Best Available Control Technology (BACT) Determination

Orlando Utilities Commission

Orange County

The proposed facility is the construction of one 415 net megawatt coal-fired electric utility steam generating unit, one 92 million Btu per hour heat input oil-fired auxiliary boiler, and coal, limestone, and fly ash handling systems. The site is to be known as the Curtis H. Stanton Energy Center and is to be designed to accomodate four generating units. This determination is for Unit No. 1, the only installation proposed at this time.

Unit No. 1 will burn approximately 1.1 million tons per year of coal having an average sulfur content of 2.6 percent. The boiler will use No. 6 oil during start-ups, which will require an estimated annual oil usage of 80,000 gallons. The auxiliary boiler will be utilized to provide start-up and shut-down capability for Unit No. 1. The auxiliary boiler will operate an estimated 150 hours annually and consume 57,000 gallons per year of No. 2 oil having a sulfur content less than 0.5 percent.

The Energy Center is to be located approximately ten miles south-east of Orlando in Orange County. The area is classified nonattainment for the pollutant ozone (17-2.16(1)(g)F.A.C.), and attainment for all other pollutants. The facility must comply with the provisions of 17-2.04 F.A.C. (Prevention of Significant Deterioration).

BACT Determination Requested by the Applicant:

Pollutant	Emission Limit
Particulates	0.03 lb/million Btu input
SO_2	NSPS
NO_x	0.60 lb/million Btu input

Particulate emissions to be controlled with a cold side Electrostatic Precipitator (ESP). Sulfur dioxide emissions to be controlled with a wet limestone flue gas scrubber. There is no specific technology to control NO_x emissions, therefore, BACT is to be the manufacturer's guarantee for state-of-the-art burner design parameters to minimize NO_x emissions.

Fugitive dust from the coal handling system will be controlled with bag filters, water sprays, and a telescopic chute. Fugitive dust from the limestone handling system will be controlled with bag filters, telescopic chute, pile compaction, and covered conveyors. Emissions from the fly ash vacuum type pneumatic transfer system will be controlled with a fabric filter baghouse. Dust generated by vehicle traffic over unpaved roads will be reduced by wetting with water or a dust palliative.

Date of Receipt of a BACT Application:

July 9, 1981

Date of Publication in the Florida Administrative Weekly:

July 24, 1981

Review Group Members:

Hamilton S. Oven, Jr. - Power Plant Siting Section
Charles Collins - St. Johns River District
Bob King - DER New Source Review Section
Larry George - DER Air Modeling Section

The BACT determination reflects the recommendations from the review group.

BACT Determination by DER:

A. Steam generating Unit No. 1.

Pollutant	Emission Limit - $lb/10^6$ Btu input
Particulates	0.03
SO_2	0.76 (30 day rolling average)
NO_x	0.60 (30 day rolling average)
CO	0.05
Visible Emissions	Maximum 20% Opacity

Compliance with the allowable emission limits for Unit No. 1 will be demonstrated with performance tests conducted in accordance with the provisions of the NSPS subsections 60.46a, 60.48a and 60.49a.

B. Auxiliary boiler.

Pollutant	Emission Limit - $lb/10^6$ Btu input
Particulates	0.015
SO_2	0.31
NO_x	0.16
Visible Emissions	Maximum 20% Opacity

Compliance testing will be in accordance with 17-2.23, F.A.C., method 9.

C. Coal, limestone, flyash handling systems.

Pollutant	Emission Limit
Particulates	Maximum 5% Opacity

Compliance testing will be in accordance with 17-2.23 F.A.C., DER method 9.

The fuel oil to be fired in Unit No. 1 and the auxiliary boiler will be "new oil", which means an oil which has been refined from crude oil and has not been used, and which may or may not contain additives.

Justification of DER Determination:

40 CFR 60, Subpart Da, Standards of performance for electric utility steam generating units for which construction is commenced after September 18, 1978, is determined as BACT for the proposed No. 1 unit. The proposed emission control equipment is state-of-the-art and determined as BACT.

BACT for particulate and SO_2 emissions from the auxiliary boiler is determined to be the firing of No. 2 fuel oil with a sulfur content less than 0.5 percent. The boiler has limited operation and the emissions are minor when compared to Unit No. 1. Therefore, no air pollution control equipment is warranted.

The coal, limestone and fly ash handling systems are exempted from mass emission rate compliance tests unless opacity limits are exceeded.

The term "new oil" is included to prevent the use of waste oil as fuel, emissions from which were not considered in this BACT analysis.

Details of the Analysis May be Obtained by Contacting:

Edward Palagyi, BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Recommended by:

Steve Smallwood, Chief, BAQM

Date: 8/25/81

Approved by:

Victoria J. Tschinkel, Secretary

Date: 8/28/81

SS:caa

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO.

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION) Bob King	INITIAL	
	DATE	
2.	INITIAL	
	DATE	
3.	INITIAL	
	DATE	
4.	INITIAL	
	DATE	

REMARKS:

INFORMATION
- REVIEW & RETURN
- REVIEW & FILE
- INITIAL & FORWARD

DISPOSITION
- REVIEW & RESPOND
- PREPARE RESPONSE
- FOR MY SIGNATURE
- FOR YOUR SIGNATURE
- LET'S DISCUSS
- SET UP MEETING
- INVESTIGATE & REPT
- INITIAL & FORWARD
- DISTRIBUTE
- CONCURRENCE
- FOR PROCESSING
- INITIAL & RETURN

FROM:

DATE

PHONE

OUC Staff Report

VI. FACILITY SPECIFIC CONCERNS

A. Air Quality

1. Selected Fuel

The Stanton Energy Center is planned for coal-fired operation. Based on a study of availability of Eastern coals, there are practical sources of coal adequate to meet the plant's needs (approximately 1,000,000 tons per year per unit) over the anticipated life of the project. The OUC coal availability study identified coal supplies in Illinois and Appalachia as the most likely sources.

The plant is designed to retain the flexibility to change its coal supply (to insure against disruptions in supply and local market upsets and to maintain competitive prices) with a minimum reduction in efficiency and without violating air quality standards. Analyses of potential coal supplies were carried out so that the plant could be designed to accommodate coals with a variety of characteristics. Coals from the above sources were analyzed to determine the ranges of characteristics and chemical constituents.

The air quality control system for Unit No. 1 is designed on a "worst case" basis assuming a high sulfur (3.8 percent) and ash (10 percent) content in the coal and a minimum heating value (11,000 Btu/lb). This approach assumes the sulfur and ash contents of the coal are 7.34 lb/MMBtu (million Btu) and 8.52 lb/MMBtu, respectively. The ash remaining after the coal is burned is assumed to be 80 percent fly ash and 20 percent bottom ash. The above values

were used to develop collection equipment efficiencies, investment estimates, and long and short-term ground level ambient air quality concentrations. When the unit is operating, it will consume up to 191 tons per hour of coal.

It is proposed that the steam generator will burn No. 6 fuel oil for light-off and flame stabilization during start-up and low load operation. This oil will be stored on site and pumped to the steam generator as required. Approximately 80,000 gal/yr will be utilized on an intermittent basis. This represents less than 2 percent (by heat input) of the steam generator annual fuel consumption. The auxiliary boiler will use No. 2 fuel oil which is expected to have a maximum sulfur content of 0.50 percent by weight, a maximum ash content of 0.01 percent by weight, and a heating value of 19,500 Btu/lb. Since the pollutant contents of the fuel oil are low and the utilization of the oil is limited, the emissions of particulates and SO_2 from oil burning are considered to be insignificant when compared to those from coal burning.

The coal handling system will provide for delivery of coal by rail directly to the plant by unit train or in trainload lots. A bottom dumping coal car system will be used to unload coal from the trains on the power plant site. The system will also include the yard area coal storage, transfer system, coal silos, and the tripper floor distribution system.

2. Emissions and Controls

The types and sources of air emissions from the proposed facility are as follows:

- o Combustion flue gases from Unit No. 1.
- o Combustion flue gases from the auxiliary boiler.
- o Fugitive dust from coal handling, lime and limestone handling, and fly ash handling systems.

a. Particulate Emissions Control for Main Unit

The particulate matter control equipment will be an electrostatic precipitator (ESP). The cold side ESP will be located directly downstream of the steam generator air heater. The ESP will be capable of operating continuously and within particulate emission guarantees, 0.03 pound particulate matter per million Btu heat input, down to 20 per cent of unit load.

b. Sulfur Dioxide (SO_2) Emissions Control for Main Unit

SO_2 emissions will be controlled by a flue gas desulfurization (FGD) system which will consist of a multi-module wet limestone spray tower located downstream of the induced draft fans. The system will have three 50 per cent capacity modules with a bypass arrangement. The flue gas will be discharged from the FGD system directly into the chimney without reheating, but flue gas passing reheat is being considered by OUC.

c. Nitrogen Oxides (NO_x) Emissions Control for Main Unit

NO_x emissions will be controlled by utilizing features which will include one or more of the following:

- o Compartmented windbox (improved combustion control.)
- o Large furnace and widely spaced burners (reduced temperatures).
- o Staged combustion.

d. Carbon Monoxide (CO) Emissions Control for Main Unit

CO emissions will be controlled by excess air and good operation practice.

e. Auxiliary Boiler Flue Gas Emissions Control

The 83 MMBtu/hr auxiliary boiler will be a packaged unit and will burn No. 2 fuel oil. The annual operation time will be less than 150 hours per year. The estimated emissions from the boiler will be 0.06 ton/yr for particulate matter, 1.1 ton/yr for SO_2 and 0.6 ton/yr for NO_x.

f. Fugitive Dust Control for Coal Handling System

The coal handling system will consist of unloading, stocking, reclaiming, and long term reserve storage facilities. Fugitive dust associated with the handling of the coal will be controlled with bag filters, covered conveyors, water and chemical spray, and a telescopic chute. Table 1 lists the release points, control methods and efficiencies.

g. Fugitive Dust Control from Limestone Handling System

The limestone handling system will be capable of unloading, stocking, reclaiming and long term reserve storage. Fugitive dust associated with handling of the limestone will be controlled by utilizing bag filters, covered conveyors, a telescopic chute and pile compaction. Table 2 lists the release points, control methods and dust removal efficiencies.

h. Fugitive Dust from Fly Ash Transport System

Fly ash from the boiler hoppers and electrostatic precipitator hoppers will be transported to a fly ash storage silo by a vacuum type pneumatic system. The system will consist of vacuum pumps which will transport the fly ash to the fly ash storage silo and then vent through fabric filters.

i. Fugitive Dust Control from Lime Handling System

Pebble lime will be used as an additive to condition the scrubber sludge/fly ash mixture. The lime will be received by truck or railcar dumping into an enclosed hopper. The lime will be transported from the hopper to a storage silo by a pneumatic system. The silo will vent through a bag filter system.

TABLE 1

FUGITIVE COAL DUST EMISSIONS CONTROL

Source of Emissions	Dust Control Method	Control Efficiency Percent
Bottom Car Dumper	Water Spray and Building Enclosure	97
Conveyor 2	Enclosed	99+*
Transfer Building	Enclosed with Baghouse	99+
Conveyor 3	Wind Screen	50
Active Storage		
Load In	Stacker Spray Water	75
Load Out	Reclaimer Spray Water	80
Wind Erosion	Water Spray and Compaction	80
Conveyor 4	Enclosed	99+*
Emergency Stockout		- -
Load In	Telescopic Chute and Water	85
Load Out	Dozer	50
Wind Erosion	Limit Residence Time	80
Emergency Reclaim	Bag Filter	99+
Reserve Storage		
Load In	Dozer Sprayer Water	50
Wind Erosion	Crusting and Chemical Sprays	90
Conveyor 5	Enclosed	99+*
Conveyor 6A and 6B	Enclosed	99+*

TABLE 1 Continued

Source of Emissions	Dust Control Method	Control Efficiency Percent
Crusher Building	Enclosed and Baghouse	99+
Conveyor 7A and 7B	Enclosed	99+*
Surge Tower	Baghouse	99+
Plant Silo	Baghouse	99+

*The conveyors exhaust to the bag filters in the building which they interconnect.

3. Best Available Control Technology

Rule 17-2.03, Florida Administrative Code (FAC), requires an evaluation of proposed air pollutant emission control equipment and a determination as to whether or not OUC will utilize the Best Available Control Technology (BACT) for each pollutant emitted from the proposed facility. The determination of BACT requires consideration of all available scientific, engineering and technical material, (2) existing emission control standards of other states, and (3) the social and economic impact of the application of such technology.

The installation of a high efficiency electrostatic precipitator to control particulate emissions from the boiler, bag filters to control particulate emissions from fly ash handling, and liquid spray and bag filter systems to control particulate emissions from coal, lime and limestone handling all represent BACT.

The use of washed coal and the installation of limestone scrubbers will achieve a 90% reduction of the potential sulfur dioxide emissions and will comply with EPA's requirements under 40 CFR 60, New Source Performance Standards (NSPS).

The use of boiler design control, which limits flame temperature and oxygen availability in order to limit the formation of nitrogen oxides in the boiler to 0.6 pounds per milllion Btu, is considered to be BACT. Likewise, the use of boiler controls to limit the emissions of carbon monoxide is

also considered BACT.

A detailed discussion of the Department's BACT determination for the proposed facility follows.

a. Facility Description

The proposed facility is the construction of one 415 net megawatt capacity coal-fired electric utility steam generating unit, one 83 million Btu per hour heat input oil-fired auxiliary boiler, and associated coal, lime, limestone, and fly ash handling systems. The site is to be known as the Curtis H. Stanton Energy Center and is to be designed to accommodate four generating units. This determination is for Unit No. 1, the only installation proposed at this time.

Unit No. 1 will burn approximately 1.1 million tons per year of coal having an average sulfur content of 2.6 percent. The boiler will use No. 6 oil during start-ups. This will require an estimated annual oil usage of 80,000 gallons. The auxiliary boiler will be utilized to provide start-up and shut-down capacity for Unit No. 1. The auxiliary boiler will operate an estimated 150 hours annually and consume 57,000 gallons per year of No. 2 oil having a sulfur content less than 0.5 percent.

The Stanton Energy Center is to be located approximately ten miles southeast of Orlando in Orange County. The area is classified nonattainment for the pollutant ozone (Rule 17-2.16(1)(g)), and attainment for all other pollutants. The facility must comply with the provisions of Rule 17-2.04, Prevention of Significant Deterioration.

b. BACT Determination Requested by the Applicant

Pollutant	Emission Limit (Unit No. 1)
Particulates	0.03 lb/million Btu input
SO_2	1.2 lb/million Btu input, NSPS
NO_x	0.60 lb/million Btu input

Particulate emissions are to be controlled with a cold side electrostatic precipitator (ESP). Sulfur dioxide emissions are to be controlled with a wet limestone flue gas scrubber. There is no specific technology to control NO_x emissions, therefore, BACT is to be the manufacturer's guarantee for state-of-the-art burner design parameters to minimize NO_x emissions.

Fugitive dust from the coal handling system will be controlled with bag filters, water sprays, and a telescopic chute. Fugitive dust from the lime and limestone handling systems will be controlled with water sprays, bag filters, a telescopic chute, pile compaction, and covered conveyors. Emission from the fly ash vacuum type pneumatic transfer system will be controlled with a fabric filter baghouse. Dust generated by vehicle traffic over unpaved roads will be reduced by wetting with water or a dust palliative.

c. BACT Determination by DER

(1). Steam Generating Unit No. 1

Pollutant	Emission Limit - $lb/10^6$ Btu input
Particulates	0.03
SO_2	1.2 maximum two hour average and 1.14 maximum three hour average, NSPS
NO_x	0.60 (30 day rolling average)
Visible Emissions	Maximum 20% Opacity

Compliance with the allowable emission limits for Unit No. 1 will be demonstrated with performance tests conducted in accordance with the provisions of the NSPS subsections 60.46a, 60.48a and 60.49a.

(2). Auxiliary Boiler

Pollutant	Emission Limit - $lb/10^6$ Btu input
Particulates	0.015
SO_2	0.31
NO_x	0.16
Visible Emissions	Maximum 20% Opacity

Compliance testing will be in accordance with Rule 17-2.23, DER Method 9.

(3). Coal, Lime, Limestone, and Flyash Handling Systems

Maximum 5% opacity or 0.02 grains/acf for all pollution control equipment. Maximum 10% opacity when adding, moving or removing coal from coal pile.

Compliance testing will be in accordance with Rule 17-2.23, DER Method 9.

The fuel oil to be fired in Unit No. 1 and the auxiliary boiler will be "new oil", which means an oil which has been refined from crude oil and has not been used and which may or may not contain additives.

d. Justification of DER BACT Determination

Compliance with 40 CFR 60, Subpart Da, the NSPS for electric utililty steam generating units for which construction is commenced after September 18, 1978, is determined as BACT for the proposed Unit No. 1.

The proposed emission control equipment is state-of-the-art and will comply with the NSPS.

BACT for particulate and SO_2 emissions from the auxiliary boiler is determined to be the firing of No. 2 fuel oil with a sulfur content less than 0.5 percent. The boiler will have limited operation and the emissions are minor when compared to Unit No. 1. Therefore, no air pollution control equipment is warranted.

The coal, lime, limestone, and fly ash handling systems are exempted from mass emission rate compliance tests unless opacity limits are exceeded.

The term "new oil" is included to prevent the use of waste oil as fuel. Emissions from waste oil were not considered in this BACT analysis.

(1). Steam Generating Unit

The applicant's requested emission rate of 1.2 lb/MMBtu, maximum two hour average, with 90% removal of SO_2 on a 30-day rolling average constitutes BACT for this pollutant. Provision of an SO_2 removal efficiency of greater than 90% would not markedly improve the ambient air quality in the area; therefore, the increased cost of additional removal efficiency would neither be cost effective nor warranted. The additional use of large quantities of fuel energy and the use of greater land areas for sludge disposal which would be required to meet SO_2 removal rates more efficient than 90% are not justified by the degree of air quality improvement projected.

To achieve the 90% reduction, OUC analyzed two control processes: the limestone system selected and a lime scrubbing system. The preferred limestone system utilizes an aqueous lime/limestone solution to absorb SO_2 and convert the gas to calcium sulfate or gypsum. The alternative system utilizes an aqueous lime solution to absorb SO_2. Lime is a more expensive material than limestone; consequently, the comparative costs over the limestone system would be greater.

The SO_2 emission limit of 1.14 lb/MMBtu, maximum three hour average, comes from the proposed federal permit (PSD-FL-084) for two generating units. It is the limit required to prevent a violation of SO_2 PSD increments with both units operating.

The applicant's requested emission rate of 0.03 lb/MMBtu for particulate is 70% lower than the emission rate currently allowed by Florida's emission limiting standards for new coal-fired fossil fuel steam generators and constitutes BACT for this pollutant. The Department has reviewed assessments of the particulate control alternatives and has concluded that a fabric filter system and precipitators would be roughly equivalent in terms of the degree of contol achieved and that wet scrubbers would not be suitable. Wet scrubbers are not considered suitable for the following reasons:

- The wet scrubber would be integral with the FGD system, thus preventing emergency bypassing of the FGD system while maintaining particulate matter emission limits.

- The wet scrubber approach requires the use of wet and semi-wet induced draft fans. Wet and semi-wet fans have traditionally experienced corrosion and imbalance problems.
- The flue gas pressure loss across the scrubber is very high, on the order of 25 inches of water. This would require the application of extra energy to maintain the required gas flow through the system.

In comparing the practicality of the other two modes with the electrostatic precipitator, the Department has determined that the precipitator constitutes proven technology on units of the size proposed by OUC. While EPA has published studies on two facilities of 39 MW and 175 MW capacity which are utilizing fabric filters, the application of this technology to a 415 MW unit with flue gas desulfurization could produce scale up difficulties. Further, an analysis conducted by the Seminole Electric Cooperative on 640 MW units indicated the cost of fabric filters to be an additional $5 million in capital and $2 million per year in maintenance. Jacksonville Electric Authority found that a fabric filter could cost as much as $38.7 million more than a precipitator on a capitalized annual basis. Therefore, although EPA finds that the NSPS of 0.03 lb/MMBtu is achievable with either a baghouse or electrostatic precipitator, OUC chose to use an electrostatic precipitator.

The applicant requested that an emission rate of 0.6 lb/MMBtu be declared BACT for nitrogen oxides (NO_x). This is consistent with the NSPS. Reductions in nitrogen oxide emissions would be accomplished through boiler design.

Equipment designers have guaranteed that NO_x emissions from the unit will not exceed 0.6 lb/MMBtu at loads ranging from 20% to 100%. Since loads of less than 20% are due only to startup or operation as spinning reserve, guarantees over the range of 20% to 100% load are recognized as acceptable practice, particularly on base load units. Based on presently available information, an emission rate of 0.6 lb/MMBtu constitutes BACT for nitrogen oxides.

The use of boiler controls and oxygen monitors to limit carbon monoxide emissions is considered to be BACT.

The applicant did not request a visible emission limit for the proposed facility. The provisions of the NSPS specify a visible emission limit of 20% opacity with an allowable opacity of not more than 27% for six minutes in any hour. The Florida standards for new coal fired fossil fuel steam generators limit the visible emissions to 20% opacity except that 40% opacity may not be exceeded more than two minutes in any hour Because the federal standards are based on a review of the best control technology available, the Department has determined that BACT constitutes 20% opacity except that an opacity of 27% may not be exceeded more than six minutes in any one hour.

(2). Fugitive Dust Sources

Fugitive dust is produced by a number of sources associated with the project. These include the coal handling system, lime and limestone handling systems, fly ash system, and FGD waste handling and disposal systems. The following paragraphs describe the control systems and/or methods determined as BACT for these fugitive dust sources.

(a). Coal Handling Fugitive Dust Collection

Control and collection of fugitive particulates in the coal handling system will be accomplished by several different methods including enclosed conveying systems, water spray dust suppression systems, dust collection systems utilizing fabric filters, and a telescopic chute.

Coal will be unloaded at the plant site by bottom-dumping from cars within an unloading building with a water spray dust suppression system. This is expected to have a dust control efficiency of 97+ percent. From the delivery point, totally enclosed belt conveyors will be used to transport the coal to the coal handling building. Surge bins in the coal handling building will be vented with fabric filter dust collectors (efficiency of 99+ percent), and similar collectors will be located at all conveyor discharge points. Conveyors between the coal handling building and the stacker-reclaimer will not be enclosed, but coal dust associated with these conveyors will be controlled by a water spray dust suppression system. Dust release in the stacker-reclaimer area (active coal pile) will be controlled

by wetting agents for an efficiency of 80 percent. Dust releases from the inactive coal pile will also be controlled by wetting agents.

All conveyors from the coal handling building to the power house will be enclosed, and fabric filter dust collectors will be utilized to vent the storage silos in the power house and all conveyor transfer points. Tripper conveyors will be enclosed in a gallery.

(b). Lime and Limestone Fugitive Dust Collection

Control and collection of fugitive dust particulates from the lime and limestone addition systems will be accomplished by appropriate types of water spray and fabric filter dust collectors.

Lime and limestone will be transported at the site by totally enclosed belt conveyors. All silos utilized by the lime and limestone systems will be vented to fabric filter dust collectors. Similar collectors will be located at all conveyor discharge points.

All fabric filter dust collectors in the lime and limestone additive systems will have an efficiency greater than 99 percent.

(c). Collection of Fugitive Fly Ash Particulates

In the fly ash handling system, fugitive fly ash particulate will be controlled at all transfer and discharge locations by fabric filters. The fly ash handling system consists essentially of ash hoppers located beneath the flue gas particulate collection equipment. Pneumatic conveyors

are utilized to transfer fly ash to and from ash storage silos and to mixers which prepare the ash and FGD wastes for disposal. Pneumatic conveyors by their nature are enclosed. Discharge for the conveyor's blower(s) will be equipped with fabric filters with greater than 99 percent collection efficiency.

4. Air Quality Impacts

The air quality impacts resulting from the operation of the Stanton Energy Center include the direct effects on pollution levels in the power plant vicinity and the further effect of those pollutants, in the estimated quantities, on human health and welfare.

The exhaust gases from the generating unit boiler will be emitted to the atmosphere through a ground-supported stack located about 530 feet west of the main boiler structure. The stack height will be 550 feet which corresponds to the "good engineering practice" (GEP) stack height calculated from the Stanton Energy Center plot layout and preliminary building dimensions for two units.

In addition to emissions from the generating unit there will be emissions from other sources at the site. One type of minor particulate emission will be drift (small water droplets) from the cooling tower. Because of the efficiencies of modern drift eliminators, the quanitity of water lost as drift is an extremely small percentage of the circulating water flow. In addition, dissolved and suspended solids constitute only a small fraction of total droplet mass.

Fugitive dust is another source of particulate emissions associated with the operation of a coal-fired power plant. Fugitive dust emissions are defined as pollutants which escape from a process due to materials handling, transfer, or storage. Sources of these emissions at a coal-fired power

plant include the exhaust from various dust collectors as well as activities associated with the unloading, handling, and storage of coal, lime and limestone. The fugitive dust sources included in this analysis are the train unloading facility, transfer building, crusher building, plant coal silo, active coal pile, and limestone pile.

Pursuant to Rule 17-2.04, the Stanton Energy Center emission sources are subject to review for Prevention of Significant Deterioration (PSD). PSD review consists of an analysis of existing air quality, a PSD increment analysis (for Particulates and SO_2 only), and an ambient air quality standards (AAQS) analysis.

The analysis of existing air quality generally relies on preconstruction monitoring data collected in accordance with EPA-approved methods. The PSD increment and AAQS analyses depend on air quality modeling carried out in accordance with EPA guidelines.

Based on these required analyses, the Department has reasonable assurance that the proposed OUC one unit power generating facility, as described in this report and subject to the conditions of certification proposed, will not cause or contribute to a violation of any PSD increment or ambient air quality standard. A discussion of the modeling methodology and required analyses follows.

a. Modeling Methodology

Two EPA-approved dispersion models were used in the air quality impact analysis. These were the Single-Source (CRSTER) and Industrial Source Complex (ISC) models. The CRSTER model was used to predict annual, 24-hour and 3-hour average concentrations resulting from Unit No. 1 stack emissions alone. The ISC model was used to predict particulate concentrations resulting from the stack emissions, emissions from the coal handling facility and fugitive emissions from the coal and limestone storage piles.

Receptor rings in the CRSTER model were positioned at 1 km and 0.1 km intervals, respectively, for determination of annual and short-term concentrations. Receptors in the ISC model were placed at 0.1 km intervals along the plant boundary.

The surface meteorological data used in the models were National Weather Service data collected at the Orlando Jet Port during the period 1974-78. Upper air meteorological data used in the models were collected during the same time period at Tampa, Florida.

Stack parameters and emission rates used in evaluating the proposed OUC facility are contained in Table 3.

b. Analysis of Existing Air Quality

One year (from May 1, 1980, through April 30, 1981) of preconstruction ambient air quality data were collected by OUC at the proposed site. The instruments (all EPA-reference

or the equivalent) were sited in accordance with the recommendations given in Ambient Monitoring Guidelines for Prevention of Significant Deterioration (EPA 450/2-78-019) and operated in accordance with the quality assurance procedures of 40 CFR 58, Appendix B. Data recovery rates for all pollutants subject to PSD review exceeded 80 percent. The results of the monitoring program are summarized in Table 4.

c. PSD Increment Analysis

The proposed OUC facility will be located in an area where the Class II PSD increments apply. The nearest Class I area is more than 100 km from the proposed site; therefore, no analysis of Class I area impacts was performed.

No sources other than the proposed OUC facility have been identified which would be expected to significantly affect increment consumption in the area of the proposed site. As shown in Table 5, modeling results predict that the generating unit and associated sources proposed by OUC will not cause a violation of any PSD increment.

For SO_2, the highest second-highest short-term predicted concentrations are given in the table since five years of meteorological data were used in the CRSTER modeling. For particulate matter (PM), the highest 24-hour average predicted concentration is given since only one year of meteorological data was used in the ISC modeling.

As shown in the table, the predicted 3-hour SO_2 concentration consumes the highest per cent of the PSD Class II increments. The modeling results show the highest, second-highest 3-hour SO_2 impact to be 333 micrograms per cubic meter at a point 1.1 kilometers south southeast of the proposed stack location. This 3-hour impact consumes nearly 65 per cent of the available 3-hour increment. The highest, second-highest 24-hour SO_2 concentration is 45 micrograms per cubic meter and is predicted to occur 1.1 kilometers south-southeast of the proposed stack location. These areas of short-term maximum impact are predicted to occur within the proposed plant boundary. The maximum annual SO_2 concentration increase is 2.7 micrograms per cubic meter and is predicted to occur 3 kilometers west of the proposed stack location.

d. AAQS Analysis

Given existing air quality in the area, the proposed OUC facility is not expected to cause or contribute to a violation of any AAQS. The results of the AAQS analysis are summarized in Table 6.

For SO_2, the highest second-highest short-term predicted concentrations are given in the table since five years of meteorological data were used in the modeling. For PM, the highest 24-hour average predicted concentration is given since only one year of meteorological data was used. For both SO_2 and PM, the short-term background

concentrations (concentrations due to natural background and distant man-made sources) are conservatively given as the highest monitored values.

The maximum combined 24-hour particulate impact at the plant boundary is approximately 15 micrograms per cubic meter. The Unit 1 stack emissions have only a negligible contribution at the maximum impact location. This is expected since the stack, with a higher release, results in further downstream transport and greater dilution prior to the plume reaching the ground. Also, the pollution control equipment for the stack flue gas effectively limits particulate emissions.

The activities associated with the storage of limestone are shown to be the major contributors to the maximum 24-hour particulate concentration. The predicted limestone impact is approximately 87 per cent of the total 24-hour particulate impact. This is because the emissions from the limestone storage pile represent a very conservative estimate. Worst case emissions with no gravitational settling of the limestone particulates were used because no particle size distribution of airborne limestone dust was available as was the case with coal.

The increase in PM and NO_2 concentrations in downtown Orlando as a result of the OUC emissions are predicted to be less than 1 ug/m^3, annual average. Therefore, the proposed facility is not expected to cause a violation of PM ambient air quality standards in the city or contribute

significantly to the production of ozone due to the photodisassociation of NO_2 in the presence of hydrocarbon emissions from city traffic.

TABLE 3

PROPOSED OUC STACK AND AREA SOURCE PARAMETERS AND EMISSION RATES

Emissions Unit	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature (K)	Emission Rate (g/s) PM	SO_2	NO_x	CO
Unit 1	167.6	5.79	21.5	326.0	15.6	594.1	312.7	24.2
Transfer Building	33.5	1.07	20.3	---	0.35	---	---	---
Crusher Building	38.1	0.73	20.3	---	0.16	---	---	---
Plant Coal Silo	45.7	1.15	20.3	---	0.41	---	---	---
Plant Transfer Area	45.7	0.77	20.3	---	0.18	---	---	---

Area Source	Release Height (m)	Area Width (m)	PM Emission Rate ($g/s/m^2$) With Wind Erosion	Without Wind Erosion
Coal Storage Pile	12.2	70.0	0.00008	0.00003
Limestone Storage Pile	5.0	80.0	0.00005	0.00002
Unloading Facility	3.0	25.0	---	0.00025

TABLE 4

SUMMARY OF ONSITE AIR QUALITY DATA
FOR TWELVE MONTHS ENDING APRIL 30, 1981

Pollutant and Time Average	Highest Recorded Concentration	Second-Highest Concentration
SO_2 (ug/m^3)		
3-hour	124	115
24-hour	44	41
12-month	14.4	---
PM (ug/m^3)		
24-hour	105*	90*
12-month*	34**	---
NO_2 (ug/m^3)		
12-month	10.7	---
CO (mg/m^3)		
1-hour	10.6	10.5
8-hour	5.2	4.6

*Two 24-hour samples not reported because of unrepresentative local influences (range fires near monitor).

**Geometric mean value.

TABLE 5

COMPARISON OF PREDICTED OUC IMPACTS WITH PSD INCREMENTS

Pollutant and Time Average	PSD Class II Increment	Predicted Concentration	Percent Increment Consumed
SO_2 (ug/m^3)			
3-hour	512	333	65
24-hour	91	45	49
Annual	20	2.7	14
PM (ug/m^3)			
24-hour	37	15	41
Annual	19	1	5

TABLE 6

COMPARISON OF PREDICTED OUC IMPACTS WITH AMBIENT AIR QUALITY STANDARDS

Pollutant and Time Average	Existing (Background) Concentration	Predicted Concentration Increase	Total Expected Concentration	Florida AAQS
SO_2 (ug/m^3)				
3-hour	124	333	457	1,300
24-hour	44	45	89	260
Annual	14	3	17	60
PM (ug/m^3)				
24-hour	105	15	120	150
Annual	34	1	35	60
NO_2 (ug/m^3)				
Annual	11	2	13	100
CO (mg/m^3)				
1-hour	11	<<1	11	40
8-hour	5	<<1	5	10

5. Impacts on Visibility

The proposed power plant may have an impact on visibility in the area.

Visibility is defined as the greatest distance at which it is just possible to see and identify with the unaided eye a prominent dark object against the sky at the horizon in the daytime or a known unfocused moderately intense light source at night. Visibility is diminished by four major processes: light scattering by gas molecules, light scattering by particles, light absorption by gases not naturally occuring in the atmosphere, and light absorption by particles.

Coal-fired power plants affect visibility through the three major combustion related pollutants: particulates, sulfur dioxide, and nitrogen dioxide. Visibility is decrease by particulates primarily through light scattering; by-nitrogen dioxide through absorption and later by scattering due to conversion of gaseous nitrogen dioxide to particulate nitrates and nitrites; and by sulfur dioxide when it converts to particulate sulfates.

Recently, visibility impacts of a 1200 MW power plant were estimated. For purposes of that simplified analysis, it was necessary to assume that SO_4 and PM, were the only pollutants contributing to visibility reduction. It was also assumed that the background visibility was 12 miles.

The calculated new visibility due to the power plant was 10.8 miles at a distance of 30-40 miles. This corresponds to a reduction of approximately 10 percent in the visual range during worst-case conditions. It should be noted that these visibility reductions resulting from PM and SO_4 transformation from SO_2 were estimated based on Gaussian plume modeling at large distances and empirical extinction coefficients and transformation rates. Therefore, the estimates from such calculations cannot be considered precise.

6. Effects on Soils and Vegetation

Emissions of SO_2, NO_x, and particulates from the Stanton Energy Center will result in ground level concentrations below federal and state standards, and no adverse impacts on vegetation are expected. No highly sensitive species to the emissions are known to occur onsite or in adjacent areas. No citrus or vegetable groves are onsite or, to any significance, in the site vicinity.

Sulfur and nitrogen are basic elements needed by plants Injury occurs when excess amounts of these elements or their compounds cannot be metabolized or transferred out of the plant. The minimal dosage of a pollutant necessary to induce plant injury is the threshold value

Injuries resulting from excess cellular accumulation of SO_2 or NO_x are similar, although NO_x is believed to be less phytotoxic than SO_2. These compounds, when at or above threshold levels, can cause visible injuries such as chlorosis, premature senescence, necrosis, or abscission of leaves. Such injuries can also cause related problems like reduced growth or reproduction, loss of market value or quality, or plant death. Ambient concentrations of SO_2 and NO_x will be well below toxic levels reported for plants.

Particulate emissions from the Stanton Energy Center will be controlled using modern control technologies such as electrostatic precipitators and bag filters. Very small concentrations of particulates which are not expected to be harmful will be deposited on plant surfaces within about a 12 mile radius of the Stanton Energy Center.

Emissions of SO_2, NO_x, and particulates are expected to have no adverse effects on soils of the site vicinity. Excess amounts of these compounds can cause a decrease in soil pH and the accumulation of toxic compounds, but such effects are unlikely. Some soils may benefit from the addition of a deficient element.

7. Cooling Tower Drift

The cooling tower will be guaranteed by the manufacturers to have a drift rate of 0.005 per cent of the circulating water flow or less. Therefore, the maximum expected water emitted from the Unit No. 1 tower as drift will be 19 gpm. Cooling tower drift will have the same chemical properties as the water in the cooling towers. The normal operating concentration of total dissolved solids in the cooling tower water is 3830 mg/liter. The concentrations of the chemical constituents of the total dissolved solids are estimated as follows:

Calcium	332 mg/l
Magnesium	74 mg/l
Sodium	684 mg/l
Bicarbonate	244 mg/l
Chloride	504 mg/l
Sulfate	1018 mg/l
Silicon Dioxide	149 mg/l
Iron	5 mg/l
Nitrate	800 mg/l
Phosphorous	20 mg/l

The above information was used in a computer program to predict the annual drift deposition. The computer program used is the Saline Drift Code developed by Johns Hopkins University.

Modeling results show that the maximum expected annual average solids deposition offsite from the Unit No. 1 cooling tower will be between 1 and 3 lb/acre. The maximum expected

deposition onsite on the undeveloped area near the cooling tower will be approximately 32 lb/acre from Unit No. 1.

The evaluation of the environmental effects of the cooling tower drift must include the natural background salt deposition. Because this information was not available to OUC for the site, estimates of the background salt deposition were based on studies at Chalk Point, Maryland. The Chalk Point Plant and the Stanton Energy Center are located at similar distances from the ocean. Based on background measurements at Chalk Point, background salt deposition at Stanton Energy Center is estimated to be 10 to 15 pounds per acre per year. Total maximum annual average salt deposition on the undeveloped site area near the tower is estimated by OUC to be 42 to 47 lb/acre. This is conservative since Chalk Point is close to Chesapeake Bay which is saline. The Department expects values to be approximately one-half those predicted by OUC.

The evaluation of the environmental effects of the addition of the cooling tower drift of Unit No. 1 to background salt deposition is based on studies at Chalk Point. The results of studies with sandy soils at Chalk Point suggest that annual depositions of 1,070 lb/acre of salt can cause some accumulation in the soil. Other experiments indicate that smaller deposition rates cause no accumulation. Since the greatest expected deposition at Stanton Energy Center is less than 5 per cent of this value, no soil accumulation of salt is expected from the operation of Unit No. 1 cooling tower.

Chalk Point studies of crops indicate that the threshold annual deposition rate of salt at which adverse effects were observed was about 220 lb/acre. This is much greater than the expected maximum onsite deposition of 47 lb/acre at the Stanton Energy Center. Studies on the effects of deposition on trees include dogwood, Virginia pine, tulip poplar, Norway spruce, white ash and California privet. Observable effects were demonstrated with dogwood. The studies indicate that an annual deposition rate of chloride of approximately 21 lb/acre could affect the dogwood tree. The expected maximum chloride deposition on trees, including background at Stanton Energy Center Unit No. 1, is approximately 15 lb/acre for a small area near the cooling tower. This is below the threshold of dogwoods, the most salt sensitive tree tested. The dogwood tree is not present on the site; the site vegetation is dominated by species exhibiting greater tolerances to salt and should not be significantly affected.

Based on the above evaluation, the salt deposition from Unit No. 1 cooling tower is not expected to have any significant adverse effect on onsite or offsite soils, plant life and trees. However, the drift rate could be cut 60% if an efficient drift eliminator is used such as that proposed by JEA for the St. Johns River Power Park. The drift rate could be cut by almost a factor of ten if the drift control to be employed at Florida Power Corporation's Crystal River Units 4 and 5 were to be utilized.

8. Acid Rain

In recent years the increase of rainfall acidity levels across Florida and other parts of the country has been ascribed in part to the air emissions from coal-fired power plants; hence, the requirement for emission controls on these plants designed to reduce the potential acid causing factors. Generally, sulfur dioxide and oxides of nitrogen are believed to be the primary anthropogenic agents contributing to rainfall acidification. However, a great deal remains unknown about the amount that these two gases contribute to the problem, as well as how and where the acidification takes place.

It should be noted that rainfall under unpolluted conditions tends to be somewhat acidic, on the order of pH 5.6-5.7. This is due to the absorption of carbon dioxide in water in the atmosphere. Also, neither sulfur dioxide nor nitrogen dioxide in and of themselves are acidic. It appears that after a certain amount of time, estimated to be on the order of 3-4 days, these gases interact with sunlight, water vapor, ammonia, and other chemical compounds in the atmosphere which convert them to sulfuric acid and nitric acid. Scientists around the world are studying the rates of these reactions, which catalytic aids (sunlight, water, etc.) have the most effect driving the conversions, ways to prevent the end acidic product from affecting the environment, where the end product eventually has its impacts, and numerous other questions related to the conversion reactions. It is universally agreed that the entire cause-effect-control

relationship is very complex.

There are three issues relevant to the licensing of the Stanton Energy Center as an emission source in relation to acidic rainfall. These are: (1) why is the problem of concern, (2) what will be the unit's contribution to the regional, state, and country-wide problem, and (3) what controls are required to mitigate the problem?

First, the following effects have been ascribed to above-normal acidic rainfall. Acid rain is listed as a cause for destabilization of clay minerals, reduction of soil cation exchange capacity, promotion of chemical denudation of soils, and promotion of runoff. Vegetational effects tend to be quite varied, ranging from a few cases of reporting beneficial effects to the more prevalent harmful effects. The harmful effects include foliage damage, alteration of responses to pathogens, symbionts and saprophytes, leaching of essential materials from plant surfaces, and destruction of the protective waxy leaf coatings. Impacts to wildlife are generally indirect but, nonetheless, potentially significant via habitat alteration. Effects on aquatic ecosystems begin with changes in water quality. The water quality changes are brought about by acidification via direct input of rainfall (or snow melting in the northern states), indirect changes from erosion and previously impacted soil contributions, as well as a cascading effect wherein the addition of acid components and soil-based catalytic materials frees up often times toxic metals or other wastes

which were previously chemically bound. These problems then affect population balances of aquatic organisms by interfering with breeding and reproduction, poisoning, or elimination of food supplies. This frequently results in termination of a particular species within those aquatic ecosystems. These population shifts also occur in the aquatic vegetation, further compounding the problem.

Second, the pH levels in Florida lakes, primarily those in the northern part of the state, have been dropping, e.g., becoming more acidic, over the past two decades. Many of Florida's perched sand lakes have little or no buffering capacity and are, therefore, very susceptible to acid rain.

Trends in the data seem to indicate that most of the acidity is derived from sulfur dioxide sources in the northeastern United States. Conversion from sulfur dioxide into sulfuric acid appears to start affecting the environment more than 50 km from the source, and the acid is susceptible to long range transport. In the winter months, Florida is subject to frequent cold fronts moving into the state which are suspected of bringing in northern-based pollutants.

Florida itself has relatively few coal-fired industries at this time, but combustion of oil and gas as well as emissions from heavy industries such as pulp mills and the phosphate industry contribute signficantly to SO_x and NO_x loadings. Normal sources of atmospheric sulfur in this state are derived from sea-salt, a non-polluting source,

which tends to obscure the acidic sulfur components. Hence, in terms of Florida's impact on other parts of the country, this state tends to be the recipient rather than the donor. As more coal-fired industry is utilized, this balance may begin to shift. The impact from a source such as the Stanton Energy Center would be to contribute slightly to the overall problem statewide. The direct impacts would not be registered until some distance from the plant, perhaps 100 km or so. The degree of impact, as implied earlier, is extremely hard to quantify. Some studies indicate that the majority of acidic fallout impacts may occur 200-300 kilometers from the source.

One feature that will mitigate some of the impact of the Stanton Energy Center is that stringent sulfur dioxide emission controls will be required prior to unit operation. These units will thus have less impact than that of other units which do not employ those emission controls. The Stanton Energy Center Unit will utilize flue gas desulfurization scrubbers to limit sulfur dioxide emissions.

Oxides of nitrogen will be controlled by boiler design. Such control will also help mitigate the rainfall acidification problem. The primary source of nitrogen oxides appears to be automobile emissions.

In balancing the need for power against the environmental impacts from the operation of the plant, use of scrubbers and boiler controls seems to be the most relevant and effective way of minimizing the unit's contribution

to rainfall acidification. In regards to the whole issue of rainfall acidification in the State of Florida, the state, utilities, universities, and other industries, as well as similar entities throughout the world, have been researching the problem.

Construction of new coal-fired units may have a slightly positive effect on the acid rain problem in Florida. Data collected during the Florida Sulfur Oxides Study indicated that the conversion of sulfur dioxide to sulfuric acid proceeds two or three times faster in the exhaust plume from an oil-fired power plant than from a coal-fired power plant. Oil-fired power plants in Florida do not have emission controls for sulfur oxides or nitrogen oxides in most instances. As new coal-fired power plants are built with pollution control devices, and as these new coal plants replace the oil plants that emit greater quantities of SO_x and NO_x, then air pollution levels and acidic rainfall may decrease.

9. Radioactivity

The fact that there are radioactive emissions from the combustion of coal has been recognized for some time. Recent articles have disclosed the fact that the amount of such emissions can be greater from a coal-fired power plant than from a normally operating nuclear reactor. The question then becomes how much greater are these emissions and do these impacts pose significant health impacts.

The Department of Veteran and Community Affairs appended to their report on TECO Big Bend Unit 4 a report made by the Radiological Health Services Section of the Department of Health and Rehabilitative Services (HRS) focusing on this issue. Also, TECO briefly addressed radioactivity in their application.

The following discussion has been compiled from excerpts from the HRS report (which is oriented to country-wide coal sources and potential impacts thereof), from a section of the TECO Big Bend 4 application which contains data more specific to the type of coals expected to be used, and from an article in the 8 December 1978 issue of Science entitled "Radiological Impact of Airborne Effluents of Coal and Nuclear Plants" by McBride, Moore, Witherspoon, and Blanco.

Coal contains at least 50 percent carbon by weight, as well as sulfur, iron, moisture, and trace quantities of naturally occurring radioactive materials such as Uranium (U-235, U-238), Thorium (TH-232), their decay products, and Potassium-40. When coal is burned, the mineral content of the coal is converted to ash and slag. These waste materials contain most of the radionuclides originally present in the coal. A fraction of the ash is released to the atmosphere, and the remainder is collected and either reutilized or landfilled.

Various factors affect particulate emission of radionuclides from coal-fired power plants. These include the type of coal and its source, the type of furnace used for combustion, and the type and efficiency of the air emission control equipment.

Radionuclide concentrations in the released particulates may be enriched relative to those in the mineral content of the fuel as a result of the combustion and emission control processes. Enrichment factors for uranium as great as 2.0 are reported, while enrichment factors as great as 5.0 are reported for lead and polonium. The actual exposure of humans and the environment to coal-emitted radioactivity depends on the emission rate, the stack height and local meteorological conditions.

The Oak Ridge National Laboratory at the request of the U.S. Environmental Protection Agency has made preliminary projections of the health impact of radionuclide emissions from coal-fired power plants. They used a model for new plants based on a 550 MW unit burning a Western coal with a higher radionuclide content than coals under consideration for the Stanton Energy Center.

The Oak Ridge/EPA assessment was intially based on a 1% ash emission rate. It considered dispersion based on stack height and the general atmospheric meteorological conditions in the region. Also considered was the average distance from the source to potentially exposed population centers. Certain assumptions were also made about the primary mode of exposure to radioactivity i.e. that this would be by ingestion of food grown in the region impacted by the plant. Some exposure could also come by inhalation of fine particles and by contamination of water supplies.

The following table summarizes the doses which could be received from the 550 MW plant in a suburban area, based on the Oak Ridge assumptions.

Annual Radiation Doses from Radioactive Particulate Emissions From the Model "New" Coal Fired Station (550 MW Plant Burning Western Coal).

Organ	Maximum Individual Dose (mrem/yr)
Lung	1.1
Bone	2.1
Kidney	1.0
Liver	0.9
Thyroid	1.1
G. I. Tract	0.8
Other Soft Tissue	1.1

As a point of reference the following table indicates human dose-rate comparisons between emissions from a 1000 MW coal fired plant and natural background radiation, as well as the allowed amounts from a nuclear pressurized water reactor (PWR).

Dose Commitments for Airborne Radioactivity Released at 1000 MW Power Plants.

	Coal Fired Plants	PWR Plants	Back-ground	Federal Allowances
Maximum Individual (mrem/yr)				
Whole Body	1.9	1.8	80	5
Bone	18.2	2.7	120	15) iodine
Thyroid	1.9	3.8	---	15)

The maximum individual dose commitments from the 1000 MW plant were estimated at the plant boundary at 500 meters from the release points. Dose commitments would be less at greater distances. The ingestion component of the dose commitment was based on the assumption that all food is grown and consumed at the site boundary. The initial calculations were based on a release height of 20 meters with no plume rise. As a result, the doses listed above are extremely conservative.

If the Stanton Energy Center Unit No. 1 is built, total plant electric output will be about 400 MW or roughly 0.4 times the amount listed in the previous table. For whole body doses from airborne emissions (if the OUC site output is comparative to the emissions from the 1000 MW plant used above), then roughly 0.8 mrems/yr exposure might be received or about 16% of what is allowed for light water reactors.

The following table summarizes the risks associated with doses projected for the 550 MW model plant previously described:

Individual Lifetime Risks and Number of Fatal Cancers Due to Radioactive Particulate Emissions From the Model "New" Coal Fired Station (550 MW Plant Burning Western Coal) for Suburban Site.

	Risk
Individual Lifetime Risks	
Maximum Individual	1.4×10^{-5}
Average Individual	4.8×10^{-7}
Expected Fatal Cancers per Year of Operation	1.7×10^{-2}

The Stanton Energy Center Unit No. 1 impact could be approximately the same.

Impacts from the radioactivity retained in the ash and slag are expected to be minimal for several reasons. Ash stored on OUC's site will be landfilled, which should provide a natural earthen buffer to radioactivity. These landfill areas are not the sort of areas frequented by the public.

Contamination of drinking water suppies via leaching of radioactive materials could be of some concern. However, OUC will be required to construct the ash landfills to deter infiltration by rainwater, reducing the potential for leaching.

In Section VI-E, the Department expresses concern over the potential for groundwater contamination from leaching of various chemicals and metals into the surficial aquifer and thence to the Floridan aquifer. This may also be of concern regarding radioactive leachates, if the radiation levels are somewhat high. However, since the radioactivity of the ash is unknown and the leaching rate is unknown, it is impossible to determine whether or not the radiation levels in the groundwater leachate will be significant. Contamination of water supplies can be directly quantified by monitoring of groundwater quality. Comparison of monitoring well data from the site with state groundwater quality criteria for radioactivity will be made. Should problems be detected, rectification will be required.

10. Coal Dust from Trains

The movement of coal supply trains to the proposed plant from coal mines outside the state will result in increased fugitive dust levels in areas near the railroad tracks. These increases in fugitive dust levels will be primarily the result of road bed dust emissions and coal dust blowing from the exposed coal contained within each hopper car. The only other quantifiable emissions associated with the coal trains result from the diesel locomotive emissions, which are relatively minor.

For an impact analysis of the coal trains as they move through Orlando, it was assumed that trains will travel 600 miles from the mines and that there will be a maximum of one train per day with 72 cars per train and a maximum of 106 tons of coal per car. An estimated one percent of coal by weight will be lost as fugitive dust over a journey of about 600 miles with an estimated 90 percent of the total losses escaping during the first few hours of train transit. This implies that only 0.1 percent of the original coal weight will be dispersed as fugitive dust during the rest of the trip, and only a small fraction of the 0.1 percent will be dispersed in the Orlando area.

The fugitive dust emissions from agitated road bed dust in the Orlando area were estimated using EPA Publication AP-42 (1979), assuming that the road bed dust emissions are conservatively approximated by emissions from motor vehicles traveling on unpaved roads and that each train will travel at an average speed of 10 miles per hour.

The 24-hour average particulate level in the Orlando area resulting from the operation of one coal train per day was calculated to be 8 ug/m^3 at a distance of 100 meters downwind of the railroad tracks under light wind conditions. When added to the Orlando area background level of 50 ug/m^3, this total is relatively small compared to the National Ambient Air Quality secondary standard and Florida twenty-four hour standard of 150 ug/m^3. However, the value closely approximates the annual average limit of 60 ug/m^3 It is noteworthy that the amount of the fugitive coal dust which was estimated to blow off the coal cars is about half of the expected emissions resulting from agitation of road bed dust. This is primarily because of the very conservative method that was employed to estimate road bed dust emissions. Also dust generated by the train will only occur for a brief time each day during and immediately after a train passage.

VII. Construction and Operational Safeguards

As outlined in the application, construction procedures, including runoff control facilities and practices to avoid contamination of state waters, must be implemented. The construction site will be isolated from the general public by appropriate means which may include fences and guards. Compliance with OSHA standards and the provisions of Section 440.56, F.S., should adequately protect construction workers and operating personnel.

The applicant should make provision for revegetation of the plant site after construction is completed. Removed oberburden should be stored in a recoverable manner to facilitate the revegetation procedure.

The conceptual design of most of the major pollution control equipment appears adequate to protect the public and to protect the environment from significant harm with the exception of water discharges and solid waste disposal.

VIII. Compliance and Variances

A. Compliance

As currently designed, the proposed Curtis H. Stanton Energy Center facility will not contribute to a violation of ambient air quality standards.

The disposal of solid waste in unlined cells will produce contaminated leachate that makes compliance with groundwater quality standards at the site boundary uncertain. The percolation of nitrate containing water from the cooling system makeup storage pond can also violate water quality criteria.

The use of turbidity control measures during construction involving creek and wetland crossings should help avoid violating water quality criteria as will proposed stromwater runoff detention.

B. Variances

On January 12, 1982, OUC petitioned for a variance to the nitrate criterion for Class I-B groundwaters as contained in Section 17-3.101(11). Percolation of nitrate rich treated sewage effluent into the ground from the makeup water supply storage pond could conceivably violate the groundwater quality criterion.

In the same petition OUC also requested an exemption to the water quality criterion as provided in Section 17-4.243(2) Granting an exemption or a variance would provide relief to OUC an dpotentially save the $8.5 million cost of lining the pond.

Neither the petition nor the application for site certification contain sufficient information to allow the department to assess the impact of granting an exception or a variance or to justify granting such relief.

CONCLUSIONS AND RECOMMENDATIONS

control of fugitive emissions during construction?

A. Conclusions

1. Construction Impacts

Construction of the proposed facilities would have the following impacts:

a. A loss of 990 acres of vegetation and habitat including 125 acres of wetlands will be used for Unit 1 and associated facilities leaving 2290 acres as a buffer zone.

b. Construction noise levels (excluding pile driving and steam blowout of boiler tubes) will be 55 dB(A), equal to EPA's guidelines at the boundary of the site. This should not be an annoyance to outside activities at the nearest residences. Steam blowout may cause noticeable noise levels at the nearest residence. Steam blowout will occur intermittently over a two week period. OUC should attempt to notify the neighboring residents prior to the start of steam tube blowout in an effort to partially mitigate any annoyance caused by the loud noises.

c. The OUC site should be far enough away from any historic, scenic, and cultural areas as well as state parks and recreation areas that they should not be affected by the construciton of the plant or associated facilities. Care will have to be taken to prevent adverse impact to archaeological sites on the OUC property.

d. Construction traffic to and from the site will likely cause temporary congestion at the intersection of the plant access road and State Road 50.

e. Dust generated by heavy construction equipment traffic will be controlled by water spraying and paving some heavily traveled areas.

f. Construction activities will temporarily impact surface waters in creeks crossed by the railroad spur, access road, pipelines and transmission lines.

g. Groundwater elevations will be lowered during construction due to dewatering around deep foundation excavations. The dewatering should not cause any noticeable effects on private or agricultural wells in the area. These construction impacts will be temporary.

2. Operation

a. The Stanton plant will burn coal. Impacts on air quality will include emissions such as sulfur dioxide, oxides of nitrogen, particulate matter and other minor constituents. These emissions will be limited by use of control technology considered to be the best available. Fugitive dust from coal, limestone, and ash handling will be controlled by a variety of methods to reduce adverse impacts. The control equipment is designed to comply with federal and state emission limitations. Under most meteorological conditions, the Stanton plant will not contribute to violations of ambient air quality standards.

b. There is sufficient water available from the Iron Bridge sewage treatment plant to supply the volume requirements of the Stanton cooling system. The intake from and discharge of cooling tower blowdown to the Iron Bridge Facility should help minimize the environmental impact of the Stanton plant cooling water flow.

c. The consumptive use of fresh groundwater at the Stanton plant will drawdown the Floridan aquifer a maximum of seven feet at the Stanton wellfield and a drawdown of approximately two feet at the Cocoa Well Field about six miles away.

d. The St. Johns River Water Management District stated the following:

4023

e. The South Florida Water Management District concluded:

"In conclusion, due to: (1) the utilization of District criteria in the drainage design, (2) the provision to maintain flows in wetland areas, and (3) the preservation of wetlands located within this District's boundaries; the Districts's staff is of the opinion that adverse impacts of a significant nature are not anticipated to occur as a result of the proposed railroad spur line. This conclusion is predicated on the understanding that construction of the railroad spur line will, in fact, occur as indicated in the SCA."

f. Leachate from the make up water supply pond can violate the ground water criteria for nitrate.

g. The percolation of leachate from the solid waste disposal areas may violate groundwater criteria due to the permeability of the sands underlying the site. Leachate containing heavy metals may adversely affect the creeks and wetland communities bordering the site to the east.

h. Noise from operation of the plant should not greatly increase noise levels in the area. The operation of the sanitary landfill and its associated traffic will tend to mask operational noise of the Stanton Plant. Noise of increased rail traffic delivering coal will temporarily disturb some neighborhoods.

3. The site has been found by the Governor and Cabinet to be in compliance with local land use plans and zoning regulations.

4. The Public Service Commission has concluded a need exists for the Curtis H. Stanton Energy Facility, Unit 1.

5. The Department of Veteran and Community affairs concluded that for the most part, the poposed power plant meets most of the objectives, goals and policies of the State Comprehensive Plan.

6. The Florida Game and Freshwater Fish Commission stated that: "We . . . have one major concern. The status of the red-cockaded woodpecker population on the site should be monitored for at least five years after construction of the plant, such monitoring to culminate in an in-depth study replicating the scope of the pre-construction research. Because the resident red-cockaded population will be adversely affected by plant construction, such mitigating measures should be undertaken to at least partially offset those adverse effects.

7. The Orange County Division of Planning and Development stated, "The proposed location of the site adjacent to the County Landfill is an area of low residential development potential is logical and consistent with County Planning objectives."

8. The Division of Archives, History, and Records Management determined that the proposed plant, rail spur corridor and transmission corridor was likely to contain only one potentially significant archaeological or historical sites which could be avoided by placing the final rail spur line ten meters north, of site 80r391.

B. Recommendations

If Orlando can justify variances to water quality criteria and agree to abide by the conditions of certification, the DER would recommend certification of the Stanton Plant. ~~T~~h is recommendation is based on the following rationale:

1. Full load operation of the Stanton Plant ~~should~~ shall not violate ambient air quality standards.
2. Installation of impermeable liners under solid waste disposal areas and the makeup water supply pond could avoid violation of groundwater quality standards.
3. On potentially important archaeological sites could be preserved by slightly moving salvaged to avoid the rail line or the site could be loss of historically important material.
4. Consumptive use of groundwater would have minimal adverse affects on public or private wells.
5. Use of treated sewaged for cooling water conserves fresh water and decreases the biological impact of sewage effluent on streams.

do we know that the max ambient impact will occur at max load- it doesn't always work that way?

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

ORLANDO UTILITIES COMMISSION
CURTIS H. STANTON ENERGY CENTER UNIT 2
PA 81-14/SA1

SUPPLEMENTAL CONDITIONS OF CERTIFICATION

TABLE OF CONTENTS

PART I

I/I	ENTITLEMENT	1
I/II	SCOPE OF LICENSE	1
I/III	JURISDICTIONAL AGENCIES	1
I/IV	DEFINITIONS	2
I/V	TRANSFER OF CERTIFICATION	2
I/VI	SEVERABILITY	2
I/VII	PROFESSIONAL CERTIFICATION	3
I/VIII	RIGHT OF ENTRY	3
I/IX	DESIGN STANDARDS	3
I/X	LIABILITY	3
I/XI	PROPERTY RIGHTS	4
I/XII	COMPLIANCE	4
I/XIII	POST-CERTIFICATION REVIEW	5
I/XIV	COMMENCEMENT OF CONSTRUCTION	6
I/XV	COMMENCEMENT OF OPERATION	6
I/XVI	OPERATIONAL CONTINGENCY PLANS	6
I/XVII	REVOCATION OR SUSPENSION	7
I/XVIII	CIVIL AND CRIMINAL LIABILITY	7
I/XIX	ENFORCEMENT	7
I/XX	FIVE YEAR REVIEW	7
I/XXI	MODIFICATION OF CONDITIONS	7

PART II

II/I	AIR	9
II/II	WETLANDS RESOURCE MANAGEMENT	17
II/III	ELECTRIC AND MAGNETIC FIELDS	19
II/IV	OTHER	19

PART III

III/I	WILDLIFE SURVEY	20
III/II	NESTING SANDHILL CRANES	20
III/III	MANAGEMENT PLAN	20

PART IV

IV/I	LEGAL/ADMINISTRATIVE CONDITIONS	21
IV/II	SURFACE WATER MANAGEMENT CONDITIONS	23
IV/III	ENVIRONMENTAL CONDITIONS	26

PART V

V/I	WATER SHORTAGES	30
V/II	WELL CONSTRUCTION, MODIFICATION, OR ABANDONMENT	30
V/III	WELL MAINTENANCE	30
V/IV	MITIGATION OF WITHDRAWAL IMPACTS ON EXISTING LEGAL USERS	30
V/V	MITIGATION OF IMPACTS ON ADJACENT LAND USES	31
V/VI	IDENTIFICATION TAGS	31
V/VII	MAXIMUM ANNUAL WITHDRAWALS	31
V/VIII	MAXIMUM DAILY WITHDRAWALS	31
V/IX	LIMITATION ON USE OF WATER	31
V/X	DEWATERING	32
V/XI	OFF-SITE DISCHARGES	32
V/XII	DISCHARGES FROM MAKE-UP WATER SUPPLY POND	32
V/XIII	WELL WATER QUALITY SAMPLING	32
V/XIV	WATER TREATMENT PLANT REPORTS	33
V/XV	WELL WATER FLOW MONITORING	33
V/XVI	CONSERVATION PLAN	33
V/XVII	WELL WATER FLOW METERS	33
V/XVIII	CALIBRATION OF FLOW METERS	33
V/XIX	MAINTENANCE OF FLOW METERS	33
V/XX	DELINEATION OF LIMITS OF CONSTRUCTION	33
V/XXI	BACKGROUND ASSESSMENT PLAN	34
V/XXII	COMPLETION OF BACKGROUND ASSESSMENT	34
V/XXIII	INITIATION AND COMPLETION OF ENHANCEMENT MITIGATION PLAN	34
V/XXIV	CRITERIA FOR SUCCESS OF ENHANCEMENT AND MITIGATION	34
V/XXV	MONITORING PLAN FOR ENHANCEMENT AND MITIGATION	34
V/XXVI	SURVEY OF ENHANCEMENT AREAS	35
V/XXVII	MONITORING REPORTS FOR THE ENHANCEMENT AND MITIGATION AREAS	35
V/XXVIII	REVISIONS TO ENHANCEMENT AND MITIGATION	35
V/XXIX	EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION	36
V/XXX	EROSION AND SEDIMENT CONTROL DURING OPERATION	36
V/XXXI	INCORPORATION OF MITIGATION PLAN	36
V/XXXII	COMPLETION OF SURFACE WATER MANAGEMENT SYSTEM	36
V/XXXIII	RETENTION/DETENTION STORAGE AREAS	36
V/XXXIV	ACCESS ROAD AND TRANSMISSION LINE CONSTRUCTION PLANS	37
V/XXXV	ACCESS ROAD FILL	37
V/XXXVI	CONTRACTOR REVIEW AND POSTING OF CONDITIONS OF CERTIFICATION	37

PART VI

VI/I CONSTRUCTION IMPACT MITIGATION PROGRAM 38

PART VII

VII/I RED-COCKADED WOODPECKER MANAGEMENT AREA IDENTIFICATION 39
VII/II USE AND LIMITATIONS OF THE RCW AREA 39

Curtis H. Stanton Unit 2
DER Case No. PA 81-14/SA1
DOAH Case No. 91-1813EPP

SUPPLEMENTAL CONDITIONS OF CERTIFICATION (COCs)

PART I

Administrative Conditions

I/I. ENTITLEMENT

Pursuant to s. 403.501-519, F.S., the Florida Electrical Power Plant Siting Act, this certification is issued to Orlando Utilities Commission, Florida Municipal Power Agency, and Kissimmee Utility Authority as joint owner/operators of Curtis H. Stanton Unit 2.

I/II. SCOPE OF LICENSE

A. Certification has previously been issued by the Governor & Cabinet on 12/14/82 for the Stanton site, including associated transmission and rail spur lines, with subsequent modifications thereto. These Conditions of Certification address the supplementary changes related to the construction and operation of Unit 2 and associated transmission line and alternate access road (shown on Attachment I). Where these conditions supersede the original COC and modifications thereto, such COC are rendered void; otherwise, the original COC and modifications thereto remain in effect.

B. Unit 2 certification is limited to 516,200 KVA (465 MW at a 0.9 power factor) nameplate capacity.

I/III. JURISDICTIONAL AGENCIES

The following agencies are deemed to have jurisdictional interest in the certification, and thus regulatory authority over the development, construction, operation, and maintenance of the facility:

Department of Environmental Regulation (& Central District Office) [DER or DER/CDO]
South Florida Water Management District [SFWMD]
St. Johns River Water Management District [SJRWMD]
Game & Fresh Water Fish Commission [GFWFC]
Department of Natural Resources [DNR]
Department of Community Affairs [DCA]
Department of Transportation [DOT]
Orange County [OC]

I/IV. DEFINITIONS

A. Licensee: References herein to the "Licensee" apply to Orlando Utilities Commission, Florida Municipal Power Agency, and Kissimmee Utility Authority as joint owners of Stanton Unit 2, or to their successors or assigns. (See COC-I/V regarding transfer of certification).

B. Completeness/sufficiency: The term "complete" as used herein shall have the same meaning as contained in Chapter 120, F.S., not Chapter 403, F.S., i.e., a complete application shall also provide sufficient information for an agency to perform an analysis of compliance with the conditions of certification and applicable regulations. Where agency-recommended COCs have used the Ch. 403 FS term of "sufficient", that shall have the same meaning as the term "complete" as used herein.

C. Affected agencies: References to the "affected agencies" apply to the jurisdictional agencies listed in COC-I/III.

D. Other terms: The meaning of terms not otherwise specified in A-C, as used herein, shall be governed by the definitions contained in Chapter 403, Florida Statutes, and any regulations adopted pursuant thereto. In the event of any dispute over the meaning of a term in these conditions which is not defined in such statutes or regulations, such dispute shall be resolved by reference to the most relevant definitions contained in any other state or federal statute or regulation.

I/V. TRANSFER OF CERTIFICATION

If contractual rights, duties, or obligations are transferred under this Certification, notice of such transfer or assignment shall immediately be submitted to the Florida Department of Environmental Regulation and the Affected Agencies by the previous certification holder (Licensee) and the Assignee. Included in the notice shall be the identification of the entity responsible for compliance with the Certification. Any assignment or transfer shall carry with it the full responsibility for the limitations and conditions of this Certification.

I/VI. SEVERABILITY

The provisions of this certification are severable, and if any provision of this certification or the application of any provision of this certification to any circumstances, is held invalid, the application of such provisions to other circumstances and the remainder of the certification shall not be affected thereby.

I/VII. PROFESSIONAL CERTIFICATION

Where post-certification submittals are required by these conditions, drawings shall be signed and sealed by a Professional Engineer, or Professional Geologist, as applicable, registered in the State of Florida.

I/VIII. RIGHT OF ENTRY

The Licensee shall allow during operational or business hours the Secretary of the Florida Department of Environmental Regulation and/or authorized representatives, including personnel of the Affected Agencies, upon the presentation of appropriate credentials:

A. To have access during normal business hours (Mon.-Fri., 9:00 a.m. to 5:00 pm.) to any records required to be kept under the conditions of this certification for examination and copying; and

B. To inspect and test any monitoring equipment or monitoring method required in this certification and to sample any discharge or pollutants; and

C. To assess any damage to the environment or violation of ambient standards; and

D. To have reasonable escorted access to the power plant site and any associated linear facilities to inspect and observe any activities associated with the construction, operation, maintenance, or monitoring of the proposed project in order to determine compliance with the conditions of this Certification. The Licensee shall not refuse immediate entry or access upon reasonable notice to any Affected Agency representative who requests entry for the purpose of the above noted inspections and presents appropriate credentials.

I/IX. DESIGN STANDARDS

The facility shall be constructed pursuant to the design standards presented in the application and any approved post-certification submittals, and shall be considered the minimum design standards for compliance.

I/X. LIABILITY

The Licensee shall hold and save the Affected Agencies harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, operation, maintenance and/or use of any facility authorized by this Certification, to the extent allowed under Florida law.

I/XI. PROPERTY RIGHTS

The issuance of this certification does not convey any property rights in either real or personal property, nor any exclusive privileges, nor does it authorize any injury to public or private property or any invasion of personal rights nor any infringement of Federal, State or local laws or regulations.

I/XII. COMPLIANCE

A. Compliance with Conditions

1. The Licensee shall at all times maintain in good working order and operate all treatment or control facilities or systems installed or used by the Licensee so as to achieve compliance with the terms and conditions of this certification. All discharges or emissions authorized herein shall be consistent with the terms and conditions of this certification. The discharge of any regulated pollutant not identified in the application, or more frequent than, or at a level in excess of that authorized herein, shall constitute a violation of the certification.

2. An environmental control program shall be established under the supervision of a qualified Environmental Engineer/Specialist to assure that all construction activities conform to applicable environmental regulations and the applicable Conditions of Certification. If a violation of standards, harmful effects or irreversible environmental damage not anticipated by the application or the evidence presented at the certification hearing are detected during construction, the Licensee shall notify the DER Central District Office and Siting Coordination office, as required in I/XII.B.

3. Any anticipated facility expansions beyond the certified initial nameplate capacity, production increases, or process modifications which may result in new, different, or increased discharges of pollutants, change in type of fuel, or expansion in steam generation capacity shall be reported by submission of a modification petition pursuant to Chapter 403, Florida Statutes.

4. In the event of a malfunction of Unit 2's pollution control system, that the Licensee shall comply with 40 CFR 60.46a.

B. Non-compliance Notification

If, for any reason, the Licensee does not comply with or will be unable to comply with any limitation specified in this certification, the Licensee shall notify the Central District office of the Department of Environmental Regulation by telephone within a working day that said noncompliance occurs and shall confirm this in writing within seventy-two (72) hours of becoming aware of such conditions, and shall supply the following information:

1. A description of the discharge and cause of noncompliance; and

2. The period of noncompliance, including exact dates and times; or if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying event.

C. Adverse Impact

The Licensee shall take all reasonable steps to minimize any adverse impact resulting from noncompliance with any limitation specified in this certification, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

I/XIII. POST-CERTIFICATION REVIEW

Further information may be required by these conditions for site-specific or more detailed review and approval to determine compliance with the conditions of certification. Compliance determinations of the Department and other reviewing agencies are subject to review pursuant to chapter 120, Florida Statutes.

A. In order to provide adequate lead time for review, such information, as developed, must be submitted for post-certification review at least 120 days prior to the intended commencement date of construction or operation of the feature undergoing review. Notification of the submittal of the information, and any determinations made pursuant to these COC, shall be provided to the DER Siting Coordination Office for record-keeping purposes.

B. Where such information is required, it shall be submitted to the agency(ies) named in the condition, which shall then have 30 days in which to determine the completeness (sufficiency) of the information. If a written request for additional information is not issued within the 30 day time period, the information will be presumed to be complete (sufficient).

C. Once the information has been determined complete (sufficient), the agency(ies) shall have 90 days, unless another time period has been specified herein, in which to make the determination regarding compliance.

I/XIV. COMMENCEMENT OF CONSTRUCTION

At least 30 days prior to the commencement of construction, the Licensee or Project Engineer shall notify the DER Siting Coordination Office, the DER Central District Office, and Affected Agencies of theconstruction start date. Quarterly construction status reports shall similarly be submitted by the Licensee beginning with the initial construction start date. The report shall be a short narrative describing the progress of construction.

I/XV. COMMENCEMENT OF OPERATION

At least 30 days prior to the commencement of operation, the Licensee or Project Engineer shall notify the DER Siting Coordination Office and Affected Agencies of the operation start date.

I/XVI. OPERATIONAL CONTINGENCY PLANS

A. Operating Procedures

The Licensee shall develop and make available for viewing at the Stanton site by the DER operating instructions for all aspects of the operations which are critical to keeping the facility's pollution control equipment working properly and to keep the facility in compliance with air and water quality criteria.

B. Contingency Plans

The Licensee shall develop and make available for viewing at the Stanton site by the DER written contingency plans or procedures for the continued operation of the unit in event of pollution control equipment breakdown. Stoppages which compromise the integrity of the operations must have appropriate contingency plans. Such contingency plans shall identify critical spare parts to be readily available.

C. Current Engineering Plans

For all pollution control and monitoring systems, the Licensee shall maintain a complete current set of as installed engineering plans, equipment data books, catalogs and documents in order to facilitate the smooth acquisition or fabrication of spare parts or mechanical modifications.

D. Application Modifications

The Licensee shall furnish appropriate modifications to drawings and plot plans submitted as part of the application.

I/XVII. REVOCATION OR SUSPENSION

This certification may be suspended or revoked for violations of any of its conditions pursuant to Section 403.512, Florida Statutes.

I/XVIII. CIVIL AND CRIMINAL LIABILITY

This certification does not relieve the Licensee from civil or criminal penalties for noncompliance with any conditions of this certification, applicable rules or regulations of the Department or Chapter 403, Florida Statutes, or regulations thereunder.

Subject to Section 403.511, Florida Statutes, this certification shall not preclude the institution of any legal action or relieve the Licensee from any responsibilities or penalties established pursuant to any other applicable state statutes, or regulations.

I/XIX. ENFORCEMENT

The Department of Environmental Regulation, as supported by the applicable Affected Agency, may take any and all lawful actions to enforce any condition of this Certification. Any agency which deems enforcement to be necessary shall notify the Secretary of DER of the proposed actions. The agency may seek modification of this Certification for any change in any activity resulting from enforcement of this Certification which change will have a duration longer than 60 days.

I/XX. FIVE YEAR REVIEW

The certification shall be final unless revised, revoked, or suspended pursuant to law. At least every five years from the date of issuance of certification the Department shall review the project and these conditions of certification and propose any needed modifications.

I/XXI. MODIFICATION OF CONDITIONS

Pursuant to Subsection 403.516(1), F.S., the Board hereby delegates the authority to the Secretary to modify any condition of this certification not in conflict with Condition of Certification Part VII dealing with sampling, monitoring, reporting, specification of control equipment, related time schedules, emission limitations, variances or exceptions to water quality standards, transmission line, access road or pipeline construction, source of treated effluent cooling water, mitigation, transfer or assignment of the Certification

or related federally delegated permits, or any special studies conducted, as necessary to attain the objectives of Chapter 403, Florida Statutes.

All other modifications to these conditions shall be made in accordance with Section 403.516, Florida Statutes.

Part II

Conditions Recommended by
the
Department of Environmental Regulation

II/I. AIR

The construction and operation of Unit 2 at Orlando Utilities Commission, Curtis H. Stanton Energy Center (CHSEC) steam electric power plant site shall be in accordance with all applicable provisions of Chapters 17-2, 17-4, and 17-5, Florida Administrative Code except for NO_x, and SO_2 which shall be governed by 40 CFR Part 60 regarding startup, shutdown, and malfunction. In addition to the foregoing, the permittee shall comply with the following conditions of certification:

A. Emissions Limitations

1. The proposed steam generating station shall be constructed and operated in accordance with the capabilities and specifications of the application including the proposed 465 (gross) megawatt generating capacity and the 4286 MMBtu/hr heat input rate for ~~each~~ the steam generator. Based on a maximum heat input of 4286 million Btu per hour, stack emissions from CHSEC Unit 2 shall not exceed the following when burning coal:

a. SO_2 - lb/million Btu heat input

30 - day rolling average	0.25
24 - hour emission rate	0.67
3 - hour emission rate	0.85

b. NO_x - lb/million Btu heat input

30-day rolling average	0.17

c. PM/PM_{10} - lb/million Btu heat input

	lb/MBtu	lb/hr
PM	0.02	85.7
PM_{10}	0.02	85.7

d. CO - 0.15 lb/million Btu heat input, 643 lb/hour.

e. VOC - 0.015 lb/million Btu heat input, 64 lb/hour.

f. H_2SO_4 - 0.033 lb/million Btu heat input 140 lb/hour.

Screen 38

g. Be - 5.2×10^{-6} lb/million Btu heat input, 0.022 lb/hour.

h. Hg - 1.1×10^{-5} lb/million Btu heat input, 0.046 lb/hour.

i. Pb - 1.5×10^{-4} lbs/million Btu heat input, 0.64 lb/hour.

j. Fluorides - 4.2×10^{-4} lb/million Btu heat input, 1.8 lb/hour.

2. The height of the boiler exhaust stack for CHSEC Unit 2 shall not be less than 550 ft. above grade.

3. Particulate emissions from the coal, lime and limestone handling facilities:

a. All conveyors and conveyor transfer points will be enclosed to preclude PM emissions (except those directly associated with the coal stacker/reclaimer or emergency stockout, and the limestone stockout for which enclosure is operationally infeasible).

b. Inactive coal storage piles will be shaped, compacted and oriented to minimize wind erosion.

c. Water sprays or chemical wetting agents and stabilizers will be applied to storage piles, handling equipment, etc. during dry periods and as necessary to all facilities to maintain an opacity of less than or equal to 5 percent, except when adding, moving or removing coal from the coal pile, which would be allowed no more than 20%.

d. Limestone day silos and associated transfer points will be maintained at negative pressures during filling operations with the exhaust vented to a control system. Lime will be handled with a totally enclosed pneumatic system. Exhaust from the lime silos during filling will be vented to a collector system.

e. The fly ash handling system (including transfer and silo storage) will be totally enclosed and vented (including pneumatic system exhaust) through fabric filters; and

f. Any additional coal, lime, and limestone handling facilities for Stanton Unit 2 will be equipped with particulate control systems equivalent to those for Stanton Unit 1

4. Particulate emissions from bag filter exhausts from the following facilities shall be limited to 0.02 gr/acf: coal, lime, limestone and flyash handling systems excluding those facilities covered by II/I.A.3.c above. A visible emission reading of 5% opacity or less may be used to establish compliance with this emission limit. A visible emission reading greater than 5% opacity will not create a presumption that the 0.02 gr/acf emission limit is being violated. However, a visible emission reading greater than 5% opacity will require the permittee to perform a stack test for particulate emissions, as set forth in Condition II/I.C.

5. Compliance with opacity limits of the facilities listed in Condition II/I.A. will be determined by EPA referenced method 9 (Appendix A, 40 CFR 60).

6. Construction shall reasonably conform to the plans and schedule given in the supplemental application.

7. The permittee shall report any delays in construction and completion of the project which would delay commercial operation by more than 90 days to the DER Central District office in Orlando.

8. Reasonable precautions to prevent fugitive particulate emissions during construction shall be to coat the roads and construction sites used by contractors, regrass or water areas of disturbed soils.

9. Coal shall not be burned in the unit unless the electrostatic precipitator and limestone scrubber and other air pollution control devices are operating as designed except as provided under 40 CFR Part 60, Subpart Da.

10. The fuel oil to be fired in Stanton Unit 2 and the auxiliary boiler shall be "new oil" which means an oil which has been refined from crude oil and has not been used. On-site generated lubricating oil and used fuel oil which meets the requirements of 40 CFR 266.40 may also be burned. The quality of the No. 2 fuel oil used by the auxiliary boiler shall not contain more than 0.5% sulfur by weight and cause the allowable emission limits listed in the following table to be exceeded. Such emissions may be calculated in accordance with AP-42.

Allowable Emission Limits

Pollutant	lb/MMBtu
PM	0.015
SO_2	0.51
NO_x	0.16
Visible emissions	Maximum 20% Opacity

11. The flue gas scrubber shall be put into service during normal operational startup, and shut down when No. 6 fuel oil is being burned. The No. 6 fuel oil shall not contain more than 1.5% sulfur by weight.

12. No fraction of flue gas shall be allowed to bypass the FGD system to reheat the gases exiting from the FGD system, except that bypass shall be allowed during startup and shutdown.

13. All fuel oil and coal shipments received shall have an analysis for sulfur content, ash content, and heating value either documented by the supplier or determined by analysis. Coal sulfur content shall be determined and recorded on a daily basis. Records of all the analysis shall be kept for public inspection for a minimum of two years after the data is recorded.

14. Within 90 days of commencement of operations, the applicant will determine and submit to FDER the pH level range in the scrubber reaction tank that correlates with the specified limits for SO_2 in the flue gas. Moreover, the applicant is required to operate a continuous pH meter equipped with an upset alarm to ensure that the operator becomes aware when the pH level of the scrubber reaction tank falls out of this range. The pH monitor can also act as a backup in the event of malfunction of the continuous SO_2 monitor. The value of the scrubber pH may be revised at a later date provided notification to FDER is made demonstrating the emission limit is met. Further, if compliance data show that higher FGD performance is necessary to maintain the emission limit, a different pH value will be determined and maintained.

15. The applicant will comply with all requirements andprovisions of the New Source Performance standard for electric utility steam generating units (40 CFR 60 Part Da).

16. The Licensee shall submit to the Department at least 120 days prior to start of construction of the NO_x control system, copies of technical data pertaining to the selected No_x control system. These data, if applicable to the technology chosen by the Licensee, should include but not be limited to design efficiency, guaranteed efficiency, emission rates, flow rates, reagent injection rates, or types of catalysts. The Department may, upon review of these data, disapprove the use of any such device or system if the Department determines the selected control device or system to be inadequate to meet the emission limits specified in 1.b. above. Such disapproval shall be issued within 90 days of receipt of the technical data.

B. Air Monitoring Program

1. A flue gas oxygen meter shall be installed for Stanton Unit 2 to continuously monitor a representative sample of the flue gas. The oxygen monitor shall be used with automatic feedback or manual controls to continuously maintain air/fuel ratio parameters at an optimum. The flue gas manufacturing oxygen monitor shall be calibrated and operated according to established procedures as approved by DER. The document "Use of Flue Gas Oxygen Meter as BACT for Combustion Controls" may be used as a guide.

2. The permittee shall install and operate continuous monitoring devices for Stanton Unit 2 main boiler exhaust for sulfur dioxide, nitrogen oxides, oxygen, and opacity. The monitoring devices shall meet the applicable requirements of Section 17-2.710, FAC., and 40 CFR 60.47a. The opacity monitor may be placed in the duct work between the electrostatic precipitator and the FGD scrubber.

3. The permittee shall operate one continuous ambient monitoring device for sulfur dioxide in accordance with DER quality control procedures and EPA reference methods in 40 CFR, Part 53, and one ambient monitoring device for PM_{10}, and one continuous NO_x monitor. The monitoring devices shall be specifically located at a location approved by the Department. The frequency of operation of the particulate monitor shall be every six days commencing as specified by the Department. During construction and operation the existing meteorological station will be operated and data reported with the ambient data.

4. The permittee shall maintain a daily log of the amounts and types of fuel used. The log shall be kept for inspection for at least two years after the data is recorded. Fuel analysis data including sulfur content, ash content, and heating values shall be determined on an as received basis and kept for two years.

5. The permittee shall provide stack sampling facilities as required by Rule 17-2.700(4) F.A.C.

6. The ambient monitoring program shall begin at least one year prior to initial start up of Unit 2 and shall continue for at least one year of commercial operation. The Department and the permittee shall review the results of the monitoring program annually and determine the necessity for the continuation of or modifications to the monitoring program.

C Stack Testing

1. Within 60 calendar days after achieving the maximum capacity at which Unit 2 will be operated, but no later than 180 operating days after initial startup, the permittee shall conduct performance tests for particulates, SO_2, NO_x, and visible emissions during normal operations near (± 10%) 4286 MMBtu/hr heat input and furnish the Department a written report of the results of such performance tests within 45 days of completion of the tests. The performance tests will be conducted in accordance with the provisions of 40 CFR 60.46a and 48a.

2. Compliance with emission limitation standards mentioned in specific Condition No. II/I.A. shall be demonstrated during the initial performance test using appropriate EPA Methods, as contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources), or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants), or any method as proposed by the Applicant and approved by the Department, in accordance with F.A.C. Rule 17-2.700.

EPA Method	For Determination of
1	Selection of sample site and velocity traverses.
2	Stack gas flow rate when converting concentrations to or from mass emission limits.

3	Gas analysis when needed for calculation of molecular weight or percent O_2.
4	Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.
5	Particulate matter concentration and mass emissions.
201 or 201A	PM_{10} emissions.
6, 6C, or 19	Sulfur dioxide emissions from stationary sources.
7, 7C, or 19	Nitrogen oxide emissions from stationary sources.
9	Visible emission determination of opacity.

- At least three one hour runs to be conducted simultaneously with particulate testing for the emissions from dry scrubber/baghouse, and ash handling building baghouse.

- At least one lime truck unloading into the lime silo (from start to finish).

10	Carbon monoxide emissions from stationary sources.
12 or 101A	Lead concentration from stationary sources.
13A or 13B	Fluoride emissions from stationary sources.
18, 25, 25A or 25B	Volatile organic compounds concentration.
101A or 108	Mercury emissions.
104	Beryllium emission rate and associated moisture content:

---

3. The permittee shall provide 30 days written notice of the performance tests for continuous emission monitors or 10 working days written notice for stack tests in order to afford the Department the opportunity to have an observer present.

4. Stack tests for particulates, NO_x and SO_2 and visible emissions shall be performed annually in accordance with Conditions C.2 and .3 above.

D. Reporting

1. For Stanton Unit 2, a summary in the EPA format of stack continuous monitoring data, fuel usage and fuel analysis data shall be reported to the Department's Central District Office and to the Orange County Environmental Protection Department on a quarterly basis commencing with the start of commercial operation in accordance with 40 CFR, Part 60, Section 60.7, and 60.49a and in accordance with Section 17-2.710(2), F.A.C.

2. Utilizing the SAROAD or other format approved in writing by the Department, ambient air monitoring data shall be reported to the Bureau of Air Quality Management of the Department quarterly. Such reports shall be due within 45 days following the quarterly reporting period. Reporting and monitoring shall be in conformance with 40 CFR Parts 53 and 58.

3. Beginning one month after certification, the permittee shall submit to the Department a quarterly status report briefly outlining progress made on engineering design and purchase of major pieces of air pollution control equipment. All reports and information required to be submitted under this condition shall be submitted to the Siting Coordination Office, Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee Florida, 32301.

E. Malfunction or Shutdown

In the event of a prolonged (thirty days or more) equipment malfunction or shutdown of air pollution control equipment, operation may be allowed to resume or continue to take place under appropriate Department order, provided that the Licensee demonstrates such operation will be in compliance with all applicable ambient air quality standards and PSD increments. During such malfunction or shutdown, the operation of Stanton Unit 2 shall comply with all other requirements of this certification and all applicable state and federal emission standards not affected by the malfunction or shutdown which is the subject of the Department's order. Exceedances produced by operational conditions for more than two hours due to upsets in air pollution control systems as a result of start-up, shutdown, or malfunctions as defined by 40 CFR 60 need not be reported as specified in Condition I/XII. Identified operational malfunctions which do not stop operation but prevent compliance with emission limitations shall be reported to DER as specified in Condition I/XII.

F. Open Burning

Open burning in connection with initial land clearing shall be in accordance with Chapter 17-256, F.A.C., Chapter 5I-2, F.A.C., Uniform Fire Code Section 33.101 Addendum, and any other applicable County regulation.

Any burning of construction generated material, after initial land clearing that is allowed to be burned in accordance with Chapter 17-256, F.A.C., shall be approved by the DER Central District Office in conjunction with the Division of Forestry and any other County regulations that may apply. Burning shall not occur unless approved by the jurisdictional agency or if the Department or the Division of Forestry has issued a ban on burning due to fire safety conditions or due to air pollution conditions.

G. Federal Annual Operating Permits and Fees

1. DER Responsibilities

The Department of Environmental Regulation shall implement the provisions of Title V of the 1990 Clean Air Act for Stanton 2 developing Conditions of Certification requiring submission of annual operating permit information and annual pollutant emission fees in accordance with Federal Law and Federal regulations.

2. OUC Responsibilities

OUC shall submit the appropriate annual operating permit application information as well as the appropriate annual pollutant emission fees as required by Federal Law to the Department as specified in Condition 3. below.

3. Annual Operating "Permit" Application and Fee (Reserved)

II/II. WETLANDS RESOURCE MANAGEMENT

1. The proposed transmission line from the Stanton Energy Center to the Mud Lake transmission line and the proposed alternate access road to the Stanton Energy Center from the south shall be routed as shown in the supplemental application. Prior to construction, the permittee shall submit drawings on 8.5" by 11" paper, showing the final design, including plan views and cross-sections for each area of filling or clearing in wetlands. The drawings shall show the existing and proposed ground elevations and all existing and proposed structure locations, sizes and invert elevations.

2. All clearing and construction activities shall be confined to the limits of the clear zone necessary for the transmission line as shown on Figures 6.1-5 and 6.1-6 of the application drawings. Within 30 days of the completion of construction, the permittee shall arrange a site visit by DER District personnel from the Central District office in Orlando to verify that no wetland damage has occurred outside the transmission line clear zone. If wetland damage occurs outside the transmission line clear zone during construction, the permittee shall submit to the Bureau of Wetland Resource Management for review a plan to restore the wetland area which was damaged and to provide mitigation for the damage. The plan shall be implemented with 30 days of the Department approving the restoration and mitigation plan. This condition does not preclude the Department from taking enforcement action if unauthorized activities occur.

3. Prior to initiating construction, the permittee shall submit a map and aerial photographs showing the location of all staging areas for the transmission line and alternate access road construction to the Bureau of Wetland Resource Management for review and written approval. These areas shall be upland areas which are not currently providing red-cockaded woodpecker nesting or foraging habitat. The staging areas shall not be used prior to receiving DER approval.

4. Drainage structures shall be placed in the transmission line ROW and under the alternate access road at the same locations where drainage structures currently exist under the CSX Railroad berm. The drainage structures shall provide at least the same efficiency as the corresponding drainage structure currently existing in the CSX Railroad berm.

5. The forested areas to be cleared shall be cleared using low-impact equipment so as to minimize soil disturbance. The rootmats and tree stumps shall be left in place to provide soil stabilization.

6. During construction, best management practices, including but not limited to staked hay bales and filter cloth, shall be utilized to control erosion and turbidity. All side slopes shall be seeded and mulched within 72 hours of the final grading.

7. Construction of the transmission line and alternate access road will result in the filling of 4.12 ac.

of herbaceous wetlands the permanent clearing of 13.19 ac. of forested wetlands. The permittee shall provide mitigation to offset the wetland loss and habitat degradation resulting from the construction of this project.

Prior to construction, the permittee shall propose a mitigation plan and shall provide the following information to the Bureau of Wetland Resource Management to allow the Department to review the proposed mitigation plan:

a. detailed description of each wetland impact area;

b. acreage of the type and quality of wetland being impacted at each site;

c. narrative, drawings and aerial photographs showing and explaining the proposed mitigation;

d. detailed description of the existing conditions at the mitigation area;

e. acreage of the proposed mitigation by mitigation and wetland type;

f. documentation providing reasonable assurance that the proposed mitigation will be successful.

If the mitigation submittal is deemed by the Department to provide insufficient information for review, additional information requested by the Department shall be submitted. Upon receiving complete information, the Department will assess the mitigation plan within 90 days.

If the Department, upon review of the proposed mitigation, determines that the proposed mitigation is inadequate to offset the wetland loss and habitat degradation from this project, the permittee shall propose additional mitigation.

II/III. ELECTRIC AND MAGNETIC FIELDS

The associated transmission line shall comply with the requirements of Ch. 17-274, F.A.C.

II/IV. OTHER

For wastewater treatment, sanitary waste treatment, public water supply, surface water monitoring, and ground water monitoring see Unit 1's Conditions of Certification. For air and water monitoring programs, quality assurance plans shall be submitted by OUC within 90 days of certification. Such QA plans shall be submitted in conformance with Chapter 17-160, F.A.C.

Part III

Conditions Recommended by the Game and Fresh Water Fish Commission

III/I. WILDLIFE SURVEY

A. Prior to the construction of the proposed facility, a wildlife survey, consistent with methodology prescribed by the FGFWFC, shall be conducted for the presence of listed species (endangered, threatened, or species of special concern) and suitable habitat for same within the site. The results of said survey shall be submitted to the DER, the FGFWFC, and the United States Fish and Wildlife Service. If construction of the proposed facility will impact any listed species, other than the previously identified impact on the foraging habitat of the red-cockaded woodpecker resulting from the clearing of the transmission line right-of-way, the Permittee shall consult with the DER and the FGFWFC to determine the appropriate steps to avoid, minimize, mitigate, or otherwise appropriately address any adverse impacts within each agency's respective jurisdiction.

III/II. NESTING SANDHILL CRANES

B. Nesting sandhill cranes shall be avoided by limiting installation of transmission lines over wetlands utilized by nesting cranes to periods outside of the nesting season, which runs from January through June.

III/III. MANAGEMENT PLAN

C. Before construction, a management plan for the preserved areas shall be presented to the FGFWFC for review and approval. At a minimum, this plan shall include a statement of what habitat function the preserve is expected to provide; a schedule of fire management through a certified burn specialist and including, but not limited to, burn conditions, burn frequency, and measures taken to avoid spread of wildfire; measures taken to remove exotic vegetation from both wetlands and uplands; and the responsible entity.

Part IV

Conditions Recommended by
the
South Florida Water Management District

IV/I. LEGAL/ADMINISTRATIVE CONDITIONS

These conditions also incorporate by reference the conditions contained in Part I, Administrative Conditions, of the Recommended Supplemental Conditions of Certification.

A. GENERAL

1. Compliance Requirements

This project must be constructed, operated and maintained in compliance with and meet all non-procedural requirements set forth in Chapter 373, F.S., and Chapter 40E-4 (Surface Water Management), F.A.C.

2. Off-Site Impacts

It is the responsibility of the Permittee to ensure based on information provided that adverse off-site water resource related impacts do not occur during the construction, operation, and maintenance of the transmission line and associated transmission line access roads within SFWMD.

3. Post Certification Information Submittals

Information submitted to the SFWMD subsequent to Certification, in compliance with the conditions of this Certification, shall be for the purpose of the SFWMD determining the Permittee's compliance with the Certification conditions and the non-procedural criteria contained in Chapter 40E-4, F.A.C., as applicable, prior to the commencement of the subject construction, operation and/or maintenance activity covered thereunder.

B. PROCESSING OF INFORMATIONAL REQUESTS

1. Right-of-way Modifications

At least ninety (90) days prior to the commencement of construction of any portion of the transmission line, the Permittee shall submit any proposed modifications to the transmission line right-of-way, identified on Exhibits 2, 3 and 4 (Figures 6.1-2, 6.1-3, and 6.1-4), to the SFWMD staff for review and

approval. If the SFWMD staff does not issue a written request for additional information and/or an objection to the proposed right-of-waymodification within thirty (30) days, the modification shall be presumed to be complete and acceptable.

2. Completeness and Review

At least ninety (90) days prior to the commencement of construction of any portion of the linear facilities located in the SFWMD, the Permittee shall submit to SFWMD staff, for a completeness and sufficiency review, any pertinent additional information required under the SFWMD's Conditions of Certification for that portion proposed for construction. If SFWMD staff does not issue a written request for additional information within thirty (30) days, the information shall be presumed to be complete and sufficient.

3. Compliance Review and Confirmation

Within sixty (60) days of the determination by SFWMD staff that the submitted information is complete and sufficient, the SFWMD shall determine and notify the Permittee in writing whether the proposed activities conform to SFWMD criteria, as required by Chapter 40E-4, F.A.C., and the Conditions of Certification. If necessary, the SFWMD shall identify what items remain to be addressed. No construction activities shall begin until the SFWMD has determined either in writing, or by failure to notify the Permittee in writing, that the activities are in compliance with the applicable SFWMD criteria.

4. Revisions to Site Specific Design Authorizations

The Permittee shall submit, consistent with the provisions of Condition IV/I.B, any proposed revisions to the site specific design authorizations specified in this Certification to the SFWMD for review and approval prior to implementation. The submittal shall include all the information necessary to support the proposed request, including detailed drawings, topographic maps, average wet season water table elevations, calculations and/or any other applicable data. Such requests may be included as part of the appropriate additional information submittals required by this Certification provided they are clearly identified as a requested modification to the previously authorized design.

5. Dispute Resolution

Since this Certification is the only form of permit required from any agency, it is understood that the

Permittee and the SFWMD shall strive to resolve disputes by mutual agreement.

6. Objections

Objections to modifications of the terms and conditions of this Certification shall be resolved through the process established in Section 403.516, F.S.

7. Changes to Information Requirements

The SFWMD and the Permittee may jointly agree to vary the informational requirements.

IV/II. SURFACE WATER MANAGEMENT CONDITIONS

A. GENERAL CONDITIONS

1. Professional Engineer Certificate

The operation of the surface water management system authorized under this certification shall not become effective until a Florida Registered Professional Engineer certifies, upon completion of each phase, that these facilities have been constructed in accordance with the design approved by the SFWMD. Within 30 days after completion of construction of the surface water management system, the Permittee or authorized agent shall submit the engineer's certification and notify the SFWMD Field Engineering Division that the facilities are ready for inspection and approval. Such notification shall include as-built drawings of the site which shall include elevations, locations, and dimensions of components of the surface water management system.

2. Impacts on Fish, Wildlife, Natural Environment Values and Water Quality

The Permittee shall prosecute the work authorized under this Certification in a manner so as to minimize any adverse impacts of the authorized works on fish, wildlife, natural environment values, and water quality. The Permittee shall institute necessary measures during the construction period, including necessary compaction of any fill materials placed around newly installed structures and/or the use of silt screens, hay bales, seeding and mulching, and/or other similar techniques, to reduce erosion, turbidity, nutrient loading and sedimentation in the receiving waters.

3. Correction of Water Quality Problems

The Permittee shall be responsible for the correction of any sedimentation, turbidity, erosion, shoaling and/or maintenance of the works authorized under this Certification.

4. Off-site Conveyances

All off-site conveyances during construction and development of the transmission line and associated access roads shall be made only through the conveyance facilities authorized by this Certification. No roadway or structure pad construction shall commence on-site unless in conjunction with the construction of the permitted conveyance facilities and any associated detention areas. Water conveyed from the project shall be through facilities having a mechanism suitable for regulating upstream water stages. Stages may be subject to operating schedules satisfactory to the SFWMD.

5. Additional Water Quality Requirements

The Permittee may be required to incorporate additional water quality treatment methods into the surface water management system if such measures are shown to be necessary.

6. Access Roads

The Permittee shall, whenever available, utilize adjacent existing roads for access to the transmission line right of way for construction, operation and/or maintenance purposes. Finger roads connecting the existing roads to the structure pads and access roads which must be constructed in areas where an existing road is not available shall be constructed in a manner which does not impede natural drainage flows and minimizes impacts to on-site and adjacent wetlands.

7. Correction of Drainage Problems

The Permittee shall be responsible for the correction of any adverse on-site, upstream, and/or downstream drainage and/or wetland impacts which may occur as a result of the construction of the proposed access road and/or structure pads. These may include the placement and/or removal of culverts and/or other structures to remedy the impact.

8. Modifications

Subsequent modifications to the drawings and supporting calculation submitted to the SFWMD which may alter the quantity and/or quality of waters discharged off-site shall be made pursuant to Section 403.516, F.S., and Rule 17-17.211, F.A.C. They shall also be submitted to the SFWMD for a determination that the modifications are In compliance with the non-procedural requirements of Chapters 40E-2 and 40E-4, F.A.C., prior to the commencement of construction.

B. SITE SPECIFIC DESIGN AUTHORIZATIONS

1. Access/Maintenance Road and Structure Pads

The Permittee is authorized to construct an access/maintenance road and associated conveyance facilities for the transmission line in the areas specifically identified on Exhibits 2, 3, and 4 (Figures 6.1-2, 6.1-3, and 6.1-4). Areas where an access/maintenance road is not proposed will be accessed from existing roads.

2. Authorized Receiving Water (Transmission Line Access Maintenance Roads only)

3. Adjacent Wetlands

C. ADDITIONAL INFORMATION REQUIREMENTS

1. Access/Maintenance Road and Structure Pad Construction Plans

Prior to the commencement of construction of any portion of the transmission line which affects the movement of waters, the Permittee shall submit plans for any construction activities for that portion of the transmission line which may obstruct, divert, control, impound or cross waters of the state, either temporarily or permanently, to the SFWMD, consistent with the provisions of Condition IV/I.B, for a determination of compliance with the non-procedural requirements of Chapter 40E-4, F.A.C., in effect at the time of submittal. "Construction activities" in this situation shall include the placement of access/ maintenance roads, culverts, and/or fill materials, excavation activities, and any related activities. All plans, detail sheets and calculations shall be signed and sealed by a Florida Registered Professional Engineer. For all construction activities, the following information, referenced to NGVD, shall be submitted:

(1) A centerline profile of existing topographic features along the proposed access/maintenance road(s);

(2) A design of the proposed access/maintenance and finger road(s) with finished elevations marked;

(3) A typical cross-section of the proposed access/maintenance and finger road(s), including relative dimensions and elevations;

(4) A cross-section of each stream or creek at the point(s) to be crossed by the proposed access/maintenance and finger road, and/or other facility;

(5) Identification of wet season water table elevations for each basin in which facilities will be located;

(6) Specifications, including supporting assumptions and calculations, showing the type and size of water control structures (pipe, culvert, equalizer, etc.) to be used, with proposed flowline elevations marked, drainage areas identified, and design capacity verified;

(7) A cross-section of any proposed excavation areas showing the proposed depth of excavation;

(8) Calculations and supporting documentation which demonstrate that the proposed construction and/or excavation activities associated with the transmission line will not have an adverse water quantity and/or water quality impact on adjacent wetlands and/or permitted surface water management systems;

(9) If construction of the transmission line contributes to the necessity for future modifications to adjacent/existing roads, water quality treatment requirements of the requested road modifications must be addressed in the surface water management system design for the transmission line.

IV/III. ENVIRONMENTAL CONDITIONS

A. GENERAL

1. Wetland Avoidance

The Permittee shall avoid impacting wetlands within the transmission line corridor wherever practicable. Where necessary and feasible, the location of the

structure pads, other related facilities and/or the transmission line alignment shall be varied to eliminate or reduce wetland impacts. The Permittee shall work in accordance with the submitted plans in the supplemental site certification application as supplemented by final approved construction plans. Clearing and construction activities shall be confined to the limits of the clearing zone.

2. Fill Materials

No fill materials shall be obtained from excavated wetlands or within 200 feet of functional wetlands, unless in accordance with a mitigation plan submitted in compliance with the conditions of this Certification.

3. Additional Wetlands Mitigation

The Permittee may be required to provide additional mitigation and/or other measures if wetland monitoring and/or other information demonstrates that adverse impacts to protected, restored, incorporated, and/or mitigated wetlands have occurred as a result of project-related activities.

4. Additional Environmental Review

The Permittee shall submit any proposed changes in land use, project design, and/or the treatment of on-site wetlands to the SFWMD for additional environmental review in order to determine whether any additional mitigation activities will be required.

5. Mitigation Areas

Mitigation credits shall be given for mitigation areas within both the SFWMD and the SJRWMD.

Mitigation credits shall be given for acreages and activities which have also been accepted by the DER as mitigation for impacts in areas of joint jurisdiction.

Any acreages or activities proposed by the mitigation plan and its addendum which exceed the mitigation requirements of the SJRWMD, and meet the non-procedural requirements for wetland mitigation of the SFWMD, shall be credited as mitigation for impacts within the SFWMD.

If required by SFWMD, OUC agrees to provide additional acreages and activities to offset impacts within SFWMD not credited by the Mitigation Plan (June 1991) and its addendum (Sept 1991).

B. SITE SPECIFIC DESIGN AUTHORIZATIONS

1. Authorized Wetland Impacts

The Permittee is authorized to construct an access/maintenance road and associated conveyance facilities for the transmission line and structure pads in the wetland areas specifically identified on Exhibits 2, 3, and 4 (Figures 6.1-2, 6.1-3, and 6.1-4).

2. Sandhill Crane Nest Protection

The Permittee shall protect the active sandhill crane nest located in the 0.58 acre marsh situated between stations 125 and 126 in accordance with the following requirements:

(1) The transmission line poles and structure pads shall be positioned so that the transmission line spans the marsh;

(2) Construction shall be scheduled to avoid the nesting season for sandhill cranes;

(3) The marsh shall not be disturbed in any way;

(4) The access road shall be located in the swale adjacent to the railroad rather than in the marsh.

C. ADDITIONAL INFORMATION REQUIREMENTS

1. Wetlands Protection

Prior to the commencement of construction of any portion of the transmission line which will be located adjacent to the wetlands identified for preservation, the Permittee shall:

(1) Stake and rope off the protected wetlands and buffer zones to prevent encroachment during construction. The stakes and ropes shall remain in place until all adjacent construction activities have been completed. Verification of staked areas by SFWMD staff shall be required prior to the commencement of and upon completion of any construction activities.

(2) Install silt screens, turbidity barriers and/or hay bales prior to any construction in or alteration of any wetlands within the project site in order to prevent adverse water quality impacts to wetlands. These barriers shall remain in place until fill material is stabilized and turbidity has returned to background levels.

2. Mitigation Plan

Prior to the commencement of construction of any portion of the transmission line which may affect wetlands, the Permittee shall submit a mitigation and monitoring plan to the SFWMD for a determination of compliance with the non-procedural requirements of Chapter 40E-4, F.A.C., including Appendix 7 (Isolated Wetlands Rule) of the Basis of Review for Surface Water Management Permit Applications in the SFWMD, in effect at the time of submittal. At a minimum, the plan shall include the following information:

(1) Locations and sizes of all proposed mitigation areas, species to be planted, planting densities, details of the proposed hydrologic regime, cross-sections showing the proposed elevations and water depths, and an estimated time schedule for completion of the construction of the mitigation areas.

(2) A wetland mitigation and/or restoration work schedule which details each specific mitigation task (e.g. grading to proper elevation, mulching, planting, regularly scheduled maintenance and monitoring, etc.) and the calendar dates for the start and completion of each task.

(3) Provisions for both quantitative and qualitative observations of wildlife utilization and the vegetative community, monthly water level readings, panoramic photographs documenting the condition of the mitigation areas, and evaluation of the success of the mitigation effort, and an annual report incorporating this information and any other relevant information. The water level readings will be taken weekly for sampling points that are accessable until demonstrated to the appropriate agency that less frequent water level readings are sufficient to demonstrate compliance.

(4) Documentation that sufficient areas have appropriately worded conditions of certification within the SFWMD and/or the SJRWMD to compensate for the proposed wetland impacts with both the water management districts.

Part V

Conditions Recommended by the St. Johns River Water Management District

V/I. WATER SHORTAGES

Nothing in this certification shall be construed to limit the authority of the SJRWMD to declare a water shortage and issue orders pursuant to Section 373.175, Florida Statues or to formulate a plan for implementation during periods of water shortage, pursuant to Section 373.246, Florida Statutes. Pursuant to Section 403.516, Florida Statutes, in the event of a water shortage as declared by the SJRWMD, DER may seek a modification of the terms and conditions of this certification to implement the water shortage declaration.

V/II. WELL CONSTRUCTION, MODIFICATION, OR ABANDONMENT

Prior to the construction, modification, or abandonment of a well, OUC, et al., must obtain approval from the SJRWMD and meet the requirements of Chapter 40C-3, Florida Administrative Code.

V/III. WELL MAINTENANCE

Leaking or inoperative well casings, valves, or controls must be repaired or replaced as required to put the system back in an operative condition acceptable to the SJRWMD. Failure to make such repairs will be cause for deeming the well abandoned in accordance with Subsection 17-532.200(1), Florida Administrative Code and Section 373.309, Florida Statutes.

V/IV. MITIGATION OF WITHDRAWAL IMPACTS ON EXISTING LEGAL USERS

OUC, et al., must mitigate any adverse impact caused by withdrawals permitted herein on legal uses of water existing at the time of the Supplemental Site Certification Application for Stanton 2. If unanticipated significant adverse impacts occur, the DER has the right to curtail permitted withdrawal rates or water allocations unless the impacts can be mitigated by OUC, et al. Adverse impacts are exemplified by, but not limited to:

A. Reduction of well water levels resulting in a reduction of 10% in the ability of an adjacent well (other than one owned by OUC) to produce water;

B. Reduction of water levels in an adjacent surface water body resulting in a significant impairment of the use of water (other than a use by OUC) in that water body;

C. Saline water intrusion or introduction of pollutants into the water supply of an adjacent water use (other than a use by OUC) resulting in a significant reduction of water quality; or

D. Change in water quality resulting in either impairment or loss of use of a well or water body (other than a use by OUC).

V/V. MITIGATION OF IMPACTS ON ADJACENT LAND USES

OUC, et al., must mitigate any adverse impact caused by withdrawals permitted herein on an adjacent land use which existed at the time of Supplemental Site Certification Application for Stanton 2. If unanticipated significant adverse impacts occur, the DER has the right to curtail permitted withdrawal rates or water allocations unless the impacts can be mitigated by OUC, et al. Adverse impacts are exemplified by, but not limited to:

A. Significant reduction in water levels in an adjacent surface water body;

B. Land collapse or subsidence off-site caused by a reduction in water levels; or

C. Damage to crops and other types of off-site vegetation.

V/VI. IDENTIFICATION TAGS

A SJRWMD-issued identification tag must be prominently displayed at each withdrawal site by permanently affixing such tag to the pump, headgate, valve or other withdrawal facility as provided by Section 40C-2.401, Florida Administrative Code. OUC, et al., must notify the SJRWMD in the event that a replacement tag is needed.

V/VII. MAXIMUM ANNUAL WITHDRAWALS

Maximum annual withdrawals from the Floridan aquifer must not exceed 321.20 million gallons.

V/VIII. MAXIMUM DAILY WITHDRAWALS

Maximum daily withdrawals from the Floridan aquifer must not exceed 2.00 million gallons.

V/IX. LIMITATION ON USE OF WATER

Withdrawals from the Floridan aquifer wells must not be used directly for cooling tower make-up water. Reclaimed wastewater in an allocated amount of 10.19 million gallons/day

on an annual average basis from the Orange County Easterly Wastewater Treatment Facility, stormwater runoff, on-site reuse water and direct precipitation shall be the source of cooling tower make-up water.

V/X. DEWATERING

All withdrawals from the surficial aquifer for dewatering to facilitate construction must be retained on-site within the recycle basin or the make-up water supply pond (#20 and #22, respectively, OUC, et al.'s Figure 3.2-1).

V/XI. OFF-SITE DISCHARGES

No off-site discharges are approved from this facility, except as provided for by the overflow structure in the make-up water supply pond (#20, OUC, et al.'s Figure 3.2-1), and the natural drainage patterns indicated on SCA Figure 3.10-1 for the duration of this certification.

V/XII. DISCHARGES FROM MAKE-UP WATER SUPPLY POND

All off-site discharges, as provided for by the overflow structure in the make-up water supply pond (#20, OUC, et al.'s Figure 3.2-1), must be in compliance with water quality standards as set forth in Chapters 17-4, and 17-302, F.A.C., or such standards as issued through a variance by DER.

V/XIII. WELL WATER QUALITY SAMPLING

Water quality samples must be taken in April and October of each year from each production well. The samples must be analyzed for the following parameters:

Calcium	Chloride
Magnesium	Sulfate
Sodium	Carbonate
Potassium	Bi-Carbonate (or alkalinity if pH is 6.9 or lower)

All major ion analyses must be checked for anion-cation balance and must balance within 5% prior to submission. It is recommended that duplicates be taken to allow for laboratory problems or loss. The sample analyses must be submitted to the SJRWMD by May 15 and November 15 of each year. Prior to sample collection, a minimum of 3-5 casing volumes must be removed from each well. All sampling and water quality analyses shall be performed by organizations with approved comprehensive or generic quality assurance plans on file with the DER or a laboratory having HRS certification.

V/XIV. WATER TREATMENT PLANT REPORTS

By January 31 of each year, OUC, et al., must submit to the SJRWMD copies of the previous year (12 months) DER monthly water treatment plant operating report data showing total flow from the 2 Floridan wells going to the potable water treatment plant on-site. The project name and certification number must be attached to all reports.

V/XV. WELL WATER FLOW MONITORING

OUC, et al., must maintain the continuous recorder on the Floridan aquifer monitor well. Copies of the previous year (12 months) recorder charts must be forwarded to the SJRWMD on a yearly basis. The charts must be submitted by January 31 of each year.

V/XVI. CONSERVATION PLAN

OUC, et al., must implement the conservation plan submitted to the SJRWMD in accordance with the schedule contained therein.

V/XVII. WELL WATER FLOW METERS

All Floridan aquifer production wells must be equipped with totalizing flow meters throughout the duration of this certification. Such meters must maintain a 95% accuracy, be verifiable and be installed according to the manufacturer's specifications.

V/XVIII. CALIBRATION OF FLOW METERS

OUC, et al., must have all flow meter(s) calibrated once every 3 years within 30 days of the anniversary date of certification issuance, and recalibrated if the difference between the actual flow and the meter reading is greater than 5%. SJRWMD form EN-51 must be submitted to the SJRWMD within 10 days of the inspection/calibration.

V/XIX. MAINTENANCE OF FLOW METERS

OUC, et al., must maintain the required flow meter(s). In case of failure or breakdown of any meter, the SJRWMD must be notified in writing within 5 days of its discovery. A defective meter must be repaired or replaced within 30 days of its discovery.

V/XX. DELINEATION OF LIMITS OF CONSTRUCTION

Prior to construction, OUC, et al., must clearly delineate the limits of construction on-site. OUC, et al., must advise the contractor that any work within the Riparian Habitat Regulation Zone outside the limits of construction,

including clearing, is a violation of this certification order.

V/XXI. BACKGROUND ASSESSMENT PLAN

Prior to commencement of construction, a Background Assessment Plan of the areas to be enhanced or mitigated must be submitted to the SJRWMD, DER, and SFWMD for review and joint approval. Data obtained through the Background Assessment Plan must include the following: (a) site specific topographic survey information referenced to NGVD; (b) survey of historic and existing ordinary high, normal or chronic pool water elevations referenced to NGVD based upon biological/physical wetland indicators; (c) a narrative describing the species composition, health and extent of pre-enhanced areas; and (d) quantitative information regarding the species composition including coverage and composition of understory, midcanopy and canopy species.

V/XXII. COMPLETION OF BACKGROUND ASSESSMENT

The background assessment must be completed pursuant to the approved Background Assessment plan prior to construction.

V/XXIII. INITIATION AND COMPLETION OF ENHANCEMENT MITIGATION PLAN

Following completion of the background assessment, and prior to the commencement of construction associated with the transmission line or the access roads, planting and construction associated with the approved Enhancement Mitigation Plan must be initiated, and then must be completed within 12 months after initiation.

V/XXIV. CRITERIA FOR SUCCESS OF ENHANCEMENT AND MITIGATION

Following completion of the background assessment, before any planting in the mitigation and enhancement areas, OUC, et al., must submit for the joint approval of SJRWMD, DER, and SFWMD a plan setting forth appropriate criteria for determining success of all wetland and upland enhancement and mitigation areas. OUC, et al., shall implement and maintain the mitigation and enhancement areas to ensure that the success criteria are achieved.

V/XXV. MONITORING PLAN FOR ENHANCEMENT AND MITIGATION

Within 30 days of completion of the initial planting, OUC, et al., must submit to the SJRWMD, DER, and SFWMD for review and joint approval, two copies of a monitoring plan detailing the site specific methods to be used for monitoring the enhancement and mitigation areas, so that the achievement of the success criteria can be quantitatively and qualitatively demonstrated. The monitoring plan must include

the location, size and number of monitoring quadrants or transect lines, the location and number of photographic stations, the location of the wetland(s) to be enhanced and mitigated, the location of staff gauges and/or piezometers, and other pertinent factors. OUC, et al., shall monitor the enhancement and mitigation areas until the approved success criteria has been achieved.

V/XXVI. SURVEY OF ENHANCEMENT AREAS

OUC, et al., must submit to the SJRWMD, DER, and SFWMD two (2) copies of an as-built survey of the enhancement areas certified by a registered surveyor or professional engineer showing dimensions of all planted areas, invert(s) elevation of the proposed culvert in enhancement area 3.6(A), and the final grade of all plugged ditches. An inventory of the planted species within the wetland enhancement areas will be shown on the survey. In areas where planting occurs, the inventory must include the type, number, distribution, and size of the planted vegetation, and must be referenced to the as-built survey. The as-built survey must be submitted to the referenced agency parties within thirty (30) days of completion of the initial planting.

V/XXVII. MONITORING REPORTS FOR THE ENHANCEMENT AND MITIGATION AREAS

Following joint approval of the plan referenced in Condition No. 26, OUC, et al., must furnish the SJRWMD, DER, and SFWMD with two copies of all Monitoring Reports for the enhancement and mitigation areas describing the status of the mitigation and enhancement areas until the enhancement and mitigation areas achieve the success criteria.

V/XXVIII. REVISIONS TO ENHANCEMENT AND MITIGATION

If it is determined that successful enhancement is not occurring based on the monitoring reports or trends, OUC, et al., must, within 30 days, provide the SJRWMD, DER and SFWMD with a narrative describing the type and causes of failure with a complete set of plans for the redesign and/or replacement planting of the mitigation and enhancement areas demonstrating that the success criteria can be achieved. Within 30 days of joint agency approval of the amended plans, OUC, et al., must implement the redesign and/or replacement planting. Following completion of such work, the success criteria as stated above or as modified by subsequent approval of the plan must again be achieved. In addition, the monitoring required by the conditions of this permit must be conducted.

V/XXIX. EROSION AND SEDIMENT CONTROL DURING CONSTRUTION

OUC, et al., must select, implement, and operate all erosion and sediment control measures required to retain sediment on-site and to prevent violations of water quality standards as specified in Chapters 17-302 and 17-4, F.A.C. OUC, et al., is encouraged to use appropriate Best Management Practices for erosion and sediment control as described in the "Florida Land Development Manual: A Guide to Sound Land and Water Management" (DER, 1988). All erosion and sediment control measures must remain in place at all locations until construction is completed and the soils are stabilized. Thereafter, OUC, et al., will be responsible for the removal of the control measures (except for the control measures in the areas of fill for the unpaved access road which shall be permanent).

V/XXX. EROSION AND SEDIMENT CONTROL DURING OPERATION

Following the completion of construction, OUC, et al., must construct and maintain a permanent protective vegetative and/or artificial cover for erosion and sediment control on all land surfaces exposed or disturbed by construction or alteration of the certified project. A permanent vegetative cover must be established within 60 days after planting or installation.

V/XXXI. INCORPORATION OF MITIGATION PLAN

The proposed mitigation plan submitted to SJRWMD by OUC for the Curtis H. Stanton Energy Center, Unit 2, dated June 21, 1991, July 20, 1991, September 11, 1991, September 18, 1991, and September 19, 1991 is incorporated as a condition of this certification except where specifically superseded by certification conditions.

V/XXXII. COMPLETION OF SURFACE WATER MANAGEMENT SYSTEM

Construction or alteration of the surface water management system must be completed and all disturbed areas must be stabilized in accordance with the submitted plans and certification conditions prior to use of the infrastructure for its intended purpose.

V/XXXIII. RETENTION/DETENTION STORAGE AREAS

At a minimum, all retention/detention storage areas must be constructed to rough grade prior to the placement of impervious surface within the area to be served by those facilities. To prevent reduction in storage volume and percolation rates, all accumulated sediment must be removed from the storage areas prior to final grading and stabilization.

V/XXXIV. ACCESS ROAD AND TRANSMISSION LINE CONSTRUCTION PLANS

Final Access Road and Transmission Line construction plans must be submitted to the SJRWMD at least 30 days prior to commencement of construction. The final plans must be consistent with the plans and calculations received by the SJRWMD on July 22, 1991, such that the requirements of Chapters 40C-4, 40C-41 and 40C-42, F.A.C. continue to be met.

V/XXXV. ACCESS ROAD FILL

The fill material for the access roads must satisfy the soil properties assumed in the calculations received by the SJRWMD on July 22, 1991. If fill is to be acquired on site, a plan depicting the location of the area to be used for fill for the Access Roads must be submitted to the SJRWMD at least 30 days prior to commencement of construction. Access to the on-site fill material must be shown on the plan.

V/XXXVI. CONTRACTOR REVIEW AND POSTING OF CONDITIONS OF CERTIFICATION

OUC, et al., must require the contractor to review and maintain a copy of this document, complete with all conditions, attachments, and exhibits, in good condition and posted on the construction site.

Part VI

Conditions Recommended by the Florida Department of Transportation

VI/I. CONSTRUCTION IMPACT MITIGATION PROGRAM

OUC shall develop and implement at its own expense a construction traffic impact mitigation program after consultation with DOT, and report that will be submitted to DOT prior to commencement of construction of Stanton Unit 2. The program will detail the actions that OUC will take to reduce the impacts of construction traffic, which report shall address the following actions:

A. OUC shall actively promote and encourage car-pooling by construction companies and workers, including contractors and subcontractors, from whom it obtains construction services, and OUC shall further explore with appropriate public mass-transportation providers in the area the possibility of park-and-ride service to the site.

B. OUC shall utilize to the extent practicable the existing railway access to the Stanton site for the delivery of equipment and materials needed for the project construction.

C. OUC will explore with its contractors and subcontractors the practicability of staggering construction employee work schedules, and encourage the staggering of shifts to the extent feasible to mitigate peak hour traffic congestion problems.

D. OUC will consult with the appropriate Winter Park DOT personnel regarding the practicality of providing temporary traffic control devices and alteration of signal times to assist in maintaining proper traffic flow at the most affected intersections which are the intersections of Alafaya Trail with both the East-West Expressway and State Road 50.

E. OUC shall suggest and encourage the use by construction personnel of alternate public road access to the Stanton site as appropriate to alleviate traffic congestion.

Part VII

Conditions Stipulated for the Red-Cockaded Woodpecker Management Area

VII/I. RED-COCKADED WOODPECKER MANAGEMENT AREA IDENTIFICATION

All lands depicted on Figure 4.2 (attached hereto) of the August 1981 red-cockaded woodpecker (RCW) Management Plan, except for the area specifically identified as "construction impact of proposed generating Units 1, 2, 3, and 4" constitute the red-cockaded woodpecker management area subject to the Management Plan specified in Condition XXXI of the Site Certification granted OUC by the Siting Board on December 14, 1982. (DOAH Case No. 81-1431)

VII/II. USE AND LIMITATIONS OF THE RCW AREA

With regard to the RCW management area, in addition to Condition XXXI of the December 14, 1982 Order of the Florida Siting Board:

A. OUC may conduct activities within the RCW management area described in Condition XXXI which are provided for in the Siting Board's certification orders for Units 1 and 2, including without limitation the execution of habitat restoration, enhancement, and creation required as mitigation.

B. OUC may conduct management, including maintenance in their existing configuration and condition, of existing unpaved private roads utilized by OUC, maintenance of existing water and sewer lines, of existing transmission lines and substation, and other maintenance and management activities within the area of Condition XXXI which are consistent with its purposes.

C. OUC shall take appropriate action to manage the RCW management area to achieve the purposes required by Condition No. XXXI with regard to the red-cockaded woodpecker, and in general to preserve the natural conditions of the area, including other protected species of native wildlife, vegetation, wetlands, and particularly the tributaries and headwaters of the Econlockhatchee River. OUC may act to implement the red-cockaded woodpecker management plan, to monitor its effectiveness, and to react to fire, flood, or other unforeseeable natural or manmade disturbances. Any reports generated by OUC concerning activities within or management of the RCW management area shall be provided to the Florida Game and Fresh Water Fish Commission.

D. OUC shall allow only those activities of others within the RCW Management Area which are consistent with its

management in a natural state. Such activities shall be limited to environmentalrestoration, scientific research, habitat management (such as controlled burning) and nature study.

E. Unless specifically authorized by an order of the Siting Board, dredging, filling, construction of buildings, road-ways, dumping of debris, excavation, and clearing of native vegetation shall be prohibited in the area defined by Condition XXXI. The provisions of Sections 403.516(1) (a) and (b) notwithstanding, OUC agrees that any activity prohibited in this paragraph within the area described in the RCW management area shall be authorized only by affirmative vote of the Siting Board.

F. OUC hereby stipulates as a factual matter, which shall be binding on it, and all of its officers, agents, attorneys, and employees, that the "alternate access road" authorized by this supplemental certification completes the necessary roadway access for Units 1 and 2, to allow the full development thereof. Any additional access for electric power generation, and any additional facilities necessary for the construction of Units 3 and 4 will be the subject of a comprehensive Supplemental Certification application or applications for Units 3 and 4.

G. If OUC determines to pursue a modification of its certification with regard to the easement recorded December 30, 1987, at ORB 3946, Page 3187, Orange County, Florida, it shall do so as a ministerial act only and shall not actively utilize its resources, funds or personnel to support such an application.

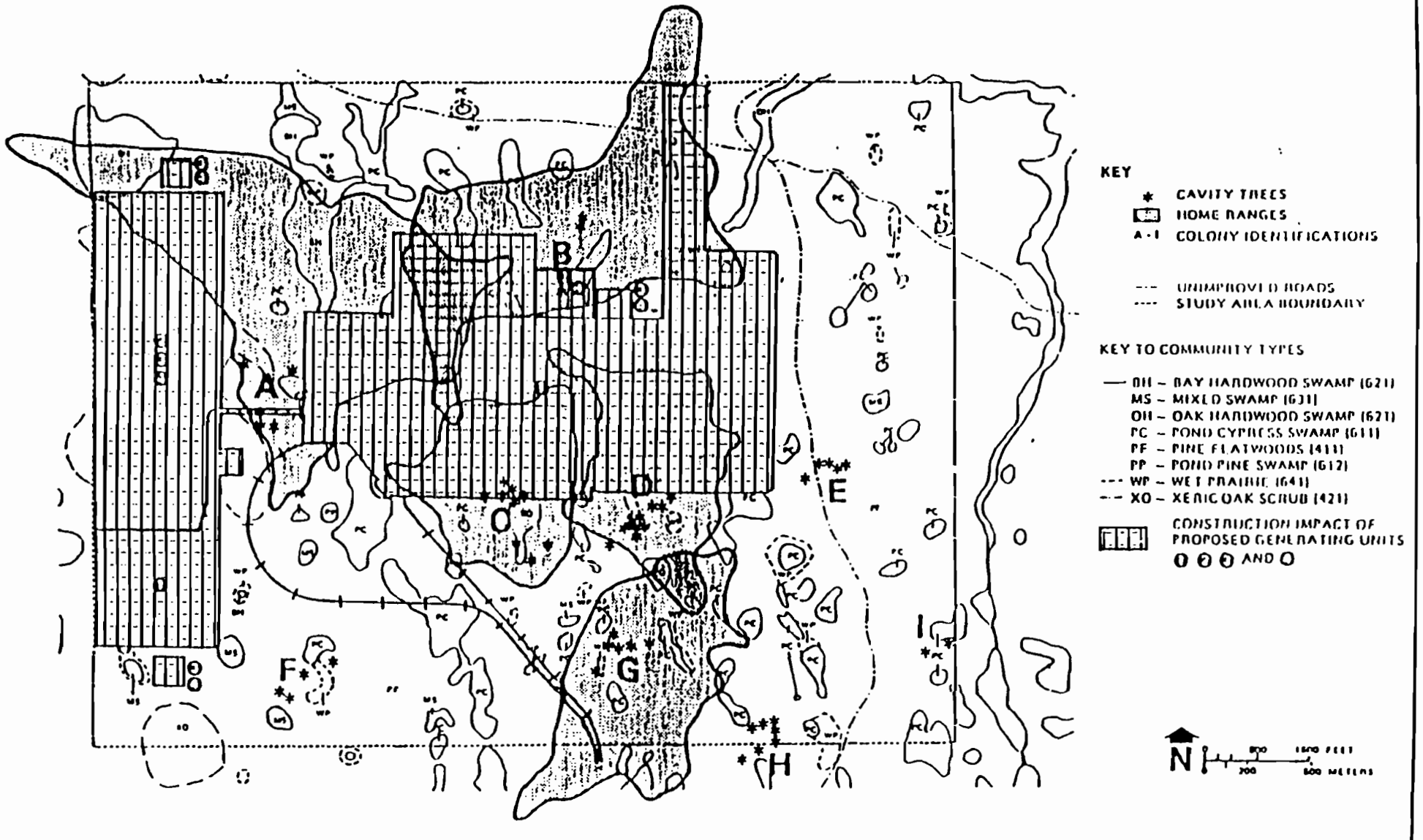

Figure 4-2

AREAS OF CONSTRUCTION IMPACTS ON RED-COCKADED WOODPECKERS

SOURCE: ESE, 1981.

CURTIS H. STANTON ENERGY CENTER

Management Plan for Red-Cockaded Woodpeckers

APPENDIX B TO RECOMMENDED ORDER
IN CASE NO. 91-1813EPP

APPENDIX B TO RECOMMENDED ORDER IN CASE NO. 91-1813EPP

The following constitutes my specific rulings pursuant to Section 120.59(2), Florida Statutes, on the proposed findings of fact submitted by the parties in this case.

Specific Rulings on Proposed Findings of Fact Submitted by the Applicants, OUC, et al.

1. Each of the following proposed findings of fact is adopted in substance as modified in the Recommended Order. The number in parentheses is the Finding of Fact which so adopts the proposed finding of fact: 4(4); 6(1); 8(2); 9(3); 10(7); 14(8); 15(9); 20-22(10-12); 24-28(13-17); 40-61(18-40); 70-82(41-53); 84-86(54-56); 89(57); 90(58); 97-100(60-63); 109(59); 110(64); 112(70); 115-117(71-73); 120(83&84); 121 & 122(85); 123(86); 124(87-91); 125(92);136-148(93-105); 149(108); 151(111); 191-201(114-124); 203 & 204(125 & 126); 206-209(127-130); 212(131); and 215-223(132-140).

2. Proposed findings of fact 1-3, 5, 11, 12, 16-19, 23, 29-33, 38, 39, 62-69, 83, 101-108, 111, 113, 114, 118, 119, 127, 128, 150, 152, 202, 205, 210, and 211 are subordinate to the facts actually found in this Recommended Order.

3. Proposed findings of fact 7, 13, 87, 88, 91-96, 126, 129-135, 153-190, 213, and 214 are unnecessary.

4. Proposed findings of fact 34-37 are irrelevant.

Specific Rulings on Proposed Findings of Fact Submitted by Department of Environmental Regulation

1. Each of the following proposed findings of fact is adopted in substance as modified in the Recommended Order. The number in parentheses is the Finding of Fact which so adopts the proposed finding of fact: 1-104(1-104) and 105-127(114-136).

Specific Rulings on Proposed Findings of Fact Submitted by St. Johns River Water Management District

1. Each of the following proposed findings of fact is adopted in substance as modified in the Recommended Order. The number in parentheses is the Finding of Fact which so adopts the proposed finding of fact: 1(4); 4-6(1-3); 9(8); 10-13(10-13); 23(93); 34-36(93-95); 39(98); 41-44(99); 47(100); 49(102); 52(104); 53-55(105-107); 56(109); 58(109); 67-72(41-46); 73-84(46-52); 86(55); 87(39 & 40); 88(125); 90(128); and 91(40).

2. Proposed findings of fact 2, 3, 7, 8, 14-22, 24-33, 37, 38, 40, 46, 48, 50, 51, 62, 63, 85, and 92 are subordinate to the facts actually found in this Recommended Order.

3. Proposed finding of fact 57 is unnecessary.

4. Proposed findings of fact 45, 59-61, 64, 65, and 93 are irrelevant.

5. Proposed finding of fact 66 is unsupported by the credible, competent and substantial evidence.

ORANGE COUNTY FLORIDA
ORLANDO, FLORIDA

POLLUTION CONTROL DEPARTMENT
2008 EAST MICHIGAN AVENUE
ORLANDO, FLORIDA 32806
TELEPHONE (305) 420-3102

J. M. BATEMAN, P. E.
POLLUTION CONTROL MANAGER

POLLUTION BOARD
W.H. Palm, P.E.
H. Bertossa, P.E.
T. Green
J. Gross
J. McCarey

December 9, 1981

Mr. H.S. Oven, Jr., P.E.
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Subject: Orlando Utilities Commission, Curtis H. Stanton Plant, Unit I

Ref: Letter dated November 24, 1981

Dear Mr. Oven:

The reports submitted by the Orlando Utilities Commission concerning the proposed power plant location, were briefly reviewed by our department. The findings were included in two letters enclosed, one dated July 8, 1981 from Tracy Watson, Planning Director, written to the Development Review Committee, and the second, dated July 20, 1981 from the Development Review Committee, written to the Board of Zoning Adjustment.

The earlier letter indicates that our department is concerned about the following:

1. Air Quality

   a. The emission inventory submitted by the Orlando Utilities Commission appears to omit several important air pollution sources, among them, the City of Orlando Incinerator on McLeod Road, power plants in Brevard County along the Indian River, and, the coal preparation plant at Sanford operated by Florida Power and Light Co.

   b. Particulate counts in Orange County have been nearing the annual average standard and we are concerned that violations of this standard might occur prior to completion of the proposed power generating plant. On the other hand, particulates produced by the plant may add enough particulates to the existing particulate levels to cause a violation. We are interested in avoiding a second non-attainment designation, this time for excessive particulate levels.

December 9, 1981

Mr. H.S. Oven, Jr.
Department of Environmental Regulation
Tallahassee, Florida

Subj: Orlando Utilities Comm.

Ref: Letter dated Nov. 4, 1981

2. Water Quality

The effects of solids emitted from the cooling towers upon local surface water quality is of concern as follows:

a. On-site deposition of up to 100 lbs of solids per acre per year is expected to contain soluble compounds which are likely to be highly acidic. When these solids dissolve in stormwater runoff, on-site treatment to reduce acidity may be required before allowing any excess water to be discharged off-site into tributaries of the Econ River.

b. Smaller quantities of solids deposited on off-site lands, very likely also will produce acidic stormwater runoff. However, whether the off-site land is developed or not, this stormwater runoff is not likely to be treated to reduce acidity sufficiently to avoid long term, adverse environmental changes. Should such problems occur in Orange County as a result of the proposed power plant, then, a continuous acidity reduction effort may be required by Orlando Utilities Commission in the affected watershed.

c. In open storage areas, stormwater falling on piles of coal and solids removed from precipitators or scrubbers, very likely will dissolve some compounds from these solids, particularly if the stormwater is highly acidic. Even after such stormwater runoff is detained and filtered, dissolved solids may remain in solution so that additional treatment may be needed before this water can be discharged.

The proposed power generating plant may also cause other potentially adverse environmental effects. However, we are not certain which, if any, of these are likely to be significant. For example, periodic cleaning or maintenance operations may cause toxic dissolved or suspended solids to be discharged on-site. Unless these are carefully controlled and properly disposed, they may get into the air and/or into the surface or ground waters. Another potential problem may be caused by the large quantities of water vapor discharged into the air. This may adversely affect local temperature, humidity and/or rainfall.

Sincerely,

A.T. Sawicki, P.E.
Assistant Pollution
Control Officer

ATS/nr

ORLANDO UTILITIES COMMISSION
500 SOUTH ORANGE AVENUE • P. O. BOX 3193 • ORLANDO, FLORIDA 32802 • 305/423-9100

November 6, 1981

Mr. H. S. Oven
Florida Department of
Environmental Regulation
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Mr. Oven:

In accordance with your letter of August 1, 1981, concerning air quality matters related to the Stanton Energy Center, Units 1 and 2 Site Certification Application and PSD application, our consultants, Black & Veatch, have prepared the enclosed response.

Attachment 1 to these responses consists of many pages of computer printouts and only one copy has been submitted. This copy of Attachment 1 has been enclosed with the copy of this letter sent to Steve Smallwood, Chief of the Bureau of Air Quality Management.

Should, after review, you desire any or all of the attached amended into the applications, please advise.

Sincerely yours,

B. E. Shoup

B. E. Shoup
Director
Environmental Division

BES/jh
Enclosure

cc: **Mr. C. H. Stanton** w/encl. (w/o Attach. 1)
Mr. L. E. Stone w/encl. (w/o Attach. 1)
Mr. W. H. Herrington w/encl. (w/o Attach. 1)
Mr. E. C. Windisch
Mr. S. M. Day
Mr. Steve Smallwood w/encl. (w/Attach. 1)

ORLANDO UTILITIES COMMISSION

RESPONSE TO COMMENT LETTER RECEIVED AUGUST 1, 1981

OF THE FLORIDA DEPARTMENT OF ENVIRONMENTAL

REGULATION, BUREAU OF AIR QUALITY MANAGEMENT

103081

COMMENT OF FDER-BAQM

1) The proposed boiler will use No. 6 fuel oil for start-up, low load operation, and flame stabilization. Please evaluate SO_2 and particulate emissions and the emission controls while burning fuel oil. What is the maximum sulfur content of the fuel oil that will be used in Unit No. 1?

OUC RESPONSE

The maximum expected sulfur content of the No. 6 fuel oil to be used for startup, low load operation and flame stabilization will be 2.5%. Based on this maximum sulfur content, the generated sulfur dioxide would be 2.73 lb $SO_2/10^6$Btu. Before startup of the unit, the flue gas scrubber will be put into service. The flue gas scrubber will reduce sulfur dioxide emissions to under 0.60 lb $SO_2/10^6$Btu.

The maximum expected ash content of the No. 6 fuel oil will be 0.5 per cent. Based on this maximum ash content, the generated particulate would be .273 lb per 10^6Btu. Because of the possibilities of fire in the precipitator during startup (high excess air and possible unburned combustibles), the precipitator will not be operated during this time. The only removal of ash will be the scrubbing of particulate from the flue gas while in the flue gas scrubber. It is expected that the flue gas scrubber will remove about 50 per cent of the fly ash resulting in an emission level of .137 lb ash/10^6Btu.

COMMENT OF FDER-BAQM

2) Please estimate fugitive coal dust emission rates for all the Sources of Emissions listed in Table 3.2-2.

3) Please estimate fugitive limestone dust emission rates for all the Sources of Emissions listed in Table 3.9-1.

OUC RESPONSE

The predicted fugitive dust impact was based on conservative assumptions for emission factors and realistic "worst case" coal and limestone handling situations. All baghouse particulate emissions were derived from the maximum design inlet loading of 13 grains per cubic foot and a collection efficiency of 99.9 per cent. The coal and limestone activities each had two emissions rates. A modeling option allowed for the use of a variable emission rate based on wind speed categories. Wind erosion was included when wind speeds exceeded 12 miles per hour. Field studies have shown that significant wind erosion may occur when the wind speed exceeds this threshold value. A basic conservative assumption in the analysis was that the fugitive dust sources were continuous emittors when in actuality the facilities would only operate part of the time.

The following assumptions were considered to be representative of a 24-hour realistic "worst case" coal and limestone handling situation. Fugitive dust emission rates were determined for this situation and then used to assess their impact.

- A coal unit train (10,000 tons) will be received and stocked out directly to the active coal pile.
- The reclaimer will load-out enough coal for Units 1 and 2 to operate at 100 per cent capacity for 24 hours (8,600 tons).
- Wind erosion estimates were for a two-unit active coal pile.
- Trucks will deliver 800 tons of limestone to the active limestone pile.
- The daily limestone reclaim is equaled to the maximum limestone consumed by both units operating at 100 per cent load.

The following are descriptions of the fugitive dust emissions associated with the sources identified in Table 3.2-2 and 3.9-1 of the Site Certification Application.

COAL HANDLING

Bottom Car Dumper. Particulate emissions are 0.56 grams per second. This is based on the maximum design inlet loading of 13 grains per cubic foot and a collection efficiency of 99.9 per cent.

Conveyor 2 and Transfer Building. Conveyor 2 is enclosed and connects with the transfer building. Any fugitive emissions from conveyor 2 would be controlled by the transfer building baghouse. The total particulate emission rate is 0.63 grams per second.

Conveyor 3 and Related Active Coal Storage Activities. The fugitive dust emissions for these sources were evenly distributed over an area equivalent to a two-unit coal storage pile. This area was represented as two 70-metre square area sources. The Industrial Source Complex (ISC) model required that the emission rates for area sources be given as grams per second per square metre. The emission rates for the active coal storage sources are, respectively, 0.00011 and 0.00005 grams per second per square metre for with and without wind erosion.

Conveyor 4. This is the reserve stockout conveyor and was not included in the modeling analysis.

Emergency Stockout and Reclaim. These activities were considered to occur infrequently and thus not included in the modeling analysis.

Reserve Storage. The fugitive dust emissions associated with the reserve coal storage pile are expected to be minimal. Mitigative measures will be used to effectively seal the storage pile. The reserve pile would then only be disturbed if the coal delivery was disrupted due to a long-term mining or railroad strike. Wind erosion will be minimized because of the crusting and chemical sealing of the pile surface. The coal pile should not deteriorate once it has been sealed, thus the reserve coal storage pile was not included in the modeling analysis.

Conveyor 5. This conveyor is associated with reclaiming coal from the reserve storage pile. Emissions from the conveyor were not modeled because of the expected infrequent use.

Conveyor 6A, 6B, and Crusher Building. The conveyors are enclosed and exhaust into the crusher building. The crusher building will be enclosed and utilize a baghouse for particulate control. The total emission rate was assumed to be 0.21 grams per second.

Conveyor 7A, 7B, Surge Tower and Plant Silo. The conveyors exhaust into the Surge Tower and Plant Silo. The particulate emissions were modeled as being emitted from a single point at a rate of 0.28 grams per second.

LIMESTONE HANDLING

The limestone handling equipment have been designed to handle delivery of limestone by railcar and truck. It was assumed that there would be more

fugitive dust emissions associated with truck delivery. The limestone fugitive dust emissions were also assumed to be uniformly distributed over a 100-metre square area.

Bottom Car Dumper and Stockout Conveyor. The car dumper and conveyor were not modeled since limestone was assumed to be delivered by truck directly to the storage pile.

Active Storage Activities. The fugitive dust emissions from these activities were uniformly distributed over a 100-metre square area source. As with the coal pile storage, wind erosion was included only when the wind speed exceeded 12 miles per hour. The total emission rate for all limestone emissions with and without wind erosion is 0.00006 and 0.00003 grams per second per square metre.

Reserve Storage and Reclaim Conveyor. All limestone was assumed to be loaded in and out from only the active storage pile. Wind erosion from the reserve storage was included in the total emission rate for the 100-metre square area source.

Storage Day Bin. The limestone was assumed to be transported into the pollution control equipment and thus the emissions were expected to be very minor.

COMMENT OF FDER-BAQM

4) What is the maximum quantity of gas bypassing the FGD system?

OUC RESPONSE

The unit will be provided with a full flow flue gas bypass for emergency operation. The maximum quantity of gas which could be used for flue gas reheat by bypassing the FGD system is approximately 25 per cent. This would occur only when emissions are less than 0.6 pounds $SO_2/10^6$ Btu heat input.

COMMENT OF FDER-BAQM

5) Please address carbon monoxide and flouride emissions from each unit. A BACT analysis is required for CO emissions. A material balance on flouride is requested. If emissions exceed the significant level, a BACT will be required for this pollutant.

OUC RESPONSE

Production of carbon monoxide is detrimental to plant efficiency. Boiler design and unit operations have always been geared toward obtaining complete combustion. Therefore modern boiler design is the Best Available Control Technology for minimizing CO emissions.

An attempt to provide a fluoride material balance has been made. However only a limited amount of mass balance data for fluorides at power plants have been reported. From these data several observations can be made.

(1) The amount of fluoride in the coal varies substantially from coal to coal.

(2) The percentage of fluoride which is subject to atmospheric release (that is volatized rather than adsorbed onto and collected with the fly ash) ranges from 8 per cent to 84 per cent in the published literature.

(3) Wet scrubbing of flue gas is very effective in removing volatized fluoride.

Mass balances were attempted using a variety of coals and assumptions. These calculations yielded potential fluroide emission estimates ranging from 1.8 to 40 tons per year depending on the particular assumptions used. Therefore OUC is unable to determine, in advance, whether the unit will have the potential to emit more than the three tons per year significance level.

Even at an emission rate of 40 tons per year, the maximum 24 hour average ground level concentration is well below threshold limits for vegetation damage to even the most sensitive vegetation species.

No control technologies for the removal of fluorides have been developed. OUC believes that the Best Available Control Technology for this plant is no controls since no benefits from fluoride emission reductions could be realized.

COMMENT OF FDER-BAQM

6) For information only, please provide and summary of the NO, NO_x, and IP onsite measurements which you consider valid and representative.

OUC RESPONSE

The information in Tables 1 and 2 provide the requested data. Complete data tabulations have been sent already to BAQM. The first three-quarters of the monitoring year were sent on March 2, 1981(1) and the last quarter was sent on May 29, 1981.(2)

Table 1 is a summary of the NO (nitric oxide) and NO_x (nitric oxide plus nitrogen dioxide) data for the 12 month monitoring period, May 1980 through April 1981. The two highest one-hour averages and the average concentrations are given for each month and the annual periods. All values are in micrograms per cubic metre, referenced to 25 C and 760 mm Hg temperature and pressure. Some of the apparent variation in monthly NO_x averages is due to differences in data processing methods for data taken from magnetic tape versus data manually taken from onsite teletype or strip chart records.

Table 2 is a summary of the IP (inhalable particulate) matter data based on the dichotomous sampler measurements. The two highest coarse and fine 24-hour average concentrations are given along with the averages for the monthly and annual periods. In addition, the fine particulate concentration corresponding to each of the two highest coarse values and the coarse particulate concentration corresponding to the two highest fine values are also shown in Table 2.

COMMENT OF FDER-BAQM

7) Please provide precise (±10 m) UTM coordinates of each emission point, if known at this time, or approximate (±50 m) UTM coordinates of one point and relative (x,y) coordinates of the others.

(1 Letter from S. M. Day of B&V to W. J. Blommel, Environmental Administrator, Florida Department of Environmental Regulations, Bureau of Air Quality Management, dated March 2, 1981.

(2) Letter from S. M. Day of B&V to W. J. Blommel, Environmental Administrator, Florida Department of Environmental Regulations, Bureau of Air Quality Management, dated May 29, 1981.

TABLE 1. SUMMARY OF NO AND NO_x DATA

First (1) and second (2) highest one hour average concentrations in micrograms per cubic metre referenced to STP (25 C, 760 mmHg). Monthly and annual arithmetic average (Avg) concentrations.

Month		NO	NO_x
May 1980	(1)	10.7	49.6
	(2)	6.4	31.7
	Avg	6.0	8.0
June 1980	(1)	8.0	23.7
	(2)	7.1	10.2
	Avg	6.0	8.0
July 1980	(1)	6.2	33.2
	(2)	6.2	15.0
	Avg	6.0	10.0
August 1980	(1)	14.9	34.0
	(2)	14.9	32.0
	Avg	6.0	15.0
September 1980	(1)	45.1	55.0
	(2)	28.2	32.0
	Avg	6.0	15.0
October 1980	(1)	21.9	113.0
	(2)	21.8	80.0
	Avg	6.0	17.0
November 1980	(1)	15.7	59.4
	(2)	14.4	49.0
	Avg	6.0	12.0
December 1980	(1)	26.5	91.0
	(2)	20.1	82.6
	Avg	7.0	14.0
January 1981	(1)	30.5	89.3
	(2)	28.4	84.2
	Avg	7.0	13.0
February 1981	(1)	16.6	77.7
	(2)	11.4	77.0
	Avg	6.0	14.0
March 1981	(1)	12.1	83.8
	(2)	11.3	70.7
	Avg	6.0	11.0
April 1981	(1)	6.5	32.2
	(2)	6.4	31.5
	Avg	6.0	8.0
Annual	(1)	45.1	113.0
	(2)	30.5	91.0
	Avg	6.2	12.1

TABLE 2. SUMMARY OF INHALABLE PARTICULATE MATTER DATA

First (1) and second (2) highest 24-hour average concentrations in micrograms per cubic metre of the coarse (2.5 to 15 micrometer) and fine (less than 2.5 micrometer) particulate matter size ranges. Also, the fine particulate values corresponding to the two highest coarse values and the coarse values corresponding to the two highest fine values. Monthly and annual arithmetic average concentrations (Avg) of coarse and fine measurements.

Month		Coarse With Corresponding Fine	Fine With Corresponding Coarse
	May through October - No Data		
November 1980	(1)	29.8, 72.6	72.6, 29.8
	(2)	19.4, 10.2	16.7, 17.7
	Avg	14.9	22.1
December 1980	(1)	11.3, 7.4	11.1, 3.9
	(2)	3.9, 11.1	7.4, 11.3
	Avg	Missing[1]	Missing[1]
January 1981	(1)	11.3, 29.1	33.8, 7.9
	(2)	10.5, 32.8	32.8, 10.5
	Avg	9.0	28.5
February 1981	(1)	16.0, 39.8	58.3, 1.3
	(2)	11.6, 13.0	39.8, 16.0
	Avg	8.0	28.5
March 1981	(1)	76.2, 16.6	28.9, 19.0
	(2)	43.9, 22.3	22.3, 43.9
	Avg	38.2	21.6
April 1981	(1)	24.8, 18.5	25.0, 21.7
	(2)	21.7, 25.0	19.4, 12.6
	Avg	17.0	18.0
November 1980-April 1981	(1)	76.2, 16.6	58.3, 1.3
	(2)	43.9, 22.3	33.8, 7.9
	Avg	17.4	23.7

[1]Insufficient data to compute average.

OUC RESPONSE

For the air quality modeling analysis, the unloading facility was arbitrarily selected as the coordinate reference point. The approximate UTM Coordinates for the train unloading facility are 3,1500,000 N; 483,250 E. Table 3 presents the relative coordinates for the modeled sources with respect to the train unloading facility location.

TABLE 3. MODELING COORDINATES

Emission Source	Relative Coordinates	
	x	y
	m	m
Train Unloading Facility	10000.	10000.
Transfer Building	9985.	10480.
Crusher Building	10105.	10480.
Coal Silo	10490.	10480.
Unit 1 Stack	10340.	10450.
Unit 2 Stack	10340.	10510.
Coal Storage Pile	9725.	10450.
Coal Storage Pile	9795.	10450.
Limestone Storage Pile	10210.	10195.

COMMENT OF FDER-BAQM

8) Please provide copies of all final model runs (CRSTER and ISC output) showing input data, receptor locations, and principle output tables for the two unit case.

OUC RESPONSE

Attachment 1 contains copies of the CRSTER and ISC modeling runs that were used to support the two-unit air quality analysis. An index to this attachment (A through N) follows.

INDEX FOR ATTACHMENT 1

A. 1974 CRSTER dispersion modeling for receptor rings 0.5 to 5.0 km by 0.5 km.

B. 1974 CRSTER dispersion modeling for receptor rings 1.1 to 2.0 km by 0.1 km.

C. 1975 CRSTER dispersion modeling for receptor rings 0.5 to 5.0 km by 0.5 km.

D. 1975 CRSTER dispersion modeling for receptor rings 0.6 to 2.5 km by 0.1 km.

E. 1976 CRSTER dispersion modeling for receptor rings 0.5 to 5.0 km by 0.5 km.

F. 1976 CRSTER dispersion modeling for receptor rings 1.1 to 2.0 km by 0.1 km.

G. 1976 CRSTER dispersion modeling for receptor rings 0.6 to 1.0 km by 0.1 km.

H. 1977 CRSTER dispersion modeling for receptor rings 0.5 to 5.0 km by 0.5 km.

I. 1977 CRSTER dispersion modeling for receptor rings 0.6 to 1.5 km by 0.1 km.

J. 1977 CRSTER dispersion modeling for receptor rings 1.6 to 3.0 km by 0.1 km.

K. 1978 CRSTER dispersion modeling for receptor rings 0.5 to 5.0 km by 0.5 km and 31 to 40 km by 1.0 km.

L. 1978 CRSTER dispersion modeling for receptor rings 0.6 to 1.5 km by 0.1 km.

M. 1974 (All Days) ISC dispersion modeling for assessment of the fugitive dust impact.

N. 1974 (Day 69) ISC dispersion modeling for determination of individual source contribution to maximum 24-hour concentration.

COMMENT OF FDER-BAQM

9) For purposes of the federal PSD permit, please provide an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the plant. (secondary growth)

OUC RESPONSE

The Stanton Energy Center Unit 1 has been certified for operation in 1986 by the Florida Public Service Commission because of economics of power production; not generating capacity needs related to growth. Additional generating capacity would be required by 1991 to meet increased demands related to growth. From 1986-1991 Unit 1 will offset older oil-fired generating units which do not have modern air pollution control equipment. Therefore, during this period, secondary air quality impacts would primarily consist of a reduction of total SO_2 and TSP emissions.

If it is assumed that the Stanton Energy Center Unit 1 will offset the oil-fired Indian River facilities, the amount of reduction in air pollution emissions per million Btu heat input would be 83 per cent for SO_2 and 70 per cent for particulates.

Future needs for electrical energy have been projected for the OUC service area for the period beyond 1991. Projections of growth for populations and for economic activity were based on historical trends in growth rates and in the types of growth. Induced growth attributable to Stanton Energy Center Unit 1 was not considered. The proposed facility is intended to supply power to meet projected demands which will result from normal economic growth in the service area and is not expected to stimulate additional amounts of growth or to shift the nature of expected growth. Therefore, for the life of the unit beyond 1991, no significant secondary air pollution impacts are expected.