Florida Department of Environmental Protection
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

MAILED 5/15/07

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

May 14, 2007

- CERTIFIED MAIL - RETURN RECEIPT REQUESTED -

Ms. Yolanta E. Jonyas
Gainesville Regional Utilities
Post Office Box 147117
Station A136
Gainesville, Florida 32614-7117

RE: Deerhaven Generating Station
DEP Case Number PA 74-04
Amendment Request - Retrofit Project

Dear Ms. Jonynas:

On May 14, 2007, the Department received a post-certification amendment application for recognition of amended process water and stormwater configurations related to the Deerhaven Unit 2 retrofit project. Pursuant to Section 62-17.205(c), F.A.C., the Department has determined that this amendment request will not require modification to the Conditions of Certification for the facility. The Department has no objection to the amended process water and stormwater configurations related to the Deerhaven Unit 2 retrofit project.

The Department's Order shall become final unless a timely petition for an administrative hearing is filed under sections 120.569 and 120.57, Florida Statutes ("F.S."), within **21** days of receipt of this Order. The procedures for petitioning for a hearing are set forth below.

Persons affected by this Order have the following options:

If you choose to accept the above decision by the Department concerning the post-certification amendment you do not have to do anything. This Order is final and effective as of the date on the top of the first page of this Order.

If you disagree with the decision, you may do one of the following:

1. File a petition for administrative hearing with the Department's Office of General Counsel within **21** days of receipt of this Order; or

2. File a request for an extension of time to file a petition for hearing with the Department's Office of General Counsel within **21** days of receipt of this Order. Such a request should be

made if you wish to meet with the Department in an attempt to informally resolve any disputes without first filing a petition for hearing.

Please be advised that mediation of this decision pursuant to section 120.573, Florida Statutes ("F.S."), is not available.

How to Request an Extension of Time to File a Petition for Hearing

For good cause shown, pursuant to rule 62-110.106(4), Florida Administrative Code ("F.A.C."), the Department may grant a request for an extension of time to file a petition for hearing. Such a request must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, within **21** days of receipt of this Order. Petitioner, if different from the addressee, shall mail a copy of the request to the addressee at the time of filing. Timely filing a request for an extension of time tolls the time period within which a petition for administrative hearing must be made.

How to File a Petition for Administrative Hearing

A person whose substantial interests are affected by this Order may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, MS 35, Tallahassee, Florida, 32399-3000, within **21** days of receipt of this Order. Petitioner, if different from the addressee, shall mail a copy of the petition to the addressee at the time of filing. Failure to file a petition within this time period shall waive the right of anyone who may request an administrative hearing under sections 120.569 and 120.57, F.S.

Pursuant to subsections 120.54(5)(b)4 and 120.569(2), F.S. and rule 28-106.201, F.A.C., a petition for administrative hearing shall contain the following information:

a) The name, address, and telephone number of each petitioner, the name, address, and telephone number of the petitioner's representative, if any, the site owner's name and address, if different from the petitioner, the DEP facility number, and the name and address of the facility;
b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
c) An explanation of how each petitioner's substantial interests are or will be affected by the Department's action or proposed action;
d) A statement of the material facts disputed by the petitioner, or a statement that there are no disputed facts;
e) A statement of the ultimate facts alleged, including a statement of the specific facts the petitioner contends warrant reversal or modification of the Department's action or proposed action;
f) A statement of the specific rules or statutes the petitioner contends requires reversal or modification of the Department's action or proposed action; and

g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Department's action or proposed action.

This Order is final and effective as of the date on the top of the first page of this Order. Timely filing a petition for administrative hearing postpones the date this Order takes effect until the Department issues either a final order pursuant to an administrative hearing or an Order Responding to Supplemental Information provided to the Department pursuant to meetings with the Department.

Judicial Review

Any party to this Order has the right to seek judicial review of it under section 120.68, F.S., by filing a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within thirty days after this order is filed with the clerk of the Department (see below).

Questions

Any questions regarding the Department's review of your post-certification amendments should be directed to Michael P. Halpin, P.E. at (850) 245-8002. Questions regarding legal issues should be referred to the Department's Office of General Counsel at (850) 245-2293. Contact with any of the above does not constitute a petition for administrative hearing or request for an extension of time to file a petition for administrative hearing.

Sincerely,

for Michael P. Halpin, P.E.
Administrator
Siting Coordination Office

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to §120.52 Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Landa Korakous 5-14-07
Clerk Date

CC by certified mail:

James Antista, Esquire
Fish and Wildlife Conservation Commission
6230 South Meridian Street
Tallahassee, FL 32399-1600

Mary Ann Helton, Esquire
Florida Public Service Commission
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Jim Maher, PE
DEP Northeast District Office
Industrial Wastewater Supervisor
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Suwannee River Water Management
District
9225 County Road 49
Live Oak, FL 32060

Jane Walker
Florida Defenders of the Environment, Inc.
10601 N.W. 23rd Ave
Gainesville, FL 32606

GRU℠
More than Energy™

GAINESVILLE REGIONAL UTILITIES

Energy Supply - Administration

VIA Overnight Mail

DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 14 2007
SITING COORDINATION

May 11, 2007

Mr. Mike Halpin, Administrator
Power Plant Siting
Florida Dept. of Environmental Protection
2600 Blair Stone Road, MS 48
Tallahassee, FL 32399-2400

RE: Gainesville Regional Utilities (GRU)
Deerhaven Generating Station (PA 74-04)
Retrofit Project – Process and Stormwater Configurations

Dear Mr. Halpin:

Pursuant to our recent E-mails and Rule 62-17.205(1)(a), F.A.C. GRU is hereby submitting to the FDEP a post-certification amendment application for recognition of amended process water and stormwater configurations related to the Deerhaven Unit 2 retrofit project. The retrofit project will consist of the installation of an air quality control system consisting of a selective catalytic reduction system, a dry scrubber, a baghouse and ancillary material handling systems for lime and urea. It is anticipated that contractor mobilization to the site will begin in early July 2007 with construction activities beginning in late July or early August. The target completion date for construction is April 2009.

The project will be conducted entirely within the confines of the existing facility as shown on Figure 1. The major portion of the equipment will be located directly north of the existing Unit 2 boiler on a 3.5 acre area that is now grassy. Stormwater from this area is routed to Pond 3 which is one of three on-site stormwater ponds. Pond 3 has a drainage area of approximately 26.5 acres.

Approximately 30,000 square feet of impervious surface, primarily associated with foundations and pre-engineered buildings, will be added to this area as a result of the project. Drawing C -3000 depicts the Overall Finish Grading and Drainage Plan associated with the project. New impervious surface will be added in the areas designated as D1 (0.271 acres) and D2 (0.85 acres). Stormwater from these areas will be re-directed to a common pipe and routed to the existing process water sump. From there it will be pumped to the process water ponds (shown on Figure 1 as the ash, sludge and pump-back ponds) for reuse. Stormwater from areas D3, D4 and D5 will continue to be routed to Pond 3.

P.O. Box 147117, Station A-132 Gainesville, Fl 32614-7117 Telephone: (352) 393-1075 Fax: (352) 334-2786

Approximately 7,800 square feet of impervious surface will be added as a result of the new lime unloading and storage facility to be located to the east and south of the existing rail loop. The rail spur construction will require the removal of approximately 5,750 square feet of existing impervious surface associated with the lay down area. The net change in impervious area will be approximately 2,050 square feet. Stormwater from this area currently drains and will continue to drain to Pond 4. This pond has a total drainage area of approximately 124.4 acres.

GRU has the capability to and actively manages the water levels in the process and stormwater ponds. Adequate capacity exists in both pond systems to accommodate the increased/reduced flows as well as storm events without changes to their proper functioning. An anticipated post-retrofit plant water balance is attached as Figure 2.

Temporary and permanent erosion and sedimentation control measures will be implemented to prevent or reduce pollutants in waters of the State. Drawing C-5000 presents the Civil Overall Erosion and Sediment Control Plan.

I recently spoke with Jim Maher, FDEP NE District, regarding stormwater permitting requirements associated with the project. He indicated that no separate Environmental Resource Permit would be required to accommodate the changes associated with the retrofit.

GRU is filing a copy of this request with the affected agencies and parties to the original site certification proceeding as indicated on Attachment 1.

If you have any questions, please contact me at 352-393-1284 or jonynasye@gru.com.

Sincerely,

Yolanta E. Jonynas
Licensing Manager

xc: C. Allen
D. Beck
T. Bates
R. Embry
R. Klemans
D. Mallery
D. Moffet
R. Nance
E. Walters
DHCC1.0
DH1.5

Tom Brown, Esquire
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Jane Walker
Florida Defenders of the Environment, Inc.
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Douglas S. Roberts, Esquire
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Kathy Carter, Agency Clerk
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Jim Maher, PE
Department of Environmental Protection, NE District
Industrial Wastewater Supervisor
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Jacksonville, FL 32256

James V. Antista, Esquire
General Counsel
Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, FL 32399-1600

Meeting

City of Gainesville, Gainesville Regional Utilities
Deerhaven Unit 2
Air Quality Control Systems Retrofit/Turbine Upgrade Project
January 17, 2007

BACKGROUND

In March 2005 the USEPA promulgated the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR) to limit emissions of sulfur dioxide, nitrogen oxides and mercury from electric generating units via a 2-phase cap and trade system. On June 29, 2006 the Florida Environmental Regulatory Commission (ERC) adopted modified versions of the EPA rules. Specifically, Florida opted into EPA's cap and trade model rule but made modifications to the methodology for allocating NOx and mercury allowances to individual units to address Florida-specific issues[1]. On January 5, 2006 the utility received approval from the Gainesville City Commission to retrofit DH2[2], a 235-mw (nominal) coal-fired unit, with air quality control systems (AQCS) as one means of complying with the new regulations by the required deadlines[3]. The utility is also planning to conduct a turbine upgrade on Unit 2 to recoup power lost to the parasitic load associated with the AQCS.

DESCRIPTION OF THE AIR QUALITY CONTROL SYSTEM/TURBINE UPGRADE

The air quality control systems will consist of:

- Selective catalytic reduction (SCR) system supplied by Babcock Power Environmental, Inc. (BPEI)[4]. The SCR provides a high NOx removal efficiency and uses the BPEI Delta Wing technology which allows both flue gas mixing and reagent (ammonia) injection in one simple application rather than requiring a more complex ammonia injection system.

- A Circulating Dry Scrubber (CDS)[5] based on the Turbosorp™ technology developed by Austrian Energy and Environment and licensed to Babcock Power

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[1] On August 10, 2006 Florida Power and Light filed a rule challenge based on Florida's use of fuel-adjustment factors for allocating NOx allowances and the allocation of such allowances to units that fire biomass.

[2] Originally, the installation of the AQCS was coupled with a proposal for adding new generating capacity at Deerhaven. It has since been decoupled from such a proposal and is now an independent (stand-alone) project typically referred to as the "retrofit" or "air quality control system" project.

[3] 2009 for Phase I NOx; 2010 for Phase I SO2 and mercury.

[4] BPEI and its affiliate Riley Power Inc. are collectively known as Babcock Power. The Deerhaven Unit 2 boiler was supplied by Riley Power Inc.

[5] Some of the benefits of a dry scrubber compared to a wet scrubber include: lower water consumption, no wastewater generation, no visible plume, acid mist control, and ability to use the existing stack.

Environmental, Inc. (BPEI)[6]. The process provides a high SO2 removal efficiency, the ability to handle a wider range of coals and simplicity of operation and maintenance.

- Baghouse (BH) or fabric filter supplied by Hamon-Research Cottrell[7]. The baghouse is an integral part of the CDS.

The AQCS is designed to achieve SO2 and NOx reductions well beyond current EPA/FDEP requirements. The existing hot-side electrostatic precipitator will remain in-service. Therefore, the baghouse will provide for additional reductions in particulate matter and sulfuric acid mist.

Concurrently with the AQCS project the Unit 2 steam turbine may be upgraded by replacing the high- and intermediate pressure rotors along with the associated stationary elements. There will be no changes to the existing electrical generator and no increase in heat input to the boiler and steam flow capability of the turbine. Likewise, the utilization of the unit is not expected to increase as a result of the upgrade since Unit 2 is baseload unit. The upgrade, however, will increase the efficiency of the turbine.

OTHER ENVIRONMENTAL ISSUES

Water: The AQCS will require approximately 250 gallons per minute of water. This amount can be accommodated within the unit's current water allocation of 6.5 million gallons per day. The utility is evaluating the option of recycling water from the process water ponds to meet the major portion of this demand.

Wastewater: The majority of water associated with the AQCS is evaporated in the CDS. Therefore, there will be minimal wastewater generated, mostly associated with washdown and maintenance.

Byproducts: The CDS will generate up to approximately 80,000 tons per year of dry byproduct which will consist primarily of calcium sulfite, calcium sulfate and unreacted lime. This product may be marketable or may require landfilling either off-site or on-site in the existing ash landfill. This landfill has a clay liner, a stormwater runoff and underdrain collection system and a groundwater monitoring system.

Stormwater: Stormwater from the project area will be recycled on-site to the greatest extent possible. Non-contact stormwater may be routed to the existing stormwater management ponds prior to discharge off-site.

Chemical Usage: The Turbosorp will utilize pebble lime which will be hydrated prior to injection into the reactor. The SCR will use ammonia as a reagent which will be

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[6] Turbosorp scrubber technology has been installed at AES's Greenidge Plant in upstate New York under a DOE Clean Coal Power Initiative grant and started up in Nov. 2006. In 2008 AES will install this technology at a plant in Westover, Mass.

[7] The existing hot-side electrostatic precipitator on Deerhaven Unit 2 was supplied by Research Cottrell.

generated on-site using prill urea. This option is safer than managing anhydrous or aqueous ammonia on-site. New delivery (rail and truck), storage and preparation facilities will be required for the chemical reagents. Secondary containment systems will be provided as required by state and local regulations.

Urea to Ammonia Conversion System: This system will convert solid, stable urea to ammonia using heat. Ammonia injection rates to the SCR will be determined by continuously monitoring the SCR inlet and outlet NOx concentrations to ensure the desired NOx emission rate is achieved. Safeguards (including an automatic shutoff) will be in-place to prevent the accidental release of ammonia. Since ammonia will be generated on demand, the amount of ammonia in the system at any one time will be small.

Stack Impacts: As a result of the CDS, flue gas temperature will decrease from about the 300-350 F range to approximately 180 F; the flow rate will also decrease slightly. Due to the dry scrubbing process, no visible plume is expected.

Energy Requirements: The new systems will require approximately 6-8 megawatts of auxiliary power. Additional electrical equipment will be added to the existing switchyard located on the south side of the plant to provide power to the AQCS and will include two (2) 10 MVA transformers with appropriate containment, two (2) manual disconnects, and two (2) circuit switches.

Fuel: The utility currently utilizes low-sulfur bituminous coal (that coincidentally has relatively low concentrations of mercury due to the locations of the mines). The addition of the AQCS will provide flexibility to burn a blend of coals up to a medium sulfur coal.

Noise: The project will comply with the applicable local noise ordinances. Vibration issues associated with the new equipment are not anticipated to be problematic.

Labor: The average number of workers during the construction phase is expected to be approximately 120 reaching 150 during the peak period (July –Sept. 2008).

Rail/Truck Traffic: Rail traffic is projected to increase by approximately 5-7 railcars per week if lime deliveries are made solely via this mode. Urea will be delivered by truck resulting in approximately 2-3 additional trucks per week.

Rail Extension: Rail unloading facilities will be needed to allow the delivery of lime for the scrubber. A rail spur, approximately 1500 ft. in length, will be extended from the existing rail loop in the coal yard to the west side of the Unit 2 cooling tower. This spur will be owned and operated by GRU.

Tanks: There will be several new tanks and silos associated with the AQCS including pebble and hydrated lime storage silos and day bins; urea dissolving, solution storage and hydrolyzer tanks; and a dry scrubber/baghouse byproduct silo.

Calcium Oxide Addition System: To prevent SCR catalyst poisoning by arsenic and improve the expected life of the catalyst, calcium oxide will be added to the coal prior to combustion. The calcium oxide may be in the form of pebble lime or limerock and will require a system to prepare/convey the material onto the coal conveyor. The utility is currently evaluating the two options.

Material Handling: The lime unloading facility and the baghouse penthouse will be enclosed. The silos for ash and lime storage will be equipped with bin vent filters. Most of the material will be handled pneumatically. No enclosures are provided for lime conditioning (grinding, hydrating) or the urea system. A pug mill is provided for the scrubber ash.

SCHEDULE

Currently, it is anticipated that mobilization to the site will begin in early July 2007 with construction activities beginning in late July or early August. The target completion date is end of April 2009.

The bulk of the project will be conducted by Babcock Power Environmental, Inc. (major equipment supplier) and Lockwood Greene, Inc. (constructor) under contract to GRU and as a modification to the Conditions of Certification. GRU will be directly responsible for rail spur and switchyard addition under separate approval (i.e., SC amendment). The entire project will be constructed within the confines of the certified site.

Deerhaven Unit 2 Retrofit Project
Meeting with FDEP/GRU
January 18, 2007

Introductions – GRU/FDEP

Project Description - GRU

Project Schedule – GRU

Air Construction Permit Issues – ECT/FDEP/GRU

- NSR Considerations
  - Emission Comparison
    - Past actual vs. future actual
      - Future actual projected to be lower
    - Data sources: CEMS, emission factors, stack tests
- GEP Assessment

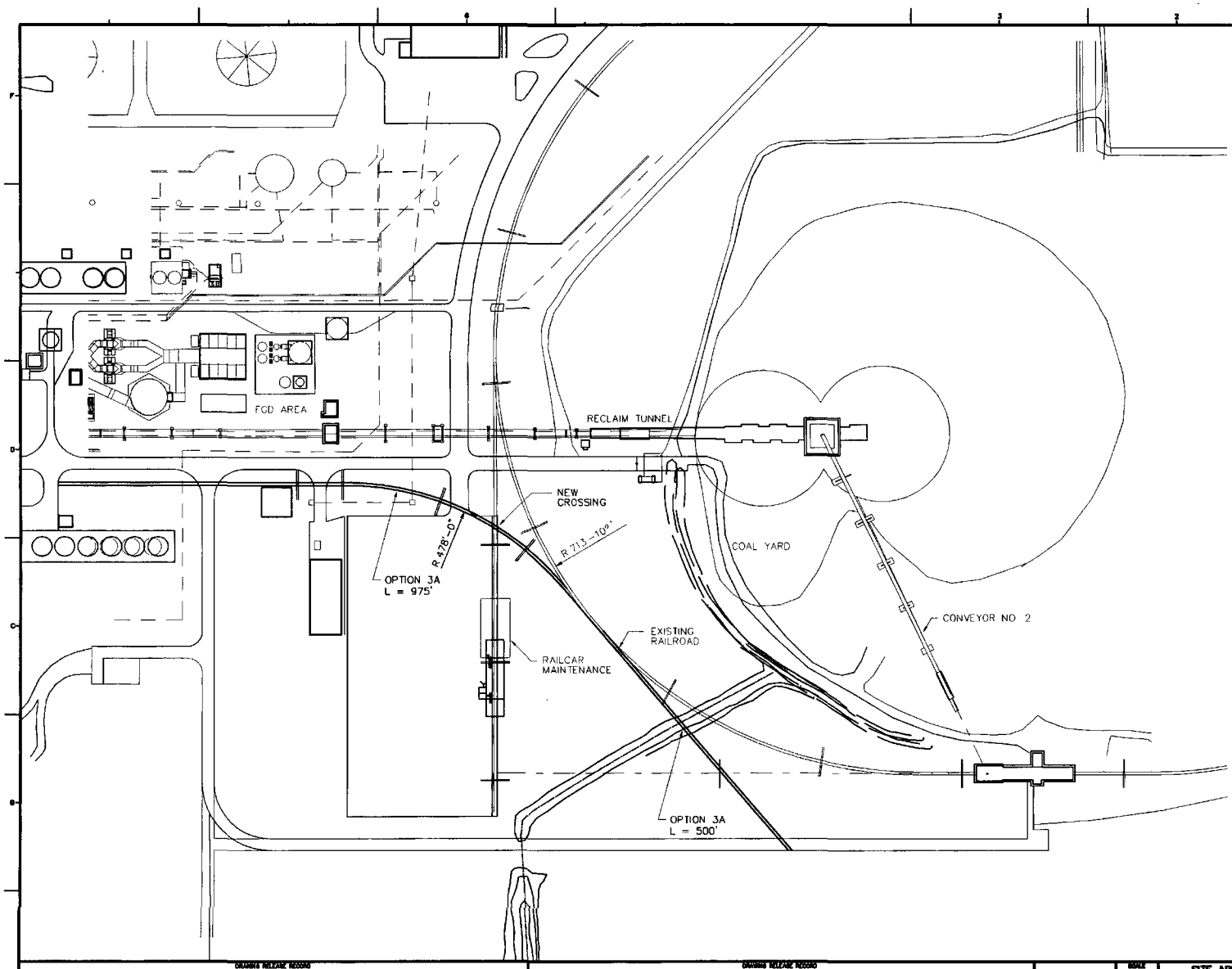
Site Certification ("SC") Issues – FDEP/GRU

- Rail spur (by GRU under SC amendment)
- Switchyard addition (by GRU under SC amendment)
- Air quality control system (by others under SC modification)

Permitting Schedule – FDEP

Future Projects – GRU

Other



DRAWING RELEASE RECORD

REV.	DATE REL'D.	PREPARED	REVIEWED	PURPOSE	FILM

DRAWING RELEASE RECORD

REV.	DATE REL'D.	PREPARED	REVIEWED	APPROVED	PURPOSE	FILM
A	04-25-06	M BRISK	E MAAG		ISSUED FOR BIDS SPEC D-6560	

SCALE: 1" = 60'

PROJECT NUMBER: 11904

SITE ARRANGE
RAILROAD SPUR

DEERHAVEN GENERATIN
UNIT 2
GAINESVILLE REGIONAL
GAINESVILLE, FLO

Deerhaven Unit 2 Retrofit Project
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Stormwater: Stormwater from the project area will be recycled on-site to the greatest extent possible. Non-contact stormwater may be routed to the existing stormwater management ponds prior to discharge off-site.

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Urea to Ammonia Conversion System: This system will convert solid, stable urea to ammonia using heat. Ammonia injection rates to the SCR will be determined by continuously monitoring the SCR inlet and outlet NOx concentrations to ensure the desired NOx emission rate is achieved. Safeguards (including an automatic shutoff) will be in-place to prevent the accidental release of ammonia. Since ammonia will be generated on demand, the amount of ammonia in the system at any one time will be small.

Stack Impacts: As a result of the CDS, flue gas temperature will decrease from about the 300-350 F range to approximately 180 F; the flow rate will also decrease slightly. Due to the dry scrubbing process, no visible plume is expected.

Energy Requirements: The new systems will require approximately 6-8 megawatts of auxiliary power. Additional electrical equipment will be added to the existing switchyard located on the south side of the plant to provide power to the AQCS and will include two (2) 10 MVA transformers with appropriate containment, two (2) manual disconnects, and two (2) circuit switches.

Fuel: The utility currently utilizes low-sulfur bituminous coal (that coincidentally has relatively low concentrations of mercury due to the locations of the mines). The addition of the AQCS will provide flexibility to burn a blend of coals up to a medium sulfur coal.

Noise: The project will comply with the applicable local noise ordinances. Vibration issues associated with the new equipment are not anticipated to be problematic.

Labor: The average number of workers during the construction phase is expected to be approximately 120 reaching 150 during the peak period (July –Sept. 2008).

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SCHEDULE

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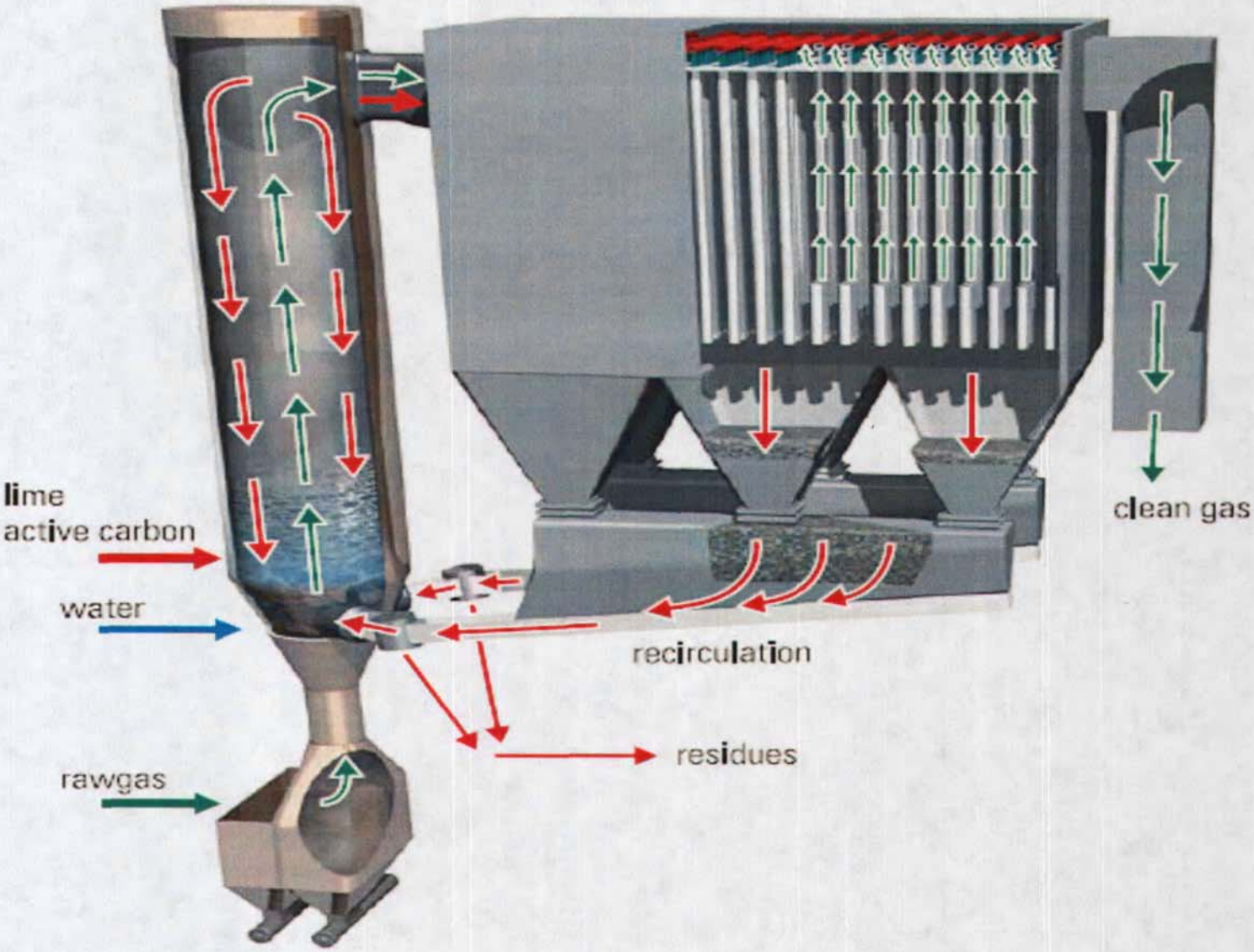
Deerhaven Unit 2 Retrofit Project
Turbosorp™ Flow Diagram
January 18, 2007



City of Gainesville, Gainesville Regional Utilities
Deerhaven Unit 2
Air Quality Control Systems Retrofit/Turbine Upgrade Project
January 17, 2007

BACKGROUND

In March 2005 the USEPA promulgated the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR) to limit emissions of sulfur dioxide, nitrogen oxides and mercury from electric generating units via a 2-phase cap and trade system. On June 29, 2006 the Florida Environmental Regulatory Commission (ERC) adopted modified versions of the EPA rules. Specifically, Florida opted into EPA's cap and trade model rule but made modifications to the methodology for allocating NOx and mercury allowances to individual units to address Florida-specific issues[1]. On January 5, 2006 the utility received approval from the Gainesville City Commission to retrofit DH2[2], a 235-mw (nominal) coal-fired unit, with air quality control systems (AQCS) as one means of complying with the new regulations by the required deadlines[3]. The utility is also planning to conduct a turbine upgrade on Unit 2 to recoup power lost to the parasitic load associated with the AQCS.

DESCRIPTION OF THE AIR QUALITY CONTROL SYSTEM/TURBINE UPGRADE

The air quality control systems will consist of:

- Selective catalytic reduction (SCR) system supplied by Babcock Power Environmental, Inc. (BPEI)[4]. The SCR provides a high NOx removal efficiency and uses the BPEI Delta Wing technology which allows both flue gas mixing and reagent (ammonia) injection in one simple application rather than requiring a more complex ammonia injection system.

- A Circulating Dry Scrubber (CDS)[5] based on the Turbosorp™ technology developed by Austrian Energy and Environment and licensed to Babcock Power

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[1] On August 10, 2006 Florida Power and Light filed a rule challenge based on Florida's use of fuel-adjustment factors for allocating NOx allowances and the allocation of such allowances to units that fire biomass.

[2] Originally, the installation of the AQCS was coupled with a proposal for adding new generating capacity at Deerhaven. It has since been decoupled from such a proposal and is now an independent (stand-alone) project typically referred to as the "retrofit" or "air quality control system" project.

[3] 2009 for Phase I NOx; 2010 for Phase I SO2 and mercury.

[4] BPEI and its affiliate Riley Power Inc. are collectively known as Babcock Power. The Deerhaven Unit 2 boiler was supplied by Riley Power Inc.

[5] Some of the benefits of a dry scrubber compared to a wet scrubber include: lower water consumption, no wastewater generation, no visible plume, acid mist control, and ability to use the existing stack.

Environmental, Inc. (BPEI)[6]. The process provides a high SO2 removal efficiency, the ability to handle a wider range of coals and simplicity of operation and maintenance.

- Baghouse (BH) or fabric filter supplied by Hamon-Research Cottrell[7]. The baghouse is an integral part of the CDS.

The AQCS is designed to achieve SO2 and NOx reductions well beyond current EPA/FDEP requirements. The existing hot-side electrostatic precipitator will remain in-service. Therefore, the baghouse will provide for additional reductions in particulate matter and sulfuric acid mist.

Concurrently with the AQCS project the Unit 2 steam turbine may be upgraded by replacing the high- and intermediate pressure rotors along with the associated stationary elements. There will be no changes to the existing electrical generator and no increase in heat input to the boiler and steam flow capability of the turbine. Likewise, the utilization of the unit is not expected to increase as a result of the upgrade since Unit 2 is baseload unit. The upgrade, however, will increase the efficiency of the turbine.

OTHER ENVIRONMENTAL ISSUES

Water: The AQCS will require approximately 250 gallons per minute of water. This amount can be accommodated within the unit's current water allocation of 6.5 million gallons per day. The utility is evaluating the option of recycling water from the process water ponds to meet the major portion of this demand.

Wastewater: The majority of water associated with the AQCS is evaporated in the CDS. Therefore, there will be minimal wastewater generated, mostly associated with washdown and maintenance.

Byproducts: The CDS will generate up to approximately 80,000 tons per year of dry byproduct which will consist primarily of calcium sulfite, calcium sulfate and unreacted lime. This product may be marketable or may require landfilling either off-site or on-site in the existing ash landfill. This landfill has a clay liner, a stormwater runoff and underdrain collection system and a groundwater monitoring system.

Stormwater: Stormwater from the project area will be recycled on-site to the greatest extent possible. Non-contact stormwater may be routed to the existing stormwater management ponds prior to discharge off-site.

Chemical Usage: The Turbosorp will utilize pebble lime which will be hydrated prior to injection into the reactor. The SCR will use ammonia as a reagent which will be

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[6] Turbosorp scrubber technology has been installed at AES's Greenidge Plant in upstate New York under a DOE Clean Coal Power Initiative grant and started up in Nov. 2006. In 2008 AES will install this technology at a plant in Westover, Mass.

[7] The existing hot-side electrostatic precipitator on Deerhaven Unit 2 was supplied by Research Cottrell.

generated on-site using prill urea. This option is safer than managing anhydrous or aqueous ammonia on-site. New delivery (rail and truck), storage and preparation facilities will be required for the chemical reagents. Secondary containment systems will be provided as required by state and local regulations.

Urea to Ammonia Conversion System: This system will convert solid, stable urea to ammonia using heat. Ammonia injection rates to the SCR will be determined by continuously monitoring the SCR inlet and outlet NOx concentrations to ensure the desired NOx emission rate is achieved. Safeguards (including an automatic shutoff) will be in-place to prevent the accidental release of ammonia. Since ammonia will be generated on demand, the amount of ammonia in the system at any one time will be small.

Stack Impacts: As a result of the CDS, flue gas temperature will decrease from about the 300-350 F range to approximately 180 F; the flow rate will also decrease slightly. Due to the dry scrubbing process, no visible plume is expected.

Energy Requirements: The new systems will require approximately 6-8 megawatts of auxiliary power. Additional electrical equipment will be added to the existing switchyard located on the south side of the plant to provide power to the AQCS and will include two (2) 10 MVA transformers with appropriate containment, two (2) manual disconnects, and two (2) circuit switches.

Fuel: The utility currently utilizes low-sulfur bituminous coal (that coincidentally has relatively low concentrations of mercury due to the locations of the mines). The addition of the AQCS will provide flexibility to burn a blend of coals up to a medium sulfur coal.

Noise: The project will comply with the applicable local noise ordinances. Vibration issues associated with the new equipment are not anticipated to be problematic.

Labor: The average number of workers during the construction phase is expected to be approximately 120 reaching 150 during the peak period (July –Sept. 2008).

Rail/Truck Traffic: Rail traffic is projected to increase by approximately 5-7 railcars per week if lime deliveries are made solely via this mode. Urea will be delivered by truck resulting in approximately 2-3 additional trucks per week.

Rail Extension: Rail unloading facilities will be needed to allow the delivery of lime for the scrubber. A rail spur, approximately 1500 ft. in length, will be extended from the existing rail loop in the coal yard to the west side of the Unit 2 cooling tower. This spur will be owned and operated by GRU.

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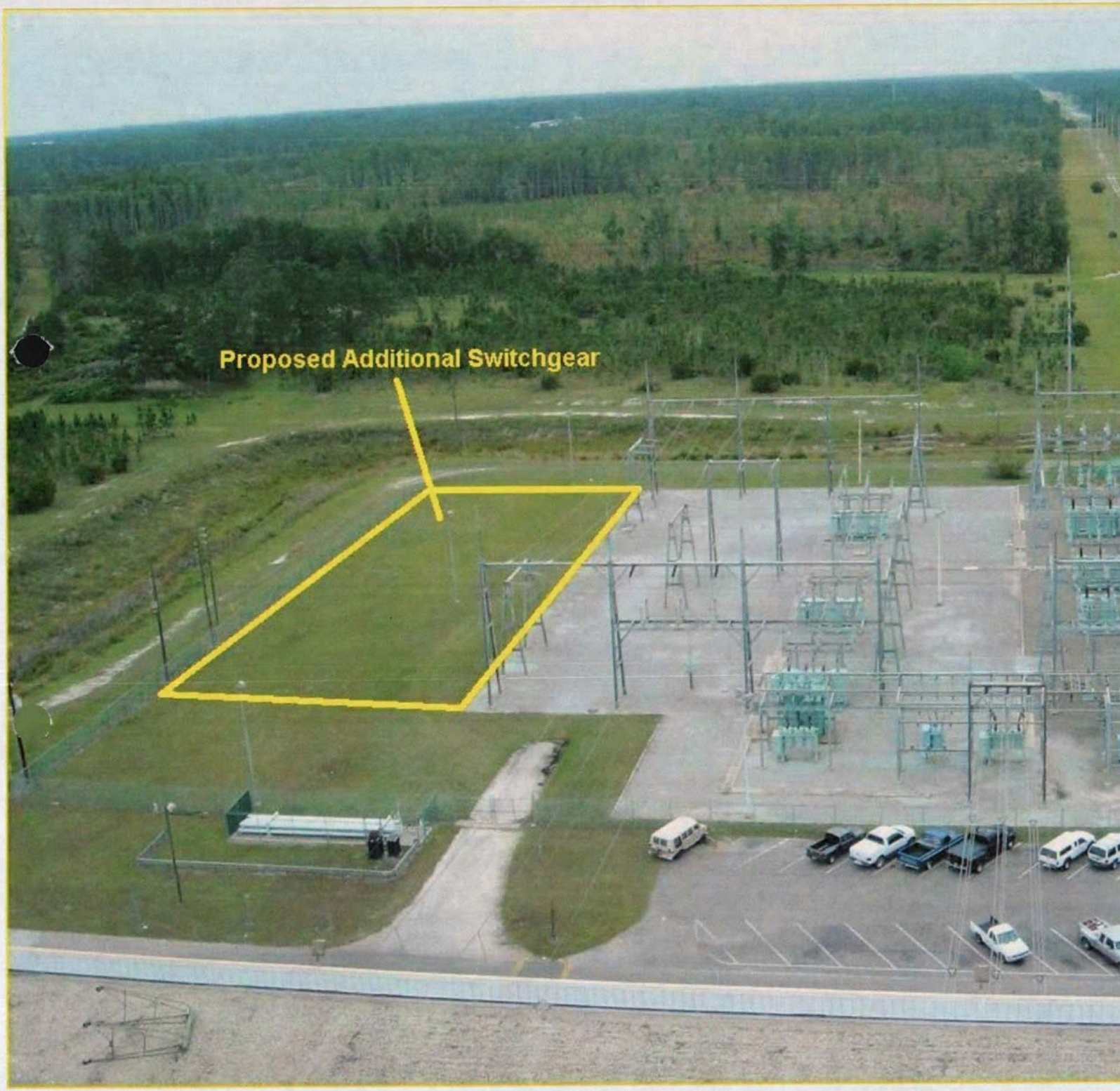
Proposed Additional Switchgear