr) = 0.09 lb/hr
(0.09 lb/hr) x (8,760 hr/yr) x (1 ton/2,000 lb) = 0.39 ton/yr

CDS By-Product Silo
(0.01 gr/dscf) x (1,844 dscf/min) x (1 lb/7,000 gr) x (60 min/hr) = 0.16 lb/hr
(0.16 lb/hr) x (8,760 hr/yr) x (1 ton/2,000 lb) = 0.69 ton/yr

11. Potential, Fugitive, and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions of **N/A**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS

(Optional for unregulated emissions units.)

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM_{10}**	2. Total Percent Efficiency of Control: **99+**
3. Potential Emissions: **1.3** lb/hour **6.0** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** to tons/year	
6. Emission Factor: **0.01 gr / dscf** Reference: **Engineering Estimate**	7. Emissions Method Code: **5**
8.a. Baseline Actual Emissions (if required): **194** tons/year	8.b. Baseline 24-month Period: From: **1/2002** To: **12/2003**
9.a. Projected Actual Emissions (if required): **114** tons/year	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions: **Note: PM_{10} emissions assumed equal to PM emissions.**

Railcar Unloading
(0.01 gr/dscf) x (1,382 dscf/min) x (1 lb/7,000 gr) x (60 min/hr) = 0.12lb/hr
(0.12lb/hr) x (8,760 hr/yr) x (1 ton/2,000 lb) = 0.52 ton/yr

Lime Silo
(0.01 gr/dscf) x (1,382 dscf/min) x (1 lb/7,000 gr) x (60 min/hr) = 0.12lb/hr
(0.12 lb/hr) x (8,760 hr/yr) x (1 ton/2,000 lb) = 0.52 ton/yr

Lime Day Bin Silos – Total for Two Silos
(0.01 gr/dscf) x (2,000 dscf/min) x (1 lb/7,000 gr) x (60 min/hr) = 0.18 lb/hr
(0.18 lb/hr) x (8,760 hr/yr) x (1 ton/2,000 lb) = 0.76 ton/yr

Lime Hydrator Scrubbers – Total for Two Scrubbers
0.68 lb/hr (Vendor Data)
(0.72 lb/hr) x (8,760 hr/yr) x (1 ton/2,000 lb) = 3.1 ton/yr

Hydrated Lime Silo
(0.01 gr/dscf) x (1,050 dscf/min) x (1 lb/7,000 gr) x (60 min/hr) = 0.09 lb/hr
(0.09 lb/hr) x (8,760 hr/yr) x (1 ton/2,000 lb) = 0.39 ton/yr

CDS By-Product Silo
(0.01 gr/dscf) x (1,844 dscf/min) x (1 lb/7,000 gr) x (60 min/hr) = 0.16 lb/hr
(0.16 lb/hr) x (8,760 hr/yr) x (1 ton/2,000 lb) = 0.69 ton/yr

11. Potential, Fugitive, and Actual Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions of **N/A**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation **1** of **1**

1. Visible Emissions Subtype: **VE20**	2. Basis for Allowable Opacity: [x] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: **20** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **EPA Reference Method 9**	
5. Visible Emissions Comment: **62-296.320(4)(b), F.A.C.**	

Visible Emissions Limitation: Visible Emissions Limitation of

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: [ ] Rule [ ] Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor of **N/A**

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor of

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

EMISSIONS UNIT INFORMATION
Section [1] of [2]

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date **N/A**

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☐ Previously Submitted, Date **N/A**

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **Section 5.0** Previously Submitted, Date _____

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☐ Previously Submitted, Date _____
   ☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: _____ ☐ Previously Submitted, Date _____
   ☒ Not Applicable

6. Compliance Demonstration Reports/Records
   ☐ Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   ☐ Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   ☐ To be Submitted, Date (if known):_____
   Test Date(s)/Pollutant(s) Tested: _____
   ☒ Not Applicable

   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   ☐ Attached, Document ID: _____ ☒ Not Applicable

EMISSIONS UNIT INFORMATION
Section [2] of [2]

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e))
   ☐ Attached, Document ID: _____ ☒ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.)
   ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only)
   ☐ Attached, Document ID: _____ ☒ Not Applicable

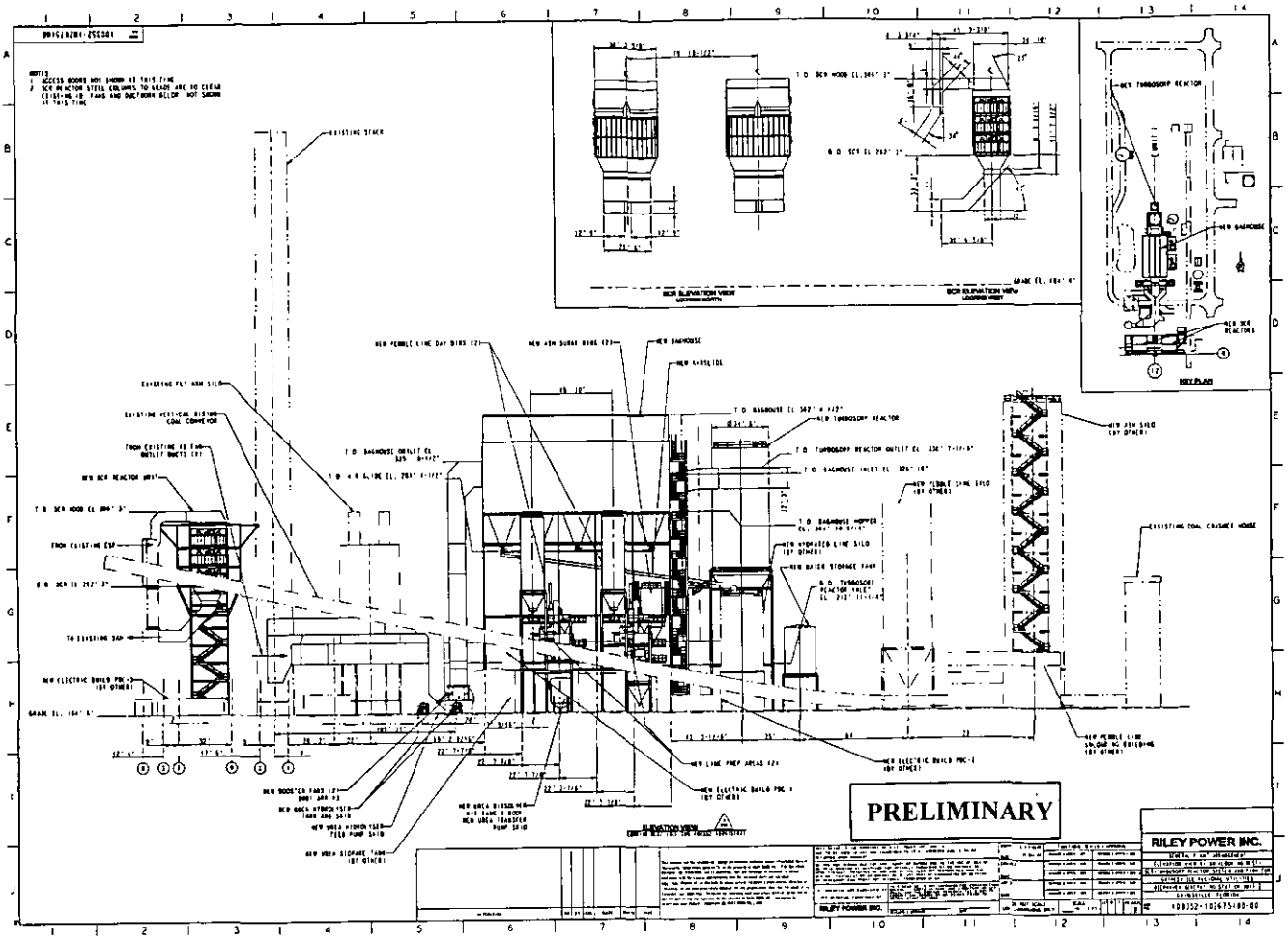
Additional Requirements for Title V Air Operation Permit Applications **N/A**

1. Identification of Applicable Requirements
   ☐ Attached, Document ID: _____
2. Compliance Assurance Monitoring
   ☐ Attached, Document ID: _____ ☐ Not Applicable
3. Alternative Methods of Operation
   ☐ Attached, Document ID: _____ ☐ Not Applicable
4. Alternative Modes of Operation (Emissions Trading)
   ☐ Attached, Document ID: _____ ☐ Not Applicable
5. Acid Rain Part Application
   ☐ Certificate of Representation (EPA Form No. 7610-1)
   ☐ Copy Attached, Document ID:_
   ☐ Acid Rain Part (Form No. 62-210.900(1)(a))
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☐ Not Applicable

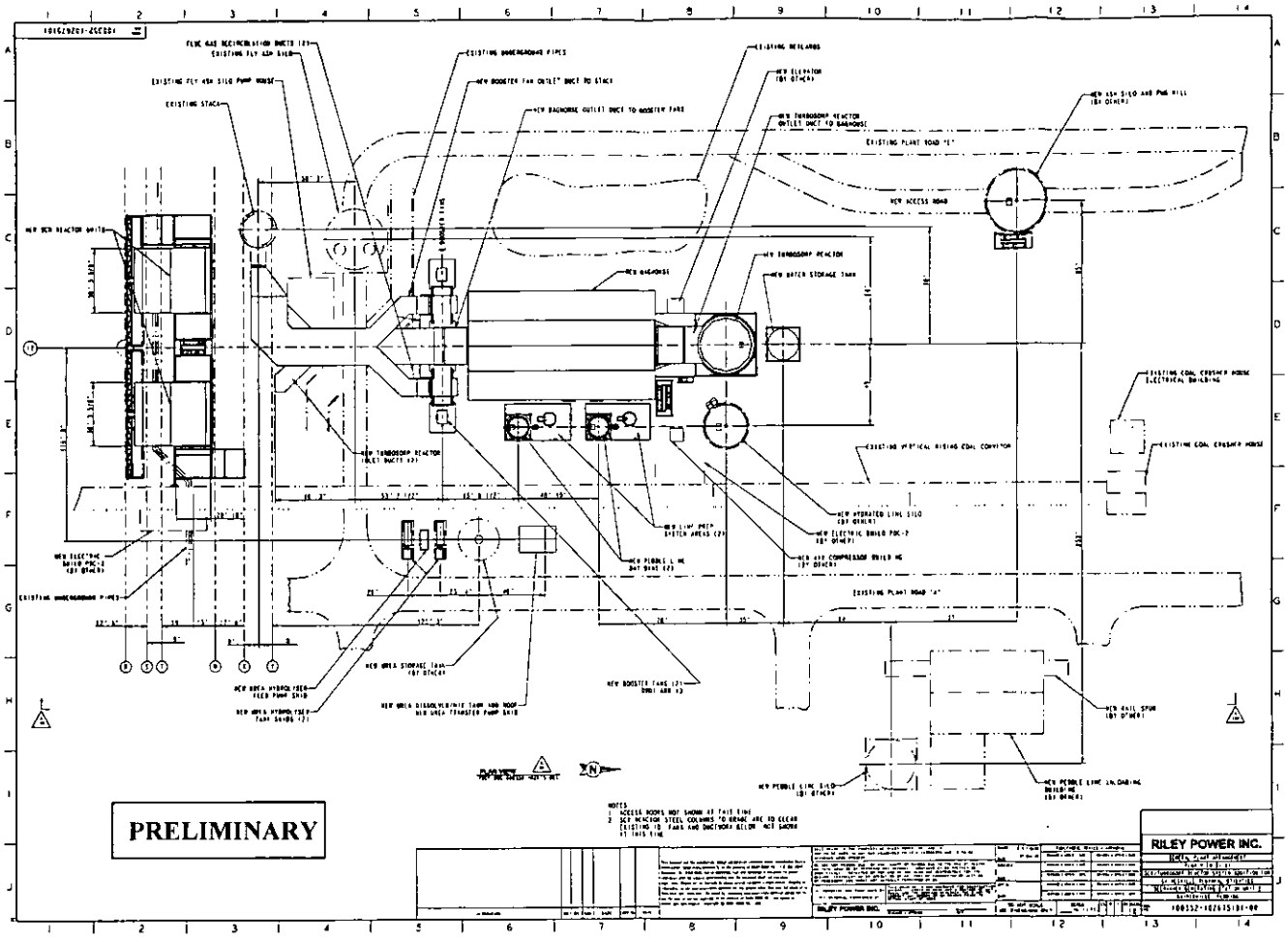
Additional Requirements Comment

DGS UNIT 2 AQCS DIAGRAMS

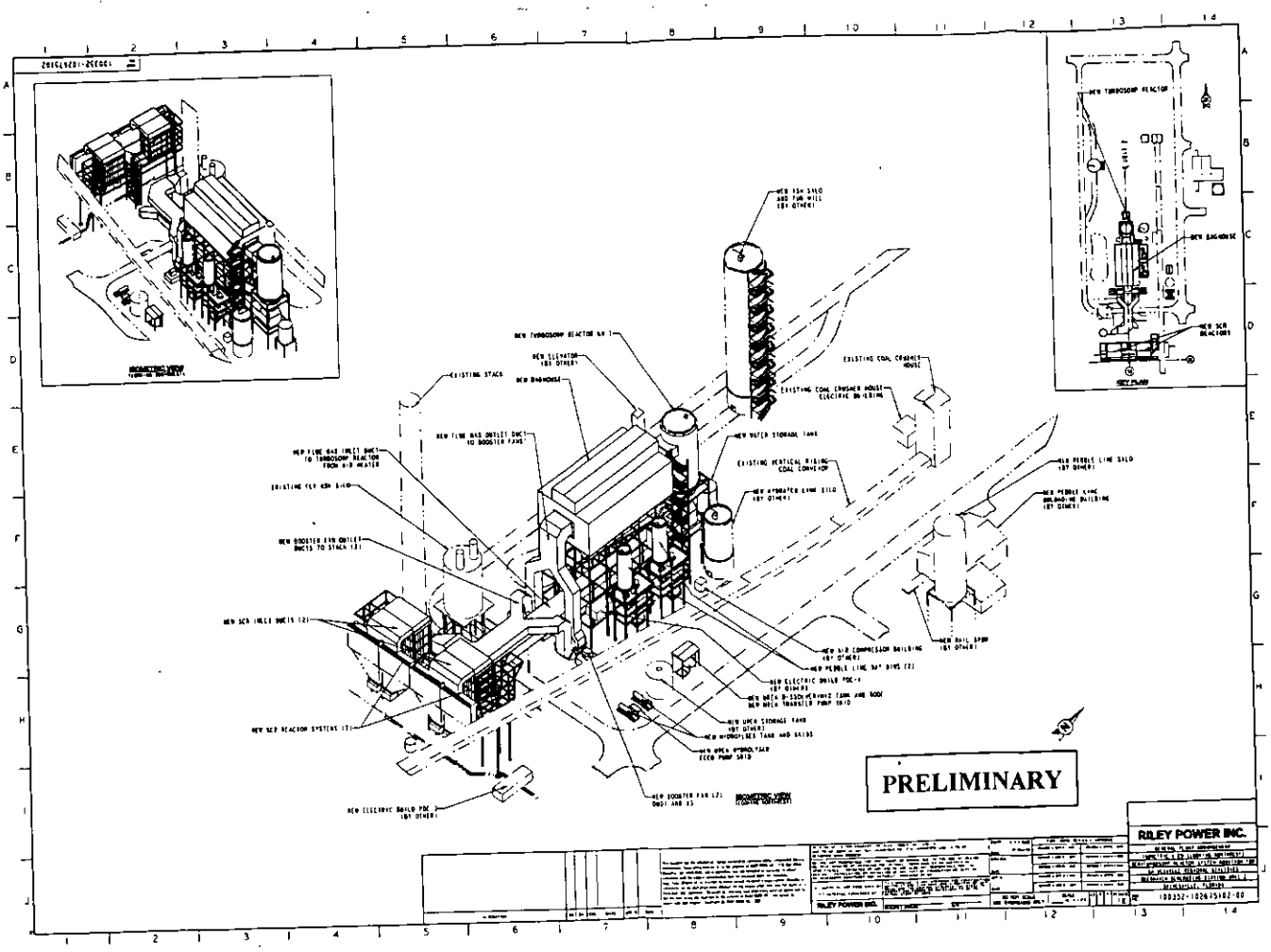
GENERAL ARRANGEMENT PROFILE


PRELIMINARY
RILEY POWER INC.

GENERAL ARRANGEMENT PLAN


PRELIMINARY
RILEY POWER INC.

ISOMETRIC VIEW OF DGS UNIT 2 AQCS


PRELIMINARY
RILEY POWER INC.

APPENDIX B

FUEL CHARACTERISTICS

GAINESVILLE REGIONAL UTILITIES
DEERHAVEN GENERATING STATION

UNIT 2 FUEL CHARACTERISTICS*

Constituent†	Units	Performance Coal	Design Coal	
			Min	Max
Ash	Weight %	9.0	4.5	17.0
Sulfur	Weight %	1.6	1.0	2.5
Heat Content	Btu/lb	12,791	11,000	14,500

*Table represents a range of coal characteristics based on potential candidate fuels from targeted producing regions that will be investigated for future procurement.
†Dry basis.

Source: GRU, 2007.