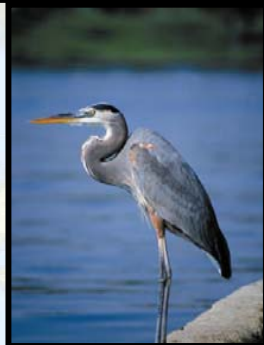


MARTIN

solar energy center

Site Certification Modification



May 2008



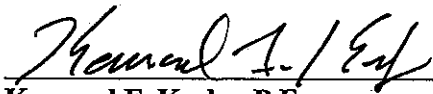
**SITE CERTIFICATION MODIFICATION
MARTIN SOLAR ENERGY CENTER**

Submitted by:

**Florida Power & Light Company
700 Universe Boulevard
Juno Beach, Florida 33408**

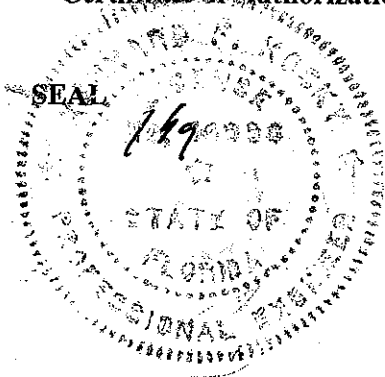
April 2008

0838-7523



**Kennard F. Kosky, P.E.
Professional Registered Engineer No. 14996**

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Gainesville, Florida 32653-1500
*Board of Professional Engineers
Certificate of Authorization No. 00001670**



APPLICANT INFORMATION

Please supply the following information:

Applicant's Official Name **Florida Power and Light Company**

Address **700 Universe Boulevard, Juno Beach, FL 33408**

Address of Official Headquarters **700 Universe Boulevard, Juno Beach, FL 33408**

Business Entity (corporation, partnership, co-operative) **Corporation**

Names, owners, etc. **Florida Power and Light Company (an investor-owned electric utility)**

Name and Title of Chief Executive Officer **Armando J. Olivera, President**

Name, Address, and Phone Number of Official Representative responsible

for obtaining certification: **Barbara P. Linkiewicz, Director of Environmental Licensing, Environmental Services Department, 700 Universe Boulevard, Juno Beach, FL 33408 Phone: (561) 691-7518**
Fax: (561) 691-7049

Site Location (county) **About 4 miles north of Indiantown on SR 710, Martin County, Florida 34956**

Nearest Incorporated City **Okeechobee, FL (about 19 miles) and Stuart, FL (about 19 miles)**

Latitude and Longitude **27°3' 12" N 80°33' 54" E**

UTM's Northerly **2,992.24 km N**

Easterly **543.16 km E**

Section, Township, Range **Portions of Sections 28, 29 and 30 of Township 39S, Range 37E**

Location of any directly associated transmission facilities (counties) **Not Applicable**

Name Plate Generating Capacity **Not Applicable**

Capacity of Proposed Additions and Ultimate Site

Capacity (where applicable) **Not Applicable**

Remarks (additional information that will help identify the applicant):

Project Name: Martin Solar Energy Center

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LIST OF ACRONYMS AND ABBREVIATIONS

AADT	annual average daily traffic
AAQS	Ambient Air Quality Standard
BOCC	Board of County Commissioners
Btu/kWh	British thermal units per kilowatt-hour
cfs	cubic feet per second
CG/CC	Coal Gasification Combined Cycle
CO	carbon monoxide
CO ₂	carbon dioxide
CR	County Road
dB	decibel
dBA	A-weighted decibel
EMT	emergency medical technician
°F	degrees Fahrenheit
F.A.C.	Florida Administrative Code
F.S.	Florida Statutes
FCREPA	Florida Committee on Rare and Endangered Plants and Animals
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FDHR	Florida Division of Historical Resources
FDOT	Florida Department of Transportation
FEC	Florida East Coast
FFWCC	Fish and Wildlife Conservation Commission
FGT	Florida Gas Transmission Company
FIHS	Florida Intrastate Highway System
FLDOE	Florida Department of Education
FLUCFCS	Florida Land Use, Cover and Forms Classification System
FMSF	Florida Master Site File
FNAI	Florida Natural Areas Inventory
FPL	Florida Power & Light Company
ft	foot
ft-msl	feet above mean sea level

**LIST OF ACRONYMS AND ABBREVIATIONS
(Continued)**

gpd/ft	gallons per day per foot
gpd/ft ²	gallons per day per square foot
gpm	gallons per minute
HCE	heat collection element
HRSG	heat recovery steam generator
HTF	heat transfer fluid
Hz	hertz
kg	kilogram
km	kilometer
L ₉₀	sound pressure level that was exceeded 90% of the time during the sampling period
L _{dn}	day-night sound pressure level
L _{eq}	equivalent sound pressure level
LOS	Level of Service
LT	local time
MCPRD	Martin County Parks and Recreation Department
mg/L	milligrams per liter
MGD	million gallons per day
MMBtu/yr	million British thermal units per year
mph	miles per hour
MSDS	Material Safety Data Sheet
MSEC	Martin Solar Energy Center
MW	megawatt
NO ₂	nitrogen dioxide
NOI	Notice of Intent
NSS	National Soil Services, Inc.
NWS	National Weather Service
O ₃	ozone
Pb	lead
PM	particulate matter
PM ₁₀	particulate matter of diameter less than 10 microns
PPSA	Power Plant Siting Act

**LIST OF ACRONYMS AND ABBREVIATIONS
(Continued)**

PUD(i)	industrial planned unit development
RO/MB	reverse osmosis/mixed bed
ROW	right of way
SCA	Site Certification Application
SEGS	Solar Electric Generating System
SFWMD	South Florida Water Management District
SO ₂	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasure
SPL	sound pressure level
SR	State Road
SWPPP	stormwater pollution prevention plan
TPY	tons per year
UF/BEBR	University of Florida Bureau of Economic and Business Research
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
W/m ²	watts per square meter
μm	micrometer
μPa	micropascal

1.0 PROJECT OVERVIEW

Florida Power & Light Company (FPL) proposes to construct a solar thermal steam generating facility at FPL's existing Martin Power Plant site in Martin County, Florida with a nominal capacity of up to 100 megawatts (MW). The Martin Solar Energy Center (MSEC) will be the largest solar electric generating facility in Florida. The MSEC Project is proposed to be constructed in an approximately 600-acre area (Project Area) within FPL's existing 11,300-acre Martin Plant site.

The MSEC Project will be undertaken within the 2,190-acre area that was previously certified under the Florida Power Plant Siting Act (PPSA) for the Martin Coal Gasification/Combined Cycle (CG/CC) Project and the Martin Unit 8 Project. The Martin Plant site is located northwest of the unincorporated town of Indiantown, Florida.

By this application, FPL is proposing to modify the existing site certification for the Martin Plant Site to replace planned facilities associated with coal gasification with renewable energy facilities, including the MSEC. This application is being submitted pursuant to Section 403.516, Florida Statutes (F.S.) and Rule 62-17.211, Florida Administrative Code (F.A.C.).

The MSEC Project will involve the installation of solar thermal technology that will be integrated into the existing steam cycle for the existing Martin Unit 8. The steam to be supplied by the MSEC will be used to supplement the steam currently generated in the heat recovery steam generators (HRSGs) of the combined-cycle Unit 8. The solar-derived steam will displace steam that is otherwise generated by duct-firing using natural gas in the HRSGs. However, there will be no increase in the steam generating capacity of Martin Unit 8 as a result of the MSEC Project.

As described in this application, the MSEC involves the installation of parabolic trough solar collectors that concentrate solar radiation. The collectors will track the sun to maintain the optimum angle to collect solar radiation. The collectors will concentrate the sun's energy about 80 times on heat collection elements (HCEs) located in the focal line of the parabolic reflectors. These HCEs contain a heat transfer fluid (HTF) which is heated by the concentrated solar radiation to approximately 750 degrees Fahrenheit (°F). The HTF is then circulated to heat exchangers that will produce the steam that is routed to the HRSGs in Unit 8.

The MSEC will reduce air emissions as it displaces the use of natural gas for duct-firing in Martin Unit 8 or fossil fuel burning at another site. Solar energy, such as that to be provided by the MSEC, is renewable and does not emit greenhouse gases such as carbon dioxide. The MSEC Project will not increase water use except for the use of water to clean the mirrors intermittently. The additional water needed for mirror cleaning is already within the previously approved allocation of water for the Martin Plant site. The MSEC Project will add about 12 new employees to the Martin Plant site. The MSEC Project will be undertaken in an area that has already been permitted for power plant facilities. FPL has already undertaken an extensive wetland mitigation program on an 1,130-acre parcel northwest of the existing Martin Plant generating units. That mitigation program has been deemed successful by the South Florida Water Management District (SFWMD, 2001). All wetland impacts associated with the MSEC have been fully mitigated through this now-successful wetland mitigation effort.

Impacts associated with the construction and operation of the MSEC are well within the previously certified level of impacts for the Martin CG/CC and Martin Unit 8 Projects. In fact, development of the MSEC will reduce many of the impacts that would have been associated with those facilities if they were to be developed.

The Martin CG/CC Project included an array of electrical generating facilities, including electrical generating units, coal gasification facilities, coal handling and storage facilities, electric transmission lines, and associated facilities. FPL expected to develop the Martin CG/CC site in several phases. The initial phase included construction and operation of the existing natural gas-fired generating Units 3 and 4. Subsequent phases for the CG/CC Project anticipated additional combined cycle units and conversion of the natural gas units to integrated gasification combined-cycle generating units. The CG/CC units were to use coal as their feedstock, which would be gasified into a synthetic gas for use in the combined cycle generating units. However, due to a lack of technology development and cost considerations, the coal gasification portion of the site has not been developed. FPL has decided not to develop the CG/CC units. In order to make use of the areas once proposed for development of these facilities, including coal, limestone, and byproduct handling areas, FPL is proposing to modify the existing power plant site certification to eliminate the gasification facilities, including the coal and limestone handling area and byproduct storage area, and replace these areas with renewable energy facilities.

In place of the original coal gasification and related facilities, FPL now proposes to develop the 2,190-acre certified portion of the FPL Martin Plant site to develop several renewable energy and clean energy generating facilities. These facilities are expected to be developed in the future and will be the subject of subsequent submittals for approval under the PPSA.

This initial MSEC is proposed for areas now designated as Renewable Energy Areas and the New Power Block Area. This area was previously designated for the Power Plant, Coal Gasification Facility, unloading, storage, and handling of coal and limestone, which would have been used as inputs into the gasification process. This area will now be used for renewable energy generating facilities, principally the proposed MSEC. Other renewable electrical generating facilities may be developed in this area in the future, including additional solar thermal, photovoltaic, or biomass technologies, or combinations of those technologies.

A North Renewable Energy Area is also envisioned to replace the previously designated slag storage area that would be a byproduct of the gasification technology. The proposed uses in this area could include additional renewable electric generating facilities, such as solar thermal, photovoltaic, or biomass technologies. Biomass technologies could include an integrated bio-refinery for generation of electricity, bio-fuel, and bio-products such as fertilizer. A New Power Block Area is also being proposed that could contain additional combined cycle units similar to existing Units 3, 4, and 8, as well as potential renewable energy generating facilities, rail transportation facilities, electrical transmission lines, and associated facilities.

The Existing Power Block Area will remain to include the three existing combined-cycle electrical generating units 3, 4, and 8.

The MSEC Project will be the largest single solar project located in the state of Florida. FPL's sister company FPL Energy is the largest generator of solar energy in the United States. FPL Energy operates a similar facility at the Solar Electric Generating System (SEGS) in California's Mojave Desert. FPL Energy's facility in California has a capacity of approximately 310 MW, consisting of about 900,000 parabolic mirrors on about 2,000 acres. The SEGS facility has successfully used parabolic solar trough technology, such as that proposed for the MSEC Project, for over 30 years.

The MSEC Project does not involve an expansion of steam generating capacity, since the solar-driven steam will displace existing steam in Martin Unit 8. There will be no increase in steam electric

generating capacity as a result of the MSEC Project. Therefore, the MSEC Project is not required to be reviewed and approved under the site certification process for new electrical generating facilities. Rather, the MSEC Project is a modification of the existing power plant site certification for the Martin Plant site. This application describes the proposed MSEC, its site (Project Area), and expected impacts, which are very minor and within the range of impacts previously approved for the Martin Plant site.

2.0 SITE VICINITY CHARACTERIZATION

2.1 Site and Associated Facilities Delineation

2.1.1 Site Location

The MSEC will be located on the existing FPL Martin Plant site in unincorporated Martin County, Florida. The Martin Plant site is located in southwestern Martin County about 40 miles northwest of West Palm Beach and about 1.3 miles east of Lake Okeechobee (Figure 2.1-1). The Martin Plant site is bounded by State Road (SR) 710 and a CSX Railroad line (east and north), a Florida East Coast Railway line and SFWMD L-65 Canal (west), and the St. Lucie Waterway (south).

The MSEC will be located within the Martin Plant site. The MSEC will primarily be located on about 391 acres in the New Power Block Area, approximately 166 acres on Renewable Energy Area South, and approximately 40 acres of Unit 8 for a total of about 600 acres within the larger Martin Plant site and within the area certified under the PPSA for the Martin CG/CC Project (see Figures 2.1-2a and 2.1-2b for a survey that encompasses solar field locations). A small portion of the existing Power Block Area for Unit 8 will be used for the solar steam generating equipment. Figure 2.1-3 presents the MSEC location with 1-, 2-, 3-, 4-, and 5-mile radii. Figure 2.1-4 presents a recent color aerial photograph of the Martin Plant and shows the area designated for the MSEC (Project Area).

2.1.2 Existing Site Uses

Total site acreage for the existing Martin Plant site is approximately 11,300 acres, which represents land owned by FPL. The Martin Plant site consists of a 6,800-acre cooling pond (6,500 acres of water surface and 300 acres of embankment) and approximately 400 acres for existing Units 1 through 4, Unit 8, and associated facilities. Units 1 and 2 are nominal 800-MW steam electric generating units that use natural gas and low-sulfur residual oil. Unit 1 was in commercial operation in 1980 and Unit 2 was in commercial operation in 1981. Units 3 and 4 are nominal 500-MW natural gas-fired combined cycle units and were the initial phase of the CG/CC Project. These units obtained site certification in 1991. Unit 8 is a natural gas fired 4-on-1 combined cycle unit with a nominal capacity of 1,100 MW that began operation in 2005. Light oil is used as backup in Unit 8. The other onsite facilities include water and wastewater treatment facilities, residual and light fuel oil storage, switchyards and transmission lines, offices, warehouses, maintenance buildings, and other miscellaneous uses.

The remainder of the Martin Plant site is undeveloped land or land used for agriculture. This includes the Barley Barber Swamp and a 1,130-acre parcel known as the Northwest Parcel. The latter has been used as a wetland mitigation site associated with licensing of the Martin CG/CC Project.

2.1.3 Adjacent Properties

Agricultural uses such as croplands, pastures, and groves account for much of the land use and cover within 5 miles of the Martin Plant site (see Figure 2.1-3). Three types of wetlands, forested freshwater, non-forested freshwater, and mixed forested and forested freshwater, also account for a great deal of nearby land use. Coniferous species and other mixed species represent the forested cover that is found nearby.

2.2 Socio-Political Environment

2.2.1 Governmental Jurisdictions

Martin County is the local government in whose jurisdiction the proposed MSEC will be located. The majority of Martin County's urban development lies along the eastern boundary of the county (Atlantic coast), which is approximately 23 miles from the Martin Plant site. The community nearest the Martin Plant site is the unincorporated community of Indiantown, which is approximately 4 miles southeast of the entrance to the Martin Plant site, on SR 710.

With the exception of Lake Okeechobee and the Barley Barber Swamp, none of the areas listed in Table 2.2-1 are within 5 miles of the Project Area.

2.2.2 Zoning and Land Use Plans

Martin County has adopted a Comprehensive Growth Management Plan in order to meet the requirements of the Local Government Comprehensive Planning and Land Development Regulation Act, Chapter 163, Part II, Florida Statutes and of Chapter 9J-5, F.A.C.

The Martin Plant site that includes Units 1 and 2 was developed prior to the county's adoption of a future land use map. In 1982, at the time of the original land use plan map adoption, the portion of the Martin Plant site surrounding the existing units was designated Industrial. The Electric Utility Element of the Comprehensive Plan acknowledged FPL's plans to construct two coal-fired plants at the Martin Plant site and encouraged the facilities to be developed under the industrial planned unit development [PUD(i)] zoning designation. In September 1988, FPL requested a comprehensive plan

land use amendment to industrial for the licensing of the Martin CG/CC Project Area and a rezoning of that area to PUD(i). In August 1989, the Martin County Board of County Commissioners (BOCC) approved the comprehensive plan amendment and the rezoning request.

Following the BOCC approval of the rezoning, a PUD Zoning Agreement was executed between Martin County and FPL in which development standards and special conditions were addressed. Most of the special conditions were addressed during earlier phases of developing the Martin Plant site. An amendment of the PUD Zoning Agreement was requested by FPL to allow renewable energy facilities to be located within the PUD area. Final Action on the PUD agreement is expected in the near future based on the recommendation of approval from the Local Planning Agency and the Martin County Development Review Staff. See Appendix 10.2/10.3, Zoning and Land Use.

Subsequent to the certification of the CG/CC Project, which includes the area of the MSEC, Martin County has amended its future land use element and map to designate 7,300 acres in the Martin Plant site as Public Utilities – Major Public Power Generation Facilities.

2.2.3 Demography and Ongoing Land Use

There are no incorporated towns or cities within a 5-mile radius of the Martin Plant site, as it is almost completely surrounded by agricultural and undeveloped areas. A small, undeveloped portion of the community of Indiantown can be found just within the 5-mile radius, and the sparsely populated subdivision of Sunset Groves lies to the north of the Martin Plant site. The majority of the Martin County population lies within 12 to 15 miles of the Atlantic coastline, whereas the Martin Plant site is located approximately 23 miles inland.

The Martin County Growth Management Department has divided the county into several planning areas. The Indiantown Planning Area was estimated to have approximately 6,137 residents in the year 2005, while the West County Planning Area had an estimated population of 2,268 in 2005 (Martin County Comprehensive Growth Management Plan, 2007). The Martin County 2005 and 2006 populations were estimated to be 141,059 and 142,645, 11.3- and 12.6-percent increases from 2000, respectively [University of Florida Bureau of Economic and Business Research (UF/BEBR), 2007].

Figure 2.2-1 presents the generalized Level II Florida Land Use, Cover and Forms Classification System (FLUCFCS) within 5 miles of the Project Area.

2.2.4 Leases, Easements, Title, Agency Works

No leases, easements, title, or agency works approvals are anticipated for the onsite facilities.

2.2.5 Regional Scenic, Cultural, and Natural Landmarks

Lake Okeechobee, the second largest freshwater lake within the United States, is located approximately 5 miles west of the Project Area (see Figure 2.1-1). The lake forms part of a complex drainage system, which recharges the surficial aquifer for most of South Florida.

The Barley Barber Swamp, which is located about 2 miles from the Project Area, is a private landholding of FPL for which the primary purpose is environmental protection. This 400-acre freshwater swamp, plus the surrounding land, was purchased by FPL in 1972. When the cooling pond for the existing Martin Plant was constructed, the Barley Barber Swamp was set aside as a nature preserve. It is managed as a unique wetland and upland community as it may have existed over 100 years ago.

Other designated park sites in western Martin County include Palm City Recreation Center, Phipps Park, and Timer Powers Park.

2.2.6 Archaeological and Historic Sites

A detailed cultural resource assessment was conducted in 1989 as part of the studies performed for the Martin CG/CC Project. Approximately 3,300 acres of the Martin Plant site were surveyed for use for that Project, which encompasses the area for the MSEC. As a result, an evaluation of sites with archaeological or historical importance was performed for the Martin CG/CC Project.

The evaluation consisted of a review of the State of Florida Master Site File (FMSF) and the examination of the historical and archaeological literature, as well as of the historic records. The FMSF search revealed that no archaeological sites have been recorded on the FPL Martin Plant site.

Areas of potential high archaeological importance were identified using U.S. Geological Survey (USGS) Quadrangle Maps and aerial photographs prior to the 1989 field survey. The archaeological field survey included all of these areas plus areas identified in the field as having potential significance. The survey strategy required an intensive, systematic cultural resource survey of these areas and limited systematic and judgmental survey of the remaining areas.

The surveys found no archaeological sites within those areas designated for the Martin CG/CC Project. The Florida Division of Historical Resources (FDHR) evaluated the original archaeological report within the Site Certification process of the Martin CG/CC Project, as well as during the Site Certification of Unit 8. The proposed MSEC utilizes a portion of the area included in the full scope of the Martin CG/CC Project and a portion of the area occupied by Unit 8 that have been previously reviewed by FDHR. See Appendix 10.5.1.

2.2.7 Socioeconomics and Public Services

2.2.7.1 Labor Force

The total labor force in Martin County for 2006 was 65,866 with employment of 63,601. Unemployment in 2006 was 2,265 or 3.4 percent. For the State of Florida and the United States, unemployment was 3.3 and 4.6 percent, respectively, for the same period. The service and retail industries provided the most employment in Martin County with about 41 and 19 percent, respectively, of the employment. Construction, manufacturing, and agricultural industries provided about 13, 5.6, and 1.3 percent, respectively, of the County's employment. Average monthly private-sector employment by major industry group in Martin County for 2006 is depicted in the following table.

Major Industry Group	Employment	Major Industry Group	Employment
All Industries	54,647	Information	1,073
Transportation and Warehousing	765	Real Estate and Rental and Leasing	1,279
Administrative and Support	3,579	Management Companies and Enterprises	180
Agriculture	692	Mining	NA
Wholesale Trade	1,676	Finance and Insurance	1,937
Retail Trade	10,438	Manufacturing	3,038
Utilities	476	Construction	7,100
Services*	22,407	Unclassified	NA

* Includes professional scientific and technical services; educational services; health care and social assistance; arts, entertainment, and recreation; accommodation and food services; and other services.

Source: UF/BEER, 2007.

General Income

In 2005, Martin County ranked second in the state for per capita personal income. Martin County had a per capita personal income of \$49,992 for 2005 compared to the State of Florida and United States per capita personal income of \$34,001 and \$34,471, respectively (UF/BEER, 2007). Approximately 99 percent of the earned income is derived from non-farm origins.

Housing

The number of owner occupied and renter occupied housing units in Martin County in 2005 were 45,022 and 4,384, respectively. The average cost to purchase a home in Martin County was estimated at \$239,733 in 2005 (UF/BEER, 2007). According to census statistics, the County's permanent population grew about 26 percent from a population of 100,000 in 1990 to 126,731 in 2000.

2.2.7.2 Area Public Service and Utilities**Education**

Public education in Florida is operated on a countywide basis. Each county's respective school district establishes educational policies and staffing requirements. According to the Florida Department of Education (FLDOE), Martin County had a total enrollment of 18,150 for the 2005-2006 school year. A total of 43 schools exist in the county, with approximately 2,136 full-time staff employees. In comparison, the neighboring Okeechobee County reported a total enrollment of 7,329 students in the 22 county schools. Approximately 894 full-time employees were reported. St. Lucie County was estimated to have 36,189 students and 49 school facilities staffed with 4,130 full-time employees. Total enrollment for the state of Florida was estimated to be 2,669,565 (FLDOE, 2007).

Transportation

The Florida Turnpike and Interstate 95 are considered the major transportation corridors for north-south traffic movement in Martin County. These limited access, multi-lane facilities roadways are located about 20 miles from the Martin Plant site. In western Martin County, SR 710 and U.S. Highway 441/98 (also identified as SR 700) function as the major arterials. SR 76 is the primary connector of the western portion of the county to the eastern portion.

SR 710 is a two lane, undivided highway that has an operating capacity of 26,300 average annual daily trips (AADT) between the Okeechobee and Palm Beach County lines. Traffic counts taken by the Florida Department of Transportation (FDOT) in 2006 indicated 12,300 AADT in the area near the Martin Plant site. Martin County defines this volume of traffic as an acceptable Level of Service (LOS) for this road (FDOT, 2006).

The Florida East Coast (FEC) Railway has two tracks within the boundaries of Martin County. The main track that carries freight generally parallels the Atlantic coastline. A secondary track, located in the western portion of the county, runs northeasterly from the Palm Beach County line and across SR 710. Amtrak runs passenger service using the CSX railroad along SR 710 from the Okeechobee

County Line to Palm Beach County. These railroads generally provide freight service between Jacksonville, Miami, and the Tampa area.

There are two licensed public use airports in Martin County. Witham Field is a publicly owned general aviation airport located in the Stuart urban area just south of Monterey Road and east of Dixie Highway [County Road (CR) A1A]. A small privately owned, public use airport is located northeast of Indiantown (Circle T Ranch Airport).

Medical Facilities

Martin Memorial Hospital in Stuart is the primary health care provider in Martin County. Martin Memorial has two facilities: Martin Memorial Hospital South, which is licensed for 100 beds, and Martin Memorial Medical Center, which is licensed for 244 beds (Martin Memorial Hospital, 2008). In 2006, there were a total of 424 licensed hospital beds in Martin County (UF/BEHR, 2007). Emergency medical transport is provided within Martin County by emergency medical technicians (EMTs) stationed at each of the county's fire stations. Facilities in Indiantown, the community closest to the Martin Plant site, include one of the county's EMT staffed fire stations.

Firefighting Facilities

As of 2008, there were 278 full time fire fighters located at 11 stations in Martin County. The Martin County Fire-Rescue Division serves a population of up to 150,000 in season (November through April) (Martin County Fire Rescue, 2008). The County does supplement these employees with additional volunteers, as well as four volunteer stations. The closest fire station to the Martin Plant site is located in Indiantown.

Police Protection

Law enforcement in the vicinity of the Martin Plant site is provided by the Martin County Sheriff's Department. The Sheriff's Department patrols the area surrounding the Martin Plant area.

Recreation Facilities

Due to its predominantly rural/agricultural character, Martin County and the surrounding region offer many unique recreational activities. Lake Okeechobee, the second largest freshwater lake entirely within the United States, provides the majority of the focus on regional recreation activities. According to the Martin County Parks and Recreation Department (MCPRD), in 2008, 40 community parks and 17 resource parks exist in the county (MCPRD, 2008).

Of the 57 parks and recreation facilities, 8 exist in the west Martin County area. Due to the rural nature of the area and the significant sugar cane fields in the vicinity of the Martin Plant site, there are no recreational facilities in the study area.

Electricity and Gas

Electricity is provided to Martin County residents by FPL. The four principal generating stations located in or near Martin County are the FPL Martin Power Plant and the Indiantown Cogeneration Plant located in Martin County, the FPL St. Lucie Nuclear Power Plant located on Hutchinson Island in St. Lucie County, and the FPL Riviera Power Plant located in Palm Beach County.

Two natural gas pipelines, the Florida Gas Transmission Company (FGT) natural gas pipeline and Gulfstream Natural Gas System pipeline, serve the Martin Plant site.

Water Supply Facilities

According to the Martin County Comprehensive Growth Management Plan, residents obtain potable water from a variety of water systems, including governmental, private systems, or individual wells. The government and private supply systems are regulated by the Florida Department of Environmental Protection (FDEP). Potable water is provided by a potable water system located at the Martin Plant.

Sewage Treatment Facilities

The sanitary wastes at the Martin Plant are treated in two approved extended aeration package plants. The effluent, after treatment and disinfection, is routed to the cooling pond.

Solid Waste Disposal

Solid wastes generated at the Martin Plant are disposed of offsite by an approved solid waste contractor.

2.3 Bio-Physical Environment

2.3.1 Geohydrology

The Site Certification Application (SCA) for the Martin CG/CC Project (FPL, 1989) contained extensive baseline descriptions of onsite and offsite geohydrologic conditions in the vicinity of the Martin Plant site. The scope of the Martin CG/CC Project included four combined cycle units, coal

gasification, and byproduct storage that covered about 1,300 acres of the Martin Plant site that included the area designated for the MSEC. The information presented in this section draws upon the previous information and provides a brief summary of the geo-hydrologic baseline information. Information in this section has been updated as necessary and appropriate. More detailed site descriptions are contained in the SCA for the Martin CG/CC Project (FPL, 1989).

2.3.1.1 Geologic Description of the Site Vicinity

The generalized hydrostratigraphy for Martin County, including the FPL Martin Plant site, is shown in Figure 2.3-1. Generally in Martin County, the surficial aquifer is from 90 to 200 feet (ft) thick. The surficial aquifer is typically composed of Pamlico Sand, the Fort Thompson and Anastasia Formations (lateral equivalents), Caloosahatchee Marl, and the Tamiami formation. The lower confining layers, below the surficial aquifer, range in thickness from 350 to 600 ft and are composed of Peace River and Arcadia Formations, both of the Hawthorn Group. Beneath the Hawthorn Group, the Floridan Aquifer System ranges from 2,800- to 3,400-ft thick and consists of Suwannee Limestone, Ocala Limestone, Avon Park Limestone, Lake City Limestone, and the Oldsmar and Cedar Keys Formations.

2.3.1.2 Site Lithologic Description

Detailed evaluation on site lithology based on numerous borings made at the time of construction of the existing reservoir, reservoir embankment, and other facilities associated with the construction of Units 1 and 2 was developed for the Martin Plant site (FPL, 1989). The description of the Martin Plant site lithology is summarized below. All elevations indicated are in mean sea level.

Borings drilled in the area just east of the existing Unit 8 show that the predominant soil type is sand from the ground surface [approximately 30 feet above mean sea level (ft-msl)] to -70 ft-msl. The sands vary in color from light to dark gray and brown. Clayey sand and sandy clay seams from a few inches to several feet in thickness are generally found at 10 ft-msl. A thin layer of greenish-gray sandy clay was found in the borings at approximately -25 ft-msl.

The Pamlico and Anastasia Formations extend from the ground surface (20 to 30 ft-msl) to an average of -3 ft-msl. These strata consist of fine sands and silty sands with shell fragments. Thin beds of limestone and cemented sand occur sporadically at depths ranging from 2 to 4.5 ft-msl in localized areas; this zone may represent the boundary between the Pamlico and Anastasia Formations.

In areas where the cemented sands and limestone are absent, it is not possible to differentiate the two formations.

The underlying Caloosahatchee Group extends to an average -80 ft-msl. This formation can be subdivided into two units, namely an upper limestone interbedded with sand and shell present to an average -12 ft-msl, and a lower unit of silty sand with shell fragments and shell beds to -80 ft-msl.

The Tamiami Formation underlies the Caloosahatchee from -105 ft-msl to -150 ft-msl. This formation consists of silty sand varying with depth to clayey sand from -72 ft-msl. The color of the formation also varies from gray in the sands to predominantly green in the clayey zone.

The top of the Hawthorn Group occurs at approximately -105 ft-msl to -150 ft-msl. These elevations are based on the logs of test wells and exploratory borings drilled in the area. The Hawthorn, approximately 550 ft thick, consists predominantly of greenish clay with subordinate amounts of shell, limestone, silt, and sand. Major limestone zones generally occur near the base of the formation. Due to very low vertical permeability, the Hawthorn acts as a confining bed overlying the Floridan Aquifer.

2.3.1.3 Bearing Strength

Data generated from 43 borings in the area of Unit 8 show that the predominant soil type is sand, ranging from medium to very dense, extending from the ground surface (about 30 ft-msl) to -70 ft-msl. Heavily loaded structures such as the heat exchanger and HTF expansion tank can be constructed on mat foundations. Lightly loaded structures can be designed on shallow foundations consisting of spread and strip footings.

2.3.2 Subsurface Hydrology

2.3.2.1 Subsurface Hydrologic Data for the Site Aquifers

There are three major components to the subsurface hydrogeologic framework of southern Florida: the unconfined surficial aquifer; the confined Floridan Aquifer System; and the nearly impermeable sediments of the Hawthorn Group, which separate the two aquifer units.

The Surficial Aquifer

The surficial aquifer in the Martin County area extends from the water table to about -150 ft-msl. It is a nonartesian aquifer composed principally of sand, but containing relatively thin beds or lenses

of limestone, sandstone, or shell, which are generally more permeable than the sand. Most large-capacity wells are developed in the limestone, sandstone, or shell. The lithology of the aquifer changes laterally, as well as vertically, so that the permeable beds are not always found at the same depth; in fact, in some areas they are missing entirely (Lichtler, 1960).

The surficial aquifer extends to the top of the Hawthorn Group (−120 ft-msl). Vertical and horizontal hydraulic conductivities range from 10^2 to 10^{-2} gallons per day per square foot (gpd/ft²). Groundwater elevations are generally at or within 5 ft of the ground surface. Groundwater elevations will typically be higher as it approaches the reservoir and will drop off at the seepage collection ditches surrounding the reservoir. Water elevations tend to fluctuate approximately 1 ft from wet to dry seasons.

In the vicinity of the site, the regional groundwater flow is from the northeast to the southwest towards Lake Okeechobee. Area canals such as the L-65 and the St. Lucie Canal, and onsite lakes and ditching, influence the flows. Groundwater mounding occurs beneath the cooling pond and radiates outward from the cooling pond. Seepage ditches and area canals surround the pond and intercept the subsurface flow. Seepage pumps return the water to the pond.

The Floridan Aquifer System

The Floridan Aquifer System underlies all of Florida and southern Georgia. This system consists of a sequence of interbedded limestone and dolomite that is approximately 2,800 to 3,400 ft thick in Martin County. Figure 2.3-1 shows the stratigraphic units, which comprise the Floridan. The top of the Floridan dips from the northwest to the southeast across Florida, and ranges from −600 to −1,500 ft-msl in Martin County. The Floridan is a confined series of aquifer zones separated by aquacludes throughout south Florida. The permeability of the Floridan Aquifer components is several orders of magnitude greater than the surficial aquifer. These high permeability values are the result of both fractured limestone and extensive secondary porosity derived from dissolution of carbonates. The transmissivity of the upper part of the Floridan ranges from 16,000 to 83,000 gallons per day per foot (gpd/ft). At the base of the Floridan Aquifer System is the “boulder zone”, a highly cavernous zone of saline water utilized for underground injection of industrial and domestic wastes in South Florida. Transmissivity ranges from 374,000 gpd/ft to 748,000 gpd/ft. An existing FPL well, LFM-1, was tested and found to have a calculated transmissivity of 4.8 million gpd/ft. Samples collected during the flow test showed that the water was moderately saline, with 2,488 milligrams per liter (mg/L) chlorides and a total dissolved solids concentration of 4,735 mg/L.

The Hawthorn Group

The lithology of the Hawthorn varies greatly and is characterized by complex interbedding. The group as a whole has very low permeability and tightly confines the Floridan Aquifer System in Martin County. The top of the Hawthorn Group occurs at approximately –105 to –150 ft-msl in the vicinity of the site and is approximately 550 to 600 ft thick. In the site vicinity, the Hawthorn group consists of beds of dark green to white phosphatic clay containing silt and quartz sand. The lower part of the formation varies from thin layers of sandy phosphatic limestone and chert to lenses and thin layers of phosphatic sand and shells.

2.3.2.2 Karst Hydrogeology

Detailed evaluations of the Karst hydrogeology at the Martin Plant site have been performed, given the importance of this subject for above ground reservoir (FPL, 1989). Several studies were conducted during the design phase of the Martin cooling pond [National Soil Services, Inc. (NSS), 1972, 1973, 1974] and a regional screening study by FPL of a 25-county area of the central and south Florida peninsula (FPL, 1979) to determine the presence of karstic (solution cavity/sinkhole) features and the potential for their development at the Martin Plant site. The 1979 FPL study, which included Martin County, was based on a review of topographic maps of the area, published reports on the local geology and groundwater resources, analysis of satellite imagery, and regional reports of sinkhole occurrence. The study concluded that favorable conditions for Karst development were not present at the Martin Plant site. The NSS studies included geotechnical investigations of local depressions. These studies reached a conclusion similar to the conclusion drawn by FPL, while it presented evidence for the existence of buried Karst in the limestone layers of the Pliocene Caloosahatchee Marl.

2.3.3 Site Water Budget and Area Users

2.3.3.1 Site Water Budget

Climate and Meteorology

The Martin Plant site is located in central peninsular Florida, which has a climate characterized as mild subtropical. Temperatures in the vicinity of the Martin Plant site (measured at Belle Glade, Florida) range from an average low of about 62.8°F in January, to an average high of about 80.7°F in August, with an annual average of about 72.3°F. The highest temperature recorded was 100°F and 24°F was the lowest at Belle Glade. Mean total annual rainfall is 46.51 inches, with mean monthly totals ranging from 1.60 to 6.54 inches. Generally, the period of the year with the heaviest rainfall in southeast Florida is from June to October.

Groundwater Resources

The two major aquifers in Martin County are recharged by separate sources. The shallow (non-artesian) aquifer, -15 to -150 ft-msl, is supplied by rainfall in Martin County. A small amount of recharge to the shallow aquifer results from seepage of water used for agricultural irrigation. The Floridan (artesian) Aquifer, -600 to -1,500 ft-msl, is supplied by rainfall in the topographically high areas centered in Polk and Pasco Counties. No estimates of the amount of recharge to the Floridan aquifer from these areas are available. The piezometric surface within the Floridan aquifer is higher than the water table in all parts of Martin County; thus, there is no recharge of the Floridan aquifer within Martin County. The two aquifers are separated by a thick layer of sand and clay of low permeability (Lichtler, 1960).

In accordance with the present (modified July 9, 2007) Conditions of Certification, FPL is authorized a maximum daily withdrawal of 7.92 million gallons per day (MGD) from the Lake City Limestone Portion of the Lower Floridan Aquifer for process and related industrial water demands, and a maximum daily withdrawal of 0.067 MGD from the surficial aquifer for potable water demands.

Surface Water Resources

Lake Okeechobee covers an area of about 740 square miles and is located about 1.3 miles west of the Martin Plant site boundary. Lake Okeechobee is connected ultimately to the Atlantic Ocean and the Gulf of Mexico by numerous canals. The St. Lucie Canal, also known as C-44, is one of two principal means of controlling the level of Lake Okeechobee. The canal also serves as the eastern portion of the Okeechobee Waterway, a U.S. Army Corps of Engineers (USACE) canal with a design depth of 8 ft that connects the St. Lucie River to Lake Okeechobee.

Optimum lake levels have been determined for various hydrologic conditions (dependent on both season and lake level) by the USACE.

Flow into the St. Lucie Canal from Lake Okeechobee is regulated by a control structure (lock), S308, at Port Mayaca, while flow from the canal is regulated by another control structure (lock), S80, near Stuart, approximately 18 miles east-northeast of the Martin Plant site. Numerous secondary canals connect to the St. Lucie Canal to provide drainage for the area surrounding the Martin Plant site. The L-65 Canal runs north-south on the western side of the cooling pond.

FPL is permitted to withdraw water from the St. Lucie Canal via the Martin Plant intake/discharge canal for use as makeup to the cooling pond to replace net evaporation, process water use, and seepage losses, and to maintain minimum flows in the Barley Barber Swamp (FPL, 1989). In accordance with the present (modified July 9, 2007) Conditions of Certification, FPL is allowed a maximum daily withdrawal of 518.40 MGD from the St. Lucie Canal (C-44) to replace seepage, evaporative, and cooling losses of the on-site cooling pond. The conditions also authorize the withdrawal of 9.6 MGD from the cooling pond to supply makeup to the Unit 8 cooling tower and process water for Units 3, 4, and 8.

Groundwater/Surface Water Interactions

Approximately 44 cubic feet per second (cfs) of seepage from the Martin Plant cooling pond enters the shallow aquifer adjacent to the pond. Of this amount, 21 cfs is collected by the pond underdrain system and returned to the pond. Of the seepage to the shallow aquifer, some is lost offsite by normal groundwater movement, and the rest enters adjacent surface water bodies (the Barley Barber Swamp, the St. Lucie and L-65 canals, and the eastern and northern perimeter ditches).

2.3.3.2 Area Users

Surface and groundwater use in the vicinity of the Martin Plant site is regulated by the SFWMD. Information gathered from the SFWMD was used to prepare this summary of water uses near the Martin Plant site. It should be noted that there is a possibility that other potable water wells are in existence in the vicinity of the Martin Plant site, and their presence has not been confirmed because they have not been permitted or otherwise reported to SFWMD. In any event, the MSEC will not increase groundwater withdrawals, and therefore, will not impact offsite wells.

Figure 2.3-2 shows the surface and groundwater uses within 5 miles of Unit 8, most of which are for industrial purposes and agricultural irrigation. Sources of water used for these purposes include the St. Lucie Canal (C-44), canals L-47 and C-23, the shallow water aquifer, and the Floridan aquifer. The SFWMD provided the permit data. The only known potable water wells located within 1 mile of the Project Area are those operated by FPL.

2.3.4 Surficial Hydrology

2.3.4.1 Hydrologic Characteristics

The Martin Plant site consists of 11,300 acres with three onsite water bodies: the Barley Barber Swamp, approximately 400 acres; the cooling pond, 6,500 acres water and 300 acres dike area; and

the intake/discharge canal. A 1,130-acre area on the northwest portion of the Martin Plant site is managed as wetland mitigation by FPL. The remaining area consists of other undeveloped land used for agricultural purposes. The Martin Plant is bounded on the west by the L-65 Canal, which runs from just north of Lake Okeechobee south to discharge into the St. Lucie Canal.

The Barley Barber Swamp is a relatively flat area just west of the Martin Plant. The swamp is surrounded by the Martin cooling pond on three sides and drains to the west through culverts to the L-65 Canal. The L-65 Canal was completed in 1970 and water levels are presently regulated by the SFWMD at about 19 ft-msl. The cooling pond was completed and filled in 1978. Water is drawn from the St. Lucie Canal by a short intake/discharge canal and from there is pumped into the pond. Seepage from the cooling pond takes place through the embankment and the bottom. The estimated seepage rate is about 44 cfs.

In accordance with the present (modified July 9, 2007) Conditions of Certification, FPL is authorized a maximum daily withdrawal of 518.40 MGD from the St. Lucie Canal (C-44) to replace seepage, evaporative, and cooling losses of the on-site cooling pond. The conditions also permit the withdrawal of 9.6 MGD from the cooling pond to supply makeup to the Unit 8 cooling tower and process water for Units 3, 4, and 8.

There are two drainage systems serving the Martin Plant site, the northern perimeter ditch and the eastern perimeter ditch. The northern perimeter ditch drains the majority of the area north of the pond and discharges into the L-65 Canal at the northwestern corner of the Martin Plant site. The eastern drainage ditch drains the easternmost portions of the Martin Plant site, as well as the power block area, and discharges into the intake/discharge canal, which discharges to the St. Lucie Canal. The cooling pond receives makeup water from the St. Lucie Canal to replace evaporative and seepage losses. Consequently, the parameter concentrations in the cooling pond are similar to the average quality in the St. Lucie Canal, though somewhat more concentrated, primarily due to evaporation.

2.3.5 Vegetation/Land Use

A vegetation/land use survey of the Project Area and surrounding areas was conducted in March 2008, with habitat types classified in accordance with the FLUCFCS (FDOT, 1999). The resulting vegetation/land use map of the Project Area is found in Figure 2.3-3. Vegetative communities in and adjacent to the Project Area are discussed in detail in Subsection 2.3.6.1.

Existing vegetation/land use within the Project Area is dominated by palmetto prairie (FLUCFCS 321) and sparse slash pine flatwoods (FLUCFCS 411), which comprise approximately 38 and 31 percent of the Project Area, respectively (Figure 2.3-3). Wetland habitats comprise approximately 107 acres (19 percent) of the Project Area, including depressional freshwater marshes (FLUCFCS 641), often occurring with a perimeter of wet prairie (FLUCFCS 643), mixed wetland forest (FLUCFCS 630), non-native wetland hardwoods (FLUCFCS 619), and ditches (FLUCFCS 511). Additional habitats within the Project Area include the existing FPL Martin electric generation facility (FLUCFCS 831) and associated stormwater ponds (FLUCFCS 166).

MSEC facilities, including construction laydown and staging areas, will occupy about 600 acres. The MSEC is located within an area previously designated for the Martin CG/CC Project. Impacts to wetlands within this area have been mitigated through the Northwest Parcel mitigation area, as discussed in Section 4.4.

Outside of the Project Area, a variety of vegetative communities are located within the Martin Plant site, including pine flatwoods, rangeland, mixed hardwood conifer upland forest, freshwater marshes, wet prairies, cypress swamp, and the large cooling water pond.

2.3.6 Ecology

2.3.6.1 Species-Environmental Relationships

The following subsections include descriptions of important flora and fauna within the Project Area and surrounding areas within the Martin Plant site. This discussion includes information related to the abundance of important species found and the value of the habitats present.

Terrestrial Ecology Systems – Flora within the Project Area

The following descriptions of the flora and fauna at or near the Project Area follow the FLUCFCS-Level III codes.

Stormwater Basins (FLUCFCS 166)

Stormwater detention basins occur within the Project Area, comprising approximately 6.5 acres (Figure 2.3-3). The basin in the western edge of the Project Area supports common wetland vegetation, including the non-native species Brazilian pepper (*Schinus terebinthifolius*), cattail (*Typha* sp.), primrose willow (*Ludwigia* spp.), smartweed (*Polygonum* sp.), marsh pennywort (*Hydrocotyle umbellata*), coinwort (*Centella asiatica*), water hyssop (*Bacopa monnieri*), torpedo grass (*Panicum*

repens), and coastal plain willow (*Salix caroliniana*). The stormwater basin adjacent to the plant access road is infrequently inundated, planted in bahia grass (*Paspalum notatum*), and routinely mowed and maintained.

Palmetto Prairie (FLUCFCS Code 321)

Approximately 210.4 acres of the Project Area consists of palmetto prairie (Figure 2.3-3), characterized by a groundcover layer dominated by saw palmetto (*Serenoa repens*) with a sparse canopy of slash pine (*Pinus elliotti*) and cabbage palm (*Sabal palmetto*) (Appendix 10.5.2, Photograph 1). Additional shrub species occur within the saw palmetto understory, including wax myrtle (*Myrica cerifera*), gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), rusty lyonia (*Lyonia ferruginea*), and dwarf live oak (*Quercus minima*).

Pine Flatwoods (FLUCFCS 411)

Pine flatwoods occupy approximately 170.6 acres of the Project Area (Figure 2.3-3). The canopy is dominated by slash pine, with occasional cabbage palm and an understory comprised of saw palmetto, wax myrtle, gallberry, bracken fern (*Pteridium aquilinum*), muscadine grape (*Vitis rotundifolia*), rusty lyonia, small-leaf climbing fern (*Lygodium microphyllum*), and occasional Brazilian pepper (Appendix 10.5.2, Photograph 2).

Ditches (FLUCFCS 511)

Man-made drainage ditches in the Project Area occur within the existing Martin Plant site, connecting to stormwater basins, as well as adjacent to the plant access road/railroad (Figure 2.3-3). Ditches on the Martin Plant site, west of the access road, are maintained and are not densely vegetated. The ditch adjacent to the railroad, to the east of the access road, is densely vegetated with an assortment of nuisance and/or non-native wetland species, primarily coastal plain willow, Brazilian pepper, water hyacinth (*Eichhornia crassipes*), and primrose willow (Appendix 10.5.2, Photograph 3). The western bank of the ditch is mowed and maintained, while the eastern bank contains Brazilian pepper, coastal plain willow, cabbage palm, red bay (*Persea borbonia*), wax myrtle, and eucalyptus (*Eucalyptus* sp.). Herbaceous species within the ditch and along the banks include primrose willow, smartweed, arrowhead (*Sagittaria lancifolia*), water hyacinth, small-leaf climbing fern, torpedo grass, marsh pennywort, false nettle (*Boehmeria cylindrica*), pickerelweed (*Pontederia cordata*), cattail, climbing hempvine (*Mikania scandens*), Virginia chain fern (*Woodwardia virginica*), royal fern (*Osmunda regalis*), St. John's wort (*Hypericum* sp.), false buttonweed (*Spermacoce* sp.), caesarweed (*Urena*

lobata), swamp fern (*Blechnum serrulatum*), catbrier (*Smilax* sp.), and cinnamon fern (*Osmunda cinnamomea*). A total of approximately 5.7 acres of ditches occur within the Project Area.

Non-Native Wetland Hardwoods (FLUCFCS 619)

An area of non-native wetland hardwoods occurs in the center of the Project Area (Figure 2.3-3). This approximately 3.4-acre community is a historic wet prairie system that has become infested with the nuisance non-native species melaleuca (*Melaleuca quinquenervia*) (Appendix 10.5.2, Photograph 4). Melaleuca has become established in other wet prairie and freshwater marsh systems, but is still a subdominant species.

Mixed Wetland Forest (FLUCFCS Code 630)

An approximately 17.5-acre area of mixed wetland forest occurs within the northwestern portion of the Project Area (Figure 2.3-3). This wetland contains a mature canopy dominated by pond cypress (*Taxodium ascendens*) and cabbage palm (Appendix 10.5.2, Photograph 5), with subdominant canopy species including slash pine, red maple (*Acer rubrum*), laurel oak (*Quercus laurifolia*), red bay, melaleuca, strangler fig (*Ficus aurea*), dahoon holly (*Ilex cassine*), and myrsine (*Myrsine floridana*). Shrub species include Brazilian pepper, wax myrtle, wild coffee (*Psychotria nervosa*), and American beautyberry (*Callicarpa americana*), while herbaceous species include swamp fern, marsh pennywort, false nettle, dixie iris (*Iris hexagona*), St. John's wort, ragweed (*Ambrosia artemisiifolia*), small-leaf climbing fern, poison ivy (*Toxicodendron radicans*), sand cordgrass (*Spartina bakeri*), primrose willow, maidencane (*Panicum hemitomon*), yellow-eyed grass (*Xyris* sp.), false buttonweed, slender flattop goldenrod (*Euthamia caroliniana*), muscadine grape, jointvetch (*Aeschynomene* sp.), bushy bluestem (*Andropogon glomeratus*), camphorweed (*Pluchea* sp.), purple sedge (*Cyperus ligularis*), rushes (*Juncus* spp.), smartweed, corkwood (*Stillingia aquatica*), and pickerelweed. As the case with all wetland habitats within the Project Area, feral pigs have severely disturbed much of the herbaceous vegetation and hydric soils.

Freshwater Marsh (FLUCFCS Code 641)

Freshwater marshes comprise approximately 56 acres of the Project Area (Figure 2.3-3). Dominant species within the freshwater marshes include pickerelweed, maidencane, bushy bluestem, sawgrass (*Cladium jamaicense*), and melaleuca (Appendix 10.5.2, Photographs 6 and 7), with a variety of subdominant herbaceous and shrub species including wax myrtle, buttonbush (*Cephalanthus occidentalis*), Brazilian pepper, saw palmetto, dogfennel (*Eupatorium capillifolium*), slender flattop goldenrod, swamp fern, small-leaf climbing fern, clustered bushmint (*Hyptis alata*), climbing

hempsvine, St. John's wort, arrowhead, sand cordgrass, dwarf sundew (*Drosera brevifolia*), marsh pennywort, Virginia chain fern, corkwood, yellow-eyed grass, fireflag (*Thalia geniculata*), primrose willow, fetterbush, redroot (*Lachnanthes caroliniana*), false buttonweed, capeweed (*Phyla nodiflora*), beaksedge (*Rhynchospora* sp.), goldenrod (*Solidago* sp.), camphorweed, coinwort, torpedo grass, umbrellasedge (*Fuirena* sp.), spikerush (*Eleocharis* sp.), rushes, and sedges (*Cyperus* sp.). In addition to melaleuca, which is common within the Project Area, occasional trees are found within the freshwater marshes, including cypress, dahoon holly, cabbage palm, myrsine, slash pine, red maple, and red bay.

Wet Prairie (FLUCFCS Code 643)

Approximately 35 acres of the Project Area is classified as wet prairie (Figure 2.3-3). Wet prairies are herbaceous wetlands that are underlain by hydric soils but experience infrequent periods of shallow inundation (Appendix 10.5.2, Photograph 8). These wetlands are dominated by St. John's wort, bushy bluestem, maidencane, and corkwood, with an assortment of herbaceous species such as slender flattop goldenrod, primrose willow, pickerelweed, yellow-eyed grass, beakrushes, dogfennel, redroot, umbrellasedge, dwarf sundew, camphorweed, sedges, rushes, whitehead bogbuttons (*Lachnocaulon anceps*), sawgrass, and occasional shrub and tree species including buttonbush, wax myrtle, saw palmetto, dahoon holly, cypress, and slash pine. The nuisance non-native tree melaleuca has become established within some wet prairie wetlands in the Project Area. Small freshwater marshes are often located in the middle of some wet prairies within the Project Area, typically dominated by pickerelweed, buttonbush, arrowhead, and maidencane.

Electrical Power Facilities (FLUCFCS Code 831)

Approximately 35 acres of the Project Area are classified as Electrical Power Facilities (Figure 2.3-3). Native vegetation in the vicinity of the existing Martin plant has been cleared and replaced with a monoculture of cultivated bahia grass turf that is periodically mowed. Weedy species characteristic of disturbed areas have become established within the lawn, such as coast sandspur (*Cenchrus incertus*) and capeweed, with pepper-grass (*Lepidium virginicum*), common beggar-ticks (*Bidens alba*), and ragweed present along the edges.

Terrestrial Ecology Systems – Flora Adjacent to the Project Area

Outside of the Project Area, within the 11,300-acre Martin Plant site, are several vegetative communities associated with the area adjacent to SR 710 and the Northwest Mitigation Area, including unimproved pasture (FLUCFCS Code 212), herbaceous rangeland (FLUCFCS Code 310),

palmetto prairies (FLUCFCS Code 321), pine flatwoods (FLUCFCS Code 411), mixed hardwood/conifer forest (FLUCFCS Code 434), mixed wetland hardwoods (FLUCFCS Code 617), cypress (FLUCFCS Code 621), mixed wetland forest (FLUCFCS Code 630), freshwater marsh (FLUCFCS Code 641), and wet prairie (FLUCFCS Code 643). Refer to Figure 2.3-4 for land use in the Northwest Mitigation Area.

Extensive vegetative field surveys of the Martin Plant site surrounding the Project Area were conducted for the Martin CG/CC Project (FPL, 1989). The results of these surveys were field verified in October/November 2001 and March 2008. The area described in the previous surveys has remained undeveloped and similar in vegetative composition; therefore, these previous descriptions of areas adjacent to the Project Area are considered accurate and applicable for the MSEC. Habitat quality of each vegetative cover type on the Martin Plant site surrounding the Project Area is described below.

Unimproved Pasture (FLUCFCS Code 212)

Areas of unimproved pasture are located within the undeveloped parcel between SR 710 and the existing transmission line right-of-way (ROW). The herbaceous layer is dominated by thin paspalum (*Paspalum setaceum*), slender flattop goldenrod, sand cordgrass, goldenrod, and bushy broomsedge (*Andropogon virginicus*), while the sparse shrub layer is dominated by wax myrtle and Brazilian pepper. Although no canopy layer is associated with pastures, some individual trees are present, including melaleuca and slash pine.

Herbaceous Rangeland (FLUCFCS Code 310)

Herbaceous rangeland occurs within the parcel north of the existing transmission line ROW outside of the Project Area. The herbaceous layer is dominated by slender flattop goldenrod and bushy broomsedge, while the shrub layer is dominated by wax myrtle with saw palmetto, runner oak (*Quercus margarettiae*), and groundsel tree (*Baccharis halimifolia*).

Palmetto Prairie (FLUCFCS Code 321)

Palmetto prairie habitat occurs within the Northwest Mitigation Area, as well as within the parcel located north of the transmission line ROW. Palmetto prairie is characterized by dominance of saw palmetto and abundance of other shrub species such as wax myrtle, gallberry, and fetterbush. Several groundcover species were recorded in transect samples, including runner oak and pennyroyal (*Piloblephis rigida*). The sparse canopy is comprised of slash pine and cabbage palm. Other tree

species include laurel oak and individual specimens of toothache tree (*Xanoxylum clava-herculis*) and governor's plum (*Flacoutria indica*).

Pine Flatwoods (FLUCFCS Code 411)

Pine flatwoods are the dominant habitat type within undeveloped areas outside of the Project Area. The canopy is dominated by slash pine with occasional cabbage palm. Two epiphytes, shoestring fern (*Vittaria lineata*) and golden polypody (*Phlebodium aureum*), are found in association with the infrequent occurrence of cabbage palm in this habitat. The shrub layer is dominated by saw palmetto and wax myrtle with other shrub species characteristic of pine flatwoods, including shiny blueberry (*Vaccinium myrsinites*), gallberry, fetterbush, and rusty lyonia. Saw palmetto is also dominant in the herbaceous layer, with a variety of subdominant species including blackroot (*Pterocaulon virgatum*), runner oak, pineland daisy (*Chaptalia tomentosa*), tarflower (*Befaria racemosa*), catbrier, pennyroyal, broomsedge, and beaksedges.

Mixed Hardwood/Conifer Forest (FLUCFCS Code 434)

Mixed hardwood/conifer habitat is upland forest dominated by cabbage palm, live oak (*Quercus virginiana*), slash pine, and laurel oak. Within the canopy, epiphytic species include needle-leaf wild pine (*Tillandsia setacea*), reflexed wild pine (*Tillandsia balbisiana*), strap fern (*Campyloneurum phyllitidis*), and golden polypody. Vines such as poison ivy, Virginia creeper (*Parthenocissus quinquefolia*), muscadine grape, and catbrier are also abundant. The shrub layer is dominated by saw palmetto, while the herbaceous layer is dominated by swamp fern.

Mixed Wetland Hardwoods (FLUCFCS 617)

Mixed wetland hardwoods occur in the parcel north of the existing transmission line ROW, as well as within the Northwest Mitigation Area. Canopy species include red maple, cabbage palm, coastal plain willow, and red bay, with common herbaceous species such as rushes, sedges, pickerelweed, swamp fern, and primrose willow.

Cypress (FLUCFCS Code 621)

High quality cypress wetlands occur primarily in the Northwest Mitigation Area in the Black Slough area. The canopy is dominated by bald cypress (*Taxodium distichum*), with red maple, cabbage palm, and popash (*Fraxinus caroliniana*) common. A variety of shrub and herbaceous species occur under the cypress canopy, including giant leather fern (*Acrostichum danaeifolium*), swamp fern, Virginia chain fern, poison ivy, water hyacinth, water lettuce (*Pistia stratiotes*), camphorweed, buttonbush,

smartweed, mosquitofern (*Azolla caroliniana*), coastal plain willow, pickerelweed, groundsel tree, primrose willow, arrowhead, saw palmetto, Brazilian pepper, Virginia willow (*Itea virginica*), wax myrtle, lizard's tail (*Saururus cernuus*), royal fern, and elderberry (*Sambucus canadensis*). Two bromeliads, needle-leaf wild pine and reflexed wild pine, are also found. With the exception of the limited coverage of nuisance non-native species water lettuce and water hyacinth, the cypress community associated with Black Slough is of exceptional quality.

Freshwater Marsh (FLUCFCS Code 641)

Freshwater marshes are common within the undeveloped areas outside of the Project Area. These areas support a suite of predominantly herbaceous vegetation similar in composition as those described within the Project Area. Pickerelweed, maidencane, sawgrass, and fireflag are common dominants, with a variety of subdominants including primrose willow, wax myrtle, buttonbush, and coastal plain willow.

Wet Prairie (FLUCFCS Code 643)

Wet prairie is a common wetland type within the undeveloped areas outside of the Project Area, with a species composition similar to wet prairie systems within the Project Area. Typically, these wet prairies are dominated by low herbaceous and shrub vegetation such as St. John's wort, corkwood, maidencane, redroot, camphorweed, coinwort, bushy bluestem, yellow-eyed grass, sand cordgrass, dwarf sundew, and sedges.

Terrestrial Ecology Systems – Fauna

Wildlife habitat in the Project Area and vicinity provides support for a variety of common mammalian and avian species, as described below. A complete list of wildlife observed or expected to occur within the Project Area is provided in Table 2.3-1. A portion of the Project Area has been severely altered by past construction activity and provides poor wildlife habitat. The ditches and stormwater basin provide foraging opportunities for wading birds. Habitat for fish and wildlife is provided by the approximately 6,800 acre cooling water reservoir, located to the west of the Project Area. Figure 2.3-5 presents locations of species observed in the Project Area or nearby.

Stormwater Basins (FLUCFCS 166)

The stormwater detention basins within the Martin Plant site are typically dominated by nuisance and/or non-native species of vegetation, such as Brazilian pepper, cattail, and coastal plain willow, which have limited value as wildlife habitat. Red-winged blackbirds (*Agelaius phoeniceus*) are

known to use cattail marshes for foraging and roosting, while wading birds may utilize the edges of the stormwater basin to hunt for small fish.

Palmetto Prairie (FLUCFCS Code 321) and Pine Flatwoods (FLUCFCS 411)

Palmetto prairie and pine flatwoods within the Project Area provide habitat for common mammalian and avian species, such as feral pig (*Sus scrofa*), white-tailed deer (*Odocoileus virginianus*), gray squirrel (*Sciurus carolinensis*), armadillo (*Dasypus novemcinctus*), red bellied woodpecker (*Melanerpes carolinus*), mockingbird (*Mimus polyglottus*), bobwhite quail (*Colinus virginianus*), ground dove (*Columbina passerina*), red-headed woodpecker (*Melanerpes erythrocephalus*), black vulture (*Coragyps atratus*), rufous sided towhee (*Pipilo erythrophthalmus*), and red shouldered hawk (*Buteo jamaicense*). Observed or expected reptiles include the black racer (*Coluber constrictor*), eastern diamondback rattlesnake (*Crotalus adamanteus*), six lined racerunner (*Aspidoscelis sexlineata*), and fence lizard (*Sceloporus undulatus*). The dense understory of saw palmetto and relatively high groundwater table limits the habitat suitability for gopher tortoises (*Gopherus polyphemus*). No gopher tortoise burrows were observed within the Project Area.

Ditches (FLUCFCS 511)

Although artificial features excavated for drainage purposes, ditches do provide foraging areas for wading birds and habitat for small fish, amphibians, and snakes. Species observed within ditch habitats include green heron (*Butorides virescens*), kingfisher (*Ceryle alcyon*), mosquitofish (*Gambusia holbrooki*), least killifish (*Heterandria formosa*), and pig frog (*Rana grylio*). Additional species expected to occasionally forage within ditches include great egret (*Casmerodius albus*), little blue heron (*Egretta caerulea*), great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), tricolored heron (*Egretta tricolor*), white ibis (*Eudocimus albus*), and water moccasin (*Agkistrodon piscivorus*).

Non-Native Wetland Hardwoods (FLUCFCS 619)

Non-native melaleuca wetlands do not provide suitable wildlife habitat, although within the Project Area they are associated with wet prairie systems, described below. Due to the proximity of wet prairie systems with the melaleuca-infested areas, it is likely that some wading birds do occasionally utilize the melaleuca habitat.

Mixed Wetland Hardwoods (FLUCFCS 630)

The approximately 17.5-acre mixed wetland hardwood wetland within the Project Area provides habitat for an assortment of wildlife, including feral pig, raccoon (*Procyon lotor*), barred owl (*Strix varia*), box turtle (*Terrapene carolina*), armadillo, limpkin (*Aramus guarauna*), water moccasin, wood stork (*Mycteria americana*), white ibis, little blue heron, great blue heron, great egret, tricolored heron, snowy egret, red shouldered hawk, and black vulture.

Freshwater Marsh (FLUCFCS 641)

Wildlife observed or expected to occur within freshwater marshes within the Project Area include wading birds such as little blue heron, great blue heron, tricolored heron, white ibis, snowy egret, wood stork, green heron, and great egret, as well as the common snipe (*Gallinago gallinago*), red-winged blackbird, catbird (*Dumatella carolinensis*), black vulture, American alligator (*Alligator mississippiensis*), forage fishes, feral pig, raccoon, white-tailed deer, red shouldered hawk, anhinga (*Anhinga anhinga*), southern cricket frog (*Acris gryllis*), pig frog, and killdeer (*Charadrius vociferus*).

Wet Prairie (FLUCFCS 643)

Wildlife observed or expected to occur within wet prairie systems include the suite of wading birds commonly observed in freshwater marshes, the great blue heron, great egret, little blue heron, snowy egret, white ibis, tricolored heron, green heron, wood stork, as well as the sandhill crane (*Grus canadensis*), common snipe, raccoon, feral pig, and white-tailed deer.

Electrical Power Facilities (FLUCFCS Code 831)

The existing plant and surrounding open areas are poor habitat for wildlife, due to the lack of cover, forage species of vegetation, and disturbance. No species of birds, mammals, or reptiles were observed in those areas classified as electrical power facilities.

Threatened and Endangered Species – Flora and Fauna

Plant and animal species designated by the U.S. Fish and Wildlife Service (USFWS), the Florida Fish and Wildlife Conservation Commission (FFWCC) and the Florida Department of Agriculture and Consumer Services (FDACS) as endangered, threatened, species of special concern, commercially exploited, or under review, were included in this category.

There are a number of federally and state listed plants and animals that are associated or potentially associated with the Project Area. A number of wetland dependent animal species (e.g., wading birds)

utilize wetlands within the Project Area as foraging habitat. These species are common to the area and use other similar habitats that are found throughout the surrounding region.

Threatened and Endangered Species – Methodology

Prior to the 2008 field surveys, literature and agency surveys were undertaken to determine the species that could potentially be present in the habitats found on the Project Area. Primary sources of information are the Florida Natural Areas Inventory (FNAI) database (FNAI, 2007); Florida Committee on Rare and Endangered Plants and Animals (FCREPA) reports (FCREPA, 1996, 2002); Preservation of Native Flora of Florida Law, Rule Chapter 5B-40, F.A.C., the Regulated Plant Index (5B-40.0055); and Notes on Florida's Endangered and Threatened Plants, FDACS, Division of Plant Industry, Bureau of Entomology, Nematology and Plant Pathology – Botany Section, Contribution No. 38, Addition 2, Gainesville. In addition, previous reports of surveys conducted in and near the Project Area were reviewed.

Plant and Animal Surveys

Because of the rareness and seasonality of threatened and endangered species, either multiseason surveys or an evaluation of threatened and endangered species habitat conditions is necessary to determine their presence or absence within the Project Area. For this study an evaluation of the habitat conditions coupled with field surveys were used to determine the presence or absence of threatened and endangered species. Based on the literature review and field surveys, federally and state listed species whose ranges include the Project Area were identified.

Flora

Threatened, endangered, and/or plant species of special concern that occur within Martin County are listed in Table 2.3-2. The field surveys and FNAI database review did not result in any occurrences of listed plant species in the vicinity of the Project Area.

Fauna

Threatened, endangered, and/or animal species of special concern that occur within Martin County are listed in Table 2.3-2. Listed species observed or likely to occur within the Project Area include the American alligator as well as several species of wading birds: white ibis, little blue heron, tricolored heron, snowy egret, wood stork, and sandhill crane. According to the FFWCC Bald Eagle

Nest Location Database¹, two active bald eagle (*Haliaeetus leucocephalus*) nests are located within approximately 2 miles of the Project Area. Nest MT012 is located within the Northwest Mitigation Area just north of the cooling pond (Figure 2.3-4) at 27°04.64' N 80°36.42' W (Section 14, Township 39 South, Range 37 East). MT002 is located in the Barley Barber Swamp at 27°02.77' N 80°35.66' W (Section 25, Township 39 South, Range 37 East). The FNAI database review resulted in one occurrence of an active bald eagle nest in the Barley Barber Swamp (Nest MT002) and another nest located approximately 0.25 miles west of the Northwest Mitigation Area. In addition, the Florida Game and Freshwater Fish Breeding Bird Atlas Project identified both the bald eagle and the Florida sandhill crane (*Grus canadensis pratensis*) as breeding in the cooling pond to the west of the Project Area. A bald eagle was observed between the cooling pond and the Northwest Mitigation Area during field reconnaissance conducted in March 2008 (Figure 2.3-4). Descriptions of listed species observed or likely to occur within the Project Area and vicinity are described below.

Bald eagle

The bald eagle is listed as threatened by the FFWCC, but has been delisted by the USFWS. Bald eagles nest throughout the United States and occur in a wide variety of habitats, but proximity of their nests to water (as foraging habitat) is important (Stalmaster, 1987). Preferred nesting habitat includes a high amount of water-to-land edge where their aquatic prey is concentrated. Thus, bald eagles are generally restricted to coastal areas, lakes, and rivers. They prey on fish and other aquatic prey near the surface but will eat dead fish or other carrion, as well as birds, mammals, and occasionally reptiles. Some bald eagles in the southern U.S. migrate northward in mid-summer (after the nesting season) and return in early autumn, but some bald eagles in Florida are non-migratory (Stalmaster 1987). Florida has the largest breeding population of bald eagles of any state other than Alaska. In 1999, nearly one thousand active eagle nests were recorded in Florida (FNAI, 2001). Bald eagles breed throughout most of peninsular Florida and the Keys.

Wood stork

The wood stork is listed as endangered by the USFWS and the FFWCC. Wood stork habitats include cypress/gum ponds, river swamps, marshes (freshwater and saltwater), and bays. The wood stork is highly gregarious in its nesting and feeding behavior. They are tactile feeders (vision seldom used to locate or catch prey) and usually forage in shallow water (6 to 20 inches). Small fish are the primary food items, but storks also consume crustaceans, salamanders, tadpoles, and insects. The distance between nesting colonies and feeding areas can range up to 60 miles or more, although the average

¹ <http://wld.fwc.state.fl.us/eagle/eaglenests/Default.asp#criteriaLocator>

distance is typically 12 to 15 km (7 to 9 miles) (Ogden, 1996). FFWCC considers the “core foraging area” of wood storks to be that area within 30 km (18.6 miles) of the colony (Cox et al., 1994). There are no known stork rookeries on the FPL Martin property. It is unlikely that any rookeries exist on the Project Area, since the gregarious behavior of this species would result in numerous sightings. Wood storks have been observed foraging within freshwater marsh and wet prairie wetlands within the Project Area (Figure 2.3-5) and Northwest Mitigation Area, as well as within roadside ditches and swales.

Snowy egret

The snowy egret is listed as a species of special concern by the FFWCC, but is not listed federally by the USFWS. The snowy egret feeds in many types of permanently and seasonally flooded wetlands, streams, lakes, and swamps, and in manmade impoundments and ditches. Snowy egrets have been observed foraging in freshwater marsh and wet prairie wetlands within the Project Area and Northwest Mitigation Area.

Tricolored heron

The tricolored heron is listed as a species of special concern by the FFWCC, but is not listed federally by the USFWS. Tricolored herons feed in a variety of permanently and seasonally flooded wetlands, mangrove swamps, tidal creeks, ditches, and edges of ponds and lakes. Although not observed during field reconnaissance, tricolored herons are expected to occasionally forage within wetland habitats within the Project Area and Northwest Mitigation Area.

Little blue heron

The little blue heron is listed as a species of special concern by the FFWCC, but is not listed federally by the USFWS. Little blue herons feed in shallow freshwater, brackish, and saltwater habitats. Little blue herons were observed foraging within freshwater marsh wetlands in the Project Area and Northwest Mitigation Area.

White ibis

The white ibis is listed as a species of special concern by the FFWCC, but is not listed federally by the USFWS. The white ibis is found in a wide variety of habitats, including freshwater and brackish marshes, salt flats and salt marsh meadows, many types of forested wetlands, wet prairies, swales, seasonally inundated fields, and man-made ditches. White ibis were commonly observed within freshwater marshes in the Project Area and Northwest Mitigation Area.

American Alligator

The American alligator is common throughout Florida. The alligator is federally listed as “threatened due to similarity in appearance” to the threatened American crocodile (*Crocodylus acutus*), and is classified as a species of special concern by the FFWCC. Alligator habitat consists of swamps, marshes, ponds, lakes, and slow-moving streams and rivers. Alligators are opportunistic feeders and eat fish, turtles, birds, snakes, frogs, insects, and small mammals (Mount, 1975). An alligator was observed within the Project Area within an area of freshwater marsh. Alligators likely utilize similar aquatic habitats within the vicinity.

2.3.6.2 Pre-Existing Stresses

Terrestrial Systems

The greatest pre-existing stress to terrestrial systems of the Project Area and surrounding area is the result of past development activity. The natural topography, soils, and hydrology of portions of the Units 3, 4, and 8 areas are extensively altered as a result of the construction of the existing power plant facilities. As a result the natural ecosystems and wildlife habitat are disturbed. Natural drainage features have been modified.

Aquatic Systems

Aquatic systems in the vicinity of the Project Area are subjected to stress from numerous sources. Pre-existing stresses include:

1. Channelization and dredging,
2. Water management practices for St. Lucie Canal,
3. Agricultural development, and
4. Highway construction and operation.

Agricultural development in the area has resulted in the loss of wetlands through ditching and dewatering.

2.3.6.3 Measurement Programs

Terrestrial Ecology

Terrestrial ecological resources were evaluated through site reconnaissance, agency review, previous studies, and literature searches. Vegetative communities, wildlife utilization, and potential for

threatened and endangered wildlife occurrence were addressed during the site reconnaissance conducted in March 2008.

Threatened and Endangered Species – Methodology

Prior to the 2008 field surveys, literature and agency surveys were undertaken to determine the species that could potentially be present in the habitats found on the Project Area. Primary sources of information are the FNAI database, FCREPA reports, Preservation of Native Flora of Florida Law, Rule Chapter 5B-40, F.A.C., and the Regulated Plant Index (5B 40.0055), and Notes on Florida's Endangered and Threatened Plants, FDACS. The SCAs filed for the Martin CG/CC Project and Martin Unit 8 Project were also reviewed (FPL, 1989).

2.3.7 Meteorological and Ambient Air Quality

2.3.7.1 Meteorology

Meteorological data collected at existing monitoring stations are available to describe the local and regional climatology in the vicinity of the proposed Project Area. The closest existing meteorological station to this proposed Martin Plant site with complete data is the National Weather Service (NWS) station located at the Palm Beach International Airport, situated approximately 45 kilometers (km) (28 miles) southeast of the Martin Plant. The NWS has recorded weather observations for more than 50 years at this station. These data are the most complete for and representative of the region surrounding the Plant. FDEP has approved the use of these meteorological data in previous Site Certification Applications.

The climate in the vicinity of the Martin Plant Site is subtropical with a marine influence from the Atlantic Ocean. The monthly and annual average temperatures for this area are presented in Table 2.3-3. The annual average temperature is approximately 75°F with monthly average temperatures varying from a maximum of 90°F to a minimum of 57°F. Record extreme temperatures range from a low of 27°F to a record high of 101°F. During the summertime, temperatures rarely exceed 100°F due to the high relative humidity with subsequent cloud cover formation and the abundant convective-type (e.g., thunderstorms) precipitation.

The monthly and annual average precipitation data are presented in Table 2.3-4. Approximately 64 percent of the annual precipitation falls during the six warmest months, May through October. The average annual precipitation is approximately 61 inches, but this has varied from as little as 39 inches to more than 86 inches in the past 30 years. The majority of rain is in the form of

short-lived convection showers (e.g., thunderstorms). Large amounts of rain are also produced during the late summer or fall when tropical storms or hurricanes may pass near the Martin Plant Site. These events may result in heavy downpours that reach torrential proportions; 24-hour amounts of from 6 to more than 10 inches are not uncommon.

Monthly and annual average relative humidities, which indicate the amount of moisture in the air at a given temperature, are presented in Table 2.3-4 for the morning hours of 1:00 a.m. and 7:00 a.m. and early afternoon and evening hours of 1:00 p.m. and 7:00 p.m. The highest humidities are coincident with the coolest ambient temperatures, which generally occur at 7:00 a.m., or near dawn. The lowest humidities coincide with the highest ambient temperatures.

A summary of the seasonal and annual average wind direction and wind speed, including calm conditions, is presented in Table 2.3-5. The predominant winds during the year are from the east. The predominant easterly winds occur because the Martin Plant Site lies entirely within the trade wind belt (i.e., below 30 degrees N latitude). Also, because of the location of the Atlantic Ocean, the easterly winds are reinforced due to the moderate to strong late afternoon sea breezes that occur on days with strong land heating and produce localized onshore winds. The data for this period were also used in the air quality impact analyses.

Except during the passage of tropical storms or hurricanes, high wind speeds generally do not occur. During the winter and spring, there are usually a few days when wind speeds are greater than 20 to 30 miles per hour (mph).

Thunderstorms are the most frequent of severe storms, occurring an average of 79 days per year as reported by the NWS at Palm Beach International Airport. These storms occur throughout the year, but about 87 percent occur from May through October.

2.3.7.2 Solar Radiation

Solar radiation data were obtained from the Solar and Meteorological Surface Observation Network (National Climatic Data Center and National Renewable Energy Laboratory) to characterize the solar radiation at the Martin Plant Site. Five years of hourly data for West Palm Beach for the years 1986 through 1990 are summarized in Table 2.3-6. The data are in watt-hours per square meter and reflect the direct and diffuse solar radiation on a horizontal surface. The maximum hourly solar radiation would reflect those conditions when the maximum solar steam production can be achieved. The

average equivalent maximum hours per day, shown in Table 2.3-6, is 4.82, and reflects the average hours per day over the course of a year that maximum generation can be produced. Actual steam production would vary based on time of year and meteorological conditions.

2.3.7.3 Ambient Air Quality

Primary National Ambient Air Quality Standards (AAQS) were promulgated to protect the public health, and secondary National AAQS were promulgated to protect the public welfare from any known or anticipated adverse effects associated with the presence of pollutants in the ambient air. Areas of the country in compliance with AAQS are designated as attainment areas. Pollutants for which AAQS have been established are referred to as criteria pollutants. These pollutants include particulate matter (PM) with an aerodynamic particle size of 10 micrometers (μm) or less (PM_{10}), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), and lead (Pb). The National and Florida AAQS are presented in Table 2.3-7. Martin County is classified as an attainment area for all criteria pollutants (Rule 62-204.340, F.A.C.).

2.3.7.4 Measurement Programs

All information (i.e., meteorology and air quality data) were compiled from offsite monitoring stations maintained and operated by FDEP or cooperating governmental agencies (i.e., NWS). No significant changes in these programs are anticipated after the construction and operation of the MSEC.

Meteorological data were obtained from the NWS surface and upper-air station at the Palm Beach International Airport.

2.3.8 Noise

2.3.8.1 Background

Sound propagation involves three principal components: a noise source, a person or a group of people, and the transmission path. While two of these components, the noise source and the transmission path, are easily quantified (i.e., direct measurements or through predictive calculations), the effects of noise to humans is the most difficult to determine due to the varying responses of humans to the same or similar noise patterns. The perception of sound (noise) by humans is very subjective, and just like odors and taste, is very difficult to predict a response from one individual to another. To address the direct physical effects such as hearing loss and the less direct effects of

interference with activities such as sleep and conversation, noise standards and criteria have been developed.

The magnitude of noise levels or loudness is referred to as sound pressure level (SPL) with units in decibels (dB). Decibels are calculated as a logarithmic function of SPL in air to a reference effective pressure, which is considered the hearing threshold, or:

$$\text{SPL} = 20 \log_{10} (P_e/P_o)$$

where: P_e = measured effective pressure of sound wave in micropascals (μPa), and

P_o = reference effective pressure of 20 Pa.

To account for the effect of how the human ear perceives sound pressure, at moderate to low levels, sound pressure levels are adjusted for frequency (or pitch). One of the most commonly used frequency filters is the A-weighting (dBA), which adjusts measurements for the approximated response of the human ear to low-frequency SPLs [i.e., below 1,000 hertz (Hz)] and high-frequency SPLs (i.e., above 1,000 Hz).

2.3.8.2 Noise Regulations

In the early 1970s, the EPA established numerical noise standards, which are summarized in their 1974 report *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare, With An Adequate Margin of Safety* (EPA, 1974). In developing these standards, reported as both equivalent sound pressure level (L_{eq}) and day-night sound pressure level (L_{dn}), the EPA drew on a large body of survey data describing the degree of activity interference and resulting annoyance for a variety of noise levels. However, these standards were promulgated in the Noise Control Act of 1972 without regard to economic or technical feasibility. Additionally, these guidelines, often misconstrued, were not meant to be pragmatic or realistic goals for short-term noise control (Harris, 1991). The Noise Control Act of 1972 and its numerical standards were subsequently repealed and the EPA closed its Office of Noise and Radiation.

In 1998, Martin County amended the existing countywide noise control ordinance. Ordinance 531 (referred to as the Noise Control Ordinance) and its enforcement are based on receiving land use categories as follows:

Receiving Land Use Category	Time	Sound Level Limit (dBA)
Institutional	7:00 a.m. – 9:00 p.m.	55 dBA
Includes the following designations: General Institutional, Recreational, and Public Conservation	9:00 p.m. – 7:00 a.m.	50 dBA
Residential	7:00 a.m. – 9:00 p.m.	60 dBA
Includes the following designations: Rural, Estate, Low, Medium, High, and Mobile Home Densities	9:00 p.m. – 7:00 a.m.	55 dBA
Commercial	7:00 a.m. – 9:00 p.m.	65 dBA
Includes the following designation: General, Limited, COR, and Waterfront Commercial	9:00 p.m. – 7:00 a.m.	60 dBA
Industrial	7:00 a.m. – 9:00 p.m.	70 dBA
	9:00 p.m. – 7:00 a.m.	65 dBA
Agricultural	7:00 a.m. – 9:00 p.m.	70 dBA
	9:00 p.m. – 7:00 a.m.	65 dBA

In addition to the sound level limits established for each receiving land use category, Martin County's noise ordinance requires a 5-dBA reduction for each sound level limit established for each receiving land use category for any source of sound that emits a pure tone, as defined by the ordinance. The noise ordinance is enforced by the Martin County Sheriff's Office as specified in the County's code. Under this ordinance, the residential sound level limits are 60 dBA during the daytime and 55 dBA during the nighttime.

The Martin County noise control ordinance defines "ambient noise level" as the L_{90} metric. This is the A-weighted SPL exceeded 90 percent of the time. This ambient noise level is the background sound level from which a comparison of the noise levels is made between the construction and operation of the MSEC noise levels to the Martin County noise ordinance. The L_{90} includes the noise from the Martin Plant since the existing power units operate continuously.

2.3.8.3 Noise Measurements

As part of the SCA for Martin Unit 8, SPLs and octave band data were collected at four different property boundary locations. After Martin Unit 8 began operation in 2005, sound level measurements were again taken at the same four property boundary locations as in 2001. These four monitoring locations, (Sites 3, 4, 5, and 6) were chosen to delineate the noise levels at or near the plant property boundaries. Site 3 was located on the cooling pond levee, southeast of the Unit 8 location. Site 4 was located on SR 710, east-southeast of the Unit 8 location. Site 5 was located next to the rail road on SR 710, northeast of the Unit 8 location. Site 6 was located on the cooling pond levee, northwest of the Unit 8 location. All noise monitoring sites were located over a mile from the Unit 8 location. Sites 3, 4, and 6 were selected because they are the nearest residential receptors to the Martin Plant.

Noise monitoring was performed at these sites during the daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.).

The results for the L_{90} for the 2001 and 2005 monitoring studies are presented in the following table.

SOUND PRESSURE LEVEL (SPL, dBA)	PROPERTY BOUNDARY MEASUREMENT LOCATION			
	3	4	5	6
Measured Operational SPL (L_{90}) (Units 1, 2, 3, 4, and 8) June 2005	38.2	45.2	48.0	40.8
Measured Background SPL (L_{90}) (Units 1, 2, 3, and 4) December 2001 SCA	39.0	42.3	40.6	37.3
Highest Background SPL (L_{90}) for MSEC	39.0	45.2	48.0	40.8
Martin County Noise Ordinance	55	55	55	55

The L_{90} SPLs are used as background to determine compliance since this metric is defined as background in the Martin County Noise Control Ordinance and it represents the true nature of the ambient noise levels without the inclusion of transient, exempted noise sources (i.e., noise from highway traffic, airplanes, trains, boats, etc.). Based on the monitoring results, the noise levels associated with Martin Plant comply with the Martin County Noise Control Ordinance at the selected boundary monitoring locations.

TABLE 2.2-1
AREAS NOT FOUND WITHIN 5 MILES OF THE MSEC PROJECT AREA

National	State	Other
Park	Park	County Park
Forest	Forest	Special Management Area
Seashore	Archeological Landmarks or	Established by Law
Wildlife Refuge	Landmark Zone	Indian Reservation
Wilderness Area	Save Our Rivers Land	Military Land
Memorial	Area of Critical State Concern	Major Private Land-Holding for
Monument	Conservation and Recreation	which the Primary Purpose is
Marine Sanctuary	Lands	Environmental Protection
Estuarine Sanctuary	Game Management Area	
Critical Habitat of Endangered	Aquatic Preserve	
Species	Outstanding Florida Waters	
Roadless Area Review and	Scenic and Wild River	
Evaluation (RARE) Area		
Wild and Scenic River		

Source: FPL, 1989; Golder, 2008.

TABLE 2.3-1
ANIMAL SPECIES OBSERVED OR LIKELY TO OCCUR WITHIN THE MSEC PROJECT AREA

		FLUCFCS 166	FLUCFCS 321	FLUCFCS 411	FLUCFCS 511	FLUCFCS 619	FLUCFCS 630	FLUCFCS 641	FLUCFCS 643
		Stormwater	Palmetto	Pine	Ditches	Melaleuca	Mixed Wetland	Freshwater	Wet
Scientific Name	Common Name	Basin	Prairie	Flatwoods			Forest	Marsh	Prairie
Fishes									
<i>Elassoma</i> spp.	Pygmy Sunfishes							X	
<i>Enneacanthus gloriosus</i>	Bluespotted Sunfish							X	
<i>Fundulus chrysotus</i>	Golden Topminnow							X	
<i>Fundulus seminolis</i>	Seminole Killifish							X	
<i>Gamubisa holbrooki</i>	Mosquitofish	X			X		X	X	
<i>Heterandria formosa</i>	Least Killifish	X			X		X	X	
<i>Jordanella floridae</i>	Flagfish							X	
<i>Lepomis</i> sp.	Sunfish				X			X	
<i>Lucania goodei</i>	Bluefin Killifish							X	
<i>Poecilia latipinna</i>	Sailfin Molly	X			X			X	
Amphibians									
<i>Acris gryllis</i>	Southern Cricket Frog				X		X	X	X
<i>Bagastrophyrne carolinis</i>	Narrow-mouthed Toad							X	X
<i>Bufo querciua</i>	Oak Toad		X	X					
<i>Hyla cinerea</i>	Green Tree Frog							X	
<i>Hyla femoralis</i>	Pine Woods Tree Frog		X	X					
<i>Notophthalmus viridescens</i>	Fire-bellied Newt							X	
<i>Pseudacris</i> spp.	Chorus Frog							X	X
<i>Pseudobranchus striatus</i>	Dwarf Newt							X	
<i>Rana capito</i>	Gopher Frog		X	X					
<i>Rana cattersbeiana</i>	Bullfrog							X	
<i>Rana grylio</i>	Pig Frog				X		X	X	X
<i>Rana pipiens</i>	Leopard Frog				X		X	X	X
Reptiles									
<i>Agkistrodon piscivorus</i>	Water Moccasin	X			X		X	X	X
<i>Alligator mississippiensis</i>	American Alligator	X			X			X	
<i>Anolis carolinensis</i>	Green Anole		X	X	X				
<i>Anolis sagrei</i>	Brown Anole		X	X	X	X			
<i>Aspidoscelis sexlineata</i>	Six-lined Racerunner		X	X					
<i>Cemophora coccinea coccinea</i>	Florida Scarlet Snake		X	X					
<i>Chrysemys nelsoni</i>	Red-bellied Turtle							X	
<i>Coluber constrictor</i>	Black Racer		X	X					
<i>Crotalus adamanteus</i>	Eastern Diamondback Rattlesnake		X	X					
<i>Deirochels reticularia</i>	Chicken Turtle				X			X	X
<i>Diadophis punctatus punctatus</i>	Southern Ringneck Snake			X		X			X
<i>Drymarchon couperi</i>	Eastern Indigo Snake		X	X				X	X
<i>Elaphe guttata guttata</i>	Corn Snake		X	X				X	X
<i>Elaphe obsoleta quadrivittata</i>	Yellow Rat Snake			X				X	X
<i>Farancia abacura</i>	Mud Snake							X	
<i>Gopherus polyphemus</i>	Gopher Tortoise		X	X					
<i>Kinosternon</i> spp.	Mud Turtles							X	
<i>Lampropeltis getula</i>	Common Kingsnake							X	X
<i>Micrurus fulvius fulvius</i>	Coral Snake		X	X		X	X	X	X
<i>Nerodia cyclopion</i>	Green Water Snake							X	
<i>Rhadinaea flavilata</i>	Pine Woods Snake			X					
<i>Sceloporus undulatus</i>	Fence Lizard		X	X					
<i>Seminatrix pygaea</i>	Swamp Snake							X	
<i>Sistrurus miliarius barbouri</i>	Dusky Pygmy Rattlesnake		X	X	X			X	X
<i>Sternotherus odoratus</i>	Musk Turtle							X	
<i>Terrapene carolina</i>	Box Turtle		X	X			X	X	X
Birds									
<i>Accipiter cooperii</i>	Cooper's Hawk						X		
<i>Agelaius phoeniceus</i>	Red-Winged Blackbird	X			X			X	X
<i>Aimophila aestivalis</i>	Bachman's Sparrow			X					
<i>Anhinga anhinga</i>	Anhinga							X	
<i>Aramus guarana</i>	Limpkin						X		
<i>Ardea herodias</i>	Great Blue Heron	X			X		X	X	X
<i>Botaurus lentiginosus</i>	American bittern							X	
<i>Bubo virginianus</i>	Great Horned Owl			X					
<i>Bubulcus ibis</i>	Cattle Egret	X				X		X	X
<i>Buteo jamaicensis</i>	Red-tailed Hawk		X	X					
<i>Buteo lineatus</i>	Red-shouldered Hawk		X	X		X	X		
<i>Butorides virescens</i>	Green Heron	X			X			X	X
<i>Caracara cheriway</i>	Crested Caracara		X						
<i>Cardinalis cardinalis</i>	Northern Cardinal	X		X	X				
<i>Casmerodius albus</i>	Great Egret	X			X	X	X	X	X
<i>Cathartes aura</i>	Turkey Vulture		X						
<i>Ceophloeus pileatus</i>	Southern Pileated Woodpecker			X			X		
<i>Ceryle alcyon</i>	Kingfisher				X			X	
<i>Charadrius voliferus</i>	Killdeer			X	X	X		X	X
<i>Chordeiles minor</i>	Common Nighthawk			X					
<i>Circus cyaneus</i>	Harrier							X	X
<i>Cistothorus pallustris</i>	Marsh Wren							X	X
<i>Colinus virginianus</i>	Northern Bobwhite		X	X					
<i>Columbina passerina</i>	Common Ground-Dove		X	X					
<i>Coragyps atratus</i>	Black Vulture		X	X	X	X	X	X	
<i>Corvus ossifragus</i>	Fish Crow			X	X	X		X	X
<i>Cyanocitta cristata</i>	Blue Jay	X		X	X				
<i>Dendroica pinus</i>	Pine Warbler			X					
<i>Dryobates pubescens</i>	Downy Woodpecker			X			X		
<i>Dumatella carolinensis</i>	Catbird							X	X
<i>Egretta caerulea</i>	Little Blue Heron	X			X		X	X	X
<i>Egretta thula</i>	Snowy Egret	X			X			X	X
<i>Egretta tricolor</i>	Tricolor Heron	X			X		X	X	X
<i>Eudocimus albus</i>	White Ibis	X			X		X	X	X
<i>Falco sparverius paulus</i>	Southeastern American Kestrel			X			X		
<i>Gallinago gallinago</i>	Common Snipe							X	X
<i>Geothlypis trichas</i>	Common Yellowthroat							X	X
<i>Grus canadensis pratensis</i>	Florida Sandhill Crane								X
<i>Ixobrychus exilis</i>	Least Bittern							X	X
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker		X	X					
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker		X	X					
<i>Mimus polyglottos</i>	Northern Mockingbird		X	X	X			X	X
<i>Mycteria americana</i>	Wood Stork				X		X	X	X
<i>Myiarchus crinitus</i>	Crested Flycatcher		X	X	X				
<i>Picoides borealis</i>	Red-Cockaded Woodpecker			X					
<i>Pipilo erythrophthalmus</i>	Rufous-sided Towhee		X	X					
<i>Plegadis falcinellus</i>	Glossy Ibis							X	X
<i>Quisclus major</i>	Boat-tailed Grackle							X	X
<i>Rallus</i> spp.	Rails							X	X
<i>Sitta pusilla</i>	Brown-headed Nuthatch								
<i>Strix varia</i>	Barred Owl			X			X		
<i>Sturnella magna</i>	Eastern Meadowlark		X	X					
<i>Sturnus vulgaris</i>	European Starling		X	X	X				
<i>Zenaida macroura</i>	Mourning Dove		X	X	X			X	X

TABLE 2.3-1
ANIMAL SPECIES OBSERVED OR LIKELY TO OCCUR WITHIN THE MSEC PROJECT AREA

Scientific Name	Common Name	FLUCFCS 166 Stormwater Basin	FLUCFCS 321 Palmetto Prairie	FLUCFCS 411 Pine Flatwoods	FLUCFCS 511 Ditches	FLUCFCS 619 Melaleuca	FLUCFCS 630 Mixed Wetland Forest	FLUCFCS 641 Freshwater Marsh	FLUCFCS 643 Wet Prairie
Mammals									
<i>Blarina carolinensis</i>	Short-tailed Shrew		X	X					
<i>Cryptotis parva</i>	Least Shrew		X	X					
<i>Dasypus novemcinctus</i>	Nine-banded Armadillo		X	X	X				
<i>Didelphis marsupialis</i>	Opossum		X	X	X				
<i>Geomys pinetis</i>	Southeastern Pocket Gopher		X						
<i>Lasiurus intermedius</i>	Northern Yellow Bat			X			X		
<i>Lasiurus seminolus</i>	Seminole Bat			X			X		
<i>Lynx rufus</i>	Bobcat			X	X		X		
<i>Neofiber alleni</i>	Florida Water Rat							X	X
<i>Odocoileus virginianus</i>	White-Tailed Deer		X	X			X		X
<i>Peromyscus gossypinus</i>	Cotton Mouse			X					
<i>Podomys floridanus</i>	Florida Mouse		X						
<i>Procyon lotor</i>	Raccoon		X	X	X	X	X	X	X
<i>Reithrodontomys humulis</i>	Eastern Harvest Mouse		X						
<i>Sciurus carolinensis</i>	Eastern Gray Squirrel			X	X		X		
<i>Sciurus niger</i>	Fox Squirrels			X					
<i>Sigmodon hispidus</i>	Cotton Rat		X	X					
<i>Spilogale putorius</i>	Eastern Spotted Skunk		X						
<i>Sus scrofa</i>	Feral Hog		X	X	X	X	X	X	X
<i>Sylvilagus floridanus</i>	Cottontail Rabbit		X	X	X	X	X	X	X
<i>Sylvilagus palustris</i>	Marsh Rabbit							X	X
<i>Urocyon cinereoargenteus</i>	Gray Fox			X					

Source: Golder, 2008.

TABLE 2.3-2
THREATENED, ENDANGERED, AND SPECIES OF SPECIAL CONCERN
KNOWN TO OCCUR IN MARTIN COUNTY, FLORIDA

Scientific Name	Common Name	Federal Status	State Status
<u>Amphibians</u>			
<i>Rana capito</i>	Gopher Frog	N	LS
<u>Reptiles</u>			
<i>Alligator mississippiensis</i>	American Alligator	T(S/A)	LS
<i>Caretta caretta</i>	Loggerhead	LT	LT
<i>Chelonia mydas</i>	Green Turtle	LE	LE
<i>Dermochelys coriacea</i>	Leatherback	LE	LE
<i>Drymarchon couperi</i>	Eastern Indigo Snake	LT	LT
<i>Eretmochelys imbricata</i>	Hawksbill	LE	LE
<i>Gopherus polyphemus</i>	Gopher Tortoise	N	LT
<u>Birds</u>			
<i>Aphelocoma coerulescens</i>	Florida Scrub-jay	LT	LT
<i>Aramus guarauna</i>	Limpkin	N	LS
<i>Athene cunicularia floridana</i>	Florida Burrowing Owl	N	LS
<i>Caracara cheriway</i>	Crested Caracara	LT	LT
<i>Charadrius melodus</i>	Piping Plover	LT	LT
<i>Egretta caerulea</i>	Little Blue Heron	N	LS
<i>Egretta thula</i>	Snowy Egret	N	LS
<i>Egretta tricolor</i>	Tricolored Heron	N	LS
<i>Eudocimus albus</i>	White Ibis	N	LS
<i>Falco peregrinus</i>	Peregrine Falcon	N	LE
<i>Falco sparverius paulus</i>	Southeastern American Kestrel	N	LT
<i>Grus canadensis pratensis</i>	Florida Sandhill Crane	N	LT
<i>Haematopus palliatus</i>	American Oystercatcher	N	LS
<i>Haliaeetus leucocephalus</i>	Bald Eagle	N	LT
<i>Mycteria americana</i>	Wood Stork	LE	LE
<i>Pelecanus occidentalis</i>	Brown Pelican	N	LS
<i>Picoides borealis</i>	Red-cockaded Woodpecker	LE	LS
<i>Platalea ajaja</i>	Roseate Spoonbill	N	LS
<i>Rostrhamus sociabilis plumbeus</i>	Snail Kite	LE	LE
<i>Rynchops niger</i>	Black Skimmer	N	LS
<i>Sterna antillarum</i>	Least Tern	N	LT
<u>Mammals</u>			
<i>Podomys floridanus</i>	Florida Mouse	N	LS
<i>Puma concolor coryi</i>	Florida Panther	LE	LE
<i>Sciurus niger shermani</i>	Sherman's Fox Squirrel	N	LS
<i>Trichechus manatus</i>	Manatee	LE	LE
<u>Plants and Lichens</u>			
<i>Argusia gnaphalodes</i>	Sea Lavender	N	LE
<i>Asimina tetramera</i>	Four-petal Pawpaw	LE	LE
<i>Chamaesyce cumulicola</i>	Sand-dune Spurge	N	LE
<i>Cladonia perforata</i>	Perforate Reindeer Lichen	LE	LE
<i>Coelorachis tuberculosa</i>	Piedmont Jointgrass	N	LT
<i>Conradina grandiflora</i>	Large-flowered Rosemary	N	LT
<i>Ctenitis sloanei</i>	Florida Tree Fern	N	LE
<i>Eugenia confusa</i>	Tropical Ironwood	N	LE
<i>Glandularia maritima</i>	Coastal Vervain	N	LE
<i>Halophila johnsonii</i>	Johnson's Seagrass	LT	N
<i>Jacquemontia reclinata</i>	Beach Jacquemontia	LE	LE
<i>Lechea cernua</i>	Nodding Pinweed	N	LT
<i>Lechea divaricata</i>	Pine Pinweed	N	LE
<i>Linum carteri</i> var. <i>smallii</i>	Carter's Large-flowered Flax	N	LE
<i>Ophioglossum palmatum</i>	Hand Fern	N	LE
<i>Peperomia humilis</i>	Terrestrial Peperomia	N	LE
<i>Peperomia obtusifolia</i>	Blunt-leaved Peperomia	N	LE
<i>Polygala smallii</i>	Tiny Polygala	LE	LE
<i>Pteroglossaspis ecristata</i>	Giant Orchid	N	LT
<i>Tephrosia angustissima</i> var. <i>curtissii</i>	Coastal Hoary-pea	N	LE
<i>Tolumnia bahamensis</i>	Dancing-lady Orchid	N	LE
<i>Vanilla mexicana</i>	Scentless Vanilla	N	LE

LS = Species of Special Concern
LT = Threatened
LE = Endangered
N = Not Listed
T(S/A) = Listed due to Similarity of Appearance

Source: Florida Natural Areas Inventory, 2007.

TABLE 2.3-3
MONTHLY AND ANNUAL AVERAGE TEMPERATURES
MEASURED AT PALM BEACH INTERNATIONAL AIRPORT

Month	Daily Temperatures (°F)^a			Extremes (°F)^b	
	Average	Maximum	Minimum	Maximum	Minimum
January	66.2	75.1	57.3	89	27
February	67.2	76.3	58.2	90	32
March	70.6	79.2	61.9	94	30
April	73.8	82.1	65.4	99	43
May	78.2	85.9	70.5	96	51
June	81.2	88.5	73.8	98	61
July	82.5	90.1	75.0	101	66
August	82.8	90.1	75.4	99	65
September	81.7	88.7	74.7	97	66
October	78.1	85.0	71.2	95	46
November	73.1	80.4	65.8	91	36
December	68.3	76.4	60.1	90	28
Annual	75.3	83.2	67.4	101	27

^a 30-year period of record, climatological normal, 1971 to 2000.

^b 69-year period of record, 1938 to 2006.

Source: National Oceanic and Atmospheric Administration (NOAA), 2006.

TABLE 2.3-4
MONTHLY AND ANNUAL AVERAGE PRECIPITATION AND RELATIVE HUMIDITY
MEASURED AT PALM BEACH INTERNATIONAL AIRPORT

Month	Precipitation (inches)			Humidity (%) hour (LT)^a			
	Average^a	Maximum^b	Minimum^b	1 a.m.	7 a.m.	1 p.m.	7 p.m.
January	3.75	11.18	0.22	82	84	59	73
February	2.55	8.71	0.29	81	84	57	70
March	3.68	16.78	0.33	79	82	56	68
April	3.57	18.26	0.04	77	80	55	66
May	5.39	15.22	0.39	80	80	59	71
June	7.58	20.09	1.07	85	84	65	76
July	5.97	17.74	1.22	85	85	64	75
August	6.65	13.52	1.73	85	86	64	76
September	8.10	29.40	1.77	85	87	66	78
October	5.46	18.74	0.56	81	84	62	75
November	5.55	14.63	0.23	81	84	62	74
December	3.14	11.69	0.06	82	84	61	74
Year	61.39			82	84	61	73

Note: LT = local time.

^a 30-year period of record, climatological normal, 1971 to 2000.

^b 67-year period of record, 1940 to 2006.

Source: NOAA, 2006.

TABLE 2.3-5
SEASONAL AND ANNUAL AVERAGE WIND DIRECTION AND WIND SPEED
MEASURED AT PALM BEACH INTERNATIONAL AIRPORT^a

Season	Average Wind Speed (mph)	Calm (%)	Prevailing Wind Direction
Winter	9.0	9.6	East
Spring	9.6	9.2	East
Summer	7.7	16.3	East-southeast
Fall	9.3	9.7	East
Annual	8.9	11.2	East

^a 5-year period of record, 2001 to 2005. The data for this period were also used in the air quality impact analyses for the MSEC.

Source: NOAA, 2001-2005.

**TABLE 2.3-6
SOLAR RADIATION FOR WEST PALM BEACH**

	Solar Radiation (Direct and Diffuse watt-hours/square meter)					
	1986	1987	1988	1989	1990	Average
Annual	1,797,835	1,812,162	1,774,038	1,864,321	1,775,852	1,804,842
Maximum Hourly	1,026	1,027	1,034	1,023	1,025	1,027
Average per Day	4,926	4,965	4,860	5,108	4,865	4,945
Equivalent Maximum Hours/Day	4.80	4.83	4.70	4.99	4.75	4.82

Source: Solar and Meteorological Surface Observation Network, NCDC and NREL, 1993.

TABLE 2.3-7
NATIONAL AND STATE AAQS, ALLOWABLE PSD INCREMENTS, AND SIGNIFICANT IMPACT LEVELS
($\mu\text{g}/\text{m}^3$)

Pollutant	Averaging Time	AAQS ^a			PSD Increments ^a		PSD Class II Significant Impact Levels ^b
		National Primary Standard	National Secondary Standard	Florida	Class I	Class II	
Particulate Matter (PM ₁₀) ^c	Annual Arithmetic Mean	NA	NA	50	4	17	1
	24-Hour Maximum	150	150	150	8	30	5
Particulate Matter (PM _{2.5}) ^c	Annual Arithmetic Mean	15	15	NA	NA	NA	NA
	24-Hour Maximum	35	35	NA	NA	NA	NA
Sulfur Dioxide	Annual Arithmetic Mean	80	NA	60	2	20	1
	24-Hour Maximum	365	NA	260	5	91	5
	3-Hour Maximum	NA	1,300	1,300	25	512	25
Carbon Monoxide	8-Hour Maximum	10,000	10,000	10,000	NA	NA	500
	1-Hour Maximum	40,000	40,000	40,000	NA	NA	2,000
Nitrogen Dioxide	Annual Arithmetic Mean	100	100	100	2.5	25	1
Ozone	1-Hour Maximum	NA	NA	235	NA	NA	NA
	8-Hour Maximum ^c	157	157	NA	NA	NA	NA
Lead	Calendar Quarter Arithmetic Mean	1.5	1.5	1.5	NA	NA	NA

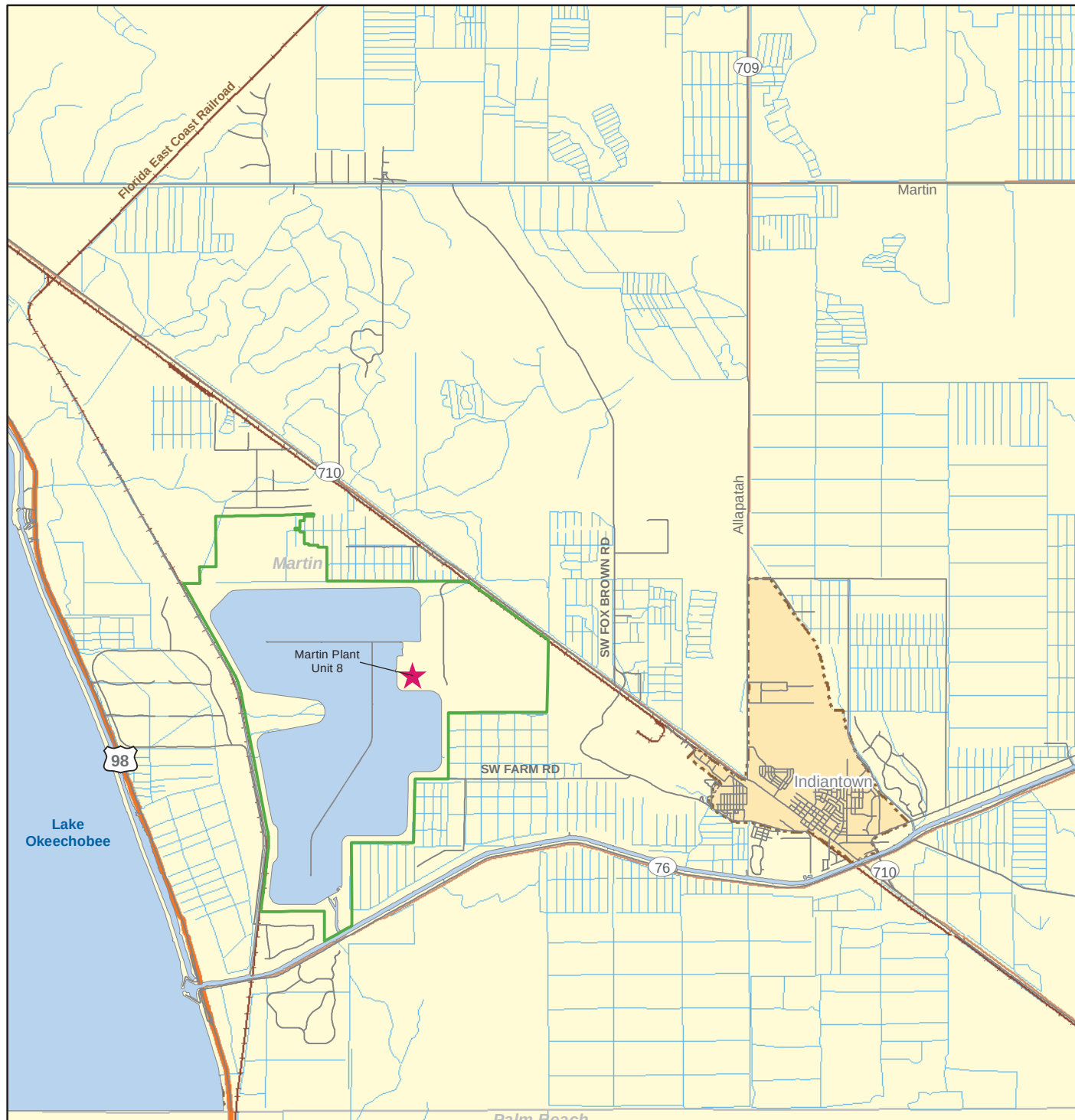
Note: PM₁₀ = particulate matter (PM) with aerodynamic diameter ≤ 10 micrometers (μm). PM_{2.5} = PM with aerodynamic diameter ≤ 2.5 μm .
 NA = Not applicable, i.e., no standard exists.

^a Short-term maximum concentrations are not to be exceeded more than once per year except where noted. For PM₁₀, the Florida 24-hour AAQS is attained when the expected number of days per year with a 24-hour concentration above 150 $\mu\text{g}/\text{m}^3$ is equal to or less than 1. For modeling purposes, compliance is based on the sixth highest 24-hour concentration over a 5-year period. For ozone, the Florida AAQS is based on a daily maximum 1-hour concentration that cannot be exceeded an average of more than once per year.

^b Maximum concentrations used as trigger levels to determine level of review.

^c On July 18, 1997, EPA promulgated revised AAQS for particulate matter and ozone. The ozone standard was modified to be 0.08 ppm (157 $\mu\text{g}/\text{m}^3$); achieved when 3-year average of 4th highest value is 0.08 ppm or less. On October 17, 2006, the PM_{2.5} standards were finalized: 24-hour standard of 35 $\mu\text{g}/\text{m}^3$ (3-year average of 98th percentile) and annual standard of 15 $\mu\text{g}/\text{m}^3$ (3-year average at community monitors). The annual PM₁₀ AAQS was revoked. FDEP has not yet adopted these standards.

Sources: Federal Register, Vol. 43, No. 118, June 19, 1978; 40 CFR 50; 40 CFR 52.21. Chapter 62-204, F.A.C.

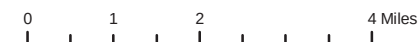


LEGEND

-  Martin Plant Unit 8 Location
-  Martin Plant Boundary
-  Local City Boundaries

REFERENCE

1. Martin Plant Unit 8, FPL, 2008.
2. Martin Plant boundary, Martin County Property Appraiser, 2007.
3. Roads & Railroads, Martin County GIS, 2008.
4. Local cities and boundaries, ESRI Data Kit, 2004.



PROJECT		MARTIN SOLAR ENERGY CENTER	
TITLE		LOCATION MAP	
	PROJECT No.	083-87523	SCALE AS SHOWN REV. 0
	DESIGN	KK 09/17/08	
	GIS	RL 3/19/08	
	CHECK	KK 3/19/08	
		REVIEW	KK 3/19/08
FIGURE 2.1-1			

LEGAL DESCRIPTION:

BEING A PARCEL OF LAND LYING OVER A PORTION OF SECTIONS 28, AND 29, TOWNSHIP 39 SOUTH, RANGE 38 EAST, MARTIN COUNTY, FLORIDA; SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 28; PROCEED SOUTH 89°47'42" WEST, ALONG THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 29, A DISTANCE OF 2642.46 FEET TO THE SOUTHWEST CORNER OF THE SOUTHEAST QUARTER OF SAID SECTION 29; THENCE NORTH 00°12'59" WEST, DEPARTING SAID SOUTH LINE, A DISTANCE OF 340.00 FEET TO A POINT ON A LINE 340.00 FEET NORTH OF, AND PARALLEL WITH THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 29 AND THE POINT OF BEGINNING; THENCE SOUTH 89°46'20" WEST, ALONG SAID PARALLEL LINE, A DISTANCE OF 167.06 FEET; THENCE NORTH 00°00'04" WEST, DEPARTING SAID PARALLEL LINE, A DISTANCE OF 1,188.28 FEET; THENCE NORTH 90°00'00" WEST, A DISTANCE OF 256.30 FEET; THENCE NORTH 44°41'37" WEST, A DISTANCE OF 557.66 FEET; THENCE NORTH 90°00'00" WEST, A DISTANCE OF 1,121.40 FEET; THENCE NORTH 00°00'00" EAST, A DISTANCE OF 1,440.36 FEET; THENCE NORTH 90°00'00" EAST, A DISTANCE OF 208.39 FEET; THENCE NORTH 00°02'42" WEST, A DISTANCE OF 825.69 FEET TO A POINT ON THE SOUTH LINE OF THE NORTH 1,120.00 FEET OF SAID SECTION 29; THENCE NORTH 89°45'23" EAST, ALONG SAID SOUTH LINE, A DISTANCE OF 615.83 FEET TO A POINT ON THE EAST LINE OF THE WEST 1,600.00 FEET OF SAID SECTION 29; THENCE SOUTH 74°12'11" EAST, DEPARTING SAID SOUTH, AND EAST LINES, A DISTANCE OF 1,776.77 FEET; THENCE SOUTH 87°20'11" EAST, A DISTANCE OF 917.72 FEET; THENCE SOUTH 89°47'30" EAST, A DISTANCE OF 4,131.81 FEET; THENCE SOUTH 44°18'21" EAST, A DISTANCE OF 266.57 FEET; THENCE SOUTH 04°49'19" EAST, A DISTANCE OF 3,103.76 FEET TO A POINT ON A LINE 340.00 FEET NORTH OF, AND PARALLEL WITH, THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 28; THENCE SOUTH 89°41'44" WEST, ALONG SAID PARALLEL LINE, A DISTANCE OF 796.67 FEET TO A POINT ON A LINE 340.00 FEET NORTH OF, AND PARALLEL WITH, THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 28; THENCE SOUTH 89°41'42" WEST, ALONG SAID PARALLEL LINE, A DISTANCE OF 2,653.01 FEET TO A POINT ON A LINE 340.00 FEET NORTH OF AND PARALLEL WITH, THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 29; THENCE SOUTH 89°47'42" WEST, ALONG SAID PARALLEL LINE, A DISTANCE OF 2,642.23 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINING 557.01 ACRES, MORE OR LESS.

REFERENCE MATERIALS:

- BOUNDARY SURVEY PREPARED BY RICHARD L. SHEPHARD AND ASSOCIATES FOR FLORIDA POWER & LIGHT, DRAWING NUMBER N07-10-081, DATED OCTOBER 19, 2007.
- GOVERNMENT LAND OFFICE TOWNSHIP MAP FOR TOWNSHIP 39 SOUTH, RANGE 38 EAST, DATED JANUARY 1855.
- NATIONAL GEODETIC DATA SHEETS FOR HORIZONTAL CONTROL POINTS "FLGPS 66" AND "CS45".

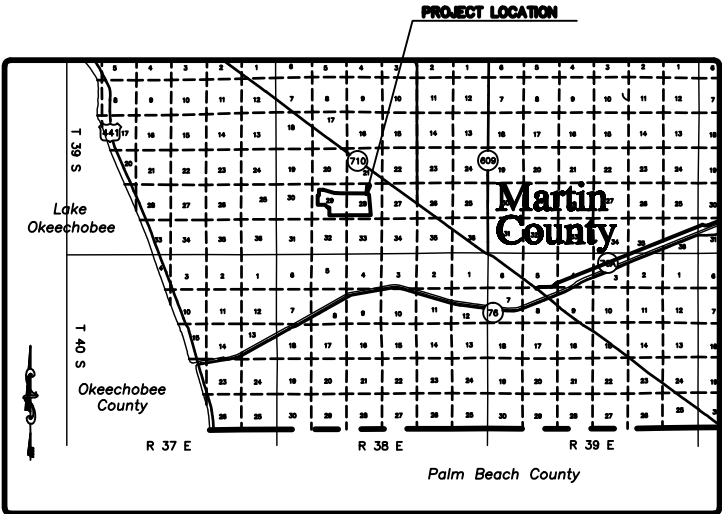
LEGEND

- O = SET 5/8" IRON ROD AND CAP LB#7622
- (C) = CALCULATED
- (M) = MEASURED
- (SHEP) = DIMENSION AS SHOWN ON RICHARD L. SHEPHARD SURVEY (SEE REFERENCE MATERIALS)
- P.U.D. = PLANNED UNIT DEVELOPMENT

BEARING BASE:

THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 29, TOWNSHIP 39 SOUTH, RANGE 38 EAST, AS MONUMENTED, IS TAKEN TO BEAR SOUTH 89°41'44" WEST, AND ALL OTHER BEARINGS SHOWN HEREON ARE RELATIVE THERETO.

BOUNDARY SURVEY FOR:
FLORIDA POWER & LIGHT COMPANY
MARTIN PROJECT P.U.D.



VICINITY MAP
(NOT TO SCALE)

SURVEYOR'S NOTES:

- THE BEARINGS AND DISTANCES SHOWN ON THIS SURVEY ARE "GRID" AND ARE BASED ON THE FLORIDA STATE PLANE COORDINATE SYSTEM, TRANSVERSE MERCATOR PROJECTION, FLORIDA EAST ZONE, NORTH AMERICAN DATUM OF 1983/2007 ADJUSTMENT, AND ARE BASED ON THE FOLLOWING CONTROL:

NATIONAL GEODETIC SURVEY CONTROL POINT "C 545" - POINT IDENTIFICATION NUMBER AJ8599 - A STAINLESS STEEL ROD IN NGS LOGO CAP AND SLEEVE STAMPED C 545 2001 CERP - LOCATED AT THE NORTHEAST SIDE OF BEELINE HIGHWAY ±6.0 MILES NORTHWEST OF THE INTERSECTION OF STATE ROAD 710 (BEELINE HIGHWAY) WITH ADAMS AVENUE.

NORTHING - 993747.63 - EASTING 806479.08

NATIONAL GEODETIC SURVEY CONTROL POINT "FLGPS 66" - POINT IDENTIFICATION NUMBER AF7418 - A STAINLESS STEEL ROD IN NGS LOGO CAP AND SLEEVE STAMPED FLGPS 66 1989

NORTHING 997047.82 - EASTING 802066.15

SCALE FACTOR FOR THIS SITE IS 0.99996708 (GRID DISTANCE/SCALE FACTOR = GROUND DISTANCE)

- ABOVE GROUND IMPROVEMENTS WERE NOT LOCATED AS A PART OF THIS SURVEY.
- SUBSURFACE ENCROACHMENTS IF ANY, WERE NOT LOCATED AS A PART OF THIS SURVEY.
- SYMBOLS ARE NOT TO SCALE.
- THE FIELD SURVEY WAS CONDUCTED DURING THE WEEKS OF FEBRUARY 25TH - 29TH, 2008, AND MARCH 3 - 7, 2008 WITH THE LAST FIELD DAY ON SITE BEING MARCH 10TH, 2008.
- THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF TITLE REVIEW.
- THIS SURVEY IS SUBJECT TO ALL EASEMENTS, RIGHTS-OF-WAYS, RESERVATIONS, AND RESTRICTIONS OF RECORD, IF ANY.
- THE LEGAL DESCRIPTION WAS PREPARED BY THE SURVEYOR FOR THIS SURVEY, AS THIS SURVEY LIES OVER A PORTION OF A LARGER OWNERSHIP..
- THE NORTH QUARTER SECTION CORNER, THE NORTHWEST CORNER, AND SOUTHWEST CORNER OF SECTION 29, TOWNSHIP 39 SOUTH, RANGE 38 EAST, WERE ESTABLISHED BY HOLDING FLORIDA STATE PLANE COORDINATES AS SHOWN ON A BOUNDARY SURVEY PREPARED BY RICHARD L. SHEPHARD AND ASSOCIATES (SEE REFERENCE MATERIALS).

CERTIFIED TO:

- FLORIDA POWER & LIGHT COMPANY
- MARTIN COUNTY, BOARD OF COUNTY COMMISSIONERS

Figure 2.1-2A

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DATE	BY	REVISIONS

Date: 3/12/08
Scale: N/A
Comp. By: CSE
Check By: TCV
Field By: MWP
F.S. 8889
Page: 8889
Field Date: 8889

VERIFY SCALE
BAR IS EQUAL TO ONE
INCH ON ORIGINAL DRAWING
0 1
ADJUST ALL SCALED
DIMENSIONS ACCORDINGLY

BOYLE
ENGINEERING CORPORATION

3550 S.W. Corporate Parkway, Palm City, Florida 34990
(772) 286-3883 Fax: (772) 286-3925
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SURVEYOR AND MAPPER'S SIGNATURE
1. UNLESS IT BEARS THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER, THIS MAP/REPORT IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT VALID.
2. NO SEARCH OF THE PUBLIC RECORDS HAS BEEN MADE BY THIS OFFICE.

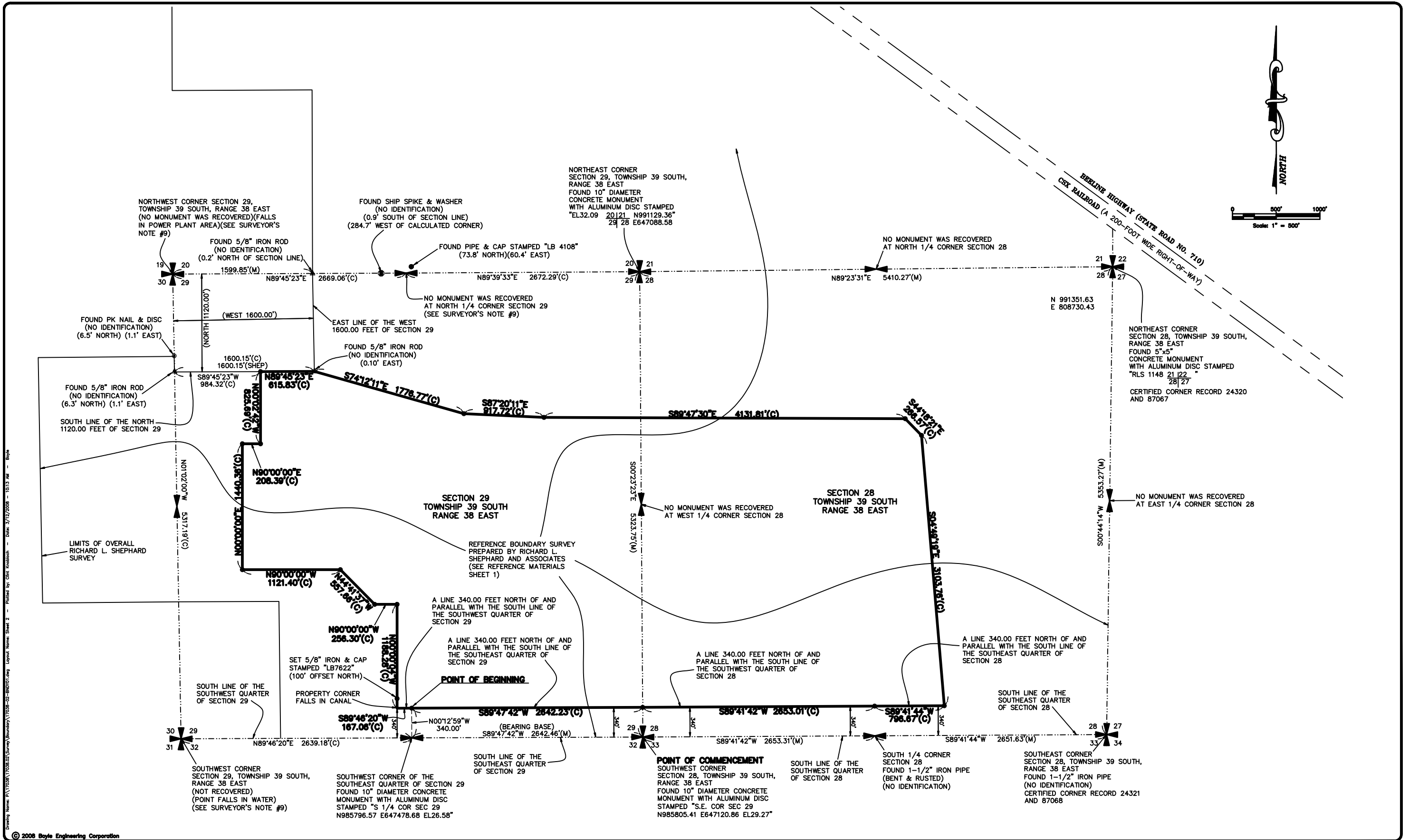
CLINTON H. KNOBLOCH, PROFESSIONAL SURVEYOR & MAPPER
STATE OF FLORIDA NO. 5053
LICENSED BUSINESS NUMBER 7822



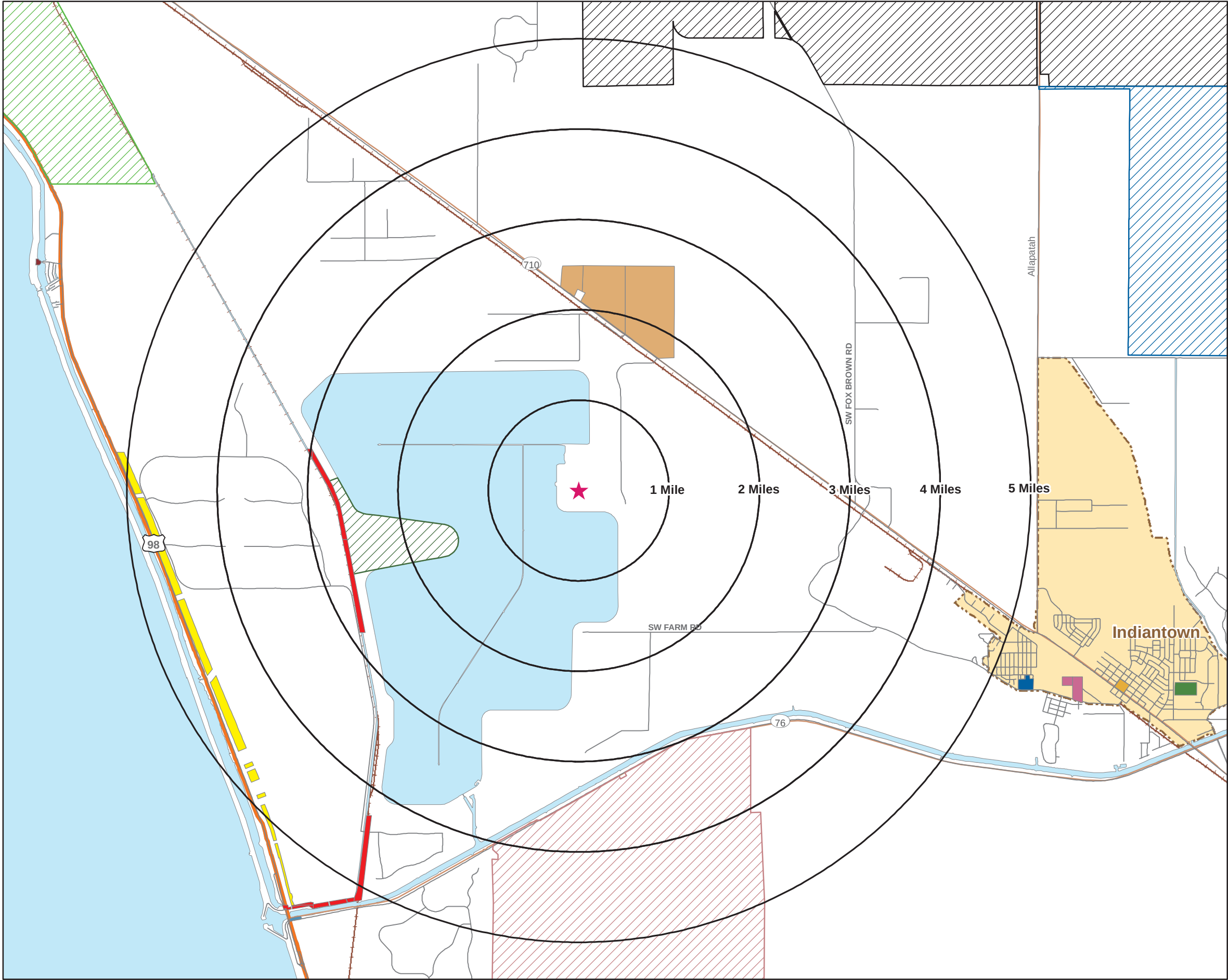
BOUNDARY SURVEY FOR:
FLORIDA POWER & LIGHT COMPANY
(FPL MARTIN PROJECT P.U.D.)

PROJECT No:
17038.02
SHEET
1 OF 2

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LEGEND

- ★ Martin Plant Unit 8 Location

Local City Boundaries

Martin County Parks

 - Big Mound
 - Booker Park
 - Indiantown Middle School
 - J & S Boat Ramp
 - Kiwanis
 - Port Mayaca Park

Martin County Conservation Lands

 - SPWMD
 - WILLIAMSON CATTLE RANCH INC
- Florida Managed Lands**

 - ALLAPATTAH FLATS
 - BARLEY BARBER SWAMP
 - C-44 STORMWATER TREATMENT AREA
 - DUPUIS RESERVE
 - LAKE OKEECHOBEE RIDGE
 - TAYLOR CREEK/NUBBINS SLOUGH STA

NOTE

Radii drawn from Martin Plant Unit 8

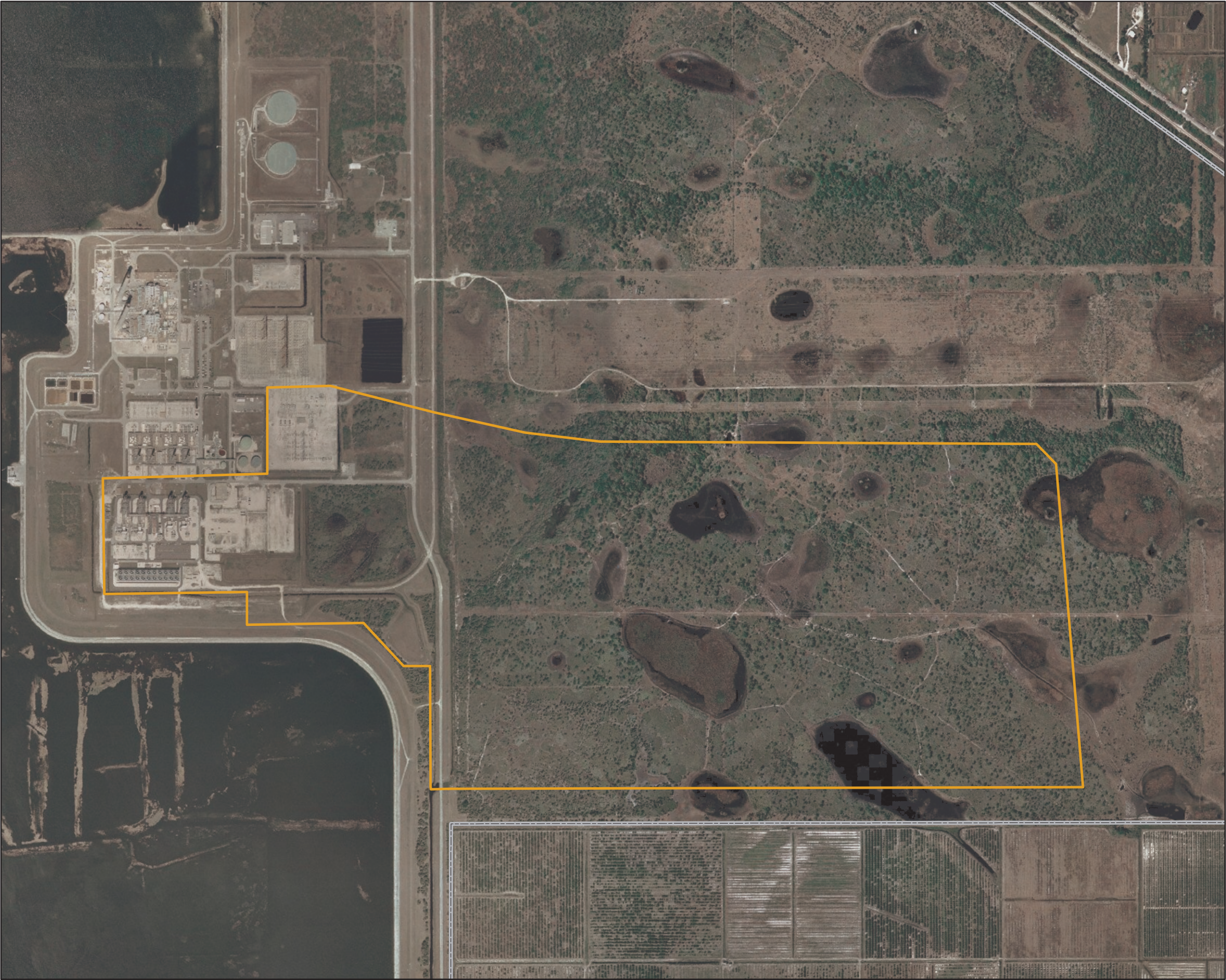
REFERENCE

1. Local city boundaries, ESRI data kit, 2004. 2. Florida Managed lands, Florida Natural Areas Inventory, 2007. 3. Martin County parks, conservation lands, Martin County GIS, 2008



PROJECT	MARTIN SOLAR ENERGY CENTER		
TITLE	GOVERNMENTAL JURISDICTIONS; 1, 2, 3, 4, AND 5-MILE RADIUS FROM SITE		
	PROJECT No. 083-87523		SCALE AS SHOWN
	DESIGN	KK	03/17/08
	GIS	RL	03/20/08
	CHECK	KK	03/20/08
	REVIEW	KK	03/20/08
FIGURE 2.1-3			REV. 0

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LEGEND

 Project Area

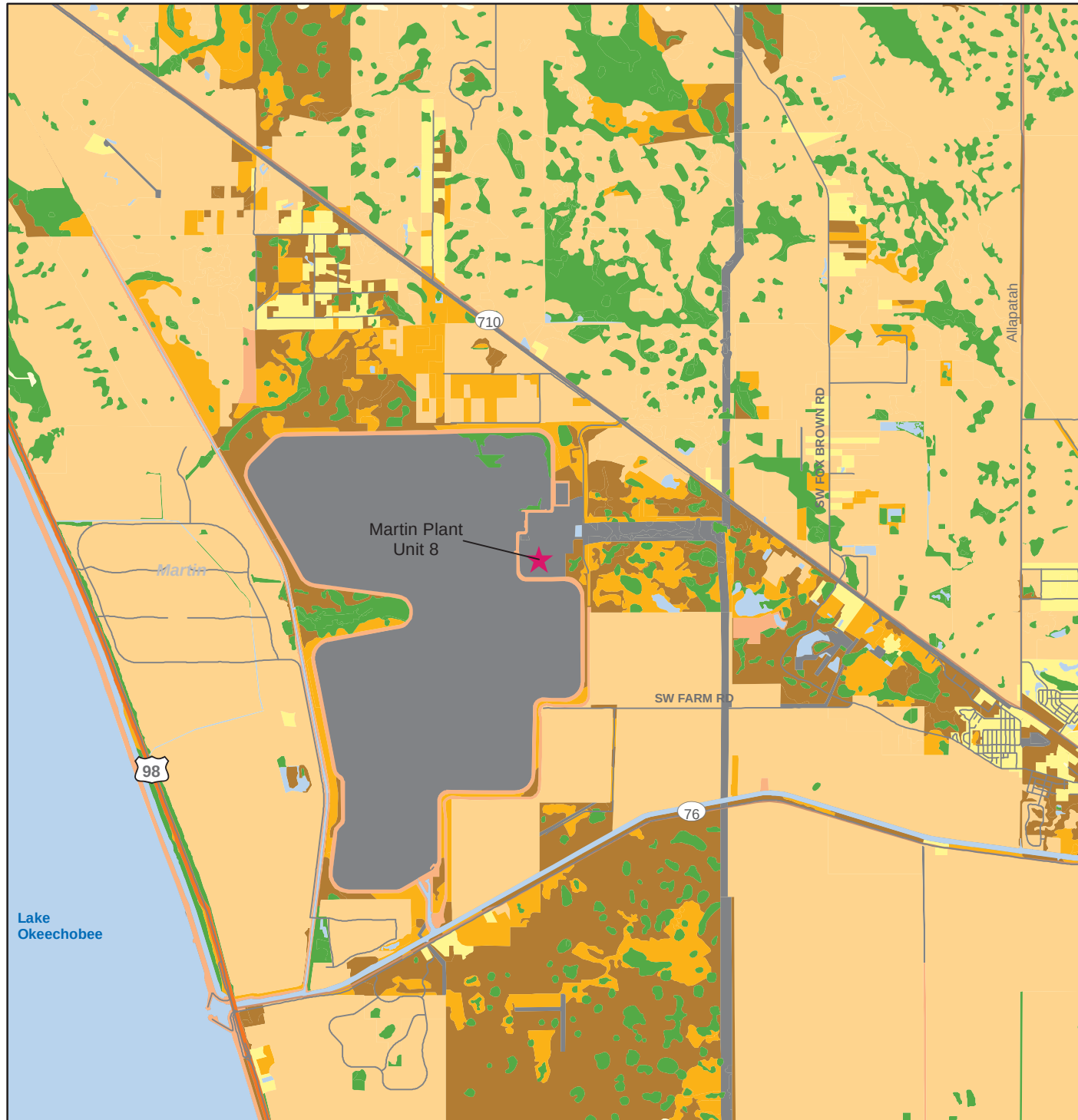
 Plant Property Boundary

REFERENCE

1. Imagery, ESRI Online, 2006. 2. Plant property boundary, Martin County Property Appraiser, 2007. 3. Project Boundary, FPL, 2008

0 500 1,000 2,000 Feet

	PROJECT	MARTIN SOLAR ENERGY CENTER			
	TITLE	AERIAL PHOTOGRAPH OF MARTIN PLANT AND VICINITY			
	PROJECT No. 083-87523		SCALE AS SHOWN	REV. 0	
	DESIGN	KK	03/17/08	FIGURE 2.1-4	
	GIS	RL	04/28/08		
	CHECK	KB	04/28/08		
	REVIEW	KK	04/28/08		



LEGEND



Martin Plant Unit 8 Location

Existing Land Use

- 100 - URBAN AND BUILT - UP
- 200 - AGRICULTURE
- 300 - RANGELAND
- 400 - UPLAND FOREST
- 500 - WATER
- 600 - WETLANDS
- 700 - BARREN LAND
- 800 - TRANSPORTATION
COMMUNICATION AND UTILITIES

REFERENCE

1. Existing land use, SFWMD, 2004.



PROJECT		MARTIN SOLAR ENERGY CENTER			
TITLE		EXISTING LAND USE			
	PROJECT No.	083-87523		SCALE AS SHOWN	REV. 0
	DESIGN	KK	09/17/08	FIGURE 2.2-1	
	GIS	RL	09/19/08		
	CHECK	KK	09/19/08		
	REVIEW	KK	09/19/08		

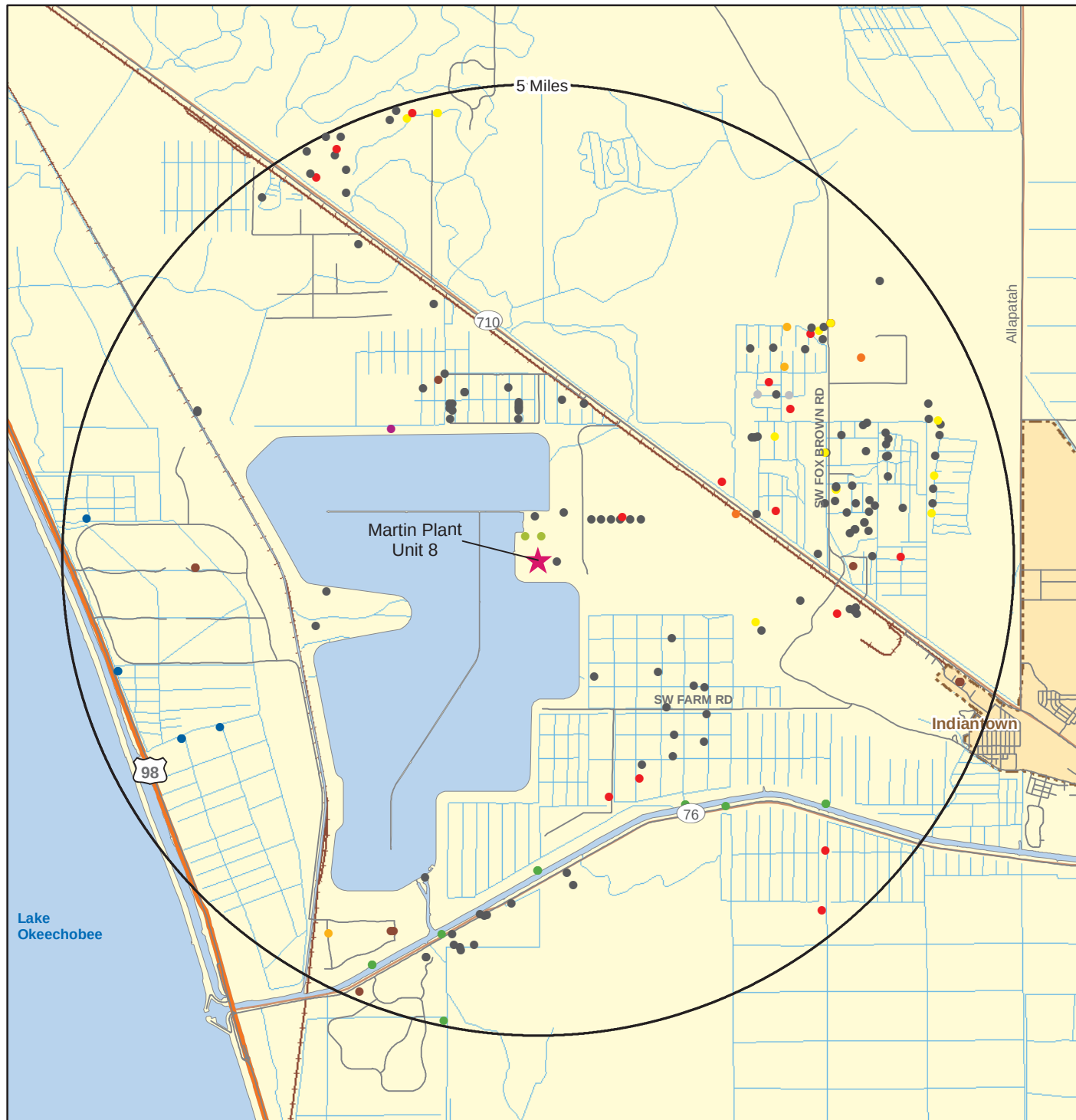
GEOLOGIC AGE	FORMATION/GROUP	AQUIFER
Post-Miocene	Pamlico Sand Fort Thompson/Anastasia Fms Caloosahatchee Marl	Surficial Aquifer (90-200' thick)
Miocene	Tamiami Formation	
	Hawthorn Group  Peace River Fm. Arcardia Fm.	Confining Layers (350-600' thick) Top of Floridan Aquifer System (2800-3400' thick)
Oligocene	Suwannee Limestone	Producing Zone 1
Eocene	Ocala Limestone	----- Semi-permeable zone -----
	Avon Park Limestone	Producing Zone 2
		----- Semi-permeable zone -----
		Producing Zones 3 and 4
	Lake City Limestone	----- Semi-permeable zone -----
	Oldsmar Formation	----- Boulder Zone -----
Paleocene	Cedar Keys Formation	Semi-permeable zone

REFERENCE

1. Site Certification Application for FPL Martin
Coal Gasification/ Combined Cycle Project, 1989; Golder, 2002.

PROJECT		MARTIN SOLAR ENERGY CENTER	
TITLE		GENERALIZED HYDROSTRATIGRAPHY OF MARTIN COUNTY	
	PROJECT No.	083-87523	SCALE AS SHOWN
	DESIGN	KK 3/27/08	REV. 0
	GIS	RL 3/28/08	
	CHECK	KK 3/28/08	
	REVIEW	KK 3/28/08	

FIGURE 2.3-1



LEGEND

★ Martin Plant Unit 8 Location

Water Use Sources

- CANAL
- Floridan Aquifer System
- On-site Canal(s)
- On-site Lake(s)
- On-site Lake(s)/Pond(s)
- On-site Reservoir
- SFWMD Canal (C-44)
- SFWMD Canal (L-47)
- SFWMD Canal (L-65)
- Surficial Aquifer System
- Water Table aquifer

NOTE

Radius drawn from Martin Plant Unit 8

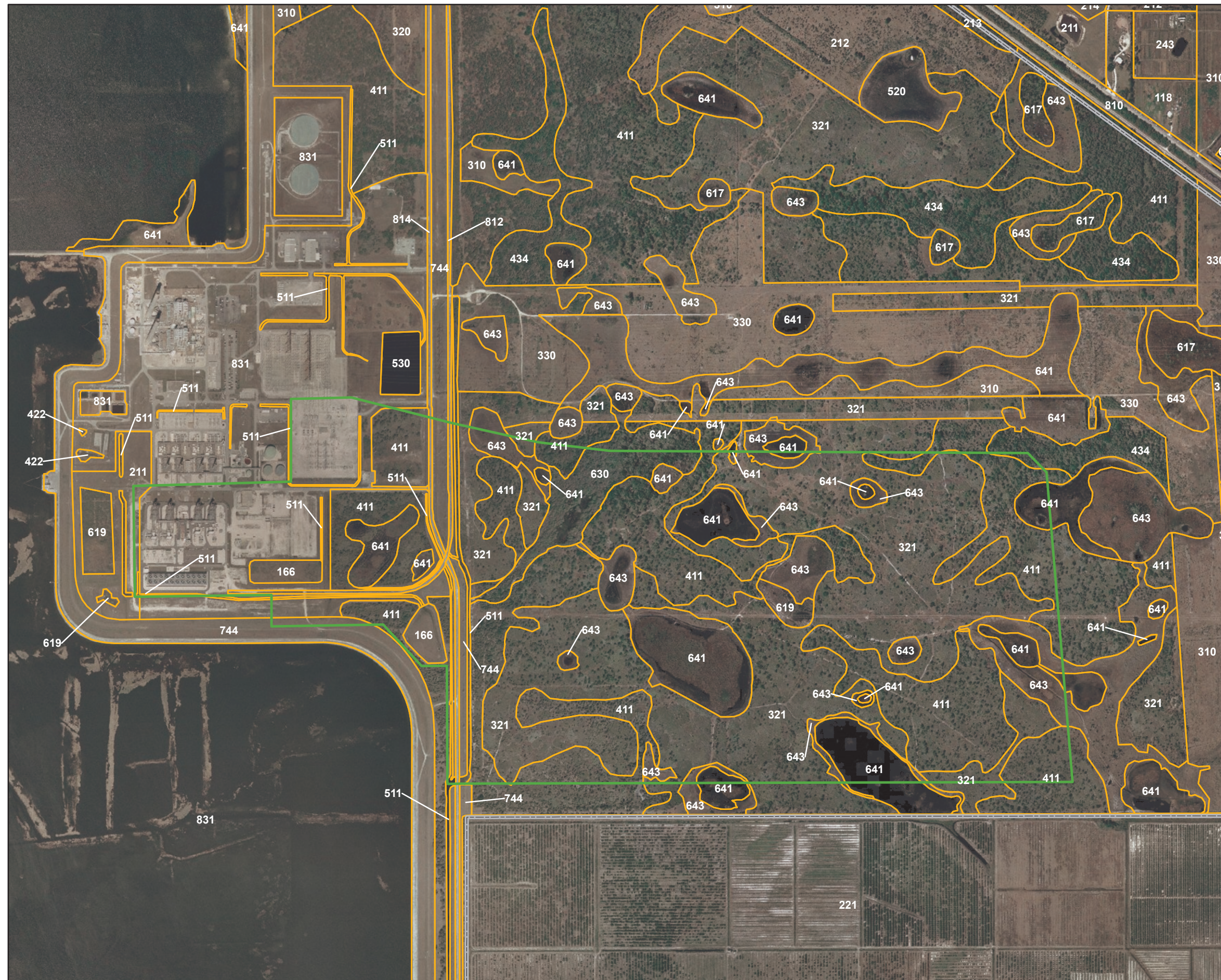
REFERENCE

1. Municipalities, ESRI data kit 2004.
2. Roads, Martin County, 2008.
3. Water use sources, SFWMD, 2007.



PROJECT		MARTIN SOLAR ENERGY CENTER	
TITLE		PERMITTED WATER USES WITHIN 5-MILE RADIUS	
	PROJECT No.	083-87523	SCALE AS SHOWN
	DESIGN	KK 09/17/08	REV. 0
	GIS	RL 09/19/08	
	CHECK	KK 09/19/08	
	REVIEW	KK 09/19/08	

FIGURE 2.3-2



LEGEND

-  Project Area

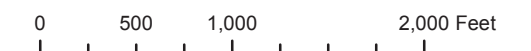
 Plant Boundary

Land Use

 -  118 - RESIDENTIAL LOW DENSITY
 -  166 - HOLDING PONDS
 -  211 - IMPROVED PASTURES
 -  212 - UNIMPROVED PASTURES
 -  213 - WOODLAND PASTURES
 -  214 - ROW CROPS
 -  221 - CITRUS GROVES
 -  243 - ORNAMENTALS
 -  310 - HERBACEOUS
 -  320 - SHRUB AND BRUSHLAND
 -  321 - PALMETTO PRAIRIES
 -  330 - MIXED RANGELAND
 -  411 - PINE FLATWOODS
 -  422 - BRAZILIAN PEPPER
 -  434 - HARDWOOD - CONIFER MIXED
 -  511 - DITCHES
 -  520 - LAKES
 -  530 - RESERVOIRS
 -  617 - MIXED WETLAND HARDWOODS
 -  619 - EXOTIC WETLAND HARDWOODS
 -  630 - WETLAND FORESTED MIXED
 -  641 - FRESHWATER MARSHES
 -  643 - WET PRAIRIES
 -  744 - FILL AREAS <HIGHWAYS - RAILROADS>
 -  810 - TRANSPORTATION
 -  812 - RAILROADS
 -  814 - ROADS AND HIGHWAYS
 -  831 - ELECTRIC POWER FACILITIES

REFERENCE

1. Imagery, ESRI Online, 2006. 2. Project boundary, FPL, 2008
3. Land Use, SFWMD & Golder Associates, 2005, 2008.



PROJECT

MARTIN SOLAR
ENERGY CENTER

	TITLE
--	-------

LAND USE / LAND COVER



PROJECT No. 083-87523			SCALE AS SHOWN	REV. 0
DESIGN	KK	03/17/08	FIGURE 2.3-3	
GIS	RL	04/28/08		
CHECK	KK	04/28/08		
REVIEW	KK	04/28/08		

FIGURE 2.3-3

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LEGEND

FFWCC Species Occurrence
▲ Bald Eagle's Nest

FNAI Listed Species Occurrence
★ Bald Eagle

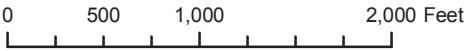
Golder Observed Species
● Bald Eagle
● White Ibis

Northwest Mitigation Restoration Area

Land Use
310 - HERBACEOUS
320 - SHRUB AND BRUSHLAND
321 - PALMETTO PRAIRIES
330 - MIXED RANGELAND
411 - PINE FLATWOODS
420 - UPLAND HARDWOOD FORESTS
434 - HARDWOOD - CONIFER MIXED
511 - DITCH
530 - RESERVOIRS
600 - FRESHWATER MARSHES
617 - MIXED WETLAND HARDWOODS
621 - CYPRESS
641 - FRESHWATER MARSHES
643 - WET PRAIRIES

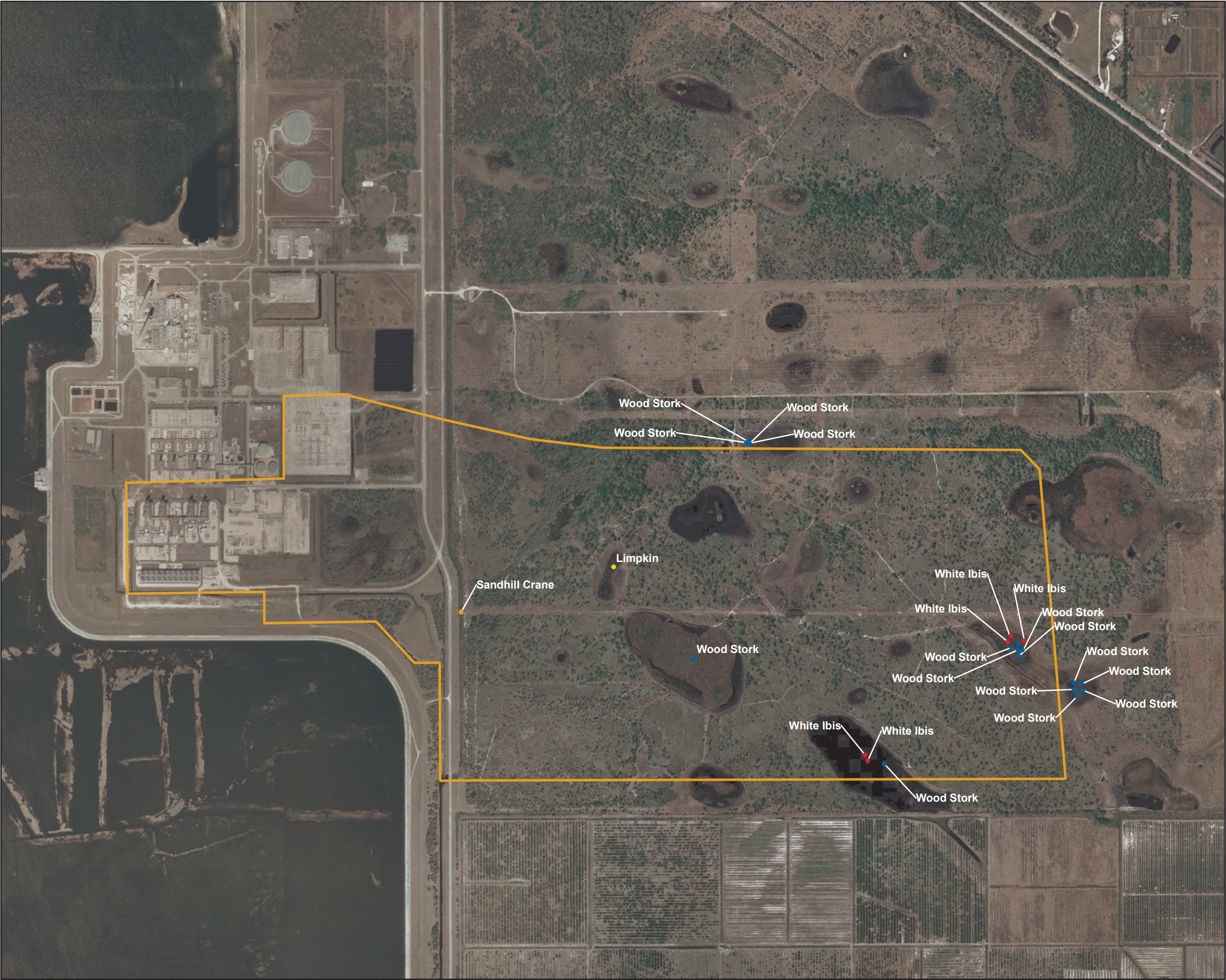
REFERENCE

1. Imagery, ESRI Online, 2006. 2. Northwest Mitigation Restoration Area, FPL, 2008. 3. Land Use, SFWMD, Golder Associates, 2005, 2008. 4. FNAI Species Occurrence, FNAI, 2005. 5. FFWCC Species Occurrence, Florida Fish and Wildlife Commission Bald Eagle Nest Location Database, 2008. 6. Observed Species, Golder Associates, 2008.



PROJECT	MARTIN SOLAR ENERGY CENTER			
	TITLE			
FPL	PROJECT No. 083-87523		SCALE AS SHOWN	REV. 0
	DESIGN	KB	3/31/08	FIGURE 2.3-4
	GIS	RL	3/31/08	
	CHECK	KB	3/31/08	
	REVIEW	KK	3/31/08	

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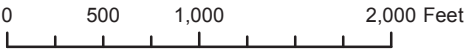


LEGEND

- Project Area
- Golder Observed Species**
 - Limpkin
 - Sandhill Crane
 - White Ibis
 - Wood Stork

REFERENCE

1. Imagery, ESRI Online, 2006. 2. Project boundary, FPL, 2008
3. Observed Species, Golder Associates, 2008



PROJECT	MARTIN SOLAR ENERGY CENTER			
	TITLE			
	OBSERVED SPECIES			
	PROJECT No. 083-87523			SCALE AS SHOWN
	DESIGN	KK	03/17/08	REV. 0
	GIS	RL	04/28/08	
	CHECK	KK	04/28/08	
	REVIEW	KK	04/28/08	

FIGURE 2.3-5

3.0 THE PLANT AND DIRECTLY ASSOCIATED FACILITIES

3.1 Background

This chapter provides a description of the MSEC, including the overall site layout, key components of the facility, and its operation. The MSEC will involve the installation of solar thermal technology that will be integrated into the steam cycle for Martin Unit 8. The additional steam generated by the MSEC will be used to supplement the steam generated in the HRSGs of the combined cycle unit. This supplemental steam displaces steam that could otherwise be generated by duct firing using natural gas. As a result, there will be no increase in the steam generating capacity of Martin Unit 8.

The Martin Plant is an existing generating facility originally constructed in the mid to late 1970s, with the commercial in-service for Units 1 and 2 in December 1980 and June 1981, respectively. Units 3 and 4 were constructed in the early 1990s with commercial in-service of February and April 1994, respectively. The commercial in-service date for Unit 8 was June 2005. The Martin Plant consists of the following units:

- Unit 1 – 800 MW (nominal capacity)
 - Steam electric generating unit firing residual oil and natural gas
- Unit 2 – 800 MW (nominal capacity)
 - Steam electric generating unit firing residual oil and natural gas
- Unit 3 – 500 MW (nominal capacity)
 - Combined cycle generating unit firing natural gas with light oil capability
- Unit 4 – 500 MW (nominal capacity)
 - Combined cycle generating unit firing natural gas with light oil capability
- Unit 8 – 1,100 MW (nominal capacity)
 - Combined cycle generating unit firing natural gas and light oil

Location of the MSEC at the existing Martin Plant site provides sufficient space for solar technology, as well as an existing generating unit that can integrate the solar energy produced into FPL's electric system.

The MSEC involves the installation of parabolic trough solar collectors that concentrate the sun's rays with parabolic geometry (see Figure 3.1-1). The system is equipped with technology that tracks the sun and moves the parabolic reflector panels to the optimum angle to collect incident solar radiation. Energy from the sun is concentrated about eighty times on heat collection elements (HCEs) located in the focal line of the parabolic reflectors. Each HCE consists of a stainless steel tube with a selective coating and covered by a quartz envelope tube to reduce thermal losses. The annular space between absorber tube and quartz tube is evacuated to enhance heat transfer. The HCEs contain HTF, such as Therminol™, which is heated by the concentrated solar radiation to a maximum temperature of approximately 400°C (750°F). The HTF is circulated through the HCEs and routed to heat exchangers that produce steam. The steam is routed through the HRSGs to achieve the temperature and pressure conditions necessary for the steam electric turbine. Figure 3.1-2 shows a flow diagram of the process.

Based on the initial conceptual designs, the MSEC will consist of up to approximately 180,000 mirrors over about 500 acres at the Martin Plant Site. Based on about 1,000 watts per square meter (W/m^2) as the maximum hourly solar radiation, the maximum steam generation will be about 1,000,000 lb/hr. Over an annual period, about 100,000 MWh will be produced.

The primary water use for the MSEC will be for periodically cleaning the mirrors. Rainfall effectively cleans mirrors and is relatively frequent in Florida. Without rainfall, mirror washing may be required once every 1 or 2 weeks. Mirror washing will likely be required during the southern Florida dry season that occurs between October and May. Washing mirrors requires about 50 gallons per 120 mirrors (50 meter section). Based on the amount of mirrors for the MSEC, about 75,000 gallons per washing will be required. Mirror washing is performed as needed to keep the reflectivity of the mirrors up to the optimum performance or above 92 percent. A “new and clean” mirror has a reflectivity of about 94 percent. Demineralized water is used for mirror cleaning. The existing reverse osmosis/mixed bed (RO/MB) demineralizer system will be used to produce water for cleaning mirrors. The production of steam is integrated into the existing steam cycle and minimal additional water is required when compared to duct firing. Other onsite facilities to be constructed as part of the MSEC will include interconnections with existing infrastructure.

The MSEC will be designed to minimize direct discharge to surface waters. Non-contact stormwater runoff will be collected and routed to a stormwater detention area, which has been designed to meet

regulatory requirements (see Section 3.8 and Appendix 10.7). Contact stormwater within the solar power block area will be treated with an oil/water separator and recycled to the existing cooling pond.

As described above, the MSEC produces steam that will be used to produce electricity in the existing Unit 8 steam electric generator. This generator is connected to FPL's electric transmission system.

3.2 Site Layout

The MSEC will be located east and southeast of the existing generating units on the 11,300-acre Martin Plant site. Figure 3.2-1 presents an overall site arrangement. The solar collector assemblies are about 30 feet high. The heat exchanger equipment will have a relatively low profile compared to the existing generating facilities.

3.3 Solar Process Description and Heat Transfer Fluid

Figure 3.1-2 presents a flow diagram of the solar process. The collector field is made up of a large field of single-axis-tracking parabolic trough solar collectors. The solar field is modular in nature and comprises many parallel rows of solar collectors, aligned on a north-south axis. Each solar collector has a linear parabolic-shaped reflector that focuses the sun's direct normal radiation on a HCE located at the focus of the parabola. The collectors track the sun from east to west during the diurnal cycle to ensure that the sun is continuously focused on the linear receiver.

The HCE is the primary energy collector of the proposed solar plant and has high efficiency in collecting the sun's energy through the parabolic trough collector design. The HCE consists of a steel tube with a selective coated surface, surrounded by an evacuated glass tube insulator. The coating gives it excellent selective heat transfer properties with a high absorptivity for direct beam solar radiation and a low design emissivity. The HCE incorporates glass-to-metal seals and metal bellows to achieve the vacuum-tight enclosure. The vacuum enclosure serves primarily to protect the selective surface and to reduce heat losses by insulating it. The outer glass cylinder has anti-reflective coating on the inner and outer surfaces to reduce reflective losses off the glass tube (increasing the transmissivity). Typically, getters (metallic substances that are designed to absorb gas molecules) are installed in the vacuum space to absorb hydrogen and other gases that permeate into the vacuum annulus over time to maintain its insulating properties.

HTF flowing in HCEs at the focal point of the parabolic troughs absorbs the solar energy and provides a high temperature energy source. An HTF such as Therminol™ VP-1 is being considered for use. See Appendix 10.6, Material Safety Data Sheet (MSDS) sheet for Therminol.

HTF is developed specifically for the indirect transfer of heat. HTF has exceptional thermal stability and has low viscosity for efficient, dependable, uniform performance in a wide range of temperatures. The overall volume of HTF in the system, including that in the surge tanks, piping to and from the solar field, and piping in the solar field, is approximately 1,000,000 gallons.

The HTF is circulated through the system with expansion vessels, which accommodate the volumetric change that occurs when heating the HTF to the operating temperature. Nitrogen will be used to provide a blanket on the headspace of the tank. The nitrogen purge prevents oxidation or contamination of the HTF by reducing its exposure to air. Since the HTF is stable, there is minimal loss of HTF. Periodically, the HTF is tested to determine performance, contamination, and moisture content.

During plant operation, HTF will degrade into components with high and low boiling points. The components with low boiling points are removed from the process through a separate ventilation/collection (ullage) system (see Figure 3.1-2). HTF is removed from the HTF surge tank and flashed, leaving behind components with high boiling points and residual HTF. The flashed vapors are condensed and collected in the ullage system.

Insulated piping is used to transport the HTF throughout the solar field, and includes supply and return piping that is routed to allow for balanced flow through all the HCEs. The piping in the solar array will be designed and constructed to allow movement due to thermal expansion – the steel piping in the mirrored trough sections of the array will be connected to the HTF distribution headers. Expansion loops are used as required to maintain the composite pipe stress. The solar field will be divided into various sections with isolation valves.

The HTF is circulated through heat exchangers to produce steam. The design is similar to a shell and tube heat exchanger in that the hot HTF is circulated through HCEs and the steam is produced on the shell side. The resultant steam is supplied to the HRSGs and enters the steam cycle portion of the combined cycle unit. Once the usable heat is obtained from the HTF, it is re-circulated back to the solar field.

3.4 Air Emissions Controls

Solar energy will displace emissions that would otherwise be generated by fossil fuels. The additional steam generation produced by the MSEC would offset generation made by other units and would be available to FPL's customers. The range of generating units for which generation could be offset would range from the new and efficient Unit 8 to one of the older cycling units using residual oil. The difference in these generating units provides an appropriate range of avoided air emissions possible for the solar facility. To generate about 100,000 MWh per year from the duct firing in Unit 8, about 880,000 million British thermal units per year (MMBtu/yr) would be required, based on the incremental heat rate of duct firing of about 8,800 British thermal units per kilowatt-hour (Btu/kWh). For this same amount of electrical energy to be generated by older cycling units using residual oil, 1,002,500 MMBtu/yr would be required, based on a heat rate of 10,125 Btu/kWh. Using the incremental emissions from duct firing in Unit 8, the avoided air emissions from the MSEC will be about: 8,800 lb NO_x/yr, 5,300 lb SO₂/yr, 71,000 lb CO/yr, 14,000 lb VOC/yr, and 800 lb PM/yr. For older cycling units using residual oil, the avoided air emissions from the MSEC will be about 630,000 lb NO_x/yr, 2,800,000 lb SO₂/yr, 34,000 lb CO/yr, 5,100 lb VOC/yr, and 126,000 lb PM/yr.

Solar energy is renewable and does not emit greenhouse gases such as carbon dioxide (CO₂). Over the course of a year, about 52,900 to 81,300 tons of CO₂ will be avoided by the MSEC. To put this amount in perspective, the avoided CO₂ from the MSEC is equivalent to the average CO₂ emissions from about 11,500 to 17,700 cars over a year (calculated using EPA AP-42 Emission Factors).

There will be minor amounts of VOCs released from the expansion tanks as a result of decomposition products of HTF. Based on reported values from FPL Energy SEGS facilities in California, the VOC emissions from the MSEC will be about 0.8 tons per year (TPY). This amount would classify these emissions as insignificant activities and the amount is well below the threshold requiring permitting under FDEP rules in 62-210.300, F.A.C. A generic exemption is that emissions of any regulated pollutant be less than 5 TPY. The 5 TPY applies to the "potential-to-emit" for the emission unit, which would be 8,760 hours/year unless restricted as an enforceable permit condition in a permit. The exemption covers the requirement to obtain construction permits, which is required pursuant to Rule 62-210.300(1), F.A.C.

3.5 Plant Water Use

The plant water use for MSEC can be accommodated by the current authorization for water in the Conditions of Certification (PA89-27L).

The amount of water required by the MSEC is estimated to not exceed about 2 million gallons per year for cleaning mirrors, or an annual average of about 5 gallons per minute (gpm). The usage will be intermittent, with maximum usage of about 75,000 gallons every 1 or 2 weeks during periods without rain and depending upon the reflectivity of the mirrors. The source of water for the MSEC is the existing demineralized water system.

3.5.1 Circulating Water Heat Rejection System

The MSEC will not have a circulating water system.

3.5.2 Domestic/Sanitary Wastewater

About 12 new employees will be required as a result of the MSEC. Additional domestic/sanitary wastewater generated by these additional employees will be handled by the existing system. During construction, additional sanitary wastes will be accommodated by the use of portable toilets.

3.5.3 Potable Water Systems

Potable water uses for the additional employees required for the MSEC will not cause the facility to exceed existing permitted values. Potable water use during construction will be handled by using the existing potable water system and bottled water for drinking purposes, and portable safety shower/eyewash stations.

3.5.4 Process Water Systems

The existing RO/MB demineralizer system will be used to produce water for cleaning mirrors. Raw water from the existing Martin cooling pond is pretreated and used as service water. The service water system feeds the RO/MB train. The estimated annual average requirement for up to 5 gpm of water for cleaning mirrors is within the design margin of the RO/MB system.

3.6 Chemical and Biocide Waste

Existing process and service water systems will not change as a result of the MSEC. During construction, heat exchanger piping and steam piping to integrate the MSEC with Unit 8 will be chemically cleaned initially during commissioning and also periodically during the life of the plant. The chemicals used will not be permanently stored onsite, but will be delivered to the Project Area by a licensed contractor at the time of the scheduled periodic cleanings. The chemical cleaning solutions to be used for acid and alkaline cleaning will be dependent on the manufacturer selected. The actual cleaning solutions used must be consistent with the manufacturer's recommendations. Chemicals typically used will be similar to those used in the HRSGs and feed water piping and may include the following:

1. Inhibited citric acid,
2. Aqueous ammonia,
3. Organic chelates, such as EDTA,
4. Disodium phosphate,
5. Trisodium phosphate,
6. Nonfoaming wetting agents, and
7. Foam inhibitors.

Wastewaters will consist of the cleaning solutions and material removed during the cleaning process. Chemical cleaning wastewater will be maintained onsite and tested, and if non-hazardous, will be routed to the existing wastewater treatment system and returned to the existing cooling pond. Hazardous wastes will be managed according to applicable rules and regulations..

Since chemical cleaning is an infrequent maintenance operation, it does not contribute to the liquid wastes produced by normal operation.

3.7 Solid and Hazardous Waste

3.7.1 Solid Waste

Only small quantities of solid wastes will be generated by the MSEC. Solid wastes will be limited to municipal solid waste. All municipal solid wastes will be disposed of by an approved trash disposal contractor.

3.7.2 Hazardous Waste

There will be no increase in the generation of hazardous waste as a result of the MSEC. Periodic chemical cleaning for the MSEC will be incremental with the operation of the MSEC and consist of spent solvents and other chemicals [less than 100 kilograms (kg) per month]. These wastes will continue to be collected onsite and disposed of by a licensed hazardous waste contractor. No hazardous waste will be stored onsite for more than 90 days before removal.

3.7.3 Heat Transfer Fluid

An example of an HTF that may be used for MSEC is presented in Appendix 10.6. The solar field requires a large number of moveable joints to transfer the HTF to and from the heat exchangers. Due to the large number of joints, there is a potential for leaks associated with joints in the piping (primarily the joints that allow the mirrors to rotate). A frequent inspection program will be established to allow rapid response to any HTF leaks detected and to minimize the actual volume of HTF that could potentially be released. Due to frequent inspections, leaks associated with joints are not expected to produce large volumes of soil that need to be addressed, but over time, may yield small releases on the order of less than a cubic yard of contaminated soil per event. If such leaks occur, FPL would provide a rapid response consistent with the requirements of Chapter 62-780, F.A.C. For this reason, consistent with the requirements of Chapter 62-780, F.A.C., it is expected that the most common HTF cleanup scenario encountered will be rapid excavation of affected soil and disposal of soil to an FDEP-approved facility.

3.8 Site Drainage

3.8.1 Design Criteria and Applicable Regulations

The surface water management system for the MSEC has been designed to meet the requirements of the SFWMD, FDEP, and EPA. The design rainfall event is based on the 25-year 72-hour storm of 9 inches. The basic design requirement of the SFWMD is that the peak post-construction runoff flow rate resulting from the design storm should not exceed the pre-development peak flow rate. The MSEC drainage system is described in detail in Appendix 10.7. A conceptual stormwater management plan and pre-existing vs. post-construction flow rate calculations for the MSEC are also presented in Appendix 10.7.

3.8.2 Construction Drainage

Appendix 10.7 contains the conceptual drainage plan for construction (see Sheet 7 in Conceptual Drainage Permit Drawings). Construction of the MSEC will be performed under the auspices of the FDEP Generic Permit For Stormwater Discharge from Large and Small Construction Activities (May, 2003) which is a permit issued pursuant to the FDEP's federally-approved NPDES stormwater regulatory program. In order to obtain coverage under this generic permit, FPL will:

1. Develop and implement a stormwater pollution prevention plan (SWPPP) in accordance with Part V of the Generic Permit, and
2. Submit a completed Notice of Intent (NOI) in accordance with Part III of the generic permit.

Submittal of the NOI is required at least two days prior to the commencement of construction. The SWPPP will be based on the detailed design of the MSEC, will be completed prior to submittal of the NOI, and will describe and ensure the implementation of appropriate Best Management Practices which will be used to assure compliance with the terms and conditions of the generic permit.

3.8.3 Operational Site Drainage

The proposed stormwater management system for the MSEC is presented in Appendix 10.7 (see Sheets 3, 4, 5, and 6 in Conceptual Drainage Permit Drawings for operational drainage drawings). For the area east of the plant access road, the post-development 25-year, 3-day peak discharge is 44.8 cfs, compared to a pre-development discharge of 95.8 cfs. For the area west of the plant access road, the post-development 25-year, 3-day peak discharge is 52.9 cfs, compared to an approximate equivalent pre-development discharge.

3.9 Materials Handling

3.9.1 Construction Materials and Equipment

Construction materials and equipment will be delivered to the Project Area by existing roads and railroads. The existing access road will be used during construction and operation of the MSEC.

Materials will be unloaded and moved around the Project Area using portable cranes and trucks. Main roads in the laydown areas will be surfaced with aggregate/limerock and treated with dust palliative to reduce dust. Water sprays will also be used, as required, to control dust due to traffic.

3.9.2 Roads

Construction trucks will travel to the Martin Plant site via SR 710 and the existing site access road. This route was used during construction of the existing units and continues in use for operational purposes.

3.9.3 Railroad

A railroad branch-line currently runs near the MSEC location on the Martin Plant site. Rail deliveries of construction materials and equipment for the facility will be off-loaded at a rail siding and transported by truck to the Project Area. This line can accommodate the shipments required for the MSEC.



Typical Solar Panel Layout

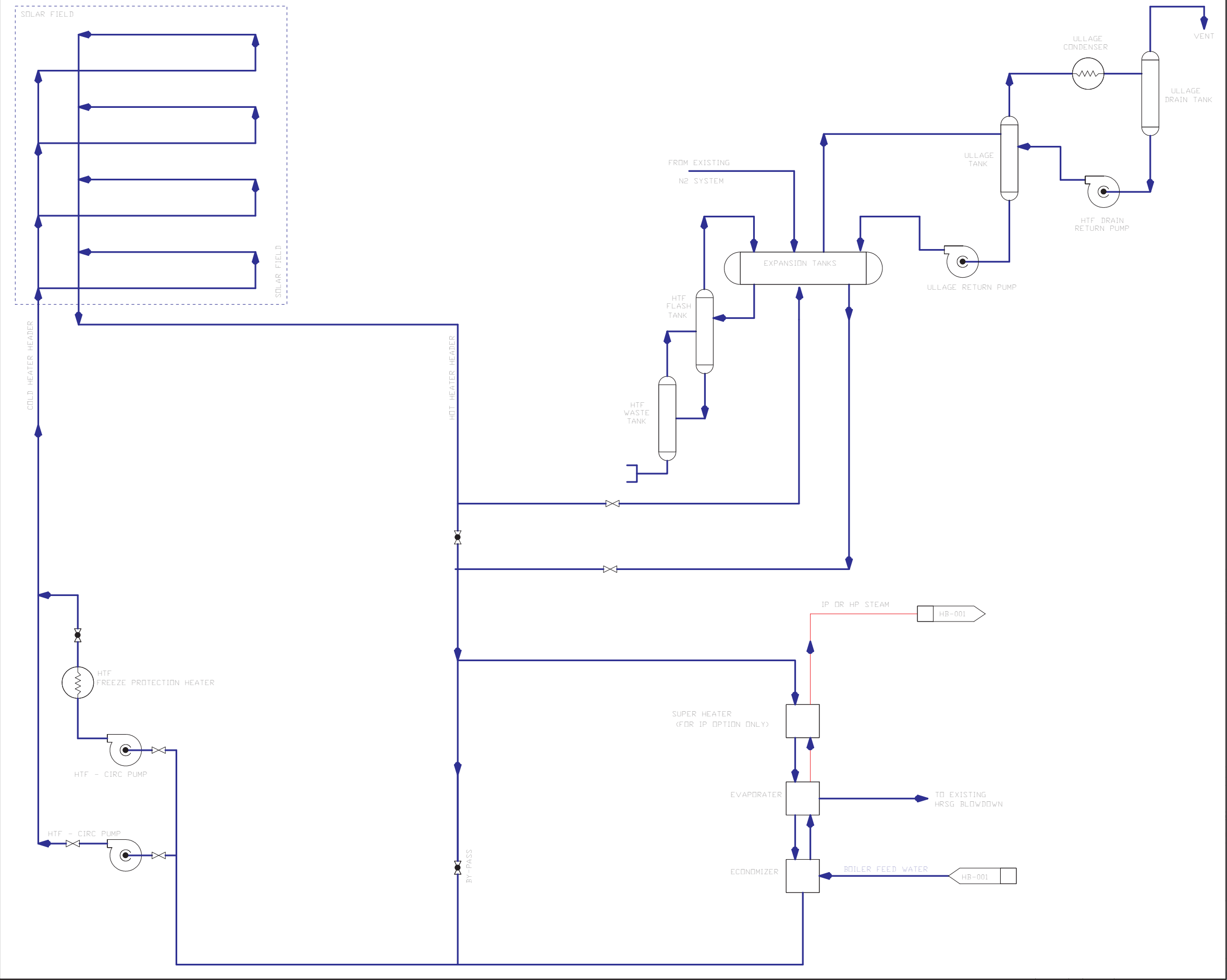


Solar Panels at Kramer Junction SEGS Project

Figure 3.1-1
Photographs of Typical Solar Panels at Current SEGS Sites
FPL Martin Solar Energy Center
SCA/Ch3/Fig 31-1 Photos.docx
Source: Golder, 2008.



P:\GIS\PROJECTS\083-87523_FPL\MartinSolar\GIS\MapDocuments\08387523A20_ProcessFlowDiagram.mxd

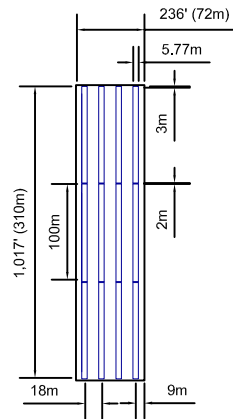


REFERENCE

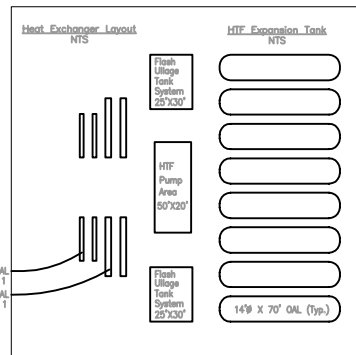
1. Diagram, Worley Parsons, 2008

PROJECT	MARTIN SOLAR ENERGY CENTER			
TITLE	PROCESS FLOW DIAGRAM			
	PROJECT No. 073-87685		SCALE AS SHOWN	REV. 0
	DESIGN	KK	04/21/08	FIGURE 3.1-2
	GIS	RL	04/23/08	
	CHECK	KK	04/23/08	
	REVIEW	KK	04/23/08	

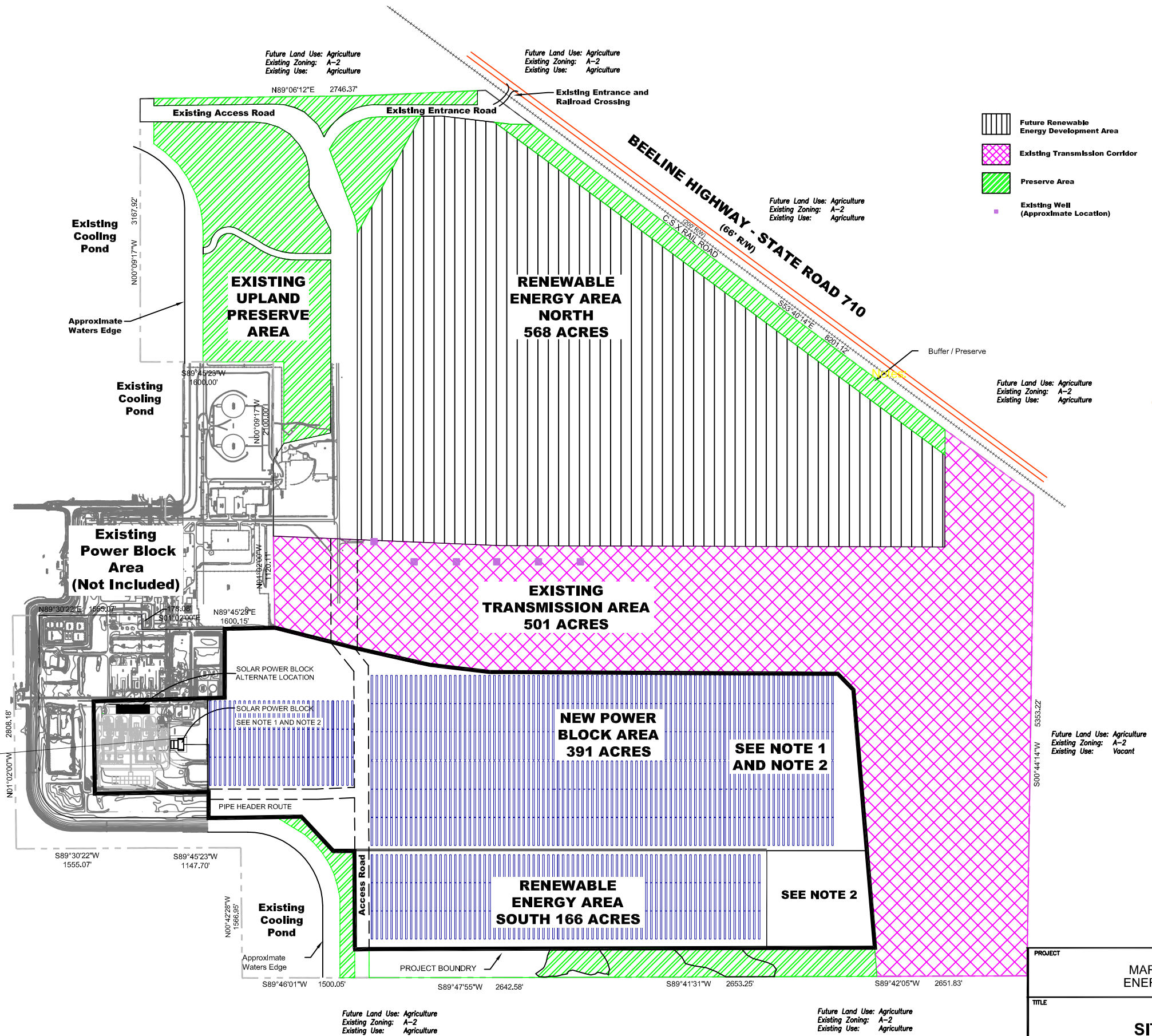
TYPICAL SOLAR COLLECTOR ASSEMBLY DETAIL



TYPICAL SOLAR POWER BLOCK



- NOTES:
- 1 POTENTIAL RENEWABLE ENERGY AREA.
 - 2 CONSTRUCTION AREA.



Note: Drawing made by Worley Parsons, 2008

PROJECT		MARTIN SOLAR ENERGY CENTER			
TITLE		SITE PLAN			
	PROJECT No.	083-87523	FILE No.	FILE No.	
	DESIGN	W.P.	DES_DATE	SCALE	SCALE
	CADD	RL	CAD_DATE	FIGURE 3.2-1	
	CHECK	KK	CHK_DATE		
REVIEW		KK	RVW_DATE		

4.0 ENVIRONMENTAL EFFECTS OF SITE PREPARATION AND PLANT AND ASSOCIATED FACILITIES CONSTRUCTION

4.1 Land Impacts

4.1.1 General Construction Impacts

The portions of the Martin Plant site that will be affected by the construction of the MSEC are shown in Figure 3.2-1 (refer to footnotes for areas that will be used for construction). As described in Section 3.2, a total of about 550 acres within the 600-acre Project Area will be utilized for solar arrays and construction facilities. The solar arrays will be located east of the existing Unit 8, and will occupy about 500 acres. Activities associated with construction will occupy about 100 acres. This will include construction laydown, parking and trailers. These areas will be cleared of any vegetation. The area for the heat exchangers will be nearby Unit 8 and has been previously impacted by the construction of Units 3, 4, and 8. Construction laydown and parking areas, which may be heavily traveled, will be stabilized with shell or rock. Other, more lightly traveled areas will be seeded with grass to prevent erosion.

No explosives for blasting will be used during construction of the MSEC.

The impacts of creating material laydown areas will be minimal, temporary, and associated mainly with clearing, grubbing, and grading for proper drainage.

There will be no construction of new temporary or permanent roads that connect offsite, or new onsite railroads. The existing plant construction entrance is located on SR 710. Fugitive dust generation from traffic and/or excavations will be minimized through paving and/or the use of water sprinkling.

The existing grade ranges from 30 to 32 ft-msl. Within the solar field area, the foundations for the array will be filled to approximately 32 ft-msl and graded in accordance with the stormwater management plan.

Site preparation will involve land clearing, excavation, material placement, and compaction activities. The vegetation will be cleared and burned according to Chapter 62-256, F.A.C. Areas will be graded and some minor amounts of rock fill will be used to help support the solar array foundations and HTF piping. Foundations for heavy equipment will be supported by concrete piles or spread foundations.

Excavation of soils may be required in certain areas to provide support for the solar array foundations and piping. The removed material will be replaced, as necessary, by clean fill.

Construction dewatering will be conducted in accordance with the existing Condition of Certification (PA89-27L Condition V. A. 115 and VII. C).

Dewatering will be accomplished by localized pumping of the shallow aquifer to reduce the water table. The dewatering system will be of the well-point type or other appropriate methods designed to control turbidity. Lowering the water table by pumping adjacent to the excavation allows the use of heavy equipment in formerly saturated excavations.

Based on the location of dewatering areas within the MSEC Project Area, no offsite impacts to groundwater are anticipated. There will be no impacts to the underlying deeper aquifers because excavation and dewatering activities will be limited to the surficial aquifer system. A dewatering plan will be submitted (to SFWMD) when the detailed design is completed, as necessary, prior to commencing any dewatering activities, in accordance with the existing Conditions of Certification.

Solid waste materials will be disposed of in accordance with applicable rules and regulations. Construction and demolition wastes, such as scrap wood and metal, will be transferred to a specified storage area on the Project Area where they will be separated and stockpiled for salvage. General waste materials (i.e., typical of municipal solid wastes) will be collected in appropriate waste collection containers for disposal at an approved offsite location.

During construction, the construction labor force will use portable chemical toilets. All sanitary sewage will be pumped from the portable toilets as needed and transported to an approved disposal facility by a licensed contractor.

Potable water for consumption during construction will be obtained from the existing potable well or from bottled water.

Waste oil from construction vehicles and equipment will be collected in appropriate containers and transported offsite for recycling or disposal at an approved facility. The approved disposal facility will be an existing facility that has been previously permitted for commercial recycling or disposal of waste oils.

Individual contractors will be responsible for handling any hazardous materials required to perform their tasks and any resulting hazardous wastes. This responsibility includes the proper transportation, storage, handling, and offsite disposal of such wastes.

It is anticipated that onsite construction activities of the solar equipment will begin in 2008 and continue through 2010. Limited site preparation is anticipated to begin following issuance of final approvals. The peak employment will be about 450 construction workers and average about 200 workers over the construction period.

4.1.2 Roads

Construction traffic will use SR 710 and the main plant entrance, which is an asphalt-paved road. A separate construction driveway connected to the main plant entrance road will direct construction traffic to either the parking or laydown areas.

4.1.3 Flood Zones

Based on the flood zones delineated by the Federal Emergency Management Agency (FEMA), the entire proposed construction area within the Project Area is outside the 100-year flood zone. All proposed permanent facilities have been designed and located so that no adverse impacts on the 100-year flood elevations or flood flows are expected. The MSEC will not adversely impact adjacent surface water flood elevations or flows and will not cause any adverse flooding or related impacts to offsite property.

4.1.4 Topography and Soils

Current topographic features at the Project Area of the Martin Plant site reflect past and present power-plant-related activities. The existing grade is approximately 30 to 32 ft-msl. Several areas may require excavation to remove material unsuitable for foundations.

No adverse impact is anticipated to soil stability or bearing strength because the solar power block foundation will be supported by concrete piles or spread footings; therefore, overall settling of the land area will be negligible. Slight settling may take place in areas of construction, but this will be moderate and localized in extent. It is not anticipated that sinkhole formation will be enhanced.

The areas affected by construction do not include any areas designated as Prime and Unique Farmland.

Most of the areas designated for construction facilities will not require any significant topographical change. Construction-related changes in site topography will not have any adverse effect on aesthetics or viewshed. No significant topographical changes will be observable from offsite locations.

Construction activities will alter runoff in several parts of the Project Area; however, no adverse effects are anticipated from this alteration. Stormwater runoff in the solar power block will be directed to oil-water separators prior to being conveyed to the existing cooling pond. Surface water runoff from the parking areas and secondary laydown areas will also be directed to stormwater detention areas.

Groundwater levels will not be significantly affected by modifications to soil percolation from construction activities at the Project Area due to the proximity of surface water and the interconnection between these surface water bodies and the surficial aquifer. Slight changes in percolation rates will have negligible impacts on water levels, because the surface infiltration affects only localized areas of the Project Area.

4.2 Impact on Surface Water Bodies and Uses

4.2.1 Impact Assessment

The surface waters surrounding the MSEC Project Area, which potentially could be affected by site preparation and construction activities, include the L-65 Canal and the St. Lucie Canal. There are also four onsite surface water bodies on the Martin Plant site: the cooling pond, the Barley Barber Swamp, the Northwest Parcel wetland mitigation area, and the make-up (intake/discharge) canal. No other construction activities will take place in the above-referenced water bodies. Figure 3.2-1 identifies the land areas that will be impacted by construction. The focus of this impact evaluation is on potential discharges from these land areas to those surface water systems.

4.2.1.1 Surficial Hydrology—Physical and Chemical Impacts

The primary potential impacts from site preparation and construction are erosion and sedimentation due to earthmoving and material placement associated with site preparation and plant construction. These impacts will be controlled and minimized through proper design and placement of runoff control features in accordance with SFWMD regulations described in Section 3.8. Specific regulatory criteria, design parameters, and construction-phase stormwater runoff management calculations are

presented in Appendix 10.7. Runoff from the Project Area not disturbed by construction activities will continue to be directed to the existing drainage systems.

Erosion will be controlled by compaction of soils, construction of ditches and embankments, maintenance of relatively flat grades, and other appropriate erosion control techniques. Sedimentation will be controlled during construction by use of sediment control basins and traps, filter berms, straw bales, and other applicable devices as appropriate.

Runoff from the construction laydown areas and parking will drain to swales. The evaporation/percolation pond and swales have sufficient storage capacity to hold the entire storm volumes from the runoff created on these areas.

Based on the limited discharge quantity and treated nature of runoff to surface water bodies associated with construction activities, adverse impacts to surface waters are anticipated to be negligible.

Any dewatering releases will be in accordance with the existing Conditions of Certification.

Impacts from the use of chemicals for cleanup, or spillage of chemicals, oil, and grease, will be mitigated thorough proper handling and disposal practices. Construction contractors will be required to implement practices (e.g., designating specific areas for fueling and maintenance) to minimize any spills. These areas will be located so that any spills, if they do occur, will not be adjacent to any surface waters. If any spills occur, immediate cleanup will be performed with ultimate disposal in an approved facility. When appropriate, such materials will be handled as described in FPL's existing Spill Prevention, Control, and Countermeasures (SPCC) plan and the Martin Plant hazardous waste management plan.

4.2.1.2 Aquatic Systems

Construction activities potentially could cause runoff containing high-suspended solids to reach surface waters. As described in Subsection 4.2.1.1, the potential for impacts to aquatic systems will be minimized through the use of appropriate construction techniques to control erosion, sedimentation, and surface runoff.

No construction is proposed in surface waters of the State.

4.2.2 Measuring and Monitoring Programs

Release of treated stormwater associated with construction activities will be monitored as required under the applicable regulations.

4.3 Groundwater Impacts

4.3.1 Physical and Chemical Impacts

Activities associated with site preparation and construction are not expected to produce any significant changes to groundwater quality, quantity, or levels in the vicinity of the Project Area. Dewatering associated with construction will be confined to a localized area surrounding any area requiring dewatering. No adverse impacts to groundwater resources from dewatering activities are anticipated.

Construction workers will require an average of approximately 2,000 gpd of potable water, which will come from either the existing potable supply system or bottled water.

As discussed in Subsection 4.2.1.1, construction contractors will be required to implement practices to minimize spills. Maintenance and refueling will be performed only in designated areas. Any spills will be disposed of properly.

4.3.2 Measuring and Monitoring Programs

During construction dewatering, any applicable measuring and monitoring programs will be conducted.

4.4 Ecological Impacts

4.4.1 Impact Assessment

4.4.1.1 Terrestrial Systems

The Project Area comprises approximately 600 acres, of which approximately 550 acres will be used for construction of the MSEC. The terrestrial systems within the Project Area include palmetto prairie (FLUCFCS 321) and pine flatwoods (FLUCFCS 411), which comprise approximately 381 acres. Although these areas do provide habitat for common wildlife species such as feral pig, turkey, armadillo, and white-tailed deer, no unique wildlife species or critical habitat for listed species will be impacted. These habitats are common in the surrounding area, including areas immediately adjacent

to the existing transmission line ROW and within the Northwest Mitigation Area, which will remain undisturbed. No significant adverse impacts to wildlife resources in the area will occur as a result of construction.

Fugitive dust generated by construction activities will be minimized through best management practices (see Subsection 4.5.2). Any localized fugitive dust will not adversely affect the terrestrial systems surrounding the Project Area.

Noise (including human disturbance from construction activities) will not affect wildlife in the vicinity of the Project Area. Presently, the Project Area experiences noise associated with operation of the existing Martin facility, and wildlife that occurs in the vicinity of the Project Area, such as avian species, are acclimated to such activities. No noise-sensitive wildlife is known to occur in the Project Area or in the vicinity of the Project Area, since wildlife in the area have been acclimated to noise associated with the existing Martin activities.

4.4.1.2 Aquatic Systems

The MSEC will be located within the larger CG/CC Project Area. Impacts to aquatic and wetland systems associated with the CG/CC Project Area were fully mitigated previously as part of the Martin CG/CC Project. This mitigation included restoration, enhancement, and preservation of approximately 1,130 acres of high quality forested wetlands, freshwater marsh, cypress swamp, palmetto prairie, pine flatwoods, upland hardwood forest, and shrub and brushland within the Northwest Mitigation Area. The mitigation plan was approved by the USACE [(Permit #SAJ-1989-91140 (IP-MAM))] and the Siting Board (Site Certification PA89-27, 2/21/1991).

Pursuant to that mitigation plan, a conservation easement for the Northwest Mitigation Area was granted to the SFWMD in July 1993. Restoration and enhancement activities conducted between 1994 and 1997 were documented through submittal of a baseline monitoring report in 1994 and 5 years of annual monitoring reports between 1997 and 2001. Based upon the information provided in the compliance monitoring reports, fulfillment of restoration success criteria, and SFWMD field inspection of the Northwest Mitigation Area, the mitigation effort was deemed complete in 2001. In April 2006, FPL received USACE authorization for extension of the expiration date on the USACE permit through April 2009 [SAJ-1989-91140 (IP-MAM), Modification #2: Time Extension]. A brief summary of the now completed and accepted mitigation plan is provided as background information.

Three areas in the Northwest Parcel were approved for restoration, enhancement, and preservation (Figure 4.4-1). Restoration Area A included a forested wetland which was suffering from reduced hydroperiod. Restoration Area B contained forested wetlands which were impacted by excessive draining and use by cattle. Restoration Area C included pine and wet prairie lands enhanced through the removal of cattle and feral hogs. Preservation Area E contained upland hardwood forests as well as mixed wetland hardwoods. A total of approximately 317 acres of wetlands occur within the Northwest Parcel, with 166 acres of enhanced and restored wetlands and 95 acres of wetlands converted from uplands within Restoration Areas A, B, and C, and upland Preservation Area E. Mitigation activities were designed to restore habitats impacted by hydroperiod alterations, cattle grazing, feral hog damage, soil loss, invasion by non-native species, and fire. Specific measures included the following:

- Removal of cattle;
- Maintenance of wetland buffer zones;
- Removal and maintenance of feral hog populations;
- Restoration of wetland hydroperiod to halt the transition from wetland to upland, and enhanced development of hydric soils and wetland vegetation;
- Maintenance removal of Brazilian pepper and Melaleuca; and
- Construction of wood stork foraging ponds and development of sandhill crane habitat.

Hydroperiod restoration was designed to ameliorate historical impacts related to agricultural use of the property. The natural floodplain of Black Bottom Slough had been reduced through construction of drainage ditches to increase acreage suitable for cattle grazing. The restoration of historical hydroperiod was achieved through installation of water control structures, sumps, and a berm and weir across a narrow portion of Black Bottom Slough. Water levels are adjusted at the control structures to prolong the hydroperiod and simulate the historical periods of inundation and dry season conditions, similar to the design successfully implemented at the FPL Barley Barber Swamp located adjacent to the cooling pond.

4.4.1.3 Threatened and Endangered Species

Threatened and endangered species within the Project Area are limited to avian species. No listed species of plants were identified within the MSEC Project Area. Due to the presence of large areas of similar habitat both within the Northwest Mitigation Area and areas north of the existing transmission line ROW adjacent to the Project Area, and the highly mobile nature of protected avian species, no

significant adverse impacts to federally or state listed animals are expected. Due to the dense cover of saw palmetto and relatively high groundwater table, no gopher tortoises or gopher tortoise burrows were located within the Project Area. Similarly, listed species known to utilize gopher tortoise burrows, such as the Eastern indigo snake (*Drymarchon couperi*) or gopher frog (*Rana capito*), were not observed within the MSEC Project Area. Creation of wood stork foraging ponds and sandhill crane habitat within the Northwest Mitigation Area provides suitable habitat to offset the loss of shallow hydroperiod wetlands within the Project Area.

4.4.2 Measuring and Monitoring Programs

4.4.2.1 Terrestrial Systems

No terrestrial monitoring programs will be undertaken, as impacts to pine flatwoods and palmetto prairie systems are offset through the preservation and restoration of similar habitat within the Northwest Mitigation Area.

4.4.2.2 Aquatic Systems/Wetlands

The loss of wetland functions associated with the Project Area has been successfully mitigated through the Northwest Mitigation Area. The mitigation plan was reviewed and approved by the USACE and SFWMD on behalf of the Siting Board. The restoration, enhancement, and preservation activities were successfully conducted between 1994 and 1997, and the mitigation area deemed successful by SFWMD representatives in 2001. Ongoing maintenance activities associated with the USACE permit conditions and the SFWMD-approved mitigation plan will ensure that the Northwest Mitigation Area continues to provide high quality wetland and upland habitats which directly benefit wildlife, including threatened and/or endangered species. With the exception of continued maintenance of nuisance/non-native species, no additional measuring or monitoring programs are required.

4.5 Air Impacts

4.5.1 Air Emissions

Construction activities will result in the generation of fugitive PM emissions and vehicle exhaust emissions. Fugitive PM emissions will result primarily from vehicular travel over paved and unpaved roads. Vehicular traffic will include heavy-equipment traffic and traffic due to construction workers entering and leaving the Project Area. Construction personnel and equipment will enter the Project Area primarily over surfaced roadways. Exposed land areas may also generate fugitive dust due to

wind erosion. In order to accommodate the solar array, the land area will be cleared and open burning will be conducted according to Chapter 62-256, F.A.C.

Emissions from construction activities are extremely difficult to quantify because of their variable nature. They can only be estimated since emissions are dependent upon a number of factors, including specific activities conducted, level of activity, meteorological conditions, and control measures utilized. Table 4.5-1 shows the estimated maximum air emissions during construction of the MSEC.

Emissions will occur as a result of open burning of land clearing debris. Such activities would be conducted under FDEP Chapter 62-256, F.A.C. Under this rule, the Division of Forestry must be notified. Open burning can only be conducted between 9 a.m. and 1 hour before sunset. The activity must be attended and the moisture content of the fuel must be favorable to minimize smoke.

Fugitive PM₁₀ emissions may occur from wind erosion from open areas around the Project Area. The areas subject to wind erosion will generally be small due to the nature of construction activities and control measures taken, such as seeding. Fugitive PM₁₀ emissions from wind erosion have been estimated to be a total of 2.4 tons during the construction period.

Fugitive PM₁₀ emissions will also result from operations within the Project Area. Based on the average construction workforce, PM₁₀ emissions from paved and unpaved roads have been estimated to be a total of 8.7 tons during the construction period. In this case, unpaved areas also include the approximately 450 acres being used for the solar array. These emissions include activities associated with land clearing and construction of the solar array. Reasonable precautions will be taken to limit the amount of fugitive emissions from paved and unpaved roads (e.g., watering).

The area for the solar array will require movement of soil and the use of aggregate. The amount of emissions is estimated to be about 0.2 ton.

Emissions will also result from onsite construction equipment operating with diesel and gasoline engines including cranes, trucks, compressors, etc. This equipment will produce emissions of CO, NO_x, VOC, PM, and SO₂. Exhaust emissions were based on EPA emission factors (AP-42) for diesel engines. Based on the EPA emission factors and the estimated maximum number of vehicles, the CO, NO_x, VOC, PM₁₀, and SO₂ emissions are estimated to be 3.48, 3.61, 0.40, 0.20, and 0.22 TPY,

respectively, over the construction period. These levels of emissions will not cause significant impacts to air quality in the vicinity of the Project Area.

4.5.2 Control Measures

A number of control measures will be implemented during the construction period in order to minimize air emissions and potential impacts. Clearing within the Project Area will be conducted under the FDEP rules to minimize air emissions from open burning. After grading, untraveled or lightly traveled areas will be stabilized to minimize fugitive PM and wind erosion. Heavily traveled unpaved construction laydown areas and unpaved roads will be stabilized with shell or rock. Fugitive dust from highly traveled areas will be controlled by watering on an as-needed basis. The plant entrance road is currently paved, which minimizes dust emissions from vehicles entering and exiting the Martin Plant site.

4.6 Impact on Human Populations

4.6.1 Transportation

Traffic impacts for the construction and operation of future electrical generating units at the FPL Martin Plant site were evaluated as part of the initial certification of the Martin CG/CC Project. These impacts were found to comply with applicable standards, including LOS standards on local roadways. In connection with the construction of Martin Units 3 and 4, FPL constructed roadway improvements at the Plant entrance. These improvements were implemented to accommodate additional traffic, especially for construction.

The following discussion is provided to describe the actual traffic associated with the construction of the MSEC. The MSEC traffic levels are well within the traffic levels assumed during the initial CG/CC certification proceeding, including non-project background traffic levels. These previous analyses resulted in the conclusion that the construction of the Martin CG/CC and Martin Unit 8 Projects, with the recommended turn lane improvements, would comply with applicable standards for traffic.

Traffic counts were conducted by FDOT in 2006 for SR 710, between Fox Brown Road and SW Allapattah Road (Site 0030). The AADT on this segment was 7,800. Using the FDOT Quality/LOS Manual Generalized Tables, the AADT volumes for SR 710 traffic were determined to be LOS C for this road, which is an AADT of 7800.

The adopted roadway LOS standards in the Transportation Element of the Martin County Comprehensive Plan for State and County roads within Martin County, with the exception of those roads designated for the Florida Intrastate Highway System (FIHS), are LOS D during the peak hour conditions. For FIHS, which SR 710 has been included in Martin County, is required to operate at LOS D during the peak season/peak hour conditions. The peak season/peak hour has been designated to be from December 1 through April 1.

The identified FDOT 2006 traffic volume for SR 710 was projected for the construction period. This estimated existing traffic volume was determined using the 4.5-percent annual growth rate, based on the traffic counts between Fox Brown Road and SW Allapattah Road. This calculation resulted in an AADT of 8,900 for the peak construction year of 2009. Using the FDOT Quality/LOS Manual Generalized Tables (dated May 17, 2007), the AADT volumes for SR 710 traffic were determined to be LOS D.

Construction activities are anticipated to begin in 2008 and continue through 2010 with the peak construction employment in 2009. Limited site preparation is anticipated to begin following issuance of final approvals. Construction activities will require a significant number of employees that will include direct craft, support staff, and field staff. All construction employees will use the main plant entrance, which currently has full access opening to SR 710.

During peak construction, 450 employees are anticipated to be on-site during the weekdays. For the evaluation, 1.2 construction workers per trip were assumed to provide a conservative estimate of additional traffic. This represents that 20 percent of the construction workers would carpool, which is an acceptable metric for FDOT analyses. From this information, additional trips on the road network are estimated to be 375 trips entering/exiting the Project Area. These trips were then segregated based on an anticipated distribution of 40 percent to/from the west and 60 percent to/from the east of the Martin Plant site. Using the directional split, 40 percent (150 trips) will be distributed west of the Martin Plant site and 60 percent (225 trips) will be distributed east of the Martin Plant site.

Based on the estimated 4,920 truck trips over a 12-month period, about 19 truck trips per day would occur during a standard work week.

Therefore, during construction, the estimated number of additional trips added to the road network will be 377 trips, or 754 vehicles per day added to SR 710. By adding these additional trips, the

projected traffic volume for 2009 will result in 9,654 total AADT on the road network. This total AADT is well below LOS D, which is an AADT of 13,700.

The analysis indicated that, due to the projected growth rate of 4.5 percent, the 2009 background traffic will be at LOS D and the construction of the MSEC will not change this LOS. The construction of the MSEC is estimated to increase AADT by about 8 percent, but well under the LOS D criteria. In addition, peak traffic is not expected to occur during the peak season (December 1 through April 1). Based on this analysis, the traffic resulting from construction of the MSEC is not predicted to degrade the traffic flow below the background LOS. As necessary, traffic management specialists (e.g., off-duty law enforcement) will be used to maintain safe traffic flow entering and exiting the Martin Plant. If necessary to maintain the LOS or to maintain construction schedules, workforce shifts may be staggered.

No additional roadway improvements are required.

4.6.2 Construction Noise Impacts

The impacts of noise on human populations are dependent upon the proximity of residences to construction activities and the type and extent of noise sources. The nearest residence (i.e., critical receptor) to the proposed facility construction area is located approximately 1.3 miles north of the Project Area.

Construction of the MSEC will require land clearing, site preparation, installation of foundations, and erection of the solar array and steam generation components. The use of construction equipment, such as cranes, bulldozers, graders, front-end loaders, welding equipment, and air compressors will be required. These sources have maximum noise levels ranging from about 70 to 90 dBA (measured at a distance of 50 ft).

The noise levels resulting from these combinations of equipment were used as multiple sources to estimate noise impacts. Octave bands were estimated from *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances* (EPA, 1971). It is unlikely that all the equipment would be operating simultaneously and continuously; therefore, this impact assessment is conservative. Background SPL values were incorporated into the model to calculate impacts at the locations identified in Subsection 2.3.8.

The evaluation of noise impacts from construction activities was performed assuming two cranes, two compressors, and two trucks operating simultaneously at the same location. Predicted noise levels were based on a decrease of 6 dBA due to hemispherical spreading. The following table summarizes predicted and measured SPLs at the locations described in Section 2.3.8.

SOUND PRESSURE LEVEL (SPL, dBA)	PROPERTY BOUNDARY MEASUREMENT LOCATION			
	3	4	5	6
1. Maximum Predicted Noise Impact	49.4	53.3	50.9	48.4
2. Maximum Measured Background SPL (L_{90})	39.0	45.2	48.0	40.8
3. Combined Maximum Impact and Background	49.8	54.0	52.7	49.1
6. Martin County Noise Ordinance (Residential)	55	55	55	55

The results indicate that the maximum impacts are less than the Martin County noise ordinance for residential land use. This comparison is conservative, since the land use surrounding the Martin Plant site is primarily agricultural and not residential. These maximum estimated impacts are very conservative, since no attenuation was considered and it was assumed that all the sources produce maximum noise levels at the same time. However, construction noise sources operate intermittently and are not located at the same location. As a result, the construction activities associated with the MSEC will be less than the standards established for residential areas in the Martin County Noise Ordinance.

4.6.3 Construction Employment

It is estimated that the workforce during the construction phase of the MSEC will average 200 construction workers daily, with a peak workforce of 450 construction workers. It is estimated that these workers will travel to the job site from outside the immediate area and from surrounding communities.

Traditional practice is that the construction workers will not bring their families with them if they seek temporary housing. Therefore, the local permanent population is not expected to increase significantly during the construction period as a result of the MSEC. Minimal impacts on local schools and other local infrastructure are expected.

Over 50,000 construction workers reside within the South Florida Region (UF/BEER, 2007). Since a more-than-adequate labor supply exists within commuting distance, it is anticipated that most workers will be hired from within the region with minimal relocation required. Consequently, construction

should have a small effect on permanent housing within the region or locally. As is typical with mid-term construction projects, some workers commuting from longer distances may choose to reside in transient accommodations (hotels and motels), returning to their permanent homes and families on weekends or special occasions.

With the exception of the minor use of transient accommodations and related potable water and sanitary sewer services, no new impacts are expected on community services and facilities within the region as a result of the construction effort. Those workers hired from the area will have already established usage patterns and will probably continue to frequent the same facilities and establishments that they used prior to employment on the MSEC. Consequently, any new demands will be dispersed throughout the region and should not create any noticeable change in the availability of area community services and facilities due to the small number of potential employees that may relocate into the area.

4.7 Impacts on Landmarks and Sensitive Areas

Construction-related impacts to landmarks and sensitive areas will be minor and will not result in any changes to accessibility. The closest landmarks and sensitive areas within 5 miles of the MSEC (refer to Subsection 2.2.5) will not experience any changes in air quality, noise level, water quality, or visual characteristics perceptible to the users.

Occasional construction noise may be heard near the Project Area during the construction term. The noise is anticipated to be infrequent and of short duration. Visual impacts will be minor since most of the construction activity and new structures will be near the existing facilities, which will serve as a visual shield, and the closest public viewpoint is more than a half-mile away.

No use-related impacts are anticipated at public recreational facilities, since these areas are a considerable distance from the Project Area.

4.8 Impact on Archaeological and Historic Sites

The Florida Department of State, Division of Historical Resources has determined that no significant archaeological or historical sites are recorded or likely to be present within the Project Area. As a

result, no construction impacts on historic properties listed or eligible for listing in the *National Register of Historic Places*, or otherwise of historical or archaeological value, are anticipated.

4.9 Special Features

There will be no unusual products, raw materials, solid water disposal, incinerator effluents, or residues produced during construction of the MSEC that will have influence on the environment or ecological systems of the Project Area, Martin Plant site, or adjacent areas.

4.10 Benefits of Construction

The construction phase of the MSEC will contribute both short- and long-term economic benefits to the surrounding region. Construction benefits will include construction employment that will average several hundred over the construction period. Construction wages will increase the demand for goods and services in the region. Direct purchases of construction materials will have both direct and indirect economic benefits. This includes materials and services required as a direct result of construction activities. This includes construction materials (e.g., concrete and steel for foundations), rental equipment (e.g., construction cranes, pumps), food services, and transportation services. These economic benefits are discussed in Chapter 7.0, Economic and Social Effects of Plant Construction and Operation.

4.11 Variances

No variances from applicable standards due to the construction of the MSEC are necessary.

TABLE 4.5-1
MAXIMUM ESTIMATED AIR EMISSIONS DURING CONSTRUCTION OF MSEC PROJECT

Construction Activity	Type Operation	Amount	Units	Pollutant	Emissions	Units	Controls
Land Clearing	Open Burning	500	acres	PM ₁₀	30.7	tons	Rule 62-256, F.A.C.
				NO _x	35.7	tons	
				CO	314.6	tons	
				VOC	54.0	tons	
Open Areas	Wind Erosion	10	acres	PM ₁₀	2.4	tons	Watering
Vehicle Traffic	Paved Roads	218,411	VMT	PM ₁₀	0.8	tons	Watering as necessary
	Unpaved Roads	68,922	VMT	PM ₁₀	7.9	tons	Watering
Aggregate and Soil	Batch Drop	733,950	tons	PM ₁₀	0.2	tons	Watering
Installation	IC Engines	64,293	gallons/yr	PM ₁₀	0.20	tons	EPA Non-Road Tier 3
				NO _x	3.61	tons	EPA Non-Road Tier 3
				SO ₂	0.22	tons	EPA Non-Road Tier 3
				CO	3.48	tons	EPA Non-Road Tier 3
				VOC	0.40	tons	EPA Non-Road Tier 3

Note: VMT = vehicle miles traveled; acres based on open areas at any one time.

Sources:

USEPA, 1996; AP-42, Section 13.1 Wildfires and Prescribed Burning; PM₁₀ assumed to be 80 percent of Total PM.

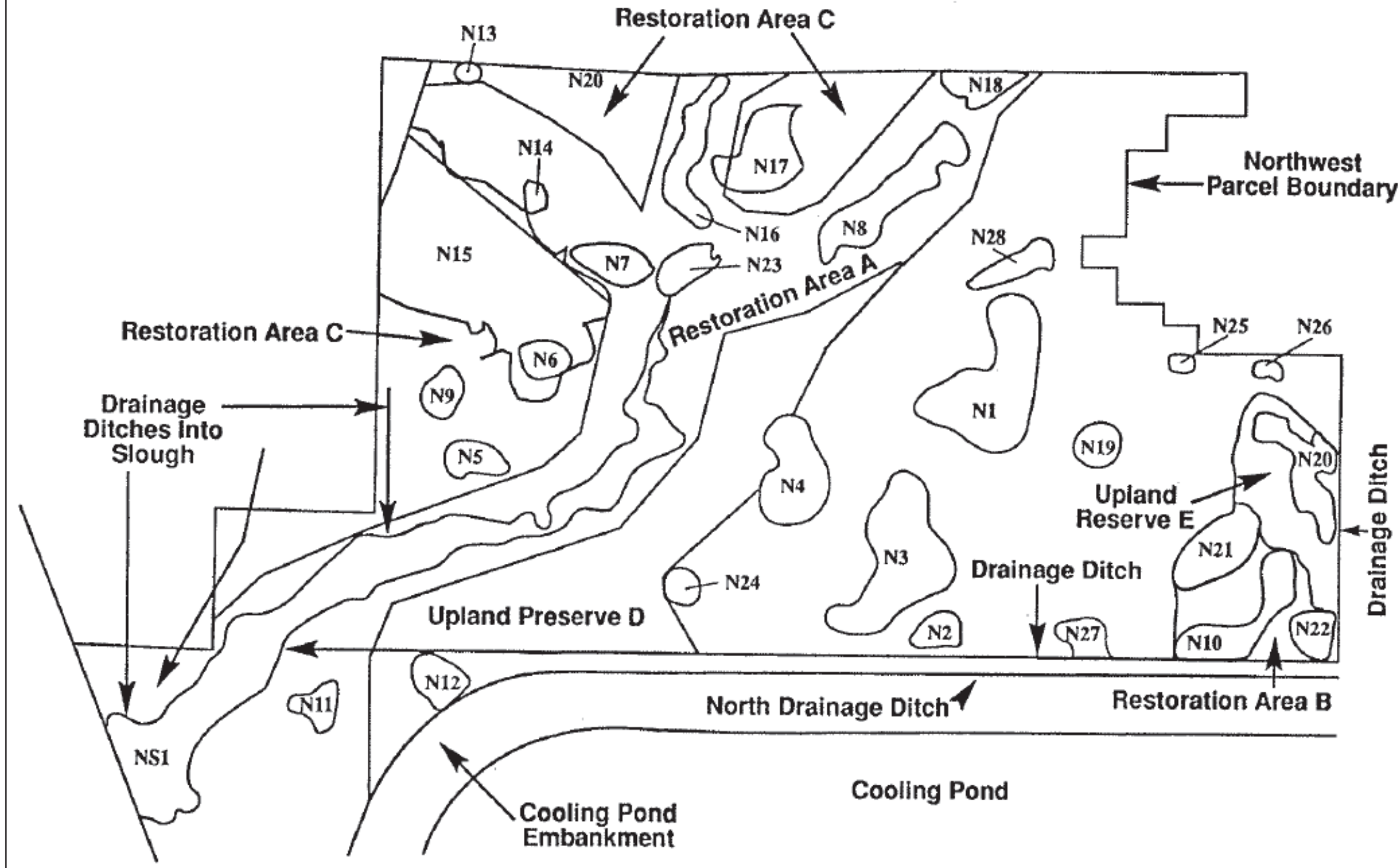
USEPA, 1992; Fugitive Dust Background and Technical Information Document for Best Available Control Measures.

USEPA, 2006; AP-42, Section 13.2.4 for Aggregate Handling and Storage Piles.

USEPA, 2006; AP-42, Section 13.2.2 Unpaved Roads.

USEPA, 2004; Exhaust and Crankcase Emissions Factors for Nonroad Engine Modeling-Compression Ignition.

P:\GIS\PROJECTS\083-87523_FPL\MartinSolar\GIS\MapDocuments\08387523A17_MitigationArea_OriginalLandUse



REFERENCE

1. Northwest Mitigation Restoration Area, FPL, 2008.

Note: This is an original figure from the mitigation plan associated with the Martin CG/CC property. The wetlands identified in the mitigation plan are designated by "N" and number.



PROJECT	MARTIN SOLAR ENERGY CENTER			
TITLE	NORTHWEST MITIGATION RESTORATION AREAS			
	PROJECT No. 083-87523		SCALE AS SHOWN	REV. 0
	DESIGN	KB	3/31/08	
	GIS	RL	04/28/08	
	CHECK	KB	04/28/08	
	REVIEW	KK	04/28/08	

FIGURE 4.4-1

5.0 EFFECTS OF PLANT OPERATION

The purpose of this chapter is to describe the environmental effects of operation of the MSEC.

5.1 Effects of the Operation of the Heat Dissipation System

The MSEC will not have a heat rejection system. As described in Sections 3.1 and 3.3, the Steam generated by the MSEC's heat exchangers will be directed to the HRSGs. The existing heat rejection system associated with Unit 8 is capable of handling the steam from the MSEC since the steam produced by the use of solar energy could have otherwise been produced using duct burners in the HRSGs.

5.2 Effects of Chemical and Biocide Discharge

The MSEC will not have any chemical or biocide discharges to surface water or groundwater as a result of operation.

5.3 Impacts on Water Supplies

The consumptive water use for the operation of the MSEC will be accommodated within the current allocations for the Martin Plant, and the existing water supplies and treatment equipment will continue to be used. The primary new water use for the MSEC will be for periodic cleaning of the mirrors. Washing mirrors requires about 50 gallons per 120 mirrors (50 meter section). Based on the amount of mirrors for the MSEC, about 75,000 gallons per washing will be required. This amount of water is estimated to be no more than about 2,000,000 gallons per year for cleaning mirrors.

5.3.1 Surface Water

The MSEC will cause a reduction in the peak runoff from the newly developed areas, but the volume of runoff will remain the same, thus there will not be any adverse changes in hydrologic or water quality conditions.

5.3.2 Groundwater

The MSEC will not result in increases in groundwater withdrawal above the currently authorized amounts. As a result of normal operations, no impacts to groundwater supplies or groundwater quality are expected.

5.3.3 Drinking Water

The MSEC will have a minor increase in the use of potable water as a result of the additional 12 personnel required for the operation of the solar field array. There will be no potable water facilities located in the solar array field. The existing potable water system can accommodate this minor increase in personnel. Therefore, the MSEC will have no impacts on the local potable water supply system.

5.3.4 Leachate and Runoff

The MSEC does not include materials that are stored on-site that can potentially generate leachate or runoff. Subsection 5.4.3 presents a discussion of the potential impacts of leaks of the HTF. Such leaks would be handled under FDEP regulations to insure groundwater is not impacted. Therefore, the MSEC will have no impacts on groundwater or surface water quality or on terrestrial or aquatic environments due to leachate or runoff.

5.3.5 Measurement Programs

No new or modified measurement or monitoring programs are proposed for the MSEC.

5.4 Solid/Hazardous Waste Disposal Impacts

5.4.1 Solid Waste

The MSEC will not increase the generation of solid wastes associated with power generation. A minor increase in municipal solid waste will occur as a result of the MSEC, which will be handled in the same manner as that from the existing plant. The amount of increased municipal solid waste would not impact municipal solid waste facilities. When the MSEC is completed, solid waste will continue to be handled in the same manner as discussed in Subsection 3.7.1.

5.4.2 Hazardous Wastes

The MSEC will have no impact on hazardous waste handling and/or disposal at the Martin Plant site. Hazardous wastes will continue to be handled after the MSEC is completed in the same manner as discussed in Subsection 3.7.2.

5.4.3 Heat Transfer Fluid

An example of an HTF that may be used for MSEC is presented in Appendix 10.6. The solar field requires a large number of moveable joints to transfer the HTF to and from the heat exchangers. Due to the large number of joints, there is a potential for leaks associated with joints in the piping (primarily the joints that allow the mirrors to rotate). A frequent inspection program will be established to allow rapid response to any HTF leaks detected and to minimize the actual volume of HTF that could potentially be released. Due to frequent inspections, leaks associated with joints are not expected to produce large volumes of soil that need to be addressed, but over time, may yield small releases on the order of less than a cubic yard of contaminated soil per event. If such leaks occur, FPL would provide a rapid response consistent with the requirements of Chapter 62-780, F.A.C. For this reason, consistent with the requirements of Chapter 62-780, F.A.C., it is expected that the most common HTF cleanup scenario encountered will be rapid excavation of affected soil and disposal of soil to an FDEP-approved facility.

5.5 Sanitary and Other Waste Discharges

The MSEC will result in a minor increase of onsite staff, so it will not significantly generate additional domestic wastewater. The sanitary wastewater will continue to be handled after the MSEC is completed in the same manner as discussed in Subsection 3.5.2.

5.6 Air Quality Impacts

There will be a small amount of VOC emissions emitted during the operation of the MSEC. These VOC emissions result from decomposition of the HTF through the ullage tank system. The estimated amount is about 0.8 TPY. This amount would classify these emissions as insignificant activities and the amount is well below the threshold requiring pre-construction permitting under FDEP rules. These emissions would be considered an insignificant activity and added with the renewal of the Title V permit at the Martin Plant site. As a result, no adverse impacts to air quality are expected from operation.

Most importantly, the MSEC maximizes beneficial use of an existing facility to generate renewable energy from the sun. The avoided air emissions from the MSEC will be about 8,800 to 630,000 lb NO_x/yr, 5,300 to 2,800,000 lb SO₂/yr, 34,000 to 71,000 lb CO/yr, 5,100 to 14,000 lb VOC/yr, and 800 to 126,000 lb PM/yr. Solar energy is renewable and does not emit greenhouse gases such as CO₂. Over the course of a year, about 52,900 to 81,300 tons of CO₂ will be avoided by the MSEC.

5.7 Noise Impacts

5.7.1 Impacts

The MSEC will result in a minimal increase of noise sources at the Martin Plant site. There will be pumps associated with the HTF that have a sound level of up to 92 dBA at 3 ft. These pumps will be located in proximity to the existing units. Computer modeling was performed to determine the sound levels from up to six HTF pumps. The CADNA A was used, which is an environmental noise propagation computer program that was developed to assist with noise propagation calculations for major noise sources and projects. Noise sources are entered as octave band sound power levels, L_w. Sound propagation is calculated by accounting for hemispherical spreading and three other user-identified attenuation options: atmospheric attenuation, path-specific attenuation, and barrier attenuation. Atmospheric attenuation is calculated using the data specified by the Calculation of the Absorption of Sound by the Atmosphere (ANSI, 1999). The results of the modeling indicated that the HTF would not contribute to the sound levels at the boundary receptors. Indeed, the maximum sound levels immediately east of the Unit 8 area would be 45 dBA. At greater distances the sound levels would be insignificant. As a result of the modeling for this equipment, these additional noise sources will have an insignificant effect on noise levels at Martin Plant site boundary.

As discussed in Subsection 2.3.8, the daytime and nighttime noise levels were less than 50 dBA at monitoring sites near the Martin Plant boundary with all generating units operating and excluding short-term transient noise sources such as traffic (i.e., the L₉₀, see discussion in Subsection 2.3.8). The MSEC will not change the noise profile of the generating units. As a result, the noise impacts associated with the MSEC pumps are expected to fully comply with the Martin County Noise Control Ordinance.

5.8 Changes to Non-Aquatic Species Population

5.8.1 Impacts

No significant adverse impacts to non-aquatic species are anticipated during the operation of the MSEC. Construction of the MSEC will require clearing of upland and previously mitigated wetland habitat. Mobile species of wildlife will relocate to adjacent undisturbed areas of similar habitat. During operation of the MSEC, the use of solar energy will not result in adverse impacts to terrestrial wildlife in the region. The Project Area does not provide critical habitat for wildlife; therefore, the operation of the MSEC is not anticipated to result in the reduction of any populations of non-aquatic species after the MSEC is completed.

No adverse impacts to federal- or state-listed terrestrial plants or animals are expected during facility operations. Highly mobile species of listed wading birds will relocate during site preparation to suitable habitat within the surrounding area. No long-term change in the populations of any threatened or endangered species is anticipated as a result of operation of the MSEC.

No changes in wildlife populations at the adjacent undeveloped areas are anticipated, including listed species. Noise and lighting impacts will not change significantly. The MSEC is not anticipated to deter the continued use by wildlife of the undeveloped areas within the Martin Plant boundary.

5.8.2 Monitoring

Because no significant impacts to non-aquatic species populations are anticipated, no monitoring program is proposed.

5.9 Other Plant Operation Effects

5.9.1 Operations Traffic

A minor increase in operation personnel (12 additional workers) will occur as a result of MSEC operation. The additional AADT volumes for SR 710 traffic with 12 additional workers will not change the LOS and is a minor addition to the projected AADT of 8,900.

5.9.2 Visual

The MSEC will not result in significant visual impact, since the heat exchangers and other large equipment will be located in proximity to the existing generating unit which has larger structures. In

addition, the solar mirrors have a low profile and will not create glare when viewed from ground level or above. When viewed from eye level, during most hours of the day, the solar field would be relatively unobtrusive. If viewed from an elevated location (airplane), the appearance depends on the mirror orientation. If the mirror is toward the viewer, the solar array on a sunny day would create a visual impression that closely resembles a body of water because the array would be reflecting the blue sky. On a cloudier day, the visual impression would appear gray.

The solar array is buffered by a forested area and will not be visible from SR 710.

5.10 Archaeological Sites

The previous surveys of the Martin Plant site found no archaeological sites within those areas designated for the Martin CG/CC Project. The proposed MSEC utilizes a portion of the area included in the full scope (3,300 acres) of the Martin CG/CC Project. No sites listed or eligible for listing in the National Register of Historic Places are on the Project Area. No direct or indirect impacts are anticipated from any operational aspect of the MSEC. See Appendix 10.5.1 for FDHR Opinion Letter.

5.11 Resources Committed

There are no irreversible and irretrievable commitments of national, State, or local resources due to the MSEC.

5.12 Variances

No variances from any applicable standards of any State, regional, or local government agency are being requested as part of this application.

6.0 TRANSMISSION LINES AND OTHER LINEAR FACILITIES

The MSEC Project will not require certification of any associated offsite linear facilities, such as electrical transmission lines or rail lines. Therefore, Chapter 6 is not necessary for this application.

7.0 ECONOMIC AND SOCIAL EFFECTS OF PLANT CONSTRUCTION AND OPERATION

The purposes of this chapter are to:

- Identify the economic and social effects of construction and operation of the MSEC, and
- Quantify the MSEC benefits and costs to the groups affected in the area surrounding the Martin Plant site, as well as other people and businesses in Martin County and the State of Florida.

Socio-economic effects can be classified as either direct or indirect effects. Direct effects are those that are the direct result of the construction or operation of the MSEC. Indirect costs and benefits affect people and business interests in the vicinity of the MSEC who, because of their proximity to the MSEC, may experience changes in their local environment, such as increased spending by the MSEC construction and operation personnel. Many of these effects are difficult to measure, and qualitative assumptions must be made to assess the relative values of expected costs and benefits.

This chapter is divided into two parts. Section 7.1 deals with socio-economic benefits and consists of an analysis of the MSEC construction and operational expenditures. Section 7.2 addresses temporary and long-term indirect costs involving construction and operational personnel's use of private and public services in the vicinity of the Martin Plant. All cost and benefit values are based on nominal dollar values.

7.1 Socio-Economic Benefits

7.1.1 Direct Socio-Economic Benefits

The MSEC is expected to benefit the economies of Martin County and surrounding areas. Direct benefits from the MSEC include employment opportunities created by the construction and operation of renewable solar energy. Construction of the MSEC is anticipated to begin in 2008 and conclude in 2010. The peak construction workforce is estimated to be about 450, with an average construction workforce estimated at 200 employees. Employment opportunities will result from construction job opportunities as well as jobs indirectly generated through the purchase of goods and services in the area.

About 12 additional operational staff will be required once the MSEC is complete. Population and housing impacts from construction are expected to be minimal, since the amount of construction for the MSEC is less than previous construction projects at the Martin Plant (e.g., Unit 8).

The construction cost for the MSEC will be about \$300 million. The major costs associated with construction will be equipment and materials (about \$220 million) and labor (about \$50 million). The remaining \$30 million of the MSEC costs will be predominantly engineering and licensing expenses.

Among the primary direct benefits of the MSEC will be the increase in skilled job opportunities within the region associated with construction.

Sales and income tax benefits will accrue to the State of Florida as a result from the construction of the MSEC. These taxes will be placed in the State's general fund and will be available for any use deemed appropriate by the State.

The MSEC will require about 12 personnel during operation, which represents a payroll of about \$750,000 annually.

7.1.2 Indirect Economic Benefits

The purchase of goods and services to support the construction of the MSEC is anticipated to occur over a period beginning in 2008 and ending in 2010. It is expected that the majority of the \$50 million in construction wages paid by for the MSEC will be spent within Martin County and the surrounding region. These wages will create additional demand for goods and services. As this money is spent, it will create a multiplier effect within the area, thereby generating additional jobs and earnings. These earnings are indirect or secondary benefits of the MSEC, which will be enjoyed by other companies whose payrolls will increase. Rental of construction equipment would be obtained locally.

The direct wages from ongoing operations will continue to generate indirect economic benefits. The direct wages will be spent mostly within the region and will increase the demand for goods and services. Wages paid directly to Plant personnel will continue to generate economic benefits in the region.

7.1.3 Other Economic Benefits

The major expenditures for the MSEC will be equipment to be installed. This equipment will be delivered to the Martin Plant by existing roadways. Some of the payments for equipment transportation will benefit the region through additional employment and taxes.

7.1.4 Recreational and Environmental Values

Construction and operation of the MSEC will not impact the recreational value or visual qualities of any public facilities in the vicinity of the Martin Plant site. During construction of the MSEC, there will be insignificant to non-existent effects on recreational facilities. All of the construction activities will occur within the Project Area on the Martin Plant site. Cranes used to assemble the solar mirrors may be visible from State Road 710 during construction. The solar mirrors, when installed, will have a low visual profile (about 30 feet high). Aesthetic and visual impact to nearby recreational facilities is expected to be minimal.

7.1.5 Onsite Enhancements

FPL desires to minimize the MSEC's impacts on the environment and the community. Accordingly, the MSEC will be constructed during a relatively short (less than 2 years) period. When complete, there will be no additional visual or other impacts to the local community, since the MSEC has a low visual profile. There will be minimal transportation impacts to the local roadways during construction of the MSEC, and during operation there will be no significant increase in traffic.

7.1.6 Other Environmental Benefits

The MSEC maximizes beneficial use of an existing facility to generate renewable energy from the sun. The avoided air emissions from the MSEC will be about 8,800 to 630,000 lb NO_x/yr, 5,300 to 2,800,000 lb SO₂/yr, 34,000 to 71,000 lb CO/yr, 5,100 to 14,000 lb VOC/yr, and 800 to 126,000 lb PM/yr. Most importantly, solar energy is renewable and does not emit greenhouse gases such as CO₂. Over the course of a year, about 52,900 to 81,300 tons of CO₂ will be avoided by the MSEC. To put this amount in perspective, the avoided CO₂ from the MSEC is equivalent to the average CO₂ emissions from about 11,500 to 17,700 cars over a year.

7.1.7 Summary of Benefits

Overall impacts to the economy associated with construction and operation of the MSEC are expected to be positive. Labor demands associated with the construction and operation of the MSEC are not expected to create any labor shortages. Expenditures for materials and construction employment will

contribute to the economy of Martin County and surrounding counties. Population and housing impacts associated with the MSEC will be slight due to minimal in-migration into the area.

Construction activities will increase tax revenues to the county and state governments due to sales taxes from the purchase of equipment and material to support construction activities.

Although the local community may experience some temporary impacts during the short-term construction period, overall, socioeconomic impacts associated with the construction and operation of the MSEC will be favorable.

7.2 Socio-Economic Costs

7.2.1 Temporary External Costs

A majority of the construction workers are expected to be drawn from the local region. Since ample labor supply exists within commuting distance, and since a labor surplus exists within the region, it is anticipated that many workers will be hired from within the region, or come from farther distances for short durations. Consequently, construction should have no adverse effect on permanent housing.

As is typical with shorter duration construction projects, some workers commuting from longer distances may choose to live in transient accommodations (motels, hotels) on a weekly basis, returning to their permanent homes and families on some weekends. Transient accommodations are plentiful in the area. Minimal impacts are anticipated to traffic, air, or noise conditions within the surrounding areas as a result of construction. Since non-local workers will mostly be commuting and not relocating permanently into the region, it is not anticipated that construction will create any new or unusual impacts or demands on public facilities or services. In addition, the majority of the construction-related activities will be conducted within the existing buildings and will not impact the natural resources surrounding the Martin Plant.

The roadways utilized for the construction traffic associated with the MSEC will continue to operate at an acceptable LOS, as they have during other construction and maintenance projects with similar and higher construction employment demands.

7.2.2 Long-Term External Costs

The proposed MSEC's external cost impacts will be minimal and localized. The MSEC will not cause any impairment to recreational values, result in any deterioration of aesthetic and scenic values, or restrict access to areas of scenic values. The MSEC also will not displace any persons or result in any significant costs to local government.

There will be a minimal increase in the operational workforce at the Martin Plant site. As a result, no changes are anticipated from the direct and indirect impacts upon the local services (e.g., schools, police) as a result of the MSEC.

8.0 SITE AND DESIGN ALTERNATIVES

This optional Chapter of the SCA will not be submitted as part of this application because it is not anticipated that an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA) would be required for the Project.

9.0 COORDINATION

State, regional, and local governmental agencies were contacted by FPL representatives to inform these agencies about the MSEC Project and to solicit input regarding the Project. The Agency staff contacted is listed below:

Florida Department of Environmental Protection, Siting Office (Tallahassee)

Michael Halpin
Cindy Mulkey

Martin County Local Planning Agencies

Frank Wacha, Jr.
Samuel Zweben
Christopher Sorenson
James Moir
George Hine

REFERENCES

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APPENDIX 10.1

FEDERAL PERMIT APPLICATIONS AND APPROVALS

(Note: Appendix 10.1.1 316 Demonstrations, Appendix 10.1.2 NPDES Application/Permits, Appendix 10.1.3 Hazardous Waste Disposal Application/Permit, Appendix 10.1.5 PSD Application, Appendix 10.1.6 FAA Determination, and Appendix 10.1.7 Coastal Zone Management Certifications are not applicable to the Solar Project. Any change to the NPDES permit for the Martin Plant site will be addressed separately.)

APPENDIX 10.1.4

SECTION 10 OR 404 APPLICATIONS/PERMITS

**[Note: U.S. Army Corps of Engineers Permit
SAJ-1989-91140 (IP-MAM)]**



DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
4400 PGA Boulevard, Suite 500
Palm Beach Gardens, FL 33410

RECEIVED

APR 24 2006

ENVIRONMENTAL SERVICES

REPLY TO
ATTENTION OF

APR 21 2006

Palm Beach Gardens Regulatory Office
SAJ-1989-91140 (IP-MAM)
Modification # 2: Time Extension

Florida Power & Light Company
C/o. Mr. Jim Brawner
P.O.Box 14000
Juno Beach, Florida 33408

Dear Mr. Brawner:

The U.S. Army Corps of Engineers has completed the review and evaluation of your modification request received September 13, 2005 in which you asked to revise the plans authorized by Department of the Army permit number SAJ-1989-91140 (IP-MAM), for a time extension for the authorized filling of 166 acres of jurisdictional wetlands for the purpose of constructing a coal gasification power plant and associated facilities. The project is located to the east of the existing Martin Power Plant cooling pond site, 5 miles east of Lake Okeechobee and 4 miles northwest of Indiantown, in Sections 19-21 and 28-30, Township 39 South, Range 37 East, in Western Martin County, Florida.

The proposed modification is to extend the expiration date to complete your proposed project. This authorization is hereby extended for 3 years from the date of this letter. The following special conditions are included with this authorization:

(1) Within 60 days from the date of permit issuance, the permittee will have a legally sufficient conservation easement prepared to ensure that the wetland areas will remain in their natural state in perpetuity. The conservation easement will encompass approximately 460 acres of wetlands. These natural preserve areas will not be disturbed by any dredging, filling, land clearing, agricultural activities, planting, or other construction work whatsoever. The permittee agrees that the only future utilization of the preserved areas in question will be as a purely natural area. ✓

(2) The permittee will prepare the proposed conservation easement, including a legal description, survey, and scale drawings, of the area in question and furnish the same to the Jacksonville District Office of Counsel, c/o the Regulatory ✓

Division, Enforcement Branch, Post Office Box 4970, Jacksonville, Florida 32232-0019, for legal review and approval.

(3) Within 30 days of U.S. Army Corps of Engineers' approval of the proposed easement, the permittee will record the easement in the public records of Martin County, Florida. A certified copy of the recorded document, plat, and verification of acceptance from the grantee will be forwarded to the Jacksonville District Office. ✓

(4) The Permittee must show that it has clear title to the real property and can legally place it under a conservation easement. Along with the submittal of the draft conservation easement, the Permittee shall submit a title insurance commitment for the property which is being offered for preservation. Any existing liens or encumbrances on the property must be subordinated to the conservation easement. At the time of recordation of the conservation easement, a title insurance policy must be provided to the Corps in an amount equal to the current market value of the property. ✓

(5) In the event the permit is transferred, proof of delivery of a copy of the recorded conservation easement to the subsequent permittee or permittees must be submitted to the Corps together with the notification of permit transfer.

(6) Grantee shall not assign its rights or obligations under this conservation easement except to another organization qualified to hold such interests under the applicable state and federal laws, including §704.06 Florida Statutes, and committed to holding this conservation easement exclusively for conservation purposes. The Corps shall be notified in writing of any intention to reassign the conservation easement to a new grantee and must approve the selection of the grantee. The new grantee must accept the assignment in writing and a copy of this acceptance delivered to the Corps. The conservation easement must then be re-recorded and indexed in the same manner as any other instrument affecting title to real property and a copy of the recorded conservation easement furnished to the Corps.

The impact of your proposal on the environment have been reviewed and found to be insignificant. The permit is hereby modified in accordance with your request. You should attach this letter to the permit. All other conditions of the permit remain in full force and effect.

If you have any questions concerning permit modification, please contact the project manager Miguel Mozdzen at 561-472-3530 or by electronic mail at Miguel.A.Mozdzen@saj02.usace.army.mil.

Thank you for your cooperation with our permit program.

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

for: 
Robert M. Carpenter
Colonel, U.S. Army
District Engineer

Enclosure

Copies Furnished:

FWS - Vero Beach, Jacksonville
EPA - Atlanta, West Palm Beach
NMFS - Charleston, Miami, St. Petersburg
DEP - West Palm Beach
SFWMD - West Palm Beach
CESAJ-RD-PE



May 8, 2006

Jacksonville District of General Council
c/o Regulatory Division,
Enforcement Branch
Corps of Engineers
United States Department of Army
P.O. Box 4970
Jacksonville, Florida 32232-0019

**RE: Florida Power & Light Company
Martin Power Plant
Permit SAJ-1989-91140 (IP-MAM)
Conservation Easement**

Dear Army Corps:

As per the applicable conditions of the above permit please find enclosed the following:

1. A legally sufficient, executed conservation easement, for the onsite mitigation parcel associated with the above permitted project, and
2. Copy of permit SAJ 1989 91140 (IP-MAM).

Please note this conservation easement has been already recorded with Martin County and was submitted to the Corps back on November 15, 2002 as part of a previous permit extension.

Florida Power & Light Company greatly appreciates the Corps attention to this request, and if I can be of any further assistance please call me at (561) 691-7051.

Sincerely,

Jim Brawner

Senior Environmental Specialist I

Enclosures

Cc: Ms. Penny Cutt AC PBG

Miguel Mozdzen AC-PBG

May 8, 2006

Bcc: Jim Lindsay
Willie Welch
Wayne Ondler
Coke Coakely
Jill Watson
Barb Linkiewicz
Rachel Godion



Florida Power & Light Company, Environmental Services Dept., P.O. Box 14000, Juno Beach, FL 33408

November 15, 2002

Mr. John R. Hall
Chief, Regulatory Division
Jacksonville District Corps of Engineers
Enforcement Branch
Post Office Box 4970
Jacksonville, FL 32232 - 0019

Subject: Permit number 891PD-91140
FPL - Martin Plant

Dear Mr. Hall:

In your letter to Florida Power & Light Company dated September 17, 2002, you requested that a conservation easement be granted to the South Florida Water Management District (SFWMD) for the mitigation area referenced in Permit #891PD-91140. A conservation easement was granted to the SFWMD in July of 1993. A fully executed and recorded copy of the conservation easement for the mitigation area at the Martin Plant property is attached for your records.

If you have any questions, please contact either Ken Simmons at (561) 691-2216 or me at (561) 691-7518.

Respectfully,


Barbara P. Linkiewicz
Sr. Environmental Specialist

Copy: Ms Tori Agramonte, USCOE, Stuart, FL

1012746

RECORD VERIFIED

THIS INSTRUMENT PREPARED BY:
Douglas S. Roberts - Hopping Boyd Green & Sams, Tallahassee, FL.
AND SHOULD BE RETURNED TO FLORIDA POWER & LIGHT CO.
Duane O. Bateman
Land Management - Golden Bear
11770 U.S. Highway #1
North Palm Beach, FL 33408-8801

DOC-DEED \$ 70 MARSHA STILLER
DOC-MTG \$ _____ MARTIN COUNTY
DOC-ASM \$ _____ CLERK OF CIRCUIT COURT
INT. TAX \$ _____ BY WT D.C.

DEED OF CONSERVATION EASEMENT

THIS DEED OF CONSERVATION EASEMENT is given this 15th day of
July, 1993, by Florida Power & Light Company at
_____, ("Grantor") to the South Florida
Water Management District, created under Chapter 373, Florida
Statutes for the purpose of water resource protection, and whose
principal address is 3301 Gun Club Road, West Palm Beach, FL 33406
("Grantee").

W I T N E S S E T H

WHEREAS, the Grantor is the owner of certain lands situated in
Martin County, Florida, and more specifically described in Exhibit A
attached hereto and incorporated herein ("Property"); and

WHEREAS, the Grantor desires to construct multiple combined
cycle electrical generating units, coal gasification facilities and
other associated facilities ("Project") in several phases at the FPL
Martin Plant Site ("Site") in Martin County, which Project will
impact during its several phases wetlands under the regulatory
jurisdiction of Grantee and other public regulatory agencies; and

WHEREAS, the first phase of the Project has been certified for
construction and operation as part of the FPL Martin Coal
Gasification/Combined Cycle CG/CC Project pursuant to the Power
Plant Siting Act, Sections 403.501 - 403.518, Florida Statutes, by

GOVERNING BOARD ORDER NO. 93-48

OR BK 1 0 2 4 P G 1 1 3 5

certification order dated February 20, 1991 ("Certification Order");
and

WHEREAS, the Certification Order authorized such impacts to approximately 166 acres of wetlands within the Site during all phases of the Project as shown on Exhibit B attached hereto and incorporated herein; and

WHEREAS, the Certification Order requires the Grantor to provide compensation and/or mitigation for impacts to wetlands occurring as a result of the Project; and

WHEREAS, the Grantor has developed and proposed pursuant to the Certification Order a wetlands mitigation program named the "Martin CG/CC Project Northwest Parcel Mitigation, Monitoring and Maintenance Plan" dated June, 1993 ("NWP Mitigation Plan"), as that Plan may be revised mutually by the parties hereto, involving enhancement, restoration and preservation of various wetland systems on the Property to compensate for the impacts to wetlands resulting from the Project; and

WHEREAS, the Grantee was a party to the proceeding in which the Certification Order was issued; and

WHEREAS, the Grantor, in consideration of the consent granted by the Certification Order, is agreeable to granting and securing to the Grantee the enforcement of a perpetual conservation easement as defined in Section 704.06, Florida Statutes (1991), over the Property.

NOW, THEREFORE, in consideration of the issuance of the Certification Order to construct and operate the Project including, but not limited to; the authorization to impact approximately 166 acres of wetlands within the Site during all phases of the Project, Grantor hereby grants, creates, and establishes a perpetual conservation easement for the Grantee upon the Property which shall run with the land and be binding upon the Grantor, its heirs, successors and assigns, and remain in full force and effect forever.

The scope, nature, and character of this conservation easement shall be as follows:

1. It is the purpose of the conservation easement to ensure that no activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation, wetlands or fish and wildlife habitat preservation are undertaken on the Property, except for those activities of the Grantor or its agents in preserving, enhancing or restoring the wetlands on the Property in accordance with the requirements of the Certification Order or the NWP Mitigation Plan. To carry out this purpose, the following rights are conveyed to Grantee by this easement:

(a) To enter upon the Property at reasonable times to enforce the rights herein granted upon prior notice to Grantor, its heirs, successors or assigns, in a manner that will not unreasonably interfere with the use and quiet enjoyment of the Property by Grantor, its heirs, successor or assigns, at the time of such entry; and

(b) To enjoin any activity on or use of the Property that is inconsistent with the purpose of this conservation easement and to enforce the restoration of such areas or features of the Property that may be damaged by any inconsistent activity or use.

2. The following activities are prohibited in or on the Property except as otherwise authorized in the NWP Mitigation Plan or the Certification Order as they now exist or as they may be amended in the future:

(a) Construction or placing of buildings, roads, signs, billboards or other advertising, utilities, or other structures on or above the ground.

(b) Dumping or placing of soil or other substance or material as landfill, or dumping or placing of trash, waste, or unsightly or offensive materials.

(c) Removal or destruction of trees, shrubs, or other vegetation except for removal of noxious or exotic vegetation as required in the Northwest Parcel Mitigation, Monitoring, and Maintenance Plan.

(d) Excavation, dredging, or removal of loam, peat, gravel, soil, rock, or other material substance in such manner as to affect the surface.

(e) Surface use except for purposes that permit the land or water area to remain predominantly in its natural condition or which receive prior written approval from the Grantee.

(f) Activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation, or fish and wildlife habitat preservation.

(g) Acts or uses detrimental to such retention of land or water areas, or which are detrimental to the preservation of any wetlands on the property.

(h) Acts or uses detrimental to the preservation of the structural integrity or physical appearance of sites or properties of historical, architectural, archaeological, or cultural significance.

3. Grantor reserves to itself, its heirs, successors or assigns all rights as owner of the Property, including the right to engage in all uses of the Property that are not prohibited herein.

4. No right of access by the general public to any portion of the Property is conveyed by this conservation easement.

5. Grantor shall bear all costs and liabilities of any kind related to the operation, upkeep and maintenance of the Property and does hereby indemnify and hold Grantee harmless therefrom, except where such costs or liabilities are created or caused by the Grantee, its successors, assigns or contractors.

6. Grantor shall pay any and all real property taxes and assessments levied by competent authority on the Property.

7. Any costs incurred by Grantee in enforcing, judicially or otherwise, the terms and restrictions of this conservation easement against Grantor, its heirs, successors or assigns, be borne by and

recoverable against Grantor, its heirs, successors or assigns, as long as Grantee is the prevailing party in such proceedings.

8. Enforcement of the terms and provisions of the conservation easement shall be at the reasonable discretion of Grantee, and any forbearance on behalf of Grantee to exercise its rights hereunder in the event of any breach hereof by Grantor, its heirs, successors or assigns, shall not be deemed or construed to be a waiver of Grantee's rights hereunder in the event of a subsequent breach.

9. Grantee will hold this conservation easement exclusively for conservation purposes. Grantee will not assign its rights and obligations under this conservation easement without prior written consent of the Grantor or its successors and except to another organization qualified to hold such interests under the applicable state and federal laws and committed to holding this conservation easement exclusively for conservation purposes. Grantor agrees that it will not sell the Property which is subject to this Easement without giving Grantee at least sixty (60) days written notice prior to transfer of title.

10. If any provision of this conservation easement or the application thereof to any person or circumstances is found to be invalid, the remainder of the provisions of this conservation easement and the applications of such provision to persons or

circumstances other than those as to which it is found to be invalid shall not be affected thereby, as long as the purpose of the conservation easement is preserved.

11. All notices, consents, approvals or other communications hereunder shall be in writing and shall be deemed properly given if sent by United States certified mail, return receipt requested, addressed to the appropriate party or successor-in-interest.

12. The terms, conditions, restrictions and purposes of this conservation easement will be inserted by Grantor in any subsequent deed or other legal instrument by which Grantor divests itself of any interest in the Property. Any future purchaser of the Grantor's interest in the Property shall be notified in writing by Grantor of this conservation easement.

13. This conservation easement may be amended, altered, released or revoked only by written agreement between the parties hereto or their heirs, assigns and successors-in-interest.

14. The intent of this Easement is to retain in its natural or restored state the amount of land within the Property that is actually required to compensate for the wetland impacts resulting from the development of the Project. The parties to this agreement recognize that the actual amount of land required to be subject to this Easement will not be capable of final determination until completion of the NWP Mitigation Plan. The Grantor and Grantee therefore agree that the extent of the Property to be subject

ultimately and perpetually to this Easement shall be evaluated upon the successful conclusion of the wetlands mitigation program set forth in the NWP Mitigation Plan. The purpose of that evaluation shall be to determine whether the amount of land subject to this Easement, as described in Exhibit A attached hereto, may be adjusted or reduced and whether Exhibit A hereto may be amended based upon the final results of the implementation of the NWP Mitigation Plan.

TO HAVE AND TO HOLD unto Grantee, its successors and assigns forever. The covenants, terms, conditions, restrictions and purposes imposed with this conservation easement shall not only be binding upon Grantor, but also its agents, heirs, assigns and all other successors to it in interest, and shall continue as a servitude running in perpetuity with the Property.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
BY ITS GOVERNING BOARD



BY: T. Mullins
Deputy Executive Director

ATTEST:

BY: Joey Burns
Assistant Secretary

FILED WITH THE CLERK OF THE SOUTH
FLORIDA WATER MANAGEMENT DISTRICT
ON July 20, 1993
BY Barbara Fronzel
DEPUTY CLERK

EXHIBIT "A"

The West 30.7 acres of the E 1/2 of Section 13, less and except any portion of said 30.7 acres contained within Lot 24 and Lots 27 through 43 shown on the plat of Section Four, Sunset Grove, hereinbelow referenced, and

The West 282.64 feet of the NW 1/4, and all of the SW 1/4 of Section 13, and

All of Lots 628 through 649 and Lots 692 through 713 as shown on a plat of Section Three of Sunset Grove, a Division of Land in the E 1/2 of Section 13, by Wood and Associates dated July, 1966, a copy of which is of record in the Public Records of Martin County, Florida, in O.R. Book 344, page 2022, and

All of Lots 23, 25, 26, 44, 51, 59, 64, 109, 110, 129, 130, 130A, 131, 132, 140 through 149, 194 through 204, 206 through 233, and 278 through 297, as shown on a plat of Section Four of Sunset Grove, a Division of Land in Section 13, by Wood and Associates, Inc., dated August, 1968, a copy of which is of record in the Public Records of Martin County, Florida, in O.R. Book 273, page 126.

All of Section 14, and

All of the SE 1/4 of the SE 1/4 of Section 15, and all that portion of the North Quarter (N 1/4) of Section 22 lying North and East of the Florida East Coast Railroad Company right-of-way.

Said Sections 13, 14, 15 and 22 situate, lying and being in Township 39 South, Range 37 East, Martin County, Florida.

BY

D.C.

MARSHA STILLER
CLERK OF CIRCUIT COURT

93 AUG -4 PM 4:16

FILED FOR RECORD
MARTIN CO., FLA.

RO

IN WITNESS WHEREOF, Florida Power & Light Company has hereunto
set its authorized hand this 18 day of JUNE, 1993.

Signed, sealed and delivered
in our presence as witnesses:

Maureen H. Kerrison
Name: MAUREEN H. KERRISON

FLORIDA POWER & LIGHT COMPANY,
a Florida corporation

By: [Signature]
Name: Jay W. Molyneaux
Title: Director of Land Management,
and Assistant Secretary
P.O. Box 14000, Juno Beach, FL 33408-0420

Patricia A. Goudreau
Name: Patricia A. Goudreau

STATE OF FLORIDA:
COUNTY OF PALM BEACH

On this 18 day of JUNE, 1993, before me, the
undersigned notary public, personally appeared Jay W. Molyneaux
Assistant Secretary, personally known to me to be the person who
subscribed to the foregoing instrument and did not take an oath, as
of
Florida Power & Light Company, a Florida corporation and
acknowledged that he executed the same on behalf of said District
and that he was duly authorized to do so.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Barbara C. Hill
NOTARY PUBLIC
Barbara C. Hill

Name

My Commission Expires:

NOTARY PUBLIC STATE OF FLORIDA
MY COMMISSION EXP. OCT. 13, 1995
BONDED THRU GENERAL INS. UND.

APPENDIX 10.2 / 10.3

ZONING AND LAND USE



MARTIN COUNTY, FLORIDA
DEVELOPMENT REVIEW

STAFF REPORT

RECEIVED MAR 14 2008

A. Application Information

FPL REQUEST FIRST AMENDMENT TO PUD MASTER PLAN AND
ZONING AGREEMENT TO REPLACE COAL STORAGE WITH
RENEWABLE ENERGY GENERATION FACILITIES

Applicant:	Florida Power & Light Company
Property Owner:	Florida Power & Light Company
Agent for the Applicant:	Linda M. Hake, Esq. Gunster Yoakley & Stewart, P.A.
County Project Coordinator:	Harry King, Principal Planner
Development Review Administrator:	Deborah Oblaczynski
Project Number:	F087-004
Application Type and Number:	D008 200800017
Date Application Submitted:	01/08/2008
Date Application Sufficient:	01/09/2008
Date PUD Rev. Master Plan Date:	02/18/2008
Date GMD Letter on APFO Exempt:	02/18/2008
Date PUD Rev. Amend. Provided:	02/25/2008 (final version 03/10/2008)
Report Number:	gmd08d.141
Date Staff Report Issued:	03/13/2008
Date Joint Staff Workshop:	03/20/2008
LPA Meeting Date:	(pending advertisement)
BCC Meeting Date:	(pending LPA hearing)

B. Application type

Request is for a Revised Master Site Plan Approval of Martin Expansion Project N/K/A FPL with Certificate of Public Facilities Exemption located approximately 8 miles west of Indiantown and south of SR 710, Warfield Boulevard.

C. Project description and analysis

This is an application for a planned unit development master site plan as a revision to a PUD master plan originally approved August 8, 1989. The request is for Revised Master Site Plan Approval of the existing completed Martin Expansion Project PUD, now known as (N/K/A) FPL - Martin Project First Amendment to PUD Zoning Agreement with Certificate of Public Facilities Exemption. The proposed First Amendment to the PUD would consist of renewable energy generating facilities and combined cycle electric generating units together with appurtenant and supportive facilities associated with the

generation and transmission of electricity.

While the existing Power Block Generating Plant, Area Units 3, 4 and 8 are continued in operation on the westerly 113 acres of the PUD master plan, dated 2-18-08, the area referred to as the New Power Block Area (391 acres), includes generation area would occupy 391 acres to the east along with the 501 acres currently dedicated to the Existing Transmission Area. The previous coal handling area to the south of the New Power Block Area would be changed from Coal Handling Area to 177 acres dedicated as Renewable Energy Area South. Between the Existing Transmission Area and 8,201 linear footage along the CSX Rail Road and State Road 710, the prior Coal By-Product Storage Area is to be converted to 568 acres as the Renewable Energy Area North and the 300 foot wide Buffer/Preserve Area adjacent to the railroad and existing entrance road from SR 710. Existing Upland Preserve Areas and the Existing Cooling Pond are to remain to the north and west of the original (not included) in the PUD master plan from the 1989 PUD. All prior power block areas are to remain but the coal storage and disposal operation would be eliminated.

The PUD master plan dated 2-18-08 and the proposed First Amendment to Martin Expansion Project (N/K/A FPL Martin Project) Planned Unit Development Zoning Agreement) received March 03, 2008, and revised 3-10-08 to address Environmental Planner questions is found acceptable.

D. Staff recommendation

Staff has reviewed this application for a major or other conditional development order, master site plan, for compliance with the applicable goals, objectives and policies of the Martin County Comprehensive Growth Management Plan, the Martin County Land Development Regulations and the code. The staff determination is that this application is in compliance with these laws, ordinances and policies and standards and criteria. Staff recommends approval of this application for a PUD conditional development order, master site plan, subject to any conditions as identified in this report. This evaluation is extended to the week of March 10, 2008, in light of the applicant providing a corrected PUD Amendment and responses to initial staff issues dated February 28, 2008. The PUD Amendment, revised on 2/25/08, by the FPL legal representative is the subject of this staff report issued for Joint Staff Workshop consideration in March 2008.

The specific findings and conclusion of each review agency related to this request are identified in Sections G through T of this report. The current review status for each agency is as follows:

Section	Division or Department	Reviewer	Phone	Assessment
G	Comprehensive Plan	Harry W. King	288-5501	Comply
H	Development Review	Harry W. King	288-5501	Comply
I	Community Planning			N/A
J	Environmental	Darryl DeLeeuw	221-1317	Comply
J	Landscaping	Jean Pessalono	288-5508	N/A
K	Transportation	Bonnie Pointer	288-5927	Comply
L	County Surveyor	Bill Wallace	288-5418	N/A
M	Engineering & Stormwater	Tony Lepri	288-5927	Comply
N	Addressing	Harry W. King	288-5500	Comply
O	Utilities	James Christ	221-2353	Comply
P	Fire Protection	Jon Pasqualone	288-5633	Comply
Q	ADA	Bob Steiner	221-1396	N/A
R	Commercial Design	David Roller		N/A
R	Electronic file submittal	Emily Kohler	288-5692	Comply

R	Health Department			Comply
R	School Board	J. Lisle Bozeman	219-1200	N/A
R	Property Management	Don Cole	288-5793	N/A
S	County Attorney	Krista Storey	288-5440	Comply
T	Adequate Public Facilities	Harry W. King		Comply

E. Review Board/Committee action

The Joint Staff Workshop (Workshop) acts upon major development applications for approval such as this revised PUD master plan. The staff of the departments represented on the Workshop reviews the proposed development for compliance with the applicable land development regulations and provides recommendations contained in a staff report. This report and the application materials are submitted for Workshop consideration. The Workshop makes its determination of compliance with the Martin County Comprehensive Growth Management Plan, the Land Development Regulations, and the code based upon the application materials, staff review findings and recommendations and public comment. The Workshop will make its recommendation for approval, approval with conditions or denial.

Major developments receive consideration before the Local Planning Agency (LPA); final action occurs before the Board of County Commissioners (BCC). At the conclusion of a public hearing for master site plans, the BCC may approve, approve with modifications or deny the application. Board final action is by acceptance of the PUD amendment. (Sections 10.3.A and C, LDR)

A final approval always is conditioned upon the applicant's submittal of all required documents, executed where appropriate, and applicable fees to the Growth Management Department (GMD) within sixty (60) days of the BCC action. The required documents are listed in this report. (Section 10.8, LDR)

The following are recommended approval conditions from the Local Planning Agency:

(1. Subject to conduct of an advertised public hearing)

The following are conditions of approval of the development order as granted by the Board of County Commissioners:

2. (Pending conduct of the LPA and Board public hearings)

F. Location and site information

Parcel number(s) and address:

19-39-38-000-000-0001.0-60000 21900 SW Warfield Blvd

20-39-38-000-000-0002.0-20000 21900 SW Warfield Blvd

20-39-38-000-000-0003.0-00000 Unaddressed

21-39-38-000-000-0003.0-80000 No Address

28-39-38-000-000-0001.0-70000 No Address

29-39-38-000-000-0001.0-50000 21900 SW Warfield Blvd

30-39-38-000-000-0001.0-30000 No Address

Zoning designation: Agricultural

Future land use designation: Future Land Use Public Utilities

Census Tract: NA

Commission District: 3

Community redevelopment area: Not Applicable

Municipal taxing district: Not Available

Planning area: West County

Storm surge zone:	Not Available
Traffic analysis zone:	60
Gross area of site:	2,190 acres
Non-residential gross floor area:	1,152
Pre-construction developed area:	614 acres
Adjacent existing or proposed development:	
To the north:	Agricultural
To the south:	Agricultural
To the east:	Agricultural
To the west:	Major Power Generation Facility
Zoning district designations of abutting properties:	
To the north:	A-2 Agricultural
To the south:	A-2 Agricultural
To the east:	A-2 Agricultural
To the west:	A-2 Agricultural
Future land use designations of abutting properties:	
To the north:	Agricultural
To the south:	Agricultural
To the east:	Agricultural
To the west:	Major Power Generation Facility

G. Determination of compliance with Comprehensive Growth Management Plan requirements - Growth Management Department

Unresolved issues:

Additional information:

Recommendation:

The Martin County Comprehensive Growth Management Plan, Goal A, Objective 1, Policy a, states: 'The County's existing Land Development Regulations shall be revised to conform to all guidelines and standards contained in this Plan.

Staff has reviewed this application and finds that that it complies with the LDR. Staff recommends approval of this development application as consistent with the guidelines and standards of the applicable Comprehensive Plan goals, objectives and policies, as implemented in the LDR.

H. Determination of compliance with land use, site design standards, zoning, and procedural requirements - Growth Management Department

Unresolved issues:

Additional information:

ITEM # 1:

Provide recent boundary and topographic surveys of all properties that are the subject of this application. [Section 10.2.B, LDR]

Comments:

The map dated 2-18-08, provided as the Revised Master Plan on February 29, 2008, with the corrected PUD Amendment, revised 2/25/08 by the legal representative, illustrates the limits or restrictions placed on those environmental preserves and boundary area native vegetation buffer areas.

ITEM # 2:

The application indicates a phasing of the project is sought. Provide a schedule of the phases that is consistent with the deadline requirement to complete the project. [Sections 10.2.B, 10.11.C, and 10.11.D; Section 5.7.4.d.(1), LDR]

Comments:

- a. The PUD First Amendment (2/25/08) provided March 3, 2008, establishes increments for the staging of improvements in light of the first Site Certification of the FPL Martin Project being no later than December 31, 2011. Following that site certification, commencement of construction for the first principal facility, defined in Revised Attachment 2 to Exhibit "F", Special Conditions as Renewable Energy facilities for solar thermal, photovoltaic or biomass technologies as passive energy collection areas, is to commence construction. The acreage area includes the 166 acres as Renewable Energy Area South and the 568 acre Renewable Energy Area North in place of the eliminated coal gasification and coal handling proposals from the prior proposal. These Principal Facilities are detailed in Attachment 2 to Exhibit "F" and the Timetable of Development in Exhibit "E" establishes the acceptable sequence for construction completion of each principal facility as 48 months after commencement of construction upon Site Certification being achieved.

ITEM # 3:

Provide a current list of the names and addresses all property owners within 300 feet of the boundaries of the property that is the subject of this application and is located within the Primary Urban Service District. Include in the list any condominium and homeowner associations and the name and address of each property owner in each association. (Section 10.6.E.1)

Comments:

- a. Needed for the required 2 public hearings.

ITEM # 4:

A complete site plan is required as part of the application. [Section 10.2.B, LDR]

Comments:

The final site plans will not be evaluated by the County in accordance with State Statutes regarding power generating facilities. The master plan notes that the 166 and 568 acres to be converted from vacant land to the Renewable Energy Areas South and North are given an acceptable Timetable of Development in Exhibit "E" dated 2/25/08.

- a. The Section 2.4 paragraph in the First Amendment establishes FPL is to have "commenced construction of at least one principal facility within eighteen (18) months of the approval of the final development plan under the Florida Electrical Power Plant Site Act...."
- b. The concept of a principal facility defined to be specific to the two areas north and south is defined satisfactorily in Attachment 2 to Exhibit "F", Description of Principal Facilities.
- c. Exhibit "E" proposes a Timetable of Development for first site certification expected to become final no later than December 31, 2011. This timeframe is acceptable.
- d. The Martin County Health Department evaluated this master plan proposal on February 29, 2008, and finds that comments are now satisfied and that, "The facility is currently served by DEP permitted water and wastewater systems."

ITEM # 5:

The notice of a public hearing regarding development applications shall be mailed at least fourteen (14) calendar days prior to the public hearing by the applicant to all owners of real property located within a distance of three hundred (300) feet of the boundaries of the affected property. For development parcels which lie outside of or border the Primary Urban Service District, the notification distance shall be increased to six hundred (600) feet. In addition, notice shall be mailed to all

homeowner associations, condominium associations and the owners of each condominium unit within the notice area.

A list of all owners to be notified shall be provided by the applicant to the Growth Management Department (GMD) director no later than two (2) weeks prior to the scheduled time of the public hearing. This list shall be based on the most recent tax roll available and must be certified as to its authenticity and completeness by an attorney at law or title company. (Section 10.6.E)

When the property is located within a community redevelopment area (CRA), then the CRA chairperson's name and address shall be added to the list of surrounding property owners to ensure that the chairperson is notified of all meetings and hearings required by the Code. (Section 10.6.I)

Comments:

Needed for the advertised public hearings.

ITEM # 6:

An approved final plan is issued as a written development order. The development order includes:

- a. The legal description, identified as 'Exhibit A';
- b. The approved final site plan, identified as 'Exhibit B,' reduced to 8.5 x 11 inches;
- c. The adequate public facilities certification of compliance, as a Certificate of Public Facilities Exemption properly executed; in accordance with the letter dated February 18, 2008, gmd2008L306.

ITEM # 7:

Minimum lot area and development standards shall be consistent with the applicable zoning district designation for the property. The following Sections of the Comprehensive Growth Management Plan apply to Major Public Power Generation Facilities and are met with this application:

Comments:

- a. Section 4, 4.M.1.j. Policies (Public utilities - major public power generation facilities). Land uses in this category are confined to major public power generation-sites and related facilities. Currently, the only such designated area is the Florida Power and Light Martin Plant site and cooling reservoir west of Indiantown. Major public power generation-sites are those owned by utilities which are regulated by the Public Service Commission and which own and operate the public utility electrical distribution systems. This designation is required for all public power generation-sites of ten acres or more in size which contribute electricity to the power grid in Martin County. Such land uses are subject to the same locational and compatibility considerations as required of industrial development. Section 4.4M.1.h. Paragraph 5: The Land Development Regulations shall be amended to include performance standards for regulating the nuisance impacts sometimes associated with intense commercial and industrial development. Sites acceptable for development by limited impact industries shall contain a minimum of 15,000 square feet with maximum building coverage of 40 percent and maximum height of 30 feet. Sites better suited for development by extensive impact industries shall have a minimum lot size of 30,000 square feet with maximum building coverage of 50 percent and maximum height of 40 feet. Minimum open space for either use is 20 percent. The intensity of lot use (FAR) shall be governed by the parking standards of the Land Development Regulations. Salvage yards shall be considered as an industrial use due to the potential intensity and nature of the use, acreage requirements, aesthetic impact, and the heavy truck traffic associated with the use.
- b. The proposed PUD Revised Master Plan dated 2-18-08 and the PUD First Amendment to Martin Expansion Project (N/K/A FPL Martin Project Planned Unit Development Zoning Agreement dated 2/25/08, are found in compliance.

ITEM # 8:

An additional fee is required for the review of the third submittal (the second resubmittal) of documents for this development application. Please include the appropriate third submittal review fee (includes the GMD, ENG, and EMD fees):

A. Planned unit development (PUD), master site plan: \$11,450.00

Recommendation:

Martin County shall manage growth and development in a fiscally efficient manner which is consistent with the capabilities of the natural and human systems and which maintains quality of life standards acceptable to its citizens. Each development application shall be consistent with the land development regulations which implement the comprehensive plan goals, objectives, and policies governing land development.

The LDR provide development review procedures to implement the goals, objectives and policies contained in the Martin County Comprehensive Growth Management Plan (Comprehensive Plan).

Pursuant to Section 10.2.F, LDR: 'No development...shall be commenced or undertaken in Martin County that is inconsistent with the Comprehensive Plan, the LDR and the Code... It shall at all times be the applicant's responsibility to demonstrate consistency with the goals, objectives and policies of the Comprehensive Plan, the LDR and the Code.'

Staff has reviewed this application for consistency with the LDR and code implementing Martin County Comprehensive Growth Management Plan goals, objectives and policies and the associated guidelines and standards. Staff finds that this development application is consistent with the applicable land development regulations and recommends approval.

I. Determination of compliance with the community planning requirements – Growth Management Department

Unresolved issues:

Additional information:

Not in a CRA.

Recommendation:

Not applicable.

J. Determination of compliance with environmental and landscaping requirements - Growth Management Department

ENVIRONMENTAL REVIEW

Unresolved issues:

Additional information:

Recommendation:

The Growth Management Department Environmental Division staff has reviewed the application and finds it in compliance with the applicable land development regulations.

K. Determination of compliance with transportation requirements - Engineering Department

Unresolved issues:

Additional information:

Compliance with adequate public facilities ordinance:

ITEM # 1:

This project satisfies the Adequate Public Facilities Standard; it is exempt as it is a development, a development alteration, or an expansion that does not create additional impact on the roadway network as noted on February 18, 2008:

=====

February 18, 2008 Telephone: 772-288-5501
Fax: 772-288-5764

Linda M. Hake, Esq.
Gunster Yoakley & Stewart, P.A.
800 SE Monterey Commons Blvd. Suite 200
Stuart, FL 34996

Project number: F087-004
Project name: FPL Martin Project PUD
Application #: D008 200800017
RE: FPL - First Amendment to the FPL PUD - Request for Determination of Exemption from Adequate Public Facilities Ordinance, Section 5.32.B.3.f. (3), Land Development Regulations, Martin County Code

Dear Linda,
The Growth Management Department has evaluated the initial application materials and the specific documentation regarding the project status detailed in your letter of February 12, 2008. The application in question does not create additional impacts on public facilities in excess of the original development order issued by Martin County on August 8, 1989. The currently under review application for the First Amendment will be processed as a Certificate of Public Facilities Exemption.

Sincerely,

Nicki van Vonno, AICP
Growth Management Director

NVV/hwk

Cc: Development Review Team

Recommendation:

The Engineering Department finds this application in compliance with the February 18, 2008, letter.
L. Determination of compliance with county, surveyor - Engineering Department

Unresolved issues:

Additional information:

No plat proposed.

Recommendation:

Not applicable.

M. Determination of compliance with engineering, stormwater and flood management requirements - Engineering Department

Unresolved issues:

Additional information:

Compliance with adequate public facilities ordinance:

Recommendation:

Staff has reviewed the stormwater management system and finds that it is composed of a series of on-site conveyance swales and culverts with adequate dry and wet detention which provide adequate water quality treatment and attenuation for stormwater runoff. The system discharges into an on-site conveyance canal having ultimate discharge into C-44 (St. Lucie canal) at a rate equal to or less than that presently discharging. Therefore, staff finds that the proposed project is in compliance with the Land Development Regulations.

The Engineering Department finds this application in compliance.

N. Determination of compliance with addressing requirements – Growth Management Department

Unresolved issues:

Additional information:

Facilities are addresses at 21900 SW Warfield Boulevard, Indiantown, Florida.

Recommendation:

The application has been reviewed for compliance with Division 17, Addressing, of the Martin County Land Development Regulations. Staff finds that the proposed site plan, dated 2-18-08 complies with applicable addressing standards and regulations and recommends approval.

O. Determination of compliance with utilities requirements - Utilities Department

WATER AND WASTEWATER SERVICES REVIEW

Unresolved issues:

Additional information:

Recommendation:

This development application has been reviewed for compliance with applicable statutes and ordinances and the reviewer finds it in compliance with Martin County's requirements for water and

wastewater level of service.

WELLFIELD and GROUNDWATER PROTECTION REVIEW

Unresolved issues:

Additional information:

Recommendation:

The application has been reviewed for compliance under the Wellfield Protection Program. The reviewer finds the application in compliance with the Wellfield Protection and Groundwater Protection Ordinances.

P. Determination of compliance with fire safety and emergency preparedness requirements - Emergency Services Department

Unresolved issues:

Additional information:

ITEM # 1:

Martin County Code of Laws and Ordinances, Section 15-30, adopts NFPA 1 and NFPA 101 as the county's fire prevention code. This is in accordance with Chapter 633, F.S. All construction, including, but not limited to, fire sprinklers, fire alarms and fire suppression systems, shall be subject to these codes. All documents including specifications and hydraulic calculations are required at the time of the application for a building permit for the property that is the subject of this application for site plan approval. Separate permits may be issued by the Fire Prevention Division.

ITEM # 2:

The following fire suppression water flow is the minimum for the specified use:

Residential

- 500 gpm for Single family homes / duplexes
- 750 gpm for Multi-family 2 story (12 or less units)
- 1,500 gpm for Multi-family (greater than 12 units)

Mercantile / business

- 750 gpm for 3000 square feet or less
- 1,000 gpm for 3000-15,000 square feet
- 1,500 gpm for greater than 15,000 square feet

Industrial / Warehouse / Storage

- 750 gpm for 7000 square feet or less
- 1,500 gpm for greater than 7000 square feet

These are the minimum requirements for the specified uses. Additional water flow may be required to supplement fire sprinkler systems or to support other hazardous uses. The developer is responsible to meet any additional flow requirement beyond that which is within the capacity of the utility provider. [NFPA 1 and NFPA 101]

Comments:

Please see above flow requirements. Page 28 of 28 of the amended PUD agreement states 500 gpm. We will be looking for 1,500 gpm.

ITEM # 3:

If land clearing is required on this project, and the vegetation debris is to be burned on the site, a burn permit is required. The burning of debris requires use of an air curtain when the site is within 1/4 mile of a residential area. Any validated complaint will result in requiring the remaining debris to be hauled off-site to an approved landfill or vegetative recycling facility. [Martin County Ordinance #480]

Recommendation:

1. The Emergency Management Agency staff has reviewed this development application for compliance with applicable statutes and ordinances and has determined that it is in compliance with the applicable standards and restrictions of the land development regulations. This agency recommends approval of the application.
2. The Fire Prevention Division has determined that the application is in compliance with applicable codes. The fire protection requirements have been met. The Fire Prevention Division has no objection to approval of this application. [Section 10.2.D, LDR]

Q. Determination of compliance with Americans with Disability Act (ADA) requirements - General Services Department

Unresolved issues:

Additional information:

Not reviewed with master plan proposals.

Recommendation:

Not applicable.

R. Determination of compliance with Commercial Design, Electronic file submittal, Martin County School Board, Martin County Health Department, and Property Management requirements

Unresolved issues:

Additional information:

Not applicable to master plan request.

Recommendation:

Not applicable.

S. Determination of compliance with legal requirements - County Attorney's Office

Unresolved issues:

Additional information:

Recommendation:

This finding waits the scheduling of public hearings.

T. Determination of compliance with the adequate public facilities requirements - responsible departments

ITEM # 1:

The following is a summary of the review for compliance with the standards for a Certificate of Adequate Public Facilities Exemption (Article 5, LDR) for development and alterations or expansions to approved developments that do not create additional impacts on public facilities:

Potable water facilities

Service provider - Exempted

Source - Utilities Department, FDEP permitted system

Reference - see Section O of this staff report

Sanitary sewer facilities

Service provider - Exempted

Source - Utilities Department, FDEP permitted system

Reference - see Section O of this staff report

Solid waste facilities

Findings - Exempted

Source - Growth Management Department

Stormwater management facilities

Findings - Exempted

Source - Engineering Department

Reference - see Section N of this staff report

Community park facilities

Findings - Exempted

Source - Growth Management Department

Roads facilities

Findings - Exempted

Source - Engineering Department

Reference - see Section M of this staff report

Mass transit facilities

Findings - Exempted

Source - Engineering Department

Reference - see Section L of this staff report

Public safety facilities

Findings - Exempted as not creating additional impacts to public services

Source - Growth Management Department

Reference - see Section P of this staff report

Development that does not create additional impact on public facilities includes:

A. Additions to nonresidential uses that do not create additional impact on public facilities;

B. Changes in use of property when the new use does not increase the impact on public facilities over the pre-existing use, except that no change in use will be considered exempt when the preexisting use has been discontinued for two years or more;

C. Zoning district changes to the district of lowest density or intensity necessary to achieve consistency with the Comprehensive Growth Management Plan;

D. Boundary plats which permit no site development.

Exempted development will be treated as committed development for which the county assures concurrency. This exemption status is detailed in the February 18, 2008, letter gmd2008L306, regarding exemption status under Section 5.32.B.3.f.(3), Land Development Regulations, Martin County Code.

U. Post-approval requirements**ITEM # 1:**

Approval of the development order for this planned unit development, master site plan, is conditioned upon the applicant's submittal of all required documents, executed where appropriate, to the Growth Management Department (GMD), including unpaid fees, within sixty (60) days of the Board of County Commission final action.

All documents are to be submitted as one (1) complete 'original' packet accompanied by the required copies as additional packets. The following documents listed and checked must be submitted to the GMD:

1. One (1) original of the approved master site plan on 'Mylar' or other stable, plastic material,
2. One (1) digital copy of the final site plan, in AutoCad 2004 drawing format (.dwg). The digital version of the site plan must match the hardcopy version as submitted.
3. Twelve (12) copies of the approved master site plan,
4. Twelve (12) copies of the approved timetable of development,
5. Twelve (12) copies of the approved zoning agreement,
6. Twelve (12) copies of any approved development agreement, when applicable,
7. Twelve (12) copies of the approved preserve area management plan,
8. Twelve (12) copies of the approved homeowners' association declaration of covenants and restrictions, when applicable,
9. One (1) copy of an accurate legal description, including the acreage total and parcel control number(s) of the subject parcel(s), identified as 'Exhibit A' (to be attached to the development order approval resolution),
10. One (1) copy of the approved master site plan, reduced to 8.5 x 11 inches identified as 'Exhibit B,' (to be attached to the development order approval resolution),
11. Original and two (2) copies of the current 'unity of title' in standard county format and executed by proper authority,
12. Original and two (2) copies of the 'unity of control' in a format acceptable to the county attorney,
13. Two (2) copies of the warranty deed if a property title transfer has occurred since the site plan approval,
14. A check made payable to the Martin County Board of Commissioners, for payment of \$____ (pending the 2 notices) ____, the advertising fees for the required public hearing, and
15. Once all required documents are submitted, the recording fee will be calculated, and the applicant will be sent a demand for payment in the form of a check made payable to the Martin County Clerk of the Court.

Failure to submit the required, executed, documents, plans, and fees in compliance with Section 10.9, LDR, will render the development order null and void.

V. Fees

Public advertising fees for the development order will be determined and billed subsequent to the public hearing. Fees for this application are calculated as follows:

<i>Fee type:</i>	<i>Fee amount:</i>	<i>Fee payment:</i>	<i>Balance:</i>
Application fees	9,637.00	9,637.00	.00
Environmental inspection fees	.00	.00	.00
Engineering fees	4,163.00	4,163.00	.00
Mandatory impact fees	.00	.00	.00
Non-mandatory impact fees	.00	.00	.00

Note: Impact fees will be based on future structures being proposed.

W. General application information

Applicant: Florida Power & Light Company
Jes/Jb 700 Universal Blvd.
Juno Beach, FL 33408-0420
561-676-7238

Agent: Linda M. Hake, Esq. Gunster Yoakley & Stewart, P.A.
With Carolyn Bortz, CLA
800 SE Monterey Commons Blvd, Suite 200
Stuart, FL 34996
772-288-1980

X. Attachments

1. Application for the proposed development as, Revised Master Plan dated 2-18-08 and First PUD Amendment as revised 2/25/08
2. Location map, similar background including the 1989 PUD Agreement, Exhibit 'D', Master Plan
3. Future land use map
4. FDEP permit (wastewater collection system) - for Site Certification
5. FDEP permit (general permit) - for Site Certification
6. SFWMD permit - upon Site Certification Processing
7. February 20, 2008 letter from Linda M. Hake, Esq. allowing the review time to be extended
8. February 28 covering February 25, 2008 responses from applicant to the initial staff issues
9. February 18, 2008, response letter from Growth Management Department regarding applicant's request of February 12, 2008, for the determination of the Certificate of Public Facilities Exemption
10. March 3, 2008, letter from Linda Hake covering the First Amendment, revised 2/25/08, dated March 10, 2008
11. Health Department memo provided February 29, 2008

APPENDIX 10.4

EXISTING PERMITS

Conditions of Certification

Modified 07/09/07

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I. CERTIFICATION CONTROL

A. Pursuant to s. 403.501-518, F.S., the Florida Electrical Power Plant Siting Act, this certification is issued to Florida Power and Light Company (FPL) owner/operator of the Martin Power Plant. Under the control of these Conditions of Certification the FPL will operate the Martin Expansion Project consisting of two natural gas-fired Combined Cycle Units No. 3 and No. 4 (each 450 MW nominal) and two simple cycle Units 8A and 8B (each 170 MW nominal) which will be incorporated into Unit 8, a "4 on 1" Combined Cycle Gas Turbine facility (total 1100 MW Nominal) and ancillary equipment. The Martin Expansion Project includes future facilities, given preliminary approval, namely two gas-fired Combined Cycle Units No. 5 and No. 6 and a coal gasification facility; those facilities will require approval in subsequent proceedings under the Act. These units are located on an 11,300-acre site located in Sections 29&30/Township 39 South/Range 37 East in southwestern Martin County;

B. The general and specific conditions contained in these Conditions of Certification, unless specifically amended or modified, are binding upon the licensee and shall apply to the construction and operation of the certified facility. If a conflict should occur between the design criteria of this project and the Conditions of Certification, the Conditions shall prevail unless amended or modified.

II. APPLICABLE RULES

The construction and operation of the certified facility shall be in accordance with all applicable provisions of Florida Statutes and Department and Water Management District rules, including the following regulations: [South Florida WMD: 40E-2, 40E-3, 40E-4, 40E-6, 40-E20] 62-4, 62-17, 62-256, 62-296, 62-297, 62-301, 62-302, 62-531, 62-532, 62-550, 62-555, 62-560, 62-600, 62-601, 62-604, 62-610, 62-620, 62-621, 62-650, 62-699, 62-660, 62-701, and 62-814, Florida Administrative Code (F.A.C.), or their successors as they are renumbered, as these regulations existed on the date of the certification of a specific phase, or as they may become applicable pursuant to subsection 403.511 5(a), F.S.

III. DEFINITIONS

Unless otherwise indicated herein, the meaning of the terms used herein shall be governed by the definitions contained in Chapters 403, 378, 373, and 253, Florida Statutes and any regulation adopted pursuant thereto and the statutes and regulations of any agency. In the event of any dispute over the meaning of a term used in these conditions which is not defined in such statutes or regulations, such dispute shall be resolved by reference to the most relevant definition contained in any other state or federal statute or regulation or, in the alternative, by the use of the commonly accepted meaning as determined by the Department of Environmental Protection:

A. "Application" shall mean the Site Certification Applications for the Martin Coal Gasification/Combined Cycle (CG/CC) Project, peaking units 8A and 8B and Combined Cycle Unit 8 as supplemented.

B. "DEP" shall mean the Florida Department of Environmental Protection.

C. "Emergency conditions" shall mean urgent circumstances involving potential adverse consequences to human life or property as a result of weather conditions or other calamity, and necessitating new or replacement operating equipment, gas pipeline, transmission lines, or access facilities.

D. "Feasible" or "practicable" shall mean reasonably achievable considering a balance of land use impacts, environmental impacts, engineering constraints, and costs.

E. "FFWCC" shall mean the Florida Fish and Wildlife Conservation Commission.

F. "Licensee " shall mean Florida Power and Light Company (FPL) or Gulfstream Natural Gas System, L.L.C. [Gulfstream] (where applicable) as owners and operators of the certified facilities.

G. "Power plant" shall mean the electric power generating equipment and appurtenances to be constructed on the certified portion of the Martin site in Martin County, as generally depicted in the Application.

H. "Project" shall mean the Martin Expansion Project and all associated facilities, including: Units 3 and 4, Units 8A and 8B, Combined Cycle Unit 8, coal and limestone handling and related facilities, the cooling pond, gas pipeline, supplemental cooling tower, transmission lines and related facilities. The project consists of four phases. Phase I involved natural gas-fired, combined cycle Units 3 and 4 with distillate fuel oil as backup and an associated natural gas pipeline and transmission line upgrade. Phase II involves incorporation of Units 8A and 8B into combined-cycle Unit 8. Phase III involves Units 5 and 6 fueled by natural gas or onsite coal gasification facilities, with distillate fuel oil and natural gas as backup. Phase IV consists of coal gasification facilities. Phases III and IV will require approval in subsequent proceedings under the Act.

I. "SFWMD" shall mean the South Florida Water Management District.

J. "ISO" shall mean International Organization for Standardization, ISO 3977-1978(E) standard conditions for gas turbines = 14.7 psia, 150° C, relative humidity 60%.

K. "Facility" shall mean the certified electrical power generation facility and all associated structures, including but not limited to: combustion turbine generators, heat recovery steam generators, duct burners, steam turbine generators, selective

catalytic reduction units, transformers, associated transmission lines, substations, fuel and water storage tanks, natural gas delivery metering station, air and water pollution control equipment, storm water control ponds and facilities, cooling towers, and related structures.

L. "DHR" shall mean the Florida Department of State, Division of Historical Resources.

M. "NPDES permit" shall mean the federal National Pollutant Discharge Permit System permit issued in accordance with the federal Clean Water Act.

N. "PSD permit" shall mean the federal Prevention of Significant Deterioration air emissions permit issued in accordance with the federal Clean Air Act.

O. "Title V permit" shall mean the federal permit issued in accordance with Title V of the federal Clean Air Act.

P. "The SE District Office" shall mean the Department's Southeast District Office located at 400 North Congress Avenue, West Palm Beach, FL 33401, (561) 681-6600.

IV. AIR

The construction and operation of Martin Expansion Project shall be in accordance with all applicable provisions of Chapters 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. In addition to the foregoing, the project shall comply with all applicable provisions and requirements of PSD Permits FL-286 and FL 327, Air Permit No. 0850001-016-AC incorporated by reference herein as part of this Certification attached as Appendix 1 and DEP Permit 0850001-017-AV incorporated by reference herein as part of this Certification attached as Appendix 2 as may be subsequently modified, amended or renewed. Such provisions shall be fully enforceable as conditions of this certification. Any violation of such provisions shall be a violation of these Conditions of Certification

V. SURFACE WATER DISCHARGES

Discharges into surface waters of the state during construction and operation of the project shall be in accordance with applicable provisions of 62-4, 62-160, 62-302, 62-601, 62-650, and 62-660, F.A.C., DEP Permit No. FL0030988-005-IWB/MR, as well as any subsequent revisions, renewals, amendments or modifications, and the following Conditions of Certification:

A. Plant Effluents and Receiving Body of Water.

For discharges made from the Martin Power Plant the following conditions shall apply:

1. Receiving Body of Water (RBW)

The receiving body of water has been determined by DEP to be (a) those waters of the discharge canal leading to the St. Lucie Canal which are considered to be waters of the state within the definition of Chapter 403, F.S., and (b) those water of the L-65 canal receiving cooling pond seepage from culverts 003a through 003e.

2. Points of Discharge (PODs)

The points of discharge have been determine by DEP to be where the effluent physically enters the waters of the state in the discharge canal and the L-65 canal at the Outfall Serial Numbers (OSNs) 001, 002, and 003.

3. Thermal Limits

Heated water discharged at OSN 001 shall not be more than 5° F higher than the ambient (natural) temperature in the St. Lucie canal and shall not exceed 92° F. At all times under all conditions of stream flow the discharge temperature shall be controlled so that at least two thirds (2/3) of the width of the discharge canal's surface remains at ambient (natural) temperature. Further, no more than one fourth (1/4) of the cross section of the discharge canal at a traverse perpendicular to the flow shall be heated by the discharge. All thermal limits shall apply at the edge of the mixing zone granted by this Certification.

4. Chemical Wastes From the Project

All discharges of low volume wastes (demineralizer regeneration, floor drainage, lab drains, and similar wastes) shall be treated in an adequately sized and constructed treatment facility prior to discharge into the cooling pond.

5. pH

The pH of combined discharges to the cooling pond from OSN's 004 - 009 shall be such that the pH will fall within the range of 6.0 to 9.0 and any discharge from the cooling pond at OSN 001 to the discharge canal shall not exceed 6.0 to 8.5.

6. Polychlorinated Biphenyl Compounds

There shall be no discharge of polychlorinated biphenyl compounds.

7. Cooling Pond Overflow to the St. Lucie Canal

The licensee is authorized to discharge from Outfall D-001-Cooling Pond Overflow to the St Lucie Canal. This outfall includes, or will include at a future date, discharges from Internal Outfalls I-004, I-006, I-007, I-008, I-009, I-010, I-011, I-012, I-013 and non-contact cooling water from Units 1-6 and Unit 8 cooling tower blowdown to the Plant Intake /Discharge Canal then to St. Lucie Canal.

a. Such discharges shall be limited and monitored by the licensee as specified below:

	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
EFFLUENT CHARACTERISTIC	Daily Maximum	Monthly Average	Measurement Frequency	Sample Type	Sample Point
Flow (Quantity and Duration), MGD	Report	N/A	1/Day of Discharge	Calculation	EFF-1
Temperature °F	92.0 See k. below	N/A	2/Day of Discharge	Grab	EFF-1A
Total Residual Chlorine (TRC), mg/l	Report See l. below	N/A	1/Day of Discharge	Grab	EFF-1
Specific Conductance, µmhos/cm	Report	N/A	1/Week	Grab	EFF-1
Dissolved Oxygen, mg/l	Report	N/A	1/Week	Grab	EFF-1
pH, Standard Units	Report		1/Week	Grab	EFF-1
Total Phosphorous (as P), mg/l	Report	N/A	1/Week	Grab	EFF-1
Ortho-phosphate (as P), mg/l	Report	N/A	1/Week	Grab	EFF-1
Oil & Grease, mg/l	Report	N/A	1/Week	Grab	EFF-1
Total Ammonia (as N), mg/l	Report	N/A	1/Week	Grab	EFF-1
Un-ionized Ammonia, mg/l	Report See c below	N/A	1/Week	Calculation	EFF-1
Total Nitrogen (as N), mg/l	Report	N/A	1/Week	Grab	EFF-1
Nitrite (as N), mg/l	Report	N/A	1/Week	Grab	EFF-1
Nitrate (as N), mg/l	Report	N/A	1/Week	Grab	EFF-1
Total Recoverable Arsenic, mg/l	Report	Report	1/Week	Grab	EFF-1
Total Recoverable Cadmium, µg/l	Report	Report	1/Week	Grab	EFF-1
Total Recoverable Chromium, µg/l	Report	Report	1/Week	Grab	EFF-1
Total Recoverable Copper, µg/l	Report	Report	1/Week	Grab	EFF-1
Total Recoverable Mercury, µg/l	Report	Report	1/Week	Grab	EFF-1

Total Recoverable Zinc, µg/l	Report	Report	1/Week	Grab	EFF-1
Total Recoverable Lead, µg/l	Report	Report	1/Week	Grab	EFF-1
Total Recoverable Iron, mg/l	Report	Report	1/Week	Grab	EFF-1
Total Recoverable Selenium, µg/l	Report	Report	1/Week	Grab	EFF-1
Total Hardness (as CaCO ₃), mg/l	Report	N/A	1/Week	Grab	EFF-1
Chlorides, mg/l	Report	N/A	1/Week	Grab	EFF-1
Sodium, mg/l	Report	N/A	1/Week	Grab	EFF-1
Total Sulfate, mg/l	Report	N/A	1/Week	Grab	EFF-1
Total Suspended Solids, mg/l	Report	N/A	1/Week	Grab	EFF-1
Total Dissolved Solids, mg/l	Report	N/A	1/Week	Grab	EFF-1
Turbidity, NTUs	Report	N/A	1/Week	Grab	EFF-1

Sample Point	Description of Monitoring Location
EFF-1	Nearest accessible point after final treatment, but prior to mixing with the receiving water.
EFF-1A	At the edge of a mixing zone in the Intake/ Canal which extends 400 meters from the spillway gates and from that point to the intake structure.

b. The maximum water surface elevation in the cooling pond shall be used to as an indicator for discharge. Authorization for operation of the maximum water surface level has been given by the South Florida Water Management District.

c. Effluent samples for pH and temperature (grab) shall be taken simultaneously with each total ammonia grab sample. Un-ionized ammonia shall be calculated in accordance with **Table I** (attached). All measured values for pH, temperature, and total ammonia used to calculate an un-ionized ammonia value shall be reported as an attachment to the Discharge Monitoring Report (DMR). All calculated un-ionized ammonia values shall be reported on the attachment. The daily maximum value for un-ionized ammonia for each reporting period shall be reported on the DMR.

d. This discharge is permitted only in cases caused by extreme or cumulative rainfall in excess of a 24-hour rainfall event with a probable recurrence interval of once in 10 years, where unavoidable to prevent loss of life, severe property damage, or damage to the physical integrity of the cooling pond or its structures and

twice each year to test emergency release gates. The licensee will notify the Southeast District Office two weeks prior to a scheduled gate test.

e. In the event an unscheduled discharge occurs the licensee shall inform the Florida Department of Environmental Protection (FDEP) Southeast District Office by telephone as soon as practicable, but in no case later than 48 hrs after the discharge occurs. The licensee shall also provide the FDEP with the following information, in writing within ten (10) days of the discharge: (1) a description and cause of the discharge; and (2) the period of discharge, including exact dates and times; and the anticipated time the discharge is expected to continue.

f. The licensee shall take all reasonable steps to minimize any adverse impact to navigable waters resulting from the discharge, including such monitoring as necessary to determine the environmental impact of the discharge.

g. Monitoring is required only when there is a discharge from Outfall D-001, except during spillway testing. Internal monitoring (see i below) is required whether or not a discharge occurs.

h. There shall be no discharge of floating debris, scum, oil or other matter in such amounts as to form nuisances or produce color, odor, taste, turbidity or other conditions to such degree as to create a nuisance or otherwise interfere with the beneficial use of the receiving waters in accordance with F.A.C. 62-302.500(1)(a) and 62-302.530(500)(b). Any such discharges to waters of the state shall be reported to the Department when submitting DMR's.

i. The facility will sample at least once a year and/or prior to, but not more than two weeks before, releasing cooling pond water during a spillway gate test. This data shall be provided to the Southeast District Office upon request for review and will be reported on a DMR to be submitted in January following the discharge(s). The cooling pond shall be sampled near the spillway at mid-depth for all parameters listed in part V.A.7.a. above. If any of the above parameters, excluding pH and temperature, reach 90% of the Class III fresh water criteria contained in Chapter 62-302 of the Florida Administrative Code the licensee shall operate the cooling pond intake pumps in such a manner to maximize recycling of the discharged water back to the cooling pond.

j. If any of the above parameters, excluding pH and temperature, reach 80% of the Class III fresh water criteria contained in Chapter 62-302 of the Florida Administrative Code the licensee shall notify the Department within 60 days of the sampling event and submit a letter within 120 days documenting the facility's ability to comply with water quality standards.

k. The cooling pond discharge shall comply with the following requirements at the edge of the approved 400 meter mixing zone. Discharge temperature shall not be more than 5.0 °F higher than the ambient temperature in the St. Lucie Canal and shall not exceed 92.0 °F. At all times and under all conditions of stream flow, the discharge temperature shall be controlled so that at least two-thirds (2/3) of the width of the discharge canal's surface remains at ambient temperature. Further, no more than one-quarter (1/4) of the cross-section of the discharge canal at a traverse perpendicular to the flow shall be heated by the discharge. All thermal limits shall apply at the edge of the approved mixing zone. The licensee shall operate in accordance with the thermal monitoring plan submitted to the EPA on November 23, 1993. A copy of the plan should be kept on site for inspection by the DEP.

I. Monitoring requirements for TRC are not applicable if chlorine has not been added to the non-contact cooling water systems of any electric generating unit or to the non-contact cooling water of any coal gasification facility during the previous 7 days.

8. Point Sources of Cooling Pond Seepage and Surface Runoff

The licensee is authorized to discharge from Outfalls D-002 and D-003 – Point Sources of Cooling Pond Seepage and Surface Runoff associated with industrial activity to the East Perimeter Ditch to the Plant Intake/Discharge Canal to St. Lucie Canal and to L-65 Canal respectively.

a. Such discharges shall be limited and monitored by the licensee as specified below:

Specified below:					
	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
EFFLUENT CHARACTERISTIC	Daily Maximum	Monthly Average	Measurement Frequency	Sample Type	Sample Point
Flow, MGD	Report	Report	1/week	Totalizer	EFF-3, 4, 5
			1/year	Totalizer	EFF-6, 7
Temperature °F	92.0	N/A	2/Month	Grab	EFF-3, 4, 5
			1/Month	Grab	EFF-6, 7
Specific Conductance, µmhos/cm	1275	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
Dissolved Oxygen, mg/l	5.0 Minimum	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
pH, Standard Units	See b. below		1/Month	Grab	EFF-3, 4, 5, 6, 7
Total Phosphorous (as P), mg/l	Report	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
Ortho-phosphate (as P), mg/l	Report	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
Oil & Grease, mg/l	5.0	N/A	1/Month	Grab	EFF-3, 4, 5,
			1/Quarter	Grab	EFF- 6, 7
Total Ammonia (as N), mg/l	Report	N/A	1/Month	Grab	EFF-3, 4, 5

			1/Quarter	Grab	EFF-6, 7
Un-ionized Ammonia, mg/l	0.02 See V.A.8.h.	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Month	Grab	EFF-6, 7
Total Nitrogen (as N), mg/l	Report	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
Nitrite (as N), mg/l	Report	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
Nitrate (as N), mg/l	Report	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
Total Recoverable Arsenic, mg/l	0.05	N/A	1/Month	Grab	EFF-3, 4, 5
			1/6 Months	Grab	EFF-6, 7
Total Recoverable Cadmium, ug/l	See footnote below ¹	N/A	1/Month	Grab	EFF-3, 4, 5
			1/6Months	Grab	EFF-6, 7
Total Recoverable Chromium, ug/l	See footnote below ¹	N/A	1/Month	Grab	EFF-3, 4, 5
			1/6 Months	Grab	EFF-6, 7
Total Recoverable Copper, ug/l	See footnote below ¹	N/A	1/Month	Grab	EFF-3, 4, 5
			1/6 Months	Grab	EFF-6, 7
Total Recoverable Mercury, ug/l	0.012	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
Total Recoverable Zinc, ug/l	See footnote below ¹	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
Total Recoverable Lead, ug/l	See footnote below ¹	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
Total Recoverable Iron, mg/l	4.8 1.0	N/A	1/Month	Grab	EFF-6
			1/Quarter	Grab	EFF-7
Total Recoverable Selenium, ug/l	5.0	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Quarter	Grab	EFF-6, 7

Total Hardness, mg/l as CaCO ₃	Report	N/A	1/Month	Grab	EFF-3,4,5
			1/6 Months	Grab	EFF-6,7
Chlorides, mg/l	Report	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
Sodium, mg/l	Report	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
Total Sulfate, mg/l	Report	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
Total Suspended Solids, mg/l	100.0	N/A	1/Month	Grab	EFF-3, 4, 5,
			1/6 Months	Grab	EFF-6, 7
Total Dissolved Solids, mg/l	Report	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7
Turbidity, NTUs	Report	N/A	1/Month	Grab	EFF-3, 4, 5
			1/Year	Grab	EFF-6, 7

Notes: 1. Pursuant to 62-302.530, Florida Administrative Code all metals shall be reported as the total recoverable fraction. The maximum values are calculated based on the total hardness of the effluent.

a. The allowable daily maximum limit for cadmium shall be calculated as follows:

$$Cd \leq e^{(.07852[\ln H]-3.49)} \mu g/l.$$

b. The allowable daily maximum limit for copper shall be calculated as follows:

$$Cu \leq e^{(.08545[\ln H]-1.465)} \mu g/l.$$

c. The allowable daily maximum limit for lead shall be calculated as follows:

$$Pb \leq e^{(1.273[\ln H]-4.705)} \mu g/l.$$

d. The allowable daily maximum limit for zinc shall be calculated as follows:

$$Zn \leq e^{(0.8473[\ln H]+0.7614)} \mu g/l.$$

e. The allowable daily maximum limit for chromium shall be calculated as follows:

$$Cr < e^{(0.819[\ln H]+1.561)} \mu g/l.$$

b. The pH shall not be less than 6.0 nor greater than 8.5 Standard Units.

c. There shall be no discharge of floating debris, scum, oil or other matter in such amounts as to form nuisances or produce color, odor, taste, turbidity or other conditions to such degree as to create a nuisance or otherwise interfere with the beneficial use of the receiving waters in accordance with 62-302.500(1)(a) and 62-302.530(500)(b), F.A.C. Any such discharges to waters of the state shall be reported to the Department when submitting DMR's.

d. Monitoring of discharges to Barley Barber Swamp and the Northwest Mitigation Area will consist of representative monitoring points (sumps) as indicated below.

e. For Outfall D-002, flow shall be the cumulative flows from weirs at Outfalls D-02B, D-02C, D-02D; and pH shall be a summary of individual values from Outfalls D-02B, C and D.

f. For Outfall D-003, flow shall be a weekly totalized value from sumps 15 through 20 and 24 through 26. Temperature and pH shall be a summary of individual values from D-03D (sump 18 only), and D-03E (sump 25 only) when discharging to the Northwest Mitigation area. Additional monitoring shall be at sumps 18 and 25 with the exception of iron which will be monitored at sump 17 (when discharging) and sump 25. If sump 17 is not discharging sump 18 and 25 will be monitored. Flow data from each sump also shall be maintained in a form so that cumulative flow to D-03D (sum of sumps 15 through 20), and D-03E (sum of sumps 24 through 26) can be reported individually (monthly, quarterly, and annual basis), if so requested.

g. Should Total Suspended Solids exceed 50 mg/l, the licensee shall document the source of the exceedance.

h. Effluent samples for pH and temperature (grab) shall be taken simultaneously with each total ammonia grab sample. Un-ionized ammonia shall be calculated in accordance with Table I (attached). All measured values for pH, temperature, and total ammonia used to calculate an un-ionized ammonia value shall be reported as an attachment to the Discharge Monitoring Report (DMR). All calculated un-ionized ammonia values shall be reported on the attachment. The daily maximum value for un-ionized ammonia for each reporting period shall be reported on the DMR.

i. At the request of the licensee any of the above test site parameters may be reduced after a period of two years from the permit issuance date, with prior approval of the Department.

Sample Point	Description of Monitoring Location
EFF-3	At Outfall from Weir "a" (D-02B)
EFF-4	At Outfall from Weir "b" (D-02C)
EFF-5	At Outfall from Weir "c" (D-02D)
EFF-6	At Outfall from Sumps 15-20 (D-03D), Sump 18 (for iron sampling, sump 17 if discharging)
EFF-7	At Outfall from Sumps 24-26 (D-03E), Sump 25

9. Units 1 and 2 Wastewater Treatment System Effluent

The licensee is authorized to discharge from Internal Outfall I-004 –Units 1 and 2 Wastewater Treatment System Effluent (includes low volume wastes and nonchemical metal cleaning waste) to cooling Pond.

a. Such discharges shall be limited and monitored by the licensee as specified below:

	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
EFFLUENT CHARACTERISTIC	Daily Maximum	Monthly Average	Measurement Frequency	Sample Type	Sample Point
Flow, MGD	Report	Report	1/Month	Calculation	INT-8

Oil & Grease, mg/l	20.0	15.0	1/Month	Grab	INT-8
Total Suspended Solids, mg/l	100.0	30.0	1/6 Months	8- hour Compo site	INT-8
pH, Standard. Units	See item b. below.		1/Month	Grab	INT-8

b. The pH shall not be less than 6.0 nor greater than 9.0 Standard Units.

c. Discharge of hydrazine in boiler blowdown and in plant lay-up waters is authorized without limitations or monitoring requirements.

d. In order to provide continued assurance that the Plant Waste Treatment System (PWTS), in conjunction with further treatment in the cooling pond, is providing equivalent treatment for total iron, total copper, and other pollutants in Nonchemical Metal Cleaning Waste (NCMCW), the licensee shall annually evaluate the treatment provided by the PWTS during a typical NCMCW treatment period. Each analysis shall be representative of one or more of the various NCMCW components (i.e. economizer hopper wash, dust collector wash, boiler fireside wash air preheater wash, or stack wash). Analyses shall include soluble and total copper, manganese, iron and zinc in the final effluent and the total quantity and average concentration of each of the above metals (both soluble and total). Sampling, analysis and evaluation at internal points in the treatment process may be included at the licensee's discretion. Results shall be submitted annually, no later than December 31st of each year. In the event that the Department finds that the data do not support continuation of the equivalency determination, the Department may require additional testing or appropriately modify the appropriate conditions in accordance with Condition XXIII.

Sample Point	Description of Monitoring Location
INT-8	Wastewater treatment system discharge prior to combination with any other waste stream or to the cooling pond.

10. Site Runoff

The licensee is authorized to discharge from Outfall D-005 –Site Runoff during construction and operation D-05A (runoff from Units 1 and 2); D-05E (Ponds D1, E, F and G); D-05B (Ponds 5B1 and 5B2); D-05C (Runoff from undeveloped areas) D-05D (Pond D2) to East Perimeter Ditch thence to the St. Lucie Canal.

a. Such discharges shall be limited and monitored by the licensee as specified below:

	DISCHARGE LIMITATIONS	MONITORING REQUIREMENTS

EFFLUENT CHARACTERISTIC	Daily Maximum	Monthly Average	Measurement Frequency	Sample Type	Sample Point
Flow, MGD	Report	N/A	1/Week	Calculation	EFF-9, 10, 11, 12
Oil & Grease, mg/l	No visible sheen		1/6 Months	Grab	EFF-9, 10, 11, 12
Total Suspended Solids, mg/l	50.0	N/A	1/6 Months	Grab	EFF- 9, 10, 11, 12
Turbidity, NTUs	Report	N/A	1/6 Month	Grab	EFF- 9, 10, 11, 12
pH, Standard Units	See item b. below.		1/Month	Grab	EFF- 9, 10, 11, 12

b. The pH shall not be less than 6.0 nor greater than 8.5 Standard Units.

c. Runoff from Outfall D-05C which is uncontaminated by the construction activities or wastes or runoff associated with plant processes is permitted without monitoring requirements.

Sample Point	Description of Monitoring Location
EFF- 9, 10, 11, 12	Point of discharge from D-05A, D-05E, D-05B, and D-05D respectively prior to any mixing with any other waste stream or the East Perimeter Ditch prior to mixing with any other waste stream or the St. Lucie Canal.

11. Domestic Waste Treatment Plant Effluents

The licensee is authorized to discharge from internal outfalls I-06A and I-06B domestic waste treatment plant effluents to the Cooling Pond from Units 1 and 2, Units 3-6, and Unit 8, respectively.

a. Such discharges shall be limited and monitored by the licensee as specified below:

	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
EFFLUENT CHARACTERISTIC	Average	Single Sample	Measurement Frequency	Sample Type	Sample Point

Flow (MGD)	0.01 Annual Avg.	N/A	5 days/ week	Flow meters	INT-13
	0.005 Annual Avg.				INT-14
5 Day Carbonaceous Biochemical Oxygen Demand, 20°C, (CBOD5), mg/l	20 Annual Avg. 25 Monthly Avg. 40 Weekly Avg.	60 Max	Monthly	Grab	INT- 13, 14
Total Suspended Solids, mg/l	20 Annual Avg. 30 Monthly Avg. 45 Weekly Avg.	60 Max	Monthly	Grab	INT- 13, 14
Fecal Coliform Bacteria	See condition e. below		Monthly	Grab	INT- 13, 14
Total Residual Chlorine (TRC), mg/l	N/A	0.5 Min	5 days/ week	Grab	INT- 13, 14
pH, Standard Units	See condition c below		5 days/ week	Grab	INT- 13, 14

b. Additionally the influent to the sewage plant shall be monitored as specified below:

	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
EFFLUENT CHARACTERISTIC	Annual Average	Monthly Average	Measurement Frequency	Sample Type	Sample Point
Flow (MGD)	0.01	N/A	5 days/week	Elapsed time meter or pumps	INF- 1

5 Day Carbonaceous Biochemical Oxygen Demand, 20°C (CBOD5), mg/l	N/A	Report	Monthly	Grab	INF- 1, 2
Total Suspended Solids, mg/l	N/A	Report	Monthly	Grab	INF- 1, 2

Sample Point	Description of Monitoring Location
INF- 1	Influent to sewage plant (For Units 1 and 2). The influent pump station of the newly constructed treatment plant.
INF- 2	Influent to sewage plant (For Units 3, 4 and 8). The influent pump station of the treatment plant.
INT-13	Effluent holding tank after filtration in the treatment plan (for units 1 and 2).
INT-14	Effluent pipe to the cooling pond exiting from the existing treatment plant (for Units 3, 4 and 8).

c. The pH shall not be less than 6.0 nor greater than 9.0 Standard Units.

d. A flow meter or elapsed time meters on pumps shall be used to measure flow and calibrated at least annually [62-601.200 (17) and .500(6), 12/24/96] [for both influent and effluent].

e. The arithmetic mean of the monthly fecal coliform values collected during an annual period shall not exceed 200 per 100 ml of effluent sample. The geometric mean of the fecal coliform values for a minimum of 10 samples of effluent, each collected on a separate day during a period of 30 consecutive days (monthly), shall not exceed 200 per 100 ml of sample. When 10 or more samples are taken, no more than 10 percent of the samples collected during a period of 30 consecutive days shall exceed 400 fecal coliform values per 100 ml of sample. Any one sample shall not exceed 800 fecal coliform values per 100 ml of sample. [62-600.440(4)(c), 12/24/96].

f. A minimum of 0.5 mg/l total residual chlorine must be maintained for a minimum contact time of 15 minutes based on peak hourly flow. [62-600.440(40)(b), 12, 24-96]

g. Influent samples shall be collected so that they do not contain digester supernatant or return activated sludge, or any other plant process recycled waters. [62-601.500(4), 12-24-96]

h. During the period of operation authorized by these Conditions, the domestic wastewater facilities shall be operated under the supervision of an operator(s) certified in accordance with Chapter 61E12-41, F.A.C. In accordance with Chapter 62-699, F.A.C., this facility is a Category III Class D facility and, at a minimum, operators with appropriate certification must be on site as follows:

A Class D or higher operator for 3 nonconsecutive visits/week. The lead operator must be a Class D operator, or higher. [62-620.630(3), 12-24-96] [62-699.310, 5-20-92] [62-610.462, 1-9-96]

i. A certified operator shall be on call during periods the plant is unattended. Daily checks of the plant shall be performed by the licensee or the licensee's representative or agent 5 days per week. On those days when the facility is not staffed by a certified operator, the licensee shall ensure that Flow, in conduit or through treatment plant, pH, Total Chlorine Residual (For Disinfection) are monitored in accordance with part I.A.5 of these Conditions. [62-699.311(1), 5-20-92]

j. The application to renew the domestic wastewater portion of these Conditions shall include an updated capacity analysis report prepared in accordance with Rule 62-600.405, F.A.C. [62-600.405(5) 12-24-96]

k. The application to renew the domestic wastewater portion of the Industrial Wastewater permit shall include a detailed operation and maintenance performance report prepared in accordance with Rule 62-600.735, F.A.C. [62-600.735(1), 12-24-96]

12. Combined Cycle Wastewater Treatment System Effluent

The licensee is authorized to discharge from Internal Outfall I-007— Combined Cycle Wastewater Treatment System Effluent (includes combined cycle process wastewater and equipment area stormwater from Units 3, 4 and Unit 8) to the Cooling Pond.

a. Such discharges shall be limited and monitored by the licensee as specified below:

	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
EFFLUENT CHARACTERISTIC	Daily Maximum	Monthly Average	Measurement Frequency	Sample Type	Sample Point
Flow, MGD	Report	Report	1/Month	Recorder	INT-15
Oil & Grease, mg/l	20.0	15.0	1/Month	Grab	INT-15
Total Suspended Solids, mg/l	100.0	30.0	1/ 6Months	8- hour Composite	INT-15
pH, Standard. Units	See item b. below.		1/Month	Grab	INT-15

b. The pH shall not be less than 6.0 nor greater than 9.0 Standard Units.

c. During any period in which demineralizer regeneration waste is discharged from the neutralization tank directly to monitoring point I-007 without further treatment, samples for total suspended solids analysis shall be taken at the neutralization tank effluent and /or after combination with the wastewater treatment

system effluent of not less than one representative grab sample during each day of such discharge to demonstrate compliance with limitations in Part V.A.12.a.

d. Discharge of hydrazine in Heat Recovery Steam Generator (HRSG) blowdown and in plant lay-up waters is authorized without limitations or monitoring requirements.

e. There shall be no discharge of wastes from the coal gasification facilities via this outfall.

Sample Point	Description of Monitoring Location
INT-15	Wastewater treatment system effluent discharge prior to combination with any other waste stream discharge to the cooling pond.

13. Metal Cleaning Waste Pretreatment Facility

The licensee is authorized to discharge from Internal Outfall I-008 – Metal Cleaning Waste Pretreatment Facility (Units 3-6 and 8) effluent to the Cooling Pond via Internal Outfall I-007.

a. Such discharges shall be limited and monitored by the licensee as specified below:

EFFLUENT CHARACTERISTIC	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS		
	Monthly Total	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Point
Flow, MGD	Report	Report	N/A	Continuous	Recorder	INT-16
Oil & Grease, mg/l	N/A	15.0	20.0	1/Day	Composite	INT-16
Total Suspended Solids, mg/l	N/A	30.0	100.0	1/Day	Composite	INT-16
Total Recoverable Copper, mg/l	N/A	1.0	1.0	1/Day	Composite	INT-16
Total Recoverable Iron, mg/l	N/A	1.0	1.0	1/Day	Composite	INT-16
Batches	Report	N/A	Report	1/Batch	Logs	INT-16

b. Metal cleaning wastes shall mean any waste water resulting from cleaning (with or without the use of chemical cleaning compounds) any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning, air preheater cleaning and stack cleaning and preoperational cleaning and rinse waters where chemical cleaning agents are used (does not include preoperational cleaning wastes where only water is used)

c. There shall be no combination of waste streams for co-treatment in this outfall unless all such waste streams meet the requirements of part V.A.13.b.

d. Any metal cleaning wastes disposed of off site shall be disposed of in an environmentally acceptable manner and in compliance with all applicable Federal and State Regulations. Details of such disposal shall be provided to the

Department not less than 30 days prior to any proposed metal cleaning waste disposal off site.

e. Notwithstanding the requirements in part V.A.13.b. above, at such time as the licensee has demonstrated that certain chemical metal cleaning compounds from Units 1 and 2 can be burned in the operating boilers of Units 1 and/or 2 in a manner that will assure compliance with the limitations in part V.A.13.a above. The licensee may request that burning of the same wastes from Units 3-6 and Unit 8 be allowed in the boilers of Unit 1 and/or 2. Such burning shall not be allowed except if specifically authorized by air permits.

f. Except for chemical cleaning operations in which CITRO-SOLV, EDTA or an equivalent cleaner is used and the Chemical Metal Cleaning Waste (CMCW) is burned in an operating unit, there shall be no discharge of CMCW to any waste stream which ultimately discharges to waters of the State.

After the initial use of each cleaning product (including CITRO-SOLV), the licensee shall determine the flow of CMCW produced and monitor the effluent for a range of heavy metals, including total and dissolved iron, copper, nickel, and zinc, prior to and during discharge. Samples shall be taken after final treatment but prior to mixing with any other waste stream. This is to assure that metals are not being discharged in excess of the guideline limitations and the previous equivalency determination.

This assessment shall occur once during the term of the Industrial Wastewater permit. Results shall be submitted with the next DMR following the month in which the analysis was conducted.

g. There shall be no discharge of wastes from the coal gasification facilities via this outfall.

Sample Point	Description of Monitoring Location
INT-16	Metal Cleaning Waste Treatment Facility effluent prior to mixing with any other waste stream or discharge to the Cooling Pond. Batches shall be reported only if wastes are treated in discrete batches.

14. Coal, Limestone and Sulfur Handling Area and Slag Handling Storage Area Runoff

The licensee is authorized to discharge from Internal Outfall I-009 – Coal, Limestone and Sulfur Handling Area Runoff and Outfall I-010 - Slag Handling Storage Area Runoff (includes; Outfall I-011 – Slag Test Cell Leachate; and Outfall I-012 – Slag Test Cell Runoff) to the Cooling Pond.

a. Such discharges shall be limited and monitored by the licensee as specified below:

	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
EFFLUENT CHARACTERISTIC	Daily Maximum	Monthly Average	Measurement Frequency	Sample Type	Sample Point
Flow, MGD	Report	N/A	1/Week	Recorder or	INT- 17, 18

				calculation	
Oil & Grease, mg/l	Report	N/A	1/Month	Grab	INT- 17, 18
Total Suspended Solids, mg/l	50.0 ¹	N/A	1/Week	Grab	INT-17, 18
pH, Std. Units	See item b. below.		1/Week	Grab	INT- 17, 18

¹ Applicable to any discharge up to the flow resulting from a 24-hr. rainfall event with a probable recurrence interval of once in ten years (10Y24H). However, this exclusion for rainfall in excess of the 10Y24H is applicable only if the individual pond (1) has no low-level discharge point which allows discharge during filling, and (2) volume is adequate to contain the total quantity of rainfall water equal to the 10Y24H on the total area (including the area of the pond itself) tributary to the pond using a run-off coefficient of 1.0 plus all accumulated silt. Records to demonstrate compliance with these requirements shall be maintained on site. Rainfall data shall be reported for any period(s) of discharge in excess of the 10Y24H if the exclusion is invoked.

b. The pH shall not be less than 6.0 nor greater than 9.0 Standard Units.

c. Monitoring of all batch discharges which bypass the treatment facility shall be monitored once per batch.

d. Not less than two years prior to the expected first receipt of coal on site or the last reapplication for the Industrial Wastewater permit prior to expected first receipt of coal on site, whichever is earlier, the licensee shall submit a revised estimate of effluent characteristics for all rainfall related runoff and leachate sources included in part V.A.14., based on most recent information relating to specific coal gasification technology and coal supply planned for use at this site. Expected changes to cooling pond and seepage water (D-001, D-002 and D-003) characteristics from those presently estimated shall also be provided. Additional or revised limitations and/or monitoring requirements may be imposed for each runoff related waste source, treatment facility discharges, and/or Outfalls D-001, D-002, and/or D-003, subsequent to this submittal.

e. Except for non-contact cooling water and as specifically authorized for outfalls I-009 through I-012, there shall be no discharge of pollutants from the coal gasification facilities to any waste stream which is routed to the cooling pond or to the waters of the state.

Sample Point	Description of Monitoring Location
INT-17, 18	Point of discharge from each discharge/treatment system (Outfall I-009 and I-010 respectively) prior to mixing with any other waste stream or discharge to the Cooling Pond

15. Construction Dewatering Water Discharged to Cooling Pond

The licensee is authorized to discharge from Internal Outfall I-013 - Construction Dewatering Water Discharged to Cooling Pond.

a. Such discharges shall be limited and monitored by the licensee as specified below:

	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
EFFLUENT CHARACTERISTIC	Daily Maximum	Monthly Average	Measurement Frequency	Sample Type	Sample Point
Flow, MGD	Report	N/A	1/Day	Totalizer or Calculation	INT-19
Total Suspended Solids, mg/l	50.0	N/A	1/Week	Grab	INT-19
Turbidity, NTUs	Report	N/A	1/Week	Grab	INT-19
pH, Standard. Units	See item b. below.		1/Week	Grab	INT-19

(1) The pH shall not be less than 6.0 nor greater than 9.0 Standard Units.

Sample Point	Description of Monitoring Location
INT-19	Point of discharge prior to mixing with any other waste stream or discharge to the Cooling Pond.

16. Water Quality Monitoring Requirements

The water quality monitoring requirements above may be modified by DEP to resolve any conflicts with water quality monitoring requirements of the final Industrial Wastewater permit.

B. Exemptions and Mixing Zones

1. Exemptions

Pursuant to Rule 62-520(8), F.A.C., the existing Martin cooling pond is exempt from secondary drinking water standards for chloride, sulfate and total dissolved solids.

2. Mixing Zones

A zone of mixing has been determined under the provisions of Rule 62-4.244, F.A.C., for the parameters arsenic, copper, lead, mercury, zinc, iron and temperature. Upon commencement of operation of Unit 3, the zone of mixing shall commence at OSN 001 and extend a distance of 400 meters in the discharge canal. The named water quality parameters shall meet their appropriate criteria contained in Chapter 62-302, F.A.C., at the boundary of the mixing zone.

Appropriate monitoring shall be conducted during periods of discharge and calculations submitted to DEP to ensure that parameters exceeding standards at the boundary of the mixing zone due to background conditions do not cause or contribute to new violations of standards in violation of Rule 62-302.300(5), F.A.C.

C. Ground Water

1. Ground Water Monitoring Plan

Within six months of issuance of the certification of the applicable phase (Phase I or Phase IV), the Licensee shall develop and implement a new ground water monitoring plan: a) acceptable to DEP; b) detailed according to the criteria of Rule 62-522.600, F.A.C., and c) specifically addressing seepage from the cooling pond, the area expected to be affected by seepage, and leachate from the byproduct test cell and storage area. A zone of discharge is granted within the applicant's property

2. Sodium Exemption

Upon demonstration via the approved monitoring program that relief for sodium is needed outside the permitted zone of discharge, FPL may obtain such relief upon a demonstration of compliance with all criteria of Rule 62-520.500, F.A.C.

3. Test Cell/Ground Water Leachate Study

Within six months of issuance of the certification of the applicable phase, the Licensee shall develop a separate detailed ground water monitoring study acceptable to the Department that will definitively show, upon implementation, that the proposed slag management program (see pages 77-79 of the DEP Staff Analysis Report dated September 27, 1990) at the solid waste test cell area will or will not constitute a source of ground water pollution.

4. Surface Water Monitoring

The surface water monitoring program in Condition V.A.8 will include monitoring in the cooling pond for parameters discussed under secondary drinking water standards. This monitoring will satisfy the water quality characterization requirements under Rule 62-520.520(8), F.A.C.

D. Other Limitations and Monitoring and Reporting Requirements

1. The sample collection, analytical test methods and method detection limits (MDLs) applicable to these Conditions shall be in accordance with Rule 62-4.246, Chapters 62-160 and 62-601, F.A.C., and 40 CFR 136, as appropriate. The list of Department established analytical methods, and corresponding MDLs (method detection limits) and PQLs (practical quantification limits), which is titled "Florida Department of Environmental Protection Table as Required By Rule 62-4.246(4) Testing Methods for Discharges to Surface Water" dated June 21, 1996, is available from the Department on request. The MDLs and PQLs as described in this list shall constitute the minimum acceptable MDL/PQL values and the Department shall not accept results for which the laboratory's MDLs or PQLs are greater than those described above unless alternate MDLs and/or PQLs have been specifically approved by the Department for these

Conditions. Any method included in the list may be used for reporting as long as it meets the following requirements:

a. The laboratory's reported MDL and PQL values for the particular method must be equal or less than the corresponding method values specified in the Department's approved MDL and PQL list;

b. The laboratory reported PQL for the specific parameter is less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Parameters that are listed as "report only" in the permit shall use methods that provide a PQL, which is equal to or less than the applicable water quality criteria stated in 62-302 FAC; and

c. If the PQLs for all methods available in the approved list are above the stated permit limit or applicable water quality criteria for that parameter, then the method with the lowest stated PQL shall be used.

Where the analytical results are below method detection or practical quantification limits, the permittee shall report the actual laboratory MDL and/or PQL values for the analyses that were performed following the instructions on the applicable discharge monitoring report. Approval of alternate laboratory MDLs or PQLs are not necessary if the laboratory reported MDLs and PQLs are less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. However, where necessary, the permittee may request approval for alternative methods or for alternative MDLs and PQLs for any approved analytical method, in accordance with the criteria of Rules 62-160.520 and 62-160.530, F.A.C.

2. Monitoring results obtained for each calendar month shall be summarized for that month and reported on a Discharge Monitoring Report (DMR), Form 62-620.910(10), postmarked no later than the 28th day of the month following the completed calendar month. For example, data for January shall be submitted by February 28. Signed copies of the DMR shall be submitted to the address specified below:

Florida Department of Environmental Protection
Mail Station 3551
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

If no discharge occurs during the reporting period, sampling requirements of these Conditions do not apply. The statement "No discharge" shall be written on the DMR form. If, during the term period of these Conditions, the facility ceases to discharge, the Department shall be notified immediately upon cessation of discharge. Such notification shall be in writing.

Monitoring results obtained for Outfalls D-003, I-004, I-06A, I-06B and I-007 shall be reported monthly on the DMR.

Monitoring results obtained for Outfalls D-001, D-002 shall be reported quarterly on the DMR for the month following the completed quarter.

Monitoring results obtained for Outfalls D-05A, D-05B, D-05D, D-05E, I-008, I-009, I-010, I-011, I-012 and I-013 shall be reported annually on the DMR in the month following the completed calendar year.

3. Unless specified otherwise in these Conditions, all other reports and notifications required by these Conditions, including twenty-four hour notifications, shall be submitted to or reported to, as appropriate, the Department's Southeast District Branch Office at the address specified below:

Florida Department of Environmental Protection
Southeast District Branch Office
1801 SE Hillmoor Dr. Suite C-204
Port St. Lucie, FL 34952
Phone Number (561) 398-2806

4. There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

5. The permittee shall report all visible discharges of floating materials, such as ash or oil sheen, to the Department when submitting DMR's. Field data sheets shall have appropriate blank(s) to report observations.

6. Discharge of any product registered under the Federal Insecticide, Fungicide, and Rodenticide Act to any waste stream which ultimately may be released to lakes, rivers, or other waters of the State is prohibited unless specifically authorized elsewhere in these Conditions. This requirement is not applicable to products used for lawn and agricultural purposes or to the use of herbicides if used in accordance with labeled instructions and any applicable State permit. Discharge of chlorine from the use of chlorine gas, sodium hypochlorite or other similar chlorine compounds for disinfection in plant potable and service water systems, sewage treatment and once-through cooling water is authorized. In addition discharge of Continuum AEC 3108, Continuum AEC 3145, Inhibitor OP8413 and Inhibitor AZ8104, Sulfuric acid, Sodium hypochlorite and biocides such as Spectrus NX 1100 and spectrus CT1300 from the use in the cooling tower is authorized.

An approval from the Department shall be required prior to the use of any biocide or chemical additive used in the cooling system or any other portion of the treatment system which may be toxic to aquatic life. The request for approval shall include:

- a. Name and general composition of biocide or chemical
- b. Frequencies of use
- c. Quantities to be used
- d. Proposed effluent concentrations

e. Acute and/or chronic toxicity data (laboratory reports shall be prepared according to Section 12 of EPA document no. EPA/600/4-90/027 entitled, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters for Freshwater and Marine Organisms, or most current addition.)

f. Product data sheet

g. Product label

The Department shall review the above information to determine if a major or minor permit revision is necessary. Discharge associated with the use of such biocide or chemical is not authorized without a permit revision by the Department. Permit revisions shall be processed in accordance with the requirements of Chapter 62-620, F.A.C.

7. The monitoring requirements of Condition V.A will become effective on the first day of the month following the issuance date of DEP Permit No FL 0030988-005.

8. Discharge of any waste resulting from the combustion of toxic, hazardous, or metal cleaning wastes to any waste stream which ultimately discharges to waters of the State is prohibited, unless specifically authorized elsewhere in these Conditions.

9. The permittee shall not store coal, soil, or other similar erodible materials in a manner in which runoff is uncontrolled, or conduct construction activities in a manner which produces uncontrolled runoff.

10. Unless otherwise specifically permitted in these Conditions, there shall be no point source discharges of any wastes to waters of the State, or to any waste stream which enters such waters. These wastes include but are not limited to, low volume wastes (including, but not limited to, boiler blowdown, wet scrubber air pollution control systems, ion exchange water treatment systems, water treatment evaporator blowdown, laboratory and sampling streams, floor drains, cooling tower basin cleaning wastes, and blowdown from recirculating house service water systems) chemical or non-chemical metal cleaning wastes (cleaning compounds, rinse waters, or any waterborne residues derived from cleaning any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning and air preheater cleaning; and specifically including such waste wash operations as hosing down boiler fireside surfaces), contaminated area runoff, sanitary wastes, and water softener regeneration wastewater.

11. The permittee shall operate and maintain loading and unloading facilities in such a manner in order to preclude spillage of coal, chemicals, etc., used at the facility, and shall take all actions necessary to clean-up and control any such spill which may occur.

12. The permittee is authorized to discharge storm water from the diked petroleum storage or handling areas, provided the following conditions are met:

a. The facility shall have a valid Spill Prevention Control and Countermeasure (SPCC) plan pursuant to 40 CFR Part 112.

b. In draining the diked area, a portable oil skimmer or similar device or absorbent material shall be used to remove oil and grease (as indicated by the presence of a sheen) immediately prior to draining.

c. Monitoring records shall be maintained in the form of a log and shall contain the following information, as a minimum.

i. Date and time of discharge;

ii. Estimated volume of discharge;

iii. Initials of the person making visual inspection and authorizing discharge; and

iv. Observed conditions of the storm water discharged.

d. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil sheen at any time.

13. Any water drained from the fuel oil storage tanks or other water which meets the definition of "Petroleum Contact Water" as defined in F.A.C. Rule 62-740.030(1) shall be disposed of at a Department approved facility in accordance with F.A.C. Chapter 62-740.

14. The discharge of intake screen backwash water to the plant intake canal (and cooling pond) is authorized without limitations or monitoring requirements, except there shall be no discharge of a visible oil sheen.

15. These Conditions constitutes certification of compliance with State Water Quality Standards (Section 401, PL 92-800).

VI. SOUTH FLORIDA WATER MANAGEMENT DISTRICT

A. *Legal/Administrative Conditions*

1. General

a. Minimum Standards. This Certification is based on the Licensee's submitted information to SFWMD which reasonably demonstrates that adverse off site water resource related impacts will not be caused by the authorized activities. The plans, drawings and design specifications submitted by the Licensee shall be considered the minimum standards for compliance.

b. Compliance Requirements. This project must be constructed, operated and maintained in compliance with and meet all nonprocedural requirements set forth in Chapter 373, F.S., and Chapters 40E-2 (Consumptive Use), 40E-3 (Water Wells), 40E-4 (Environmental Resource Permits), 40E-6 (Utilization of District Works), and 40E-20 (General Water Use Permits), F.A.C.

c. Off site Impacts. It is the responsibility of the Licensee to ensure that adverse off site water resource related impacts do not occur during the construction, operation, and maintenance of the project.

d. Liability. The Licensee shall hold and save SFWMD 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.

e. Construction, Operation, and Maintenance Responsibilities. The Licensee shall be responsible for the construction, operation, and maintenance of all facilities installed for the proposed project. All structures on SFWMD works or lands constructed by the Licensee shall remain the property of the Licensee, who shall be solely responsible for ensuring that such structures and other uses remain in a safe condition and comply with all applicable federal, state, and local safety standards. SFWMD assumes no duty with regard to ensuring that such uses are so maintained and assumes no liability with regard to injuries caused others by any such failure. SFWMD further assumes no duty to ensure that the permitted use complies with the safety standards of other governmental entities. SFWMD is not responsible for any damages to installations located within its rights-of-way. The Licensee shall be responsible for the repair and/or replacement of existing facilities located within the SFWMD's rights-of-way. Canal right-of-way disturbed during construction, installation or maintenance of any authorized facilities shall be restored to original or better condition.

f. Non-interference with District Operations. Except as may be authorized by this Certification, the Licensee shall not engage in any activity regarding the authorized use which interferes with the construction, alteration, maintenance or operation of the works of SFWMD, including, but not limited to:

- (1) discharging pollutants, debris or aquatic weeds into SFWMD works;
- 2) causing erosion or shoaling within SFWMD works; and
- (3) planting trees or shrubs or erecting structures which limit or prohibit access by SFWMD equipment and vehicles.

The Licensee shall be responsible for any costs incurred by SFWMD resulting from any such interference.

g. Access. SFWMD representatives shall be allowed reasonable escorted access to the power plant site, any associated linear facilities and the wetland mitigation/restoration area to inspect and observe any activities associated with the construction of the proposed project and/or the operation and/or maintenance of the on

site wells, surface water withdrawal pumps, and/or surface water management system 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 SFWMD representative who requests entry for purpose of the above noted inspection and presents appropriate credentials.

h. Post Certification Information Submittals. Information submitted to SFWMD subsequent to Certification, in compliance with the conditions of this Certification, shall be for the purpose of SFWMD determining the Licensee's compliance with the Certification conditions and the non-procedural criteria contained in Chapters 40E-2, 40E-3, 40E-4, and 40E-6, F.A.C., as applicable, prior to the commencement of the subject construction, operation, and/or maintenance activity covered thereunder.

i. Post Certification Permit Modification. Once the final Certification for a phase of the project, including the transmission line and gas pipeline, has been issued, SFWMD will require modification of the appropriate permits issued by SFWMD for any affected entities to reflect the activities authorized by the certification order.

j. Enforcement. SFWMD may take any and all lawful actions to enforce any condition of this Certification that is based on the rules of that agency. Prior to initiating such action, SFWMD shall notify the Secretary of DEP of the proposed action. SFWMD shall seek modification of this Certification for any change in any activity resulting from SFWMD's enforcement of this Certification which change will have a duration longer than 60 days.

k. Post Certification Construction Notifications. At least 30 days prior to the commencement of construction of any phase of this project, the Licensee or Project Engineer shall notify SFWMD staff in the Martin/St. Lucie Service Center Environmental Resource Compliance Division (using the appropriate SFWMD form) of the actual or anticipated construction start date and the expected completion date/duration of construction. Annual construction status reports shall be submitted by the Licensee to the SFWMD Environmental Resource Compliance Division (using the appropriate SFWMD form) beginning one year after the initial construction date.

2. Processing of Informational Requests.

a. At least ninety (90) days prior to the commencement of construction of any portion of the project for which additional information must be submitted, the Licensee shall submit to SFWMD staff, for a completeness and sufficiency review, any pertinent additional information required under SFWMD's site specific standards and the 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 will be presumed to be complete and sufficient.

b. Within sixty (60) days of the determination by SFWMD staff that the additional information is complete and sufficient, the SFWMD shall determine and notify the Licensee in writing whether the proposed activities conform to SFWMD non procedural criteria, as required by Chapters 40E-2, 40E-3, 40E-4, and 40E-6, F.A.C., and the conditions of Certification. If necessary, SFWMD shall identify what items remain to be addressed. No construction activities shall begin until SFWMD has

determined either in writing, or by failure to notify the Licensee in writing, that the activities are in compliance with the applicable SFWMD criteria.

c. Since this Certification is the only form of permit required from any agency, it is understood that the Licensee and SFWMD shall strive to resolve disputes by mutual agreement.

d. If mutual agreement cannot be reached, then the matter shall be immediately referred to the Division of Administrative Hearings (DOAH) for disposition in accordance with the provisions of Chapter 120, F.S.

e. Subsequent modifications to the drawings and supporting calculations 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 62-17.211, F.A.C. They shall also be submitted to SFWMD for a determination that the modifications are in compliance with the non-procedural provisions of Chapters 40E-2, 40E-3, 40E-4, and 40E-6, F.A.C., prior to the commencement of construction.

f. SFWMD and the Licensee may jointly agree to vary the informational requirements.

B. Water Use Conditions

1. General

a. **Water Shortage Compliance.** In the event of a declared water shortage, the Licensee must comply with any water withdrawal reductions or monitoring requirements ordered by SFWMD in accordance with the Water Shortage Plan, Chapter 40E-21, F.A.C.

b. **Impacts on Existing Legal Uses.** The Licensee shall mitigate any adverse impact on existing legal uses caused by the ground water withdrawals authorized by this Certification. When adverse impacts occur or are imminent, the SFWMD reserves the right to curtail future withdrawal rates pursuant to the enforcement provisions of Condition A.1.j of these conditions. The adverse impacts can include:

(1) A reduction in well water levels that impairs the ability of an adjacent well, including a domestic well, lawn irrigation well, or public water supply well, to produce by 10% or greater;

(2) A significant reduction in water levels in an adjacent water body such as a lake, pond, wetland, or canal system that impairs the ability to produce water by 10% or greater;

(3) Saline water intrusion or induced movement of pollutants into the water supply of an adjacent water user, resulting in a significant reduction in water quality; and/or

(4) A change in water quality caused by the Licensee that results in significant impairment or loss of use of a well or water body.

c. **Impacts On Existing Off Site Land Uses.** The Licensee shall mitigate any adverse impacts on existing off-site land uses that are a consequence of the groundwater withdrawals authorized by this Certification. If increased withdrawals cause an adverse impact on existing land uses, the SFWMD reserves the right to curtail

future withdrawal rates pursuant to the enforcement provisions of Condition A.1.j of these conditions. Adverse impacts can include:

(1) A significant reduction in water levels in an adjacent water body, including impoundments, to the extent that the designed function of the water body is impaired;

(2) Land collapse or subsidence caused by a reduction in water levels; and/or

(3) Damage to crops and other types of vegetation.

d. Impacts to Natural Resources. The Licensee shall mitigate any adverse impacts to natural resources as a consequence of the groundwater withdrawals authorized by this Certification. When adverse impacts occur, or are imminent, the SFWMD reserves the right to curtail future withdrawal rates pursuant to the enforcement provisions of Condition A.1.j of these conditions. Adverse impacts can include:

(1) A reduction in ground water levels that results in significant lateral movement of the fresh water/salt water interface;

(2) A reduction in water levels that adversely impacts the hydroperiod of protected wetland environments;

(3) A significant reduction in water levels or hydroperiod in a naturally occurring water body such as a lake or pond;

(4) Induced movement or induction of pollutants into the water supply resulting in a significant reduction in water quality; and/or

(5) Harm to the natural system including damage to habitat for rare or endangered species.

e. Well System Operation. At any time, if there is an indication that the well casing, valves, or controls associated with an on site well system leak or have become inoperative, the Licensee shall be responsible for making the necessary repairs or replacement to restore the well system to an operating condition acceptable to SFWMD. Failure to make such repairs shall be cause for requiring that the well be filled and abandoned in accordance with the procedures outlined in Chapter 40E-3 (Water Wells), F.A.C.

2. Site Specific Standards Design Requirements

a. Authorized Daily Withdrawals. This Certification authorizes a maximum daily withdrawal of 7.92 MGD from the Lake City Limestone Portion of the Lower Floridan Aquifer for processing and related industrial water demands, a maximum daily withdrawal of 0.067 MGD from the surficial aquifer for potable water demands, and a continued maximum daily withdrawal of 518.40 MGD from the St. Lucie Canal (C-44) as provided in the June 14, 1983, Revised Permit Agreement Between SFWMD and FPL to supplement evaporation, seepage and cooling losses from the on site cooling pond upon build out of Units 3, 4, 5, 6 and 8. This Certification also authorizes, on an interim basis, a maximum withdrawal of 2.9 MGD from the on-site cooling pond for the processing and related industrial water demands of Units 3, 4 and 8 until such time as Units 5 and 6 are constructed and operational or the withdrawals authorized by this Certification are modified pursuant to Condition VI.B.2.e, whichever occurs first. If a cooling tower is constructed for Unit 8, an additional 6.7 MGD will be required for operation of the cooling tower for a maximum withdrawal of 9.6 MGD from

the on-site cooling pond. These authorizations also include the daily applicable surface water demands of the existing Units 1 and 2.

b. Authorized Annual Withdrawals. This Certification authorizes a maximum annual withdrawal of 1733.75 MGY from the Lake City Limestone Portion of the Lower Floridan Aquifer for processing and related industrial water demands, a maximum annual withdrawal of 10.22 MGY from the surficial aquifer, and a continued maximum annual withdrawal of 26,808.50 MGY from the St. Lucie Canal (C-44) as provided in the June 14, 1983, Revised Permit Agreement Between SFWMD and FPL to supplement evaporation, seepage and cooling losses from the on site cooling pond upon buildout of Units 3, 4, 5, 6 and 8. These authorizations also include the applicable annual surface water demands of the existing Units 1 and 2. This Certification also authorizes, on an interim basis, a maximum annual withdrawal of 667.95 MGY from the on site cooling pond for the processing and related industrial water demands of Units 3 ~~and 4~~ and 8 until such time as Units 5 and 6 are constructed and operational or the withdrawals authorized by this Certification are modified pursuant to Condition VI.B.2.e. whichever occurs first. If a cooling tower is constructed for Unit 8, an additional 2,243.79 MGY will be required for operation of the cooling tower for a maximum withdrawal of 2,911.74 MGY from the on-site cooling pond.

c. Authorized Withdrawal Facilities:

5 -- 14" X 1500' wells cased to 1250' withdrawing from the Lake City Limestone Portion of the Lower Floridan Aquifer with an estimated flowing capacity of 1400 GPM

1 -- 8" X 100' X 50 GPM well cased to 50' withdrawing from the surficial aquifer

4 -- 1000 HP X 90,000 GPM surface water pumps with an intake elevation of 8.00 ft. NGVD withdrawing from the C 44 canal

4 -- 50 HP X 550 GPM surface water pumps with an intake elevation of 7.50 ft. NGVD withdrawing from the C-44 canal (for screen wash purposes)

1 -- 3 HP X 200 GPM surface water pump with an intake elevation of 7.0 ft. NGVD withdrawing from the C-44 canal (for screen wash purposes)

2 -- 25 HP X 1500 GPM surface water pumps withdrawing from the on site cooling pond on a temporary basis to meet processing and related industrial water demands of Units 3 and 4, consistent with Conditions V.B.2.a, b, and e

2 -- 100 HP X 4000 GPM surface water pumps withdrawing from the on-site cooling pond (to meet make-up water demands from the Unit 8 cooling tower alternative).

2 -- 150 HP X 4000 GPM surface water pumps with an intake elevation of 7.0 ft. NGVD withdrawing from the C-44 Canal (for emergency back-up for the Unit 8 cooling tower alternative).

d. Cooling Pond Maximum Elevation. In accordance with Amendment Two to the June 14, 1983, Revised Permit Agreement between SFWMD and FPL, FPL is authorized to fill the cooling pond at the Martin Plant to surface water elevations of 33.67 NGVD during the period of October 16 through May 14 of each year ("dry season") and 32.83 feet NGVD during the period May 15 through October 15 of each year ("wet season"), provided that if rainfall events cause these dry and wet season water levels to be exceeded, FPL shall refrain from adding make-up water to the cooling pond from the St. Lucie (C-44) Canal via the 90,000 GPM intake pumps until

such time as seepage and evaporative losses or flood control releases have lowered the cooling pond elevation below these levels.

e. Modification of Authorized Withdrawals. By June 13, 2003, and every ten years thereafter, unless extended by mutual agreement between the Licensee and SFWMD the Licensee shall submit to the SFWMD a report on the project's consumptive water use which contains the information required by Chapter 40E-2, F.A.C., as in effect at that time. Within 90 days after receipt of the report, SFWMD shall evaluate the information, and issue a written notification to DEP and the Licensee as to whether the maximum annual withdrawals of water for consumptive use authorized by this Certification remains in compliance with the provisions of Chapter 373, F.S., and Chapter 40E-2, F.A.C., as in effect at that time. If the notification indicates that the withdrawals are not in compliance with those provisions, it shall recommend possible alternatives for bringing the withdrawals into compliance or otherwise meeting the minimum consumptive water use needs of the certified project. If mutual agreement cannot be reached within 180 days after issuance of the written notification on whether the maximum annual withdrawals of water for consumptive use remain in compliance, then the written notification shall be immediately referred to the Division of Administrative Hearings (DOAH) for resolution in accordance with the procedural provisions of Sections 403.516(1)(c) and 120.57, F.S. (1989). In any proceeding conducted pursuant to this Condition of Certification, SFWMD shall demonstrate that the authorized water uses are no longer consistent with SFWMD's nonprocedural criteria. The Licensee shall then demonstrate its entitlement to maintaining the authorized water uses by showing that the authorized water use is consistent with the nonprocedural criteria of SFWMD for such water uses or that a variance or other relief is warranted. The Administrative Law Judge shall submit a recommended order to the Siting Board on whether the authorized water uses should be modified. The Siting Board shall then enter a final order on the matter, which order will constitute final agency action.

3. Additional Information Requirements

a. Dewatering Operations. Prior to the commencement of construction of those portions of the project which involve dewatering activities, including any dewatering activities that may be associated with the construction of the proposed transmission line and fuel pipeline, a detailed plan for the proposed dewatering activities must be reviewed by SFWMD for a determination of compliance with the nonprocedural provisions of Chapter 40E-2, 40E-3, and 40E-4, F.A.C. The following information must be submitted:

- (1) A detailed site plan which shows the locations of the proposed dewatering areas;
- (2) The methods of dewatering operations;
- (3) The maximum depth for each dewatering operation;
- (4) The location and specifications for all proposed wells and/or pumps associated with each dewatering operation;
- (5) The discharge method, route, and location of receiving waters generated by each dewatering operation, including the measures (best

management practices) to be taken to prevent water quality problems in the receiving waters;

(6) The duration of each dewatering operation;

(7) An analysis of the impacts of the proposed dewatering operations which indicates that no significant impacts will occur to any existing on site and/or off site legal users or wetlands and that the stability of the dike for the on site cooling pond will not be threatened. FPL may submit the existing plans that were submitted and reviewed during the site Certification application sufficiency review process, which require the installation of sheet pilings and infiltration trenches to protect the stability of the dike and the adjacent wetlands, to meet this requirement if no changes are made in the proposed dewatering activities which would impact the assumptions on which the analysis is based;

(8) The location of any infiltration trenches; and

(9) All plans must be signed and sealed by a State of Florida registered Professional Engineer and a state of Florida registered Professional Geologist.

b. Monthly Reporting Requirements.

(1) Both groundwater and surface water withdrawal quantities, separated by source, as authorized by this Certification for the project, shall be submitted to SFWMD on a monthly basis beginning with the month following issuance of this Certification. FPL shall also submit, on a monthly basis, end of the month cooling pond stages, monthly seepage loss, monthly evaporation loss, monthly withdrawal from the cooling pond, and the accumulated totals of each for the year. Surface water withdrawal quantities shall be reported in millions of gallons and acre/feet.

(2) Prior to the first day of the month, FPL shall notify SFWMD of its projected monthly withdrawal requirements and the date of any proposed withdrawals. FPL must receive prior approval from SFWMD for any withdrawals from the St. Lucie Canal (C-44). Subject to the enforcement provisions of Condition VI.A.1.j. and the water shortage compliance provisions of Condition VI.B.1.a. of these conditions, the SFWMD reserves the right to limit or terminate withdrawals by FPL from the St. Lucie Canal (C-44) depending upon water availability at the time of notification.

c. Groundwater Monitoring Program. Within six months of issuance of the final Certification for any phase of this Project involving withdrawals from the Floridan Aquifer, the Licensee shall develop and implement a groundwater monitoring program. A preliminary proposal shall be submitted to SFWMD for review for compliance with the nonprocedural requirements specified in Chapter 40E-2, F.A.C., within three months of issuance of final Certification for that phase. In developing the groundwater monitoring program, the Licensee shall consider well and surface water monitoring well locations, depth and method of well construction, types of well screens, and frequency of data collection.

d. Existing Well Repair, Replacement, Abandonment. If, in the future, any of the existing on site wells require repair, replacement and/or abandonment as defined by Chapter 373, Part II.E, F.S., the Licensee shall submit the information described in Chapter 40E-3, F.A.C., for review and approval by SFWMD prior to initiating such activities.

e. New Well Construction. If any new wells are required to replace the existing on site wells, and the proposed well locations are different from the locations of the previously authorized wells, the Licensee shall submit to SFWMD for review and approval an evaluation of the impacts of pumpage from the proposed well locations on adjacent existing legal users, pollution sources, environmental features, the saline water interface, and water bodies.

f. Restriction on Floridan Wells. The maximum installed capacity of any well withdrawing from the Floridan Aquifer shall be that capacity at which the wells are capable of flowing in a free flowing model relative to existing land elevation at the well site. Pumping equipment shall not be installed on any well as a means to regain or increase capacity.

g. Water Conservation Plan. By June 13, 2003, the Licensee shall submit a Water Conservation Plan required by Chapter 40E-2, F.A.C., in effect at that time, for review and approval by SFWMD staff. The plan shall, at a minimum, incorporate the following components:

(1) An audit of the amount of water needed in the Licensee's operational processes. If found to be cost effective in the audit, the following measures shall be implemented within one year of completion of the audit:

(a) Implementation of a leak detection and repair program;

(b) Implementation of a recovery/recycling or other program providing for technological, procedural or programmatic improvements to the Licensee's facilities; and

(c) Use of processes to decrease water consumption.

(2) Development and Implementation of an employee awareness program concerning water conservation.

C. Surface Water Management Conditions

1. General Conditions

a. Professional Engineer Certificate. The operation of any phase 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 90 days after completion of construction of the surface water management system, the Licensee or authorized agent shall submit the engineer's certification and notify SFWMD staff in the Martin/St. Lucie Service Center Environmental Resource Compliance Division that the facilities are ready for inspection and approval. As part of such notification, the Licensee or authorized agent shall submit as-built drawings of the site. The as-built drawings shall

include elevations, locations, and dimensions of components of the surface water management system.

b. Impacts on Fish, Wildlife, Natural Environment Values and Water Quality. The Licensee 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 Licensee 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.

c. Access Roads. The Licensee shall, whenever available, utilize adjacent existing roads for access to the transmission line and gas pipeline rights-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.

d. Off site Discharges. Off site discharges during construction and development of any phase of this project shall be made only through the discharge facilities authorized by the final Certification for that phase. No roadway or building construction shall commence on site until completion of the permitted discharge structure and detention areas for the applicable phase of the Project. Water discharged from the project shall be through structures having a mechanism suitable for regulating upstream water stages. Stages may be subject to operating schedules satisfactory to SFWMD.

e. Discharge Structures. Discharge structures, where appropriate, shall include a baffle, skimmer, or other mechanism suitable for preventing oil, grease, or other floatable materials from discharging to and/or from retention/detention areas.

f. Correction of Water Quality Problems. The Licensee shall be responsible for the correction of any sedimentation, turbidity, erosion, shoaling and/or other water quality problems that result from the construction, operation, and/or maintenance of the works authorized under this Certification.

g. Additional Water Quality Requirements. The Licensee may be required to incorporate additional water quality treatment methods into the surface water management system if such measures are shown to be necessary pursuant to the enforcement provisions of Condition VI.A.1.j. of these conditions.

2. Site Specific Design Requirements

a. Expansion Area Allowable Discharge. The surface water management system for the proposed project facilities located within the expansion area will be designed such that peak post-development discharges from the project site do not exceed 550 cfs for the 25 year/3 day design storm.

b. Restoration/Mitigation Area Allowable Discharge. The peak post development discharge rate from the proposed northwest restoration/mitigation area shall be based on an analysis of the additional information on the Restoration Area Construction Plans (as required under Condition VI.C.3.c).

c. Eastern Perimeter Ditch Control Elevation. Pursuant to the provisions of Condition VI. A.2. of these conditions, the Licensee may be required to change the control elevation for the eastern perimeter ditch, as necessary, if significant adverse impacts are shown to occur as a result of the existing control elevation of 18' NGVD.

3. Additional Information Requirements

a. Water Table Monitoring Program. Prior to a determination of sufficiency for any supplemental application for any subsequent phase beyond Phase I, the Licensee shall undertake and complete a water table monitoring program for the proposed power plant expansion area located east of the Plant Road. The proposed program shall be submitted to SFWMD for review and approval 90 days prior to the implementation of such a program. In developing the water table monitoring program, the Licensee shall incorporate monitoring well locations which encompass the entire expansion area east of the Plant Road and regularly scheduled monitoring intervals throughout at least one normal wet season.

b. Expansion Area Construction Plans. Prior to the commencement of construction of any portion of the project within the expansion area which affects the movement of waters, all construction activities for that portion of the proposed project which may obstruct, divert, control, impound or cross waters of the state must be reviewed by SFWMD for a determination of compliance with the nonprocedural requirements of Chapters 40E-2 and 40E-4, F.A.C. For all construction activities, the following information shall be submitted:

(1) Detailed paving, grading and drainage plans, including on site and perimeter site grades, which clearly indicate how runoff will be routed and discharged in each of the four proposed subbasins for the expansion area; demonstrate that the design storm will be held on site; and verify the stage/storage assumptions;

(2) If control elevations are revised for any portion of the proposed surface water management system, revised calculations which demonstrate compliance with the SFWMD's retention/detention criteria for both quantity and quality purposes;

(3) If control elevations are revised for any portion of the proposed surface water management system, revised soil storage calculations;

(4) Detailed plans of all proposed roads, parking lots and building pads which demonstrate compliance with Martin County and SFWMD flood protection criteria;

(5) Cross sections of all proposed control structures which demonstrate compliance with SFWMD water quality and quantity criteria; and

(6) Documentation that the proposed conveyance swale in the undeveloped area 2C basin adjacent to the coal storage area is required to maintain existing drainage flows in the expansion area and that it will not adversely impact any of the 75 acres of wetlands to be preserved on site in Area 2C, unless additional mitigation is provided by the applicant for the wetland impacts which may result from its construction. Upon the provision of documentation that the 75 acres of wetlands will not be adversely impacted, the Licensee shall also submit a draft instrument in recordable form agreeing with the District that, if any of the 75 acres are nonetheless adversely affected, FPL shall conduct additional mitigation in the northwest parcel sufficient under

the SFWMD's wetlands mitigation criteria then in effect, as directed by SFWMD, to mitigate for such adverse impacts. Upon SFWMD's approval, the Licensee shall execute and record the instrument within 90 days of receipt of SFWMD's approval.

c. Restoration Area Construction Plans. Prior to the commencement of construction and/or modification of any portion of the proposed and/or existing facilities associated with the restoration plan for the northwest mitigation/restoration area, all proposed activities must be reviewed by SFWMD for a determination of compliance with the nonprocedural requirements of Chapters 40E-2 and 40E-4, F.A.C. The following information, to any extent it has not already been furnished to SFWMD, shall be provided:

(1) Inverts, elevations and current condition of the discharge culverts along SR 710 that provide drainage for the three off site drainage basins north of SR 710 which drain through and/or around the northwest restoration/mitigation area;

(2) Detailed descriptions of any existing drainage structures and facilities, including cross sections, elevations, dimensions and conditions, within the four drainage basins which drain through and/or around the northwest restoration/mitigation area which support the Licensee's assumptions and analysis of the basins;

(3) A representative sampling of existing finished floor elevations which demonstrates that the existing dwelling units will not be adversely impacted by the proposed improvements within the northwest restoration/mitigation area;

(4) Detailed construction plans, including supporting assumptions and calculations, for the proposed control structures, culverts, berms, swales, ditches, etc., in the northwest;

(5) Documentation that demonstrates that the proposed sump pump discharges into the northwest restoration/mitigation area will not cause erosion impacts;

(6) A detailed field study, that may include additional topography, which documents the need for the proposed ditch connection from Structure C to Black Bottom Slough; and

(7) Documentation that the proposed flows from Black Bottom Slough into L-65 will not exceed preexisting flows into L-65.

d. Transmission Line and Fuel Pipeline Construction Plans for Phase I. Prior to the commencement of construction of any portion of the proposed transmission line or fuel pipeline, all construction activities for that portion of the transmission line or fuel pipeline which may obstruct, divert, control, impound or cross waters of the state either temporarily or permanently, must be reviewed by SFWMD for a determination of compliance with the nonprocedural requirements of Chapters 40E-2 and 40E-4, F.A.C. "Construction activities" in this situation shall include the placement of structure pads, access/maintenance roads, culverts, and/or fill materials excavation activities, and related activities. For all such construction activities, the following information shall be submitted:

(1) A centerline profile of existing topographic features along the proposed access/maintenance road(s) and/or pipeline excavation route;

(2) A preliminary design of the proposed access/maintenance and finger road(s) and/or pipeline excavation route with elevations marked;

(3) A typical cross section of the proposed access/maintenance and finger roads and/or pipeline excavation route;

(4) A cross section of each stream or creek at the points to be crossed by the access/maintenance and finger road(s), pipeline excavation route, and/or other construction;

(5) Specifications showing the location of each transmission tower, finger and access/maintenance road, culvert, pipeline section, and/or other related structure or facility to be constructed, including all areas to be filled or excavated,

(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 all proposed excavation areas showing the proposed depth of excavation;

(8) Calculations and the supporting documentation which demonstrate compliance with all applicable criteria, particularly as they relate to allowable discharge;

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

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

(11) If construction of the proposed transmission line and/or fuel pipeline contributes to the necessity for future modifications to adjacent/existing roads, water quality treatment for the requested modifications must be addressed in the surface water management system design for the transmission line and/or fuel pipeline.

e. Surface Water Quality Sampling and Monitoring. Surface water quality sampling and monitoring data shall be collected and analyzed in accordance with applicable DEP and EPA criteria. The monitoring results shall be reported to the SFWMD at the intervals specified in the applicable DEP Conditions of Certification.

f. Hazardous Materials Management. Prior to the commencement of any phase of this Project, the Licensee shall submit for review by SFWMD for consistency with the requirements of Chapter 40E-4, F.A.C., a copy of the Comprehensive Oil, Hazardous Materials, and Hazardous Waste Management Program Plan for the Martin Expansion Project. The plan shall provide an adequate level of detail for early warning and detection of hazardous materials within the shallow groundwater. For any phase of the project involving coal gasification facilities, this plan shall include, at a minimum, a groundwater monitoring network, including proposed up gradient and down gradient locations of monitoring wells, prepared by a hydrogeology consultant.

D. Environmental Conditions (Phase I)

1. General

a. Wetland Avoidance. The Licensee shall avoid impacting wetlands within the power plant site, transmission line and fuel pipeline corridors wherever practicable. Where necessary and feasible the location and span between power poles and the location of the pipeline within the right of way shall be varied to eliminate or reduce wetland impacts.

b. Fill Materials. Except as authorized by this Certification and other permits issued for this project, no fill materials may be obtained from excavated wetlands within the project site, unless in accordance with a mitigation plan submitted in compliance with the conditions of this Certification.

c. Determination of Compliance with SFWMD Wetland Mitigation Requirements. Based on the wetland mitigation criteria of Chapter 40E-4, including Appendix 7 of the Basis of Review for Surface Water Management Permit Application, SFWMD has determined that the Licensee's proposed restoration, preservation and enhancement program (Program), if its objectives are successfully achieved, would result in mitigation beyond that required by SFWMD's criteria. This extra mitigation may be employed to compensate, as necessary, for wetland impacts associated with the Project's associated linear facilities, pursuant to Condition VI.D.2.c; for additional wetland impacts of the Project; or to provide additional compensation to achieve the Program's success, as identified in Conditions VI.D.2.b.(8). and VI.D.2.c.(6).

d. Additional Wetlands Mitigation. The Licensee 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 and/or mitigated wetlands have occurred as a result of project-related activities, including the proposed transmission line and fuel pipeline.

2. Additional Information Requirements

a. Expansion Area Wetlands Protection. Prior to the commencement of construction of any facilities located adjacent to the wetlands identified for preservation in undeveloped area 2C of the expansion area, FPL shall stake and rope off the protected wetland areas to prevent encroachment during construction. Staking shall remain in place until all adjacent construction activities are completed. Verification by SFWMD staff shall be required prior to commencement and upon completion of any construction activities.

b. Northwest Restoration/Mitigation Area Plan. Prior to the commencement of construction of any portion of the restoration/mitigation areas for the proposed power plant expansion project, final details of the proposed restoration/mitigation plan must be submitted to SFWMD for a determination of compliance with the non procedural requirements of Chapters 40E-2 and 40E-4, F.A.C., including Appendix 7 (Isolated Wetlands Rule) of the Basis of Review for Surface Water Management Permit Applications within SFWMD. This plan shall include the following:

1) Specific acreage figures and locations of all wetlands to be preserved, created and restored;

(2) Identification of all proposed areas of inundation;

(3) Identification of proposed control elevations;

(4) Documentation that the proposed restoration/mitigation activities will not adversely impact adjacent land owners;

(5) A discussion of any additional mitigation activities to be undertaken, including the location of all mitigation areas and a description of the manner in which these areas will be created restored or otherwise enhanced;

(6) A timetable of accomplishing the proposed mitigation activities prior to, or concurrent with, the construction of Phase I of this Project;

(7) Documentation, including a draft instrument in recordable form that, for each phase of the Project, an appropriate portion of the northwest mitigation parcel commensurate with the wetlands to be impacted by that Project phase will be preserved prior to commencement of construction of that phase such that it will be managed in a manner consistent with its proposed use as a conservation area; and

(8) A detailed monitoring and maintenance program designed to ensure the success of the restoration, enhancement and preservation program proposed by the Licensee . The success of this Program shall be based upon an assessment of the Program's measured progress toward achieving a restored, functional hydrologic regime the improvement of hydric soils within appropriate areas and the natural, beneficial changes in vegetation composition, diversity, growth rates and canopy characteristics within the areas this Program is to be undertaken. For any created wetland excluding any designated woodstork feeding areas, the measure of success shall be predicated on a guaranteed survival or coverage of 80% of the appropriate wetland vegetation. At a minimum, the monitoring plan shall be conducted for a period of 5 years, with reports submitted to SFWMD annually, and all monitoring stations identified on a plan view. This monitoring may be continued on a year-to-year basis depending on the extent to which the program has successfully achieved its objectives. However, SFWMD may at any time determine that such monitoring may be discontinued upon success of the program being demonstrated by the Licensee .

c. Transmission Line and Fuel Pipeline Mitigation Plan. Prior to the commencement of construction of any portion of the proposed transmission line and fuel pipeline, a mitigation plan to offset any wetland impacts associated with that portion of the transmission line or pipeline must be submitted to the SFWMD for a determination of compliance with the non-procedural requirements of Chapters 40E-2, 40E-4 and 40E-6, F.A.C., including Appendix 7 (Isolated Wetland Rule) of the Basis of Review for Surface Water Management Permit Application within SFWMD. This plan shall include the following:

(1) Specific acreage figures and locations of all wetlands, both within the transmission line or fuel pipeline right of way and adjacent to it, which would be impacted by the construction activities, including an explanation of why no feasible alternative exists;

2) Documentation that none of the proposed excavation activities will adversely impact off site wetlands;

(3) A discussion of the proposed mitigation activities to be undertaken, including the location of all mitigation areas and a description of the manner in which these areas will be created, restored or otherwise enhanced;

(4) If such mitigation shall occur within the northwest restoration/mitigation area, documentation that sufficient wetland mitigation areas within

the restoration/mitigation area have been legally reserved to compensate for the proposed wetland impacts;

(5) A timetable for accomplishing the proposed mitigation activities concurrently with the construction of the transmission line or fuel pipeline and any associated wetland impacts, unless documentation for doing otherwise is submitted and approved in writing by SFWMD prior to the commencement of construction; and

(6) A detailed monitoring and maintenance program designed to ensure the success of the restoration, enhancement and preservation program proposed by the Licensee . The success of this program shall be based upon an assessment of the Program's measured progress toward achieving a restored, functional hydrologic regime; the improvement of hydric soils within appropriate areas; and the natural, beneficial changes in vegetation composition, diversity, growth rates and canopy characteristics within the areas this Program is to be undertaken. For any created wetland excluding any designated woodstork feeding areas, the measure of success shall be predicated on guaranteed survival or coverage of 80% of the appropriate wetland vegetation. At a minimum, the monitoring plan shall be conducted for a period of 5 years, with reports submitted to SFWMD annually, and all monitoring stations identified on a plan view. This monitoring may be continued on a year-to-year basis depending on the extent to which the program has successfully achieved its objectives. However, SFWMD may at any time determine that such monitoring may be discontinued upon success of the program being demonstrated by the Licensee .

E. SFWMD Lands

1. Future Modifications.

If, in the future, the Licensee proposes modifications and/or additions to any existing, permitted power plant, transmission line and/or fuel pipeline facilities that are currently located within SFWMD's right-of-way that were not anticipated in the Site Certification Application submitted, complete drawings showing the proposed and/or modified facility(ies) shall be submitted for review by SFWMD for a determination of compliance with Chapter 40E-6, F.A.C., prior to the commencement of construction of any facilities which will cross over, on, under, or otherwise use SFWMD's right-of-way. These drawings shall depict the proposed use in both plan and profile views and shall show, as a minimum:

a. For aerial electrical transmission/ distribution crossings:

- (1) The canal right-of-way lines;
- (2) The top of the canal bank and its elevation;
- (3) The centerline of the levee and its elevation;
- (4) The canal maintenance berm and its elevation at its highest point;
- (5) The location of any poles, towers, access roads, pipelines, etc., located within SFWMD's right-of-way;
- (6) The location of any anchors, downguys or spanguys within SFWMD's right-of-way;

(7) The elevation of the lowest line, wire, or cable crossing over SFWMD's right-of-way, given at the lowest point of sag in the span within SFWMD's right-of-way;

(8) The location and elevation of any buried facilities; and

(9) The location of the facilities in relation to a section line, major road, or other prominent well-known landmark by which the facilities have been located in the field.

b. For bridges and other pile supported crossings and arch, free span and subaqueous crossings (such as gas, fuel oil, water, sewage, communications lines, etc.):

(1) The canal right-of-way lines;

(2) The top of the canal bank and its elevation;

(3) The width and elevation of any berms or levees;

(4) The existing cross section of the canal taken at the centerline of the point of crossing plus one cross section each taken 50' upstream and 50' downstream of the faces of the proposed crossing. The cross sections will be taken at 10' intervals from top of bank to top of bank and shall be plotted on standard 10 x 10 cross section paper to the same horizontal and vertical scale using NGVD datum. If applicable, the ultimate design section for the canal shall also be plotted on the cross sections submitted;

(5) If applicable the locations at which the crossing shall enter and emerge from the banks or berms;

(6) If applicable, the pile spacing measured center to center for any and all approach spans and measured face to face for the pile bents of the center span;

(7) If applicable the burial depth below the bank, berm and bottom elevation;

(8) If applicable the elevation of the bottom and top of any pipe, conduit or casing;

(9) If applicable, the wall thickness or "schedule" of the pipe;

(10) If applicable, any appurtenances such as fences, guardrails, security enclosures, paving, meters, valves, blow off lines, cathodic protection systems (whether buried or exposed), etc.;

(11) The location of the proposed facilities in relation to a section line, major road or other prominent well-known landmark by which the facilities have been located in the field;

(12) If applicable, the locations of any existing facilities located within SFWMD's right-of-way at the proposed project site; and

(13) If applicable, the manner in which SFWMD will be provided access to bridge approaches, including drop curbing, reinforced sidewalk sections, guardrail openings, stabilized berm ramps having a minimum top width of 15 feet with a maximum slope of 1 vertical to 10 horizontal.

c. For general short term construction activities on SFWMD right-of-way or where the use of the right of way is proposed for short or long term access to the site:

(1) If applicable, any work areas, spoil disposal or drying areas, materials storage areas, temporary construction or office trailer sites;

(2) If applicable, any temporary or permanent ingress/egress routes to the work site; and

(3) The location of the proposed facilities in relation to a section line, major road or other prominent well-known landmark by which the facilities have been located in the field.

VII. CONTROL MEASURES DURING CONSTRUCTION

A. Sanitary Wastes

Disposal of sanitary wastes from construction toilet facilities shall be in accordance with applicable regulations of the Martin County Health Department.

B. Environmental Control Program

The Licensee shall establish an environmental control program under the supervision of a qualified person to assure that all construction activities conform to good environmental practices and the applicable conditions of certification. A written plan for controlling pollution during construction shall be submitted to DEP within sixty days of issuance of the Certification for the applicable phase. The plan shall identify and describe all pollutants and wastes generated during construction and the methods for control, treatment and disposal. The Licensee shall notify DEP's Southeast District Office by telephone within 24 hours, if possible, if unexpected harmful effects or evidence of irreversible environmental damage are detected by it during construction, shall immediately report in writing to DEP, and shall within two weeks provide an analysis of the problem and a plan to eliminate or significantly reduce the harmful effects or damage and a plan to prevent reoccurrence.

C. Construction Dewatering Effluent

Should the Licensee's dewatering operation create shoaling in adjacent water bodies, the Licensee is responsible for removing such shoaling. All offsite discharges resulting from dewatering activities must be in compliance with water quality standards required by DEP Chapters 62-4 and 62-302, F.A.C., or such standards as issued through a variance by DEP.

VIII. SAFETY

The overall design, layout, and operation of the facilities shall be such as to minimize hazards to humans and the environment. Security control measures shall be utilized to prevent exposure of the public to hazardous conditions. The Federal Occupational Safety and Health Standards will be complied with during construction and operation.

IX. SCREENING

The Licensee shall provide screening of the site to the extent feasible through the use of aesthetically acceptable structures, vegetated earthen walls and/or existing or planted vegetation.

X. TOXIC, DELETERIOUS OR HAZARDOUS MATERIALS

The spill of any toxic, deleterious, or hazardous materials shall be reported in the manner specified by Condition XIII, Noncompliance Notification.

XI. SOLID WASTE STORAGE AND DISPOSAL

Solid waste produced by the operation of the Martin Expansion Project shall be disposed of on site or in a permitted disposal facility.

XII. CHANGE IN DISCHARGE

All discharges or emissions authorized herein to the Martin Expansion Project shall be consistent with the terms and conditions of these Conditions. The discharge of any pollutant not identified in the application or any discharge more frequent than, or at a level in excess of that authorized herein shall constitute a violation of these Conditions. Any anticipated facility expansion, production increase, or process modification which will result in new, different or increased discharges or expansion in steam generation capacity will require a submission of new or supplemental application to DEP's Siting Coordination Office pursuant to Chapter 403, F.S.

XIII. NONCOMPLIANCE NOTIFICATION

If, for any reason, the Licensee does not comply with or will be unable to comply with any limitation specified in these Conditions, the Licensee shall notify the District Manager of DEP's Southeast District Office by during the working day that said noncompliance occurs. After normal business hours, the licensee shall report any condition that poses a public health threat to the State Warning Point at telephone number (850) 413-9911 or (850) 413-9912. The licensee shall confirm this situation to the DEP District Office in writing within seventy-two (72) hours of becoming aware of such conditions and shall supply the following information:

- A. A description of the discharge and cause of noncompliance; and
- B. 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.

XIV. FACILITIES OPERATION

A. The Licensee shall at all times properly operate and maintain the facility and related appurtenances, and systems of treatment and control that are installed and used to achieve compliance with the conditions of these Conditions, and are required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the approval and when required by Department rules.

B. In the event of a prolonged [thirty (30) days or more] equipment malfunction or shutdown of pollution control equipment, facility operation may be allowed to resume and continue to take place under an appropriate Department order, provided that the licensee demonstrates that such operation will be in compliance with all applicable ambient air quality standards and PSD increments, water quality standards and rules, solid waste rules, domestic wastewater rules and industrial wastewater rules. During such malfunction or shutdown, the operation of the facility shall comply with all other requirements of these Conditions and all applicable state and federal emission and effluent standards not affected by the malfunction or shutdown.

C. Records Maintained at the Facility

1. These Conditions of Certification or a copy thereof shall be kept at the work site of the approved activity.

2. The licensee shall hold at the facility, or other location designated by this approval, records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation required by this approval, copies of all reports required by this approval, and records of all data used to complete the application for this approval. These materials shall be retained at least three (3) years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule. The licensee shall provide copies of these records to the Department upon request. If the licensee becomes aware of relevant facts that were not submitted or were incorrect in any report to the Department, such facts or information shall be promptly submitted or corrected.

D. Toxic, Deleterious or Hazardous Materials

1. The Licensee shall not discharge to surface waters wastes which are acutely toxic, or present in concentrations which are carcinogenic, mutagenic, or teratogenic to human beings or to significant locally occurring wildlife or aquatic species. The Licensee shall not discharge to ground waters wastes in concentrations which, alone or in combination with other substances, or components of discharges (whether thermal or non-thermal) are carcinogenic, mutagenic, teratogenic, or toxic to human beings (unless specific criteria are established for such components in Section 62-520.420, F.A.C.) or are acutely toxic to indigenous species of significance to the aquatic community within surface waters affected by the ground water at the point of contact with surface waters.

2. The licensee shall report all spills of materials having potential to significantly pollute surface or ground waters and which are not confined to a building or similar containment structure, by telephone immediately after discovery of such spill. The licensee shall submit a written report within forty-eight hours, excluding weekends, from the original notification. The telephone report shall be submitted by calling the DEP District Office Industrial Wastewater Compliance/Enforcement Section. After normal business hours, the licensee shall contact the State Warning Point by calling (850) 413-9911 or (850) 413-9912. The written report shall include, but not be limited to, a detailed description of how the spill occurred, the name and chemical make-up (include any MSDS sheets) of the substance, the amount spilled, the time and date of the spill, the name and title of the person who first reported the spill, the size and extent of the spill and surface types (impervious, ground, water bodies, etc.) it impacted, the cleanup procedures used and status of completion, and include a map or aerial photograph showing the extent and paths of the material flow. Any deviation from this requirement must receive prior approval from the Department.

E. Laboratories And Quality Assurance

1. The licensee shall ensure that all laboratory analytical data submitted to the Department, as required by this Certification, are from a laboratory which has a currently valid and Department approved Comprehensive Quality Assurance Plan (CompQAP) or a CompQAP pending approval for all parameters being reported, as required by Chapter 62-160, F.A.C.

2. The licensee shall ensure that all samples required pursuant to these Conditions are taken by an appropriately trained technician following EPA and Department approved sampling procedures and chain-of-custody requirements in accordance with Rule 62-160, F.A.C. All chain-of-custody records shall be retained on-site for at least three (3) years and made available to the Department immediately upon request.

3. Records of monitoring information shall include:

- a. the date, exact place, and time of sampling or measurements;
- b. the person responsible for performing the sampling or measurements;
- c. the dates analyses were performed;
- d. the person responsible for performing the analyses;
- e. the analytical techniques or methods used; and,
- f. the results of such analyses.

XV. ADVERSE IMPACT

The Licensee shall take all reasonable steps to minimize any adverse impact resulting from noncompliance with any limitation specified in these Conditions,

including, but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying event.

XVI. RIGHT OF ENTRY

The Licensee shall allow DEP's and SFWMD's authorized representatives, upon the presentation of credentials:

A. To enter upon the Licensee 's premises or, during business hours, to enter the Licensee 's premises in which records are required to be kept under the terms and conditions of this certification

B. To have access to and to make copies of all records required to be kept under the conditions of this certification;

C. To sample or monitor any substances or parameters at any location necessary to assure compliance with these Conditions or Department rules.

XVII. REVOCATION OR SUSPENSION

This certification may be suspended or revoked pursuant to Section 403.512, F.S., or for violations of any condition of certification. This approval is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this approval may constitute grounds for revocation and enforcement action by the Department.

XVIII. CIVIL AND CRIMINAL LIABILITY

A. This certification does not relieve the Licensee from civil or criminal responsibility or liability for noncompliance with any conditions of this certification, applicable rules or regulation of DEP, or Chapter 403, F.S., or regulations thereunder.

B. This certification does not relieve the licensee from liability for harm or injury to human health or welfare, animal or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the licensee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

C. As provided in Subsections 403.087(7), 403.511, and 403.722(5), F.S., the issuance of this certification does not convey any vested rights or any exclusive privileges. Neither 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. This approval is not a waiver of any other Department approval that may be required for other aspects of the total project under federally delegated programs.

D. Subject to Section 403.511, F.S., 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 state statute or regulations.

XIX. PROPERTY RIGHTS

The issuance of this certification does not, unless noted otherwise, convey any property rights in either real or personal property, tangible or intangible, nor any exclusive privilege, 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. The Licensee shall obtain title, lease or right of use to any sovereign submerged lands occupied by the plant, transmission line structures, or appurtenant facilities from the State of Florida.

XX. 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 circumstance is held invalid the application of such provision to other circumstances and the remainder of the certification shall not be affected thereby.

XXI. CERTIFIED SITE

The site of the certified power plant project is generally depicted in the application. The sites of directly associated transmission lines and natural gas pipeline corridors for which certification is granted are generally depicted in the application. Except where noted otherwise, ROWS of linear facilities will be established in the post certification information submittal and review process in accordance with the conditions of certification.

XXII. REVIEW OF SITE CERTIFICATION

The certification shall be final unless revised, revoked, or suspended pursuant to law. At least every five years from the date of issuance of this certification or any National Pollutant Discharge Elimination System permit for the plant, DEP shall review all monitoring data, including groundwater quality monitoring data, that has been submitted to it or its agent(s) during the preceding five year period for the purpose of determining the extent of the Licensee's compliance with the conditions of this certification and the environmental impact of this facility. DEP shall submit the results of its review and recommendations to the Licensee. Such review will be repeated at least every five years thereafter.

XXIII. MODIFICATION OF CONDITIONS

The conditions of this certification may be modified in the following manner:

A. The Licensee shall comply with rules, adopted by the Department subsequent to the issuance of the certification, which prescribe new or stricter criteria to the extent that the rules are applicable to electric power plants. Except where express variances, exceptions, exemptions, or other relief have been granted, subsequently adopted rules which prescribe new or stricter criteria shall operate as automatic modifications to the certification.

B. The Licensee may choose to operate in compliance with any rule subsequently adopted by the Department which prescribes criteria more lenient than the criteria required by the terms and conditions in the certification which are not site specific. Should the licensee choose to do so, it must notify the Department to do so in writing at least 15 days prior to such operation.

C. The Siting Board pursuant to Section 403.516(1), F.S., hereby delegates to the Secretary of DEP the authority to modify, upon application by the Licensee and after notice and opportunity for hearing, any conditions pertaining to monitoring or sampling and conditions of Certification pertaining to consumptive use of water, monitoring, sampling, specification of control equipment, related time schedules, effluent or emission standards or limitations, groundwater, mixing zones, zones of discharge, leachate control programs, railroad spur, transmission lines, access roads 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.

D. This certification shall be automatically modified to conform to any subsequent amendments, modifications, or renewals made by DEP under a federally delegated or approved program to any separately issued Prevention of Significant Deterioration (PSD) permit, Title V Air Permit, or National Pollutant Discharge Elimination (NPDES) permit for the certified facility. FPL shall send each party to the original certification proceedings (at the party's last known address as shown in the record of such proceeding) notice of requests submitted by FPL for modifications or renewals of the above listed permits if the request involves a relief mechanism (e.g., mixing zone, variance, etc.) from state standards, a relaxation of conditions included in the permit due to state permitting requirements, or the inclusion of less restrictive air emission limitations in the air permits. DEP shall notify all parties to the certification proceeding of any intent to modify conditions under this section prior to taking final agency action.

E. All other modifications shall be made in accordance with Section 403.516 F.S.

F. Replacement of any portion of the gas pipeline, transmission lines, or access roads constructed under these Conditions necessitated by emergency conditions shall not be considered a modification. A verbal report of any such emergency shall be made to DEP as soon as possible. Within 14 calendar days after correction of an emergency which would require the Licensee to perform an activity not in accordance with the conditions of certification, a report to the DEP shall be made outlining the details of the

emergency and the steps taken for its temporary relief. The report shall be a written description of all of the work performed and shall set forth any pollution control measures or mitigative measures which were utilized or are being utilized to prevent pollution of waters, harm to sensitive areas, or alteration of archaeological or historical resources.

XXIV. FLOOD CONTROL PROTECTION

The plant and associated facilities shall be constructed in such a manner as to comply with the Martin County flood protection requirements, either by flood proofing or by raising the elevation of the facilities above the 100 year flood level.

XXV. EFFECT OF CERTIFICATION

Certification and conditions of certification are predicated upon design and performance criteria indicated in the application and explained at the certification hearing. Thus, conformance to those criteria, unless specifically amended or modified, is binding upon the applicant in the preparation, construction, and maintenance of the certified project. In those instances where a conflict occurs between the application's design criteria and the conditions of certification, the conditions shall prevail.

XXVI. NOISE

To mitigate the effects of noise produced by the steam blowout of steam boiler tubes, the Licensee shall conduct public awareness campaigns prior to such activities to forewarn the public of the estimated time and duration of the noise.

XXVII. ENFORCEMENT

A. The Secretary of DEP may take any and all lawful actions as he or she deems appropriate to enforce any condition of this certification.

B. SFWMD may take any and all lawful actions to enforce any condition of this certification that is based on the rules of that agency. Prior to initiating such action the agency head shall notify the Secretary of DEP of that agency's proposed action.

XXVIII. ENDANGERED AND THREATENED SPECIES

A. Prior to start of construction, the Licensee shall survey the Expansion Project site, including new transmission line right-of-ways, for endangered and threatened species of animal and plant life. Plant species listed as endangered or threatened by the federal government and plant species listed as endangered by the state shall be transplanted to an appropriate area if practicable. Gopher tortoises and any commensals on the rare or endangered species list shall be relocated after consultation with the FFWCC. A relocation program, as approved by the FFWCC, shall be followed.

B. Prior to the start of construction, the Licensee must provide reasonable assurances that the activities will not cause adverse direct or secondary impacts to water resources and aquatic or wetland dependent fish and wildlife as the Department and the District are authorized to protect under Part IV, Chapter 373, F.S. Those aquatic or wetland dependent species which are listed as threatened, endangered or of special concern are particularly in need of protection. For those aquatic or wetland dependent listed animal species for which habitat management guidelines have been developed by the U.S. Fish and Wildlife Service (USFWS) or the FFWCC, compliance with these guidelines will provide reasonable assurance that the proposed system will not adversely impact upland and wetland habitat functions. For those aquatic or wetland dependent listed animal species for which habitat management guidelines have not been developed or in cases where an applicant does not propose to use USFWS or FFWCC habitat management guidelines, the applicant may propose measures to mitigate adverse impacts to upland and wetland habitat functions provided to aquatic or wetland dependent listed animal species.

C. Prior to start of any commencement of work in surface waters accessible by manatees, the Licensee shall comply with the standard manatee protection construction conditions listed in the FFWCC, Bureau of Protected Species, "Standard Manatee Construction Conditions, June 2001."

XXIX. DESIGN AND PERFORMANCE CRITERIA

The certified units at the certified power plant site may be operated at up to 115% of the maximum electrical output at ISO conditions projected from design information without the need for modifying these conditions. Treatment or control facilities or systems installed or used to achieve compliance with the terms and conditions of this certification are not to be bypassed without prior DEP approval. Moreover, the Licensee shall take all reasonable steps to minimize any adverse impacts resulting from noncompliance with any limitation specified in these Conditions, including but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying event.

XXX. COMPLIANCE

Except as otherwise provided herein and in the certification order, and subject to Section 403.511(5), F.S., construction, maintenance, and operation of the permitted facility shall comply with the applicable nonprocedural rules of all agencies, unless a variance or waiver was obtained as part of the certification process.

XXXI. ROW DELINEATION AND COMPLIANCE VERIFICATION

At least 90 days prior to commencement of new transmission line or pipeline construction, three copies of blue line reproductions of aerial photographs of at least 1:400 scale shall be submitted to DEP's Southeast District Office and one copy to SFWMD delineating the ROW routes selected, boundaries, preliminary pole and pad

locations, and access roads. The Licensee shall notify all parties of such filing. These photographs shall be submitted prior to commencement of construction of the various segments of the linear facility; it is recommended that this information be submitted in segments rather than waiting until the entire ROW is acquired. DEP, SFWMD, and any other party who requests to do so shall have 30 days from receipt of notice to review the photographs and to call any apparent conflicts with the requirements of the conditions of certification to the Licensee's attention. However, this paragraph shall not operate to avoid the need for post certification submittals and compliance reviews otherwise required by the conditions of certification.

If DEP or any substantially affected party has reason to believe that the construction of the linear facility and access roads within the Licensee's designated ROW cannot be accomplished in compliance with the conditions of certification, the Licensee shall be so notified in writing. Failure of such a notice to be served on Licensee within 30 days from the notice of filing of the various segments in the aerial photographs with DEP constitutes acknowledgment that construction of the linear facility and access roads can be accomplished in compliance with the conditions of certification within the designated ROW or the various segments of ROW submitted for review. The acquisition of a particular ROW or the expenditure of funds toward acquisition of a particular ROW prior to post certification review pursuant to these conditions will be at the Licensee's risk, and no party will be estopped by such acquisition to seek disapproval of the linear facility or access roads within the designated ROW in accordance with these conditions of certification.

XXXII. DISPUTE RESOLUTION

If a situation arises in which mutual agreement cannot be reached between the Licensee and an agency exercising its regulatory jurisdiction, then the matter shall be immediately referred to the Division of Administrative Hearings (DOAH) for disposition in accordance with the provisions of Chapter 120, F.S. A hearing under Section 120.57, F.S., shall be held within 30 days after its referral to DOAH. All exceptions to any order issued by the Administrative Law Judge shall be filed with the Governor and Cabinet within 10 days of the issuance of such order. The Governor and Cabinet shall issue a decision within 60 days of the filing of the exceptions.

XXXIII. POST-CERTIFICATION SUBMITTALS

Conditions of certification which provide for the post certification submittal of information to agencies by the Licensee are intended solely to allow the agencies to monitor the effects arising from the Project and the location of the natural gas pipeline and transmission line rights-of-way (ROWs) and the construction and maintenance of the permitted activities to thereby assure continued compliance with state air and water quality requirements, other agency nonprocedural rules and standards, and the conditions of certification, without any further government action.

XXXIV. TRANSMISSION AND PIPELINE ROWs

A. Regulatory Approval (Phase II)

1. Unless expressly exempt by law or rule, it shall be unlawful for any person to construct or alter wetlands and surface waters, including dredging or filling, without first having obtained approval from the Department pursuant to Condition XXXIII and XXXIV. Pursuant to Rule 62-341.620 (2)(a), F.A.C., the general permit is not offered to those transmission line projects that obtained a certification issued under Part II of Chapter 403, F.S. *"Electrical Power Plant and Transmission Line Siting."* However, it is recognized in Rules 62-341.201(1) and 62-341.620, F.A.C. that construction of power lines and support structures pursuant to the limitations in the 62-341.620, F.A.C. general permit "have minimal impacts to the water resources of the District, both individually and cumulatively" and that "mitigation is neither necessary nor required for [such] activities." The Licensee shall submit to DEP's Southeast District Environmental Resource Permitting Section a Joint Environmental Resource Permit Application, Form#: 62-343.900(1), prior to commencing any activities in wetlands or other surface waters. Pursuant to Chapter 18-21, F.A.C., all activities on sovereignty lands shall require authorization from the Board of Trustees of the Internal Improvement Trust Fund. Should the transmission line or pipeline corridors cross sovereignty submerged lands an easement shall be applied for and approved by the Department for such utility crossings and rights of way.

2. In determining whether to grant or deny approval, the Department shall consider whether the applicant has implemented practicable design modifications to reduce or eliminate adverse impacts to wetlands and other surface waters. If the Department determines that the Licensee 's proposed system can be modified in a practicable manner that would eliminate or reduce adverse impacts to wetland functions and other surface water functions, and if the applicant refuses to modify the system accordingly, mitigation shall not be approved. Before considering mitigation, all reasonable measures must first be taken to reduce the adverse effects which otherwise render the project unapprovable. To the extent the Project strictly complies with the limitations set forth in Rule 62-341.620(2)(b)-(l), F.A.C. and is not located in forested wetlands located within 550 feet from the mean or ordinary high water line of a wetland or other surface water designated as an Outstanding Florida Water or Outstanding National Resource Water, no mitigation shall be required.

B. Construction

1. The Licensee shall avoid impacting wetlands within all certified corridors wherever practicable. When necessary and feasible, the location of the span between power poles shall be maximized or varied and other design changes shall be considered to eliminate or reduce wetland impacts.

2. The Licensee shall, wherever practicable, utilize adjacent existing public roads for access to the ROW for construction, operation and, or maintenance purposes.

3. The Licensee shall consult with DEP's Southeast District Environmental Resource Permitting Section prior to final determination of the access road locations (including those not located on the ROW), tower locations, and construction techniques

which are to be reflected on any post-certification submittals. At DEP's request, the Licensee shall conduct a field inspection with DEP staff.

4. Prior to clearing activities within any of the ROWs associated with the various linear facilities, an ecological survey shall be conducted to identify the presence of threatened or endangered species (plants and animals) as defined in the Application, likely to occur in the ROW based on range and habitat. This survey shall also identify the location of any wading bird colonies within the vicinity of the project ROW that may be affected. Results of this survey shall be submitted to DEP and the Florida Fish and Wildlife Conservation Commission (FFWCC) and the United States Fish and Wildlife Service (USFWS). If it is determined that any of those species will be affected by the construction of any of the linear facilities, the Licensee shall consult with DEP and FFWCC to determine the appropriate steps to be taken to avoid, minimize, mitigate or otherwise appropriately deal with, any adverse impacts to resources within each agency's respective jurisdiction.

5. After all ROWs have been selected, the Licensee shall conduct a survey of archaeological sensitive areas, as determined in consultation with the Department of State, Division of Historical Resources (DHR), where they are crossed by the ROW. This report shall be submitted to DHR. If practicable, sites considered to be eligible for the National Register shall be avoided during construction of the linear facilities, and subsequently during maintenance of the ROWs. For any other significant site, Licensee shall consult with DHR to determine appropriate action. If avoidance is not practicable, impact shall be mitigated through archaeological salvage operations or other methods acceptable to DHR.

6. All materials used for any purpose related to the construction of the transmission lines or other linear facilities shall come from fill sources in compliance with applicable local ordinances. No fill materials shall be obtained from any excavated wetlands unless authorized by DEP and SFWMD in accordance with a mitigation plan submitted in compliance with certification.

7. The Licensee shall provide mitigation/compensation (M/C) for any unavoidable wetland or open water habitat impacts within the jurisdiction of the DEP or WMD resulting from the construction of any portion of the transmission line, natural gas pipeline or power plant facilities. M/C may include the creation of new wetland or open water habitat, the restoration of degraded habitat, the enhancement of functions and values provided by existing wetland or open water habitats, removal of exotics, or other activities found by the relevant agencies and appropriate local government to be in compliance with their applicable regulations. Prior to the elimination or degradation of any such wetland or open water habitat, the Licensee shall concurrently submit mitigation plans to DEP's Southeast District Office Environmental Resources Permitting Section and SFWMD as applicable. Submission of such plans shall be for the purpose of determining compliance with the Conditions of Certification. These mitigation plans shall, at a minimum, include the following:

a. Specific acreage figures, descriptions and locations of all jurisdictional wetlands, both within the ROW as well as adjacent to it which would be

impacted by the construction or ROW maintenance activities, including an explanation of why no feasible alternative exists which would avoid impact to these wetlands.

b. A discussion and a set of plan view and cross sectional drawings of the proposed mitigation activities to be undertaken, including the location of all mitigation areas and a description of the manner in which these areas will be created, restored or otherwise enhanced. Success standards will be determined based on the functional values of wetlands impacted and created. The Licensee will work with the appropriate agency staff to establish success criteria.

c. A timetable for accomplishing the proposed M/C activities (i.e., the time for commencement and completion of activities for each mitigation area) concurrently with the construction of the various aspects of proposed facilities and any associated wetland impacts.

d. A monitoring and maintenance program including success criteria, to ensure the survival and success of any created, restored, or enhanced wetlands.

8. M/C plans must be found to fully compensate for the functions and values provided by wetlands that will be degraded or eliminated. DEP and SFWMD will work with the Licensee in the development of acceptable mitigation plans. The mitigation plans proposed by the Licensee shall be submitted for review and compliance monitoring to DEP and SFWMD and such review shall be subject to the time constraints set forth in specific Conditions XXXIV.B.9 below and VI.A.2 above, as appropriate.

9. For all construction activities in waters of the state where DEP has wetland resource protection jurisdiction pursuant to Chapter 403, F.S., and the Memorandum of Understanding between the Department and SFWMD, the Licensee shall file with DEP's Office of Siting Coordination and the SE District Office Environmental Resources Permitting Section the information described in F.A.C. Rule 62-17.665; and a Joint Environmental Resource Permit Application, Form#: 62-343.900(1).

a. DEP shall promptly review the submittal for completeness and sufficiency. If the submittal is found to be incomplete or insufficient, Licensee shall be so notified. Failure to issue such a notice within 30 days after filing of the submittal shall constitute a finding of completeness and sufficiency.

b. Within 90 days of filing complete and sufficient information, DEP shall determine whether there is reasonable assurance of compliance with applicable substantive agency regulations as required by the conditions of certification if the plans are executed as filed. If it is determined that reasonable assurance has not been provided, the Licensee shall be notified with particularity and possible corrective measures suggested. Failure to notify Licensee in writing within 60 days of receipt of a sufficient information submittal shall constitute a compliance verification.

c. If DEP does not object within the time period specified, Licensee may begin construction pursuant to the terms of the conditions of certification and the subsequently submitted construction details and DEP shall provide to the Corps of Engineers a letter indicating that the full requirements of this condition have been met and the water quality certification for the purposes of 33 USC Section 1341 is thereby conveyed.

d. Licensee, at its option, may submit information for different wetlands modification activities at different time intervals. Each submittal shall be processed by DEP separately.

10. Semi-annual narrative reports shall be submitted to DEP's Southeast District Office, indicating the status of all construction activities within waters of the state. These reports shall be submitted until all construction in that respective area is complete. The reports include the following information:

a. Date the activity (dredge and fill) began; if work has not begun on site, please so indicate.

b. Brief description and extent of work completed since the previous report.

c. Brief description and extent of work anticipated in the next six months.

11. Upon completion of construction, the Licensee shall provide DEP with detailed engineering drawings which depict the pre and post construction contours in all areas in which construction occurred in waters of the state.

12. During construction, all exotic invasive plant species listed on the Florida Exotic Pest Plant Council's (EPPC) 2001 (or current year) Category I Invasive Exotic Species list located in each ROW shall be removed or the plants/trees cut and the stumps treated with an approved herbicide consistent with these conditions. A plan for removal and disposal of such exotic species which minimizes seed dispersal shall be developed by the Licensee in consultation with DEP. The Licensee shall abide by the plan.

13. Following construction, a plan for maintenance and control of exotic invasive plant species within the ROWs shall be developed by the Licensee in consultation with DEP. The Licensee shall abide by the plan. This maintenance clause refers to the planting or natural recruitment of the referenced plants.

14. The Licensee shall perform the work authorized under the certification in a manner so as to minimize any adverse impacts on fish, wildlife, native vegetation, natural environmental values, water resources, and water quality.

15. The Licensee shall develop a water quality monitoring program to measure the turbidity generated by construction in all open waters to be crossed by the proposed natural gas pipeline. This program shall be developed in coordination with DEP's SE District Office Environmental Resources Permitting Section and approved by DEP prior to the commencement of construction.

16. The Licensee shall be responsible for the correction of any water quality problems that result from the construction, operation and/or maintenance of works authorized under these Conditions. The Licensee will work with DEP to determine additional methods necessary to ensure that state water quality standards are not violated as a result of construction.

17. Where necessary to prevent secondary impacts to adjacent wetlands during construction, adjacent wetland areas outside of the limits of construction shall be isolated from the construction area by silt fences. These silt containment devices shall be maintained and remain in place until all construction is complete and all associated side slopes or areas denuded of vegetation have been adequately stabilized. The Licensee shall be responsible for explaining the significance of these barriers to all construction personnel prior to construction. The Licensee shall use turbidity control as necessary so that turbidity levels in adjacent areas do not exceed 29 N.T.U.s above natural background. Any placement of fill or encroachment into jurisdictional wetlands or waterbodies outside the limits of construction shall be immediately reported to DEP's Southeast District Office. Appropriate remedial action to restore the affected area shall be immediately undertaken.

18. In addition to the erosion and turbidity control measures specified above, best management practices, including but not limited to the use of floating silt screens in flowing waters, as well as the use of staked hay bales and silt curtains, shall be used wherever necessary at all times during project construction. These erosion and turbidity control devices shall be regularly inspected and maintained when necessary. These devices shall remain in place until all construction is complete and all fill side slopes or denuded areas have been stabilized with suitable vegetation.

19. No dewatering operation shall be allowed unless the Licensee can provide reasonable assurances to DEP that no unauthorized, adverse, off site water resource impacts will occur as a result of the dewatering operation.

C. Operation

1. Ground vehicles to be used in wetlands for maintenance access shall be low ground pressure vehicles unless limited to the access roads and structure pads.

2. Only EPA approved herbicides may be used in waters of the state, or the use of other herbicides in any areas of the ROW, shall only be allowed with the concurrence of DEP.

XXXV.DEPARTMENT OF COMMUNITY AFFAIRS

A. The Licensee shall investigate complaints of, and provide mitigation for, impacts to radio or television reception shown to be caused by the transmission line upgrade.

B. The Licensee shall develop a comprehensive hurricane preparation and recovery plan for the Martin Unit 8 Combined Cycle Project, as part of the Florida Power & Light Martin Plant. The plan shall be submitted to the Department of Community Affairs and the Martin county Office of Emergency Management no later than start of construction of the Martin Unit 8 combined cycle conversion project. The Licensee shall

formally update the plan every 5 years following commercial operation of the Unit 8 Combined Cycle Project or whenever an additional generating unit is brought into commercial service at the Martin Plant site and shall submit these updated versions of the plan to the Department of Community Affairs and the Martin County Office of Emergency Management. If the Department deems the plan or any of its periodic updates not to be in compliance with the requirements of this condition, it may petition for enforcement of this condition pursuant to the Florida Electrical Power Plant Siting Act.

XXXVI. TREASURE COAST REGIONAL PLANNING COUNCIL

A. FPL shall neither eliminate nor negatively impact any wetlands on those portions of the Project site necessary for the construction and operation of Units 5 and 6 and the associated coal gasification facilities until the Florida Public Service Commission has made an affirmative Determination of Need for those facilities.

B. FPL shall modify its land management practices in the areas along the west and southwest sides of the existing cooling pond west and south of the distribution line paralleling the pond dike shown on the attached Exhibit A. In these areas FPL shall discontinue mowing and allow natural vegetation to establish itself. The goal of this practice modification will be to create a naturally vegetated corridor for wildlife passing through this area between other natural areas onsite and in the region. This practice modification shall take place consistent with safety, inspection and maintenance procedures for the dike and the adjacent distribution line and with continued access to ditches, equipment and other related facilities. To the extent feasible, within FPL routine land management practices for the site, FPL shall attempt to control exotics (specifically Melaleuca, Australian Pine and Brazilian Pepper) within this corridor.

C. FPL shall reserve the remainder of the Northwest Parcel, over and above those portions identified by FPL during these proceedings for wetland restoration, enhancement and preservation, for use in future ecological mitigation activities or preservation, and activities related to such purposes (including education and passive recreation), as may be required for the Martin Expansion project or any other project of FPL, and shall not use or develop the remainder of the Northwest Parcel for any other purpose. However, any future wetland creation undertaken within this area shall avoid conversion of high quality forested uplands. To the extent feasible, within FPL's routine land management practices for the site, FPL shall attempt to control exotic vegetation (specifically Melaleuca, Australian Pine, and Brazilian Pepper) within this area.

D. FPL shall not begin commercial operation of Martin Units 3 and 4 until the turn lane at State Road 710 and Plant Road at the FPL Martin site is lengthened to a minimum length of 600 feet along State Road 710.

E. Notwithstanding DOT conditions contained under XXXVIII below, FPL shall not begin commercial operation of Martin Units 5 and 6 until the road improvements proposed by the Florida Department of Transportation for State Road 710 through

Indiantown have been completed, including the road widening of State Road 710 and the installation of a protected turn lane at State Road 710 and Adams Avenue in Indiantown.

XXXVII. MARTIN COUNTY

A. Construction and operation of the Martin Expansion Project shall be undertaken in accordance with the planned unit development (industrial) agreement between the Licensee and Martin County, Florida, dated August 8, 1989. Said agreement is incorporated into these Conditions of Certification by this reference and shall be complied with and enforced as if the provisions of that agreement were contained in these Conditions.

B. Martin County shall issue a permit for each transmission line crossing a Martin County road or property within the right of way identified in the ROW delineation required by Condition XXXI within 60 days after such filing.

C. Martin County shall issue a permit for each natural gas pipeline crossing a road between the junction of the Florida Turnpike and SR 714 and the site of the project within 30 days of the submission of a complete utility permit application for such natural gas pipeline.

D. In the construction of associated transmission lines, FPL shall:

1. Follow the standards of Martin County, Florida for a U 2 Permit unless FPL and Martin County subsequently agree to the contrary.
2. Make all crossings as nearly perpendicular to and place all transmission Line structures as far from state and county road rights of-way as practicable in order to allow future widening and expansion.

E. In the construction of natural gas pipeline crossings, FPL shall:

1. Follow the standards of Martin County, Florida for a U 2 Permit unless FPL and Martin County subsequently agree to the contrary.
2. Avoid locating pipeline facilities in road rights-of-way to the greatest extent practicable; in order to minimize conflict with future roadway improvements.

XXXVIII. DEPARTMENT OF TRANSPORTATION

A. DOT has reviewed and approved the highway traffic analysis presented by FPL showing that there will be adequate highway capacity on State Road 710 for the implementation (construction and operation) of Phases I, II, and III of the Project, subject to Conditions B and C below.

B. FPL is required to reconstruct an extension to the left turn lane on State Road 710 at Plant Road, at its own expense, conforming to DOT design Standards, as approved by the District Traffic Operations Engineer. The Department agrees to process the permit application within 30 days of submittal.

C. If FPL onsite construction of Units 5 and 6 (Phase III) is accelerated, FPL shall develop and implement, at its own expense, one or more of the following traffic flow maintenance procedures, commensurate with traffic impact, as deemed necessary by DOT to mitigate impacts of traffic generated by FPL Phase III construction. These procedures shall be implemented during the period of overlap between FPL's Phase III construction and DOT's Project No. 89070-3517:

1. Public information program on traffic coordination within and adjacent to Indiantown, between M.P. 9.715 (Plant Road) and M.P. 17-822 (SR 76 Connector) during DOT construction of SR 710 between M.P. 14.415 and M.P. 16.620 as part of WPI No 4126244,

2. The use of existing railroad facilities for delivery of equipment and materials to the FPL construction site to the extent practicable,

3. Park and ride and/or car pooling programs for FPL construction personnel and/or operations staff,

4. Provision of officials, at FPL expense, to direct traffic within and adjacent to the DOT construction site,

5. Provision of temporary traffic control devices, which may include traffic signals, signage, pavement markings or construction barricades, at FPL expense, as deemed necessary by DOT to mitigate impacts of FPL construction traffic within the construction zone of the DOT project, including approaches and exits,

6. Provision of temporary travel lanes, to the extent practicable, within the DOT right-of-way and within the limits of the DOT project, at FPL expense, as deemed necessary by DOT, to mitigate impacts of FPL construction traffic.

D. Adequacy of highway capacity on State Road 710 to serve the operation of Phase IV of FPL's Project shall be addressed by FPL and DOT during the supplemental application for site certification authorizing construction and operation of Phase IV.

E. There is adequate distance between the intersections of State Road 710 with Adams Avenue and of the CSX Railroad track with Adams Avenue, in Indiantown, Martin County, Florida, for satisfactory movement of road traffic without requiring signal synchronization at the two intersections.

F. It is unnecessary for FPL and DOT to address any question concerning the impacts of rail traffic on highway traffic in connection with Phase I; however, FPL and DOT each reserve the right to take any position with respect to any question of the impacts of rail traffic on highway traffic in supplemental application proceedings for the certification of Phases III and IV for construction and operation.

G. For Phase I, The Department of Transportation Turnpike Office shall issue a utility permit for a natural gas pipeline crossing at a location mutually agreed upon by

the permit applicant and the Turnpike, consistent with requirements of the Site Certification Order, within 60 days of the submission of a satisfactorily completed utility permit form 592 02, executed by the owner of proposed gas pipeline, and which utility permit form and applicant information is in compliance with the requirements of the Utility Accommodation Guide (dated May, 1990). The plans referenced in 2.B. (1) of the Utility Accommodation Guide (UAG) and the elevations of this pipeline referenced in the UAG shall be tied to the State Planes Coordinates, for the purpose of loading the information into DOT's Computer Aided Design and Drafting (CADD) System. Any references in the Utility Accommodation Guide and permit to Department District Officials shall be deemed to mean Turnpike Officials.

H. In the construction of the natural gas pipeline system for Phase I, FPL shall comply with the requirements of the UAG, Turnpike Bond Resolution conditions and permit conditions based on either of them.

I. For Phase I, DOT shall issue a permit for the transmission line crossing of State Road 710 within the FPL right of way for such transmission line as identified in the SCA within 30 days of the submission of a complete utility permit application and detailed construction plans for such transmission line crossing.

J. In the construction of the associated transmission line crossing of State Roads 710 and 76, FPL shall:

1. Comply with the requirements of the DOT Utility Accommodation Guide and permit conditions based on them;
2. Construct such transmission line crossing with the same alignment as the existing transmission line at the same crossing; and
3. Place transmission line structures as far from the right-of-way of State Roads 710 and 76 as practicable in order to allow future road widening and expansion.

K. For Phase I, DOT shall issue a permit for the natural gas pipeline crossing of any state road within the corridor for such facility as identified in the SCA within 30 days of submission of a complete utility permit application and detailed construction plans for such pipeline crossing; provided, however, that:

1. DOT shall have 60 days to issue a permit for any crossing of Interstate 95 to allow time for review of the crossing by the Federal Highway Administration; and
2. DOT shall have the additional time reasonably necessary under the applicable bond indenture(s) to issue a permit for any crossing of the Florida Turnpike.

L. In the construction of the natural gas pipeline crossings for Phase I, FPL shall:

1. Comply with the requirements of the DOT Utility Accommodation Guide and permit conditions based on them; and

2. Avoid locating pipeline facilities in road rights-of-way to the greatest extent practicable in order to minimize conflict with future roadway improvements;

3. Make no pipeline placement longitudinally in the rights-of-way for Interstate 95 or the Florida Turnpike; and

4. Comply with any special provisions governing crossings of the Florida Turnpike made applicable under the bond indenture(s) for the Florida Turnpike.

M. Post Certification Review Of Specific Problems (Phase II)

1. Access Management to the State Highway System

No new access to the State highway system is proposed in the site certification application. If new access is later proposed, access permitting as defined in Rule Chapters 14-96, State highway System Connection Permits, Administrative process, and 14-97, State highway System Access Management Classification System and Standards, Florida Administrative Code, will be required.

2. Overweight or Over Dimensional Loads

Operation of overweight or overdimensional loads by the applicant on State transportation facilities during construction and operation of the utility facility will be subject to the requirements of Chapter 316, Florida Statutes, and Rule Chapter 14-26, Safety Regulations and Permitting Fees for Overweight and Overdimensional Vehicles, Florida Administrative Code.

3. Use of State of Florida Right of Way or Transportation Facilities

Any use of State of Florida right of way and certain activities on State transportation facilities will be subject to the requirements of the Department of Transportation's Utility Accommodation Manual (Document 710-020-001) and Rule Chapter 14-46, Railroads/Utilities Installation or Adjustment, Florida Administrative Code. Any new or additional interconnections between the power plant and any off-site water reuse system may require the applicants to meet the requirements of the Utility Accommodation Manual if the installation of these interconnections fall within State of Florida right of way or a state transportation facility.

4. Drainage

Any drainage onto State of Florida right of way and transportation facilities will be subject to the requirements of Rule Chapter 14-86, Drainage Connections, Florida Administrative Code. FPL shall submit information to FDOT on adopted agency forms demonstrating compliance with applicable drainage-related standards. That submittal shall be governed by the procedures of Conditions XXXII and XXXIII for post-certification submittals. FPL shall locate and construct transmission lines in such manner so as not to interfere with, obstruct, or otherwise adversely impact any drainage from DOT's existing or announced planned transportation facilities. FPL agrees to provide DOT a drainage easement to accommodate such transportation facilities in or across the fee-owned transmission line right of way consistent with the operation of the

transmission line, if such becomes necessary to comply with requirements of a water management district or DEP.

N. Best Management Practices

1. Transportation Control

Traffic control will be maintained during plant construction and maintenance in compliance with the standards contained in the Manual of Uniform Traffic Control Devices, Rule Chapter 14-94, Statewide Minimum Level of Service Standards, Florida Administrative Code; Florida Department of Transportation's Design Standards; and Florida Department of Transportation's Specifications for Roads and Bridge Construction, whichever is more stringent.

2. Overweight/Overdimensional Vehicles

If the applicant uses contractors for the delivery of any overweight or overdimensional loads to the site during construction, the applicant should assure that its contractors adhere to the necessary standards and receive the necessary permits required under Chapter 316, Florida Statutes, and Rule Chapter 14-26, Safety Regulations and Permitting Fees for Overweight and Overdimensional Vehicles, Florida Administrative Code.

XXXIX. BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND

A. The Board of Trustees of the Internal Improvement Trust Fund (Board), or its staff shall issue the appropriate approval for a natural gas pipeline crossing lands and waterways between the junction of the Florida Turnpike and SR 714 under the jurisdiction of the Board within 30 days of the submission of a complete application for such natural gas pipeline crossing demonstrating compliance with the applicable provisions of Chapter 18-21, Florida Administrative Code.

B. In the Phase I construction of the associated transmission line or the natural gas pipeline system, FPL shall follow the standards of the Board as established in Chapter 18-21, Florida Administrative Code, unless FPL and the Board subsequently agree to the contrary.

XL. TROUP-INDIANTOWN IRRIGATION DISTRICT

A. FPL shall locate all transmission line structures installed as part of the proposed transmission line upgrade within the existing FPL right-of-way where it crosses any canal or roadway under the jurisdiction of the Troup-Indiantown Irrigation District (District). Prior to installing any new transmission line structures as part of this Project within any canal or road rights-of-way under the jurisdiction of the District, FPL

shall consult with District staff on the appropriate location of such structures so as to avoid any conflict or interference with the District's activities within those rights-of-way.

B. Upon completion of construction of the transmission line structures, FPL shall supply the District with drawings or other appropriate information depicting the location of those transmission line structures installed adjacent to roads and canals under the District's jurisdiction.

XLI. CONSTRUCTION

A. Standards and Review of Plans

1. All construction at the facility shall be pursuant to the design standards presented in the application or amended application and the standards or plans and drawings submitted and signed by an engineer registered in the state of Florida. Specific Southeast DEP District Office acceptance of plans will be required based upon a determination of consistency with approved design concepts, regulations, and these conditions prior to initiation of construction of any phases: industrial waste treatment facility; domestic waste treatment facility; potable water treatment and supply system; ground water monitoring system, storm water control system; solid waste disposal area; and hazardous or toxic handling facility or area. The Licensee shall present specific plans for these facilities including any required application for an NPDES Construction Stormwater Discharge Permit for review by the DEP Southeast District Office or SFWMD as applicable at least ninety (90) days prior to construction of those portions of the facility for which the plans are then being submitted, unless other time limits are specified in the conditions herein. Review and approval or disapproval shall be accomplished in accordance with Chapter 120, F.S., or these conditions of certification as applicable.

2. The Department must be notified in writing and prior written approval obtained for any material change, modification, or revision to be made to the project during construction which is in conflict with these conditions of certification. If there is any material change, modification, or revision made to a project approved by the Department without this prior written approval, the project will be considered to have been constructed without departmental approval, the construction will not be cleared for service, and the construction will be considered a violation of the conditions of certification.

3. Ninety (90) days prior to the anticipated date of first operation, the Licensee shall provide the Southeast District and the Siting Coordination Office of the Department with an itemized list of any changes made to the facility design and operation plans that would affect a change in discharge as referenced in Condition XII. since the time of the approval of these conditions. This pre-operational review of the final design and operation shall demonstrate continued compliance with Department rules and standards.

4. Final drainage plans illustrating all stormwater treatment facilities and conveyances for construction phases and ultimate operations for the entire Martin Expansion Project site shall be submitted to the SFWMD in accordance with Condition VI.C. for review and approval prior to construction of any such conveyance or facility. The SFWMD shall indicate its approval or disapproval within 60 days of the submittal.

B. Control Measures

1. To control runoff which may reach and thereby pollute waters of the state, necessary measures shall be utilized to settle, filter, treat or absorb silt containing or pollutant laden storm water to ensure against spillage or discharge of excavated material that may cause turbidity in excess of 29 Nephelometric Turbidity Units (NTU) above background in waters of the state at the site boundary. Oil and grease shall not exceed 5 mg/l at any discharge from the makeup water storage supply pond or any other pond. Control measures may consist of sediment traps, barriers, berms, and vegetation plantings. Exposed or disturbed soil shall be protected and stabilized as soon as possible to minimize silt and sediment-laden runoff. The pH of the runoff shall be kept within the range of 6.0 to 8.5. The Licensee shall comply with the applicable nonprocedural requirements in Chapter 62-25, F.A.C.

2. Any open burning in connection with initial land clearing shall be in accordance with Chapter 62-256, F.A.C., Chapter 51-2, F.A.C., Uniform Fire Code Section 33. 1 01 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 62-256, F.A.C., shall be approved by the DEP Southeast District office in conjunction with the Division of Forestry and any other county regulations that may apply. Burning shall not occur if not approved by the appropriate 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.

3. Disposal of sanitary wastes from construction toilet facilities shall be in accordance with applicable regulations of the appropriate local health agency. The sewage treatment plant shall be operated in accordance with Chapters 62-600-62-699, F.A.C.

4. The licensee shall employ proper odor and dust control techniques to minimize odor and fugitive dust emissions. The applicant shall employ control techniques sufficient to prevent nuisance conditions which interfere with enjoyment of residents of adjoining property.

5. Directly associated transmission lines from the facility electric switchyard to existing transmission lines shall be maintained in accordance with the application and the appropriate state and federal regulations concerning use of herbicides. The Licensee shall notify the Department of the type of herbicides to be used at least 60 days prior to their first use.

6. Dewatering operations during construction shall be carried out in accordance with Rule 62-621.300(2), F.A.C.

C. Reporting

Notice of commencement of construction shall be submitted to the Siting Coordination Office and the DEP SE District Office within fifteen (15) days of initiation. Starting three (3) months after construction commences, a quarterly construction status report shall be submitted to the DEP SE District Office. The report shall be a short narrative describing the progress of construction.

History Notes

Certification Issued 02/20/91; signed by Governor Chiles
Modification 08/11/93; signed by Secretary Wetherell
Modification 09/27/94; signed by Secretary Wetherell
Modification 04/28/95; signed by Secretary Wetherell
Modification 04/22/96; signed by Secretary Wetherell
Modification 11/23/98; signed by Secretary Green
Modification 08/21/00; signed by Deputy Secretary Green
Modification 06/15/01; signed by Secretary Struhs
Expansion Project Certification Issued 04/14/03; signed by Governor Bush
Modification (H) 09/14/04; signed by Program Administrator Oven
Modification (I) 05/20/05; signed by Program Administrator Oven
Modification (J) withdrawn 12/28/05
Modification (K) 11/15/06; signed by Program Administrator Oven
Modification (L) 07/09/07; signed by Program Administrator Halpin

Attachment Table 1 from condition V.a.7.c

Percent Un-ionized Ammonia in Aqueous Ammonia Solution

pH	Temperature: Degrees Celsius									
	10.5000	11.0000	11.5000	12.0000	12.5000	13.0000	13.5000	14.0000	14.5000	15.0000
6.0000	0.0194	0.0201	0.0209	0.0218	0.0226	0.0235	0.0244	0.0254	0.0264	0.0274
6.1000	0.0244	0.0254	0.0264	0.0274	0.0285	0.0296	0.0307	0.0319	0.0332	0.0345
6.2000	0.0307	0.0319	0.0332	0.0345	0.0358	0.0373	0.0387	0.0402	0.0418	0.0434
6.3000	0.0386	0.0402	0.0418	0.0434	0.0451	0.0469	0.0487	0.0506	0.0526	0.0546
6.4000	0.0487	0.0506	0.0526	0.0547	0.0568	0.0590	0.0613	0.0637	0.0662	0.0687
6.5000	0.0612	0.0637	0.0662	0.0688	0.0715	0.0743	0.0772	0.0802	0.0833	0.0865
6.6000	0.0771	0.0801	0.0832	0.0866	0.0900	0.0935	0.0972	0.1010	0.1050	0.1090
6.7000	0.0970	0.1010	0.1050	0.1090	0.1130	0.1180	0.1220	0.1270	0.1320	0.1370
6.8000	0.1220	0.1270	0.1320	0.1370	0.1430	0.1480	0.1540	0.1600	0.1660	0.1720
6.9000	0.1540	0.1600	0.1660	0.1730	0.1790	0.1860	0.1940	0.2010	0.2090	0.2170
7.0000	0.1930	0.2010	0.2090	0.2170	0.2260	0.2350	0.2440	0.2530	0.2630	0.2730
7.1000	0.2430	0.2530	0.2630	0.2730	0.2840	0.2950	0.3070	0.3190	0.3310	0.3440
7.2000	0.3060	0.3180	0.3310	0.3440	0.3570	0.3710	0.3860	0.4010	0.4160	0.4320
7.3000	0.3850	0.4000	0.4160	0.4330	0.4490	0.4670	0.4850	0.5040	0.5230	0.5430
7.4000	0.4840	0.5040	0.5230	0.5440	0.5650	0.5870	0.6100	0.6330	0.6580	0.6830
7.5000	0.6090	0.6330	0.6580	0.6840	0.7100	0.7360	0.7670	0.7960	0.8270	0.8590
7.6000	0.7660	0.7960	0.8270	0.8590	0.8930	0.9270	0.9630	1.0000	1.0400	1.0800
7.7000	0.9620	1.0000	1.0400	1.0800	1.1200	1.1600	1.2100	1.2600	1.3000	1.3500
7.8000	1.2100	1.2600	1.3000	1.3600	1.4100	1.4600	1.5200	1.5800	1.6400	1.7000
7.9000	1.5200	1.5800	1.6400	1.7000	1.7700	1.8300	1.9000	1.9800	2.0500	2.1300
8.0000	1.9000	1.9700	2.0500	2.1300	2.2100	2.3000	2.3800	2.4800	2.5700	2.6700
8.1000	2.3800	2.4700	2.5700	2.6700	2.7700	2.8700	2.9800	3.1000	3.2100	3.3200
8.2000	2.9800	3.0900	3.2100	3.3400	3.4600	3.5900	3.7300	3.8700	4.0100	4.1600
8.3000	3.7200	3.8600	4.0100	4.1600	4.3200	4.4800	4.6500	4.8200	5.0000	5.1800
8.4000	4.6400	4.8200	5.0000	5.1900	5.3800	5.5800	5.7800	5.9900	6.2100	6.4400
8.5000	5.7700	5.9900	6.2100	6.4400	6.6800	6.9200	7.1700	7.4300	7.7000	7.9700
8.6000	7.1600	7.4200	7.7000	7.9800	8.2600	8.5600	8.8500	9.1800	9.5000	9.8300
8.7000	8.8500	9.1700	9.5000	9.8400	10.2000	10.5000	10.9000	11.3000	11.7000	12.1000
8.8000	10.9000	11.3000	11.7000	12.1000	12.5000	12.9000	13.4000	13.8000	14.3000	14.7000
8.9000	13.3000	13.8000	14.3000	14.7000	15.2000	15.7000	16.3000	16.8000	17.3000	17.9000
9.0000	16.7000	16.8000	17.3000	17.9000	18.5000	19.0000	19.6000	20.2000	20.9000	21.5000
9.1000	19.6000	20.2000	20.9000	21.5000	22.2000	22.8000	23.5000	24.2000	24.9000	25.6000
9.2000	23.5000	24.2000	24.9000	25.7000	26.4000	27.1000	27.9000	28.7000	29.5000	30.3000
9.3000	27.9000	28.7000	29.5000	30.3000	31.1000	31.9000	32.8000	33.6000	34.5000	35.3000
9.4000	31.7000	33.6000	34.5000	35.4000	36.2000	37.1000	38.0000	38.9000	39.8000	40.8000
9.5000	38.0000	38.9000	39.8000	40.8000	41.7000	42.6000	43.6000	44.5000	45.5000	46.4000
9.6000	43.5000	44.5000	45.5000	46.4000	47.4000	48.3000	49.3000	50.3000	51.2000	52.2000
9.7000	49.3000	50.2000	51.2000	52.2000	53.1000	54.1000	55.0000	56.0000	56.9000	57.8000
9.8000	55.0000	56.0000	56.9000	57.9000	58.8000	59.7000	60.7000	61.6000	62.5000	63.3000
9.9000	60.6000	61.5000	62.5000	63.4000	64.3000	65.1000	66.0000	66.8000	67.7000	68.5000
10.0000	66.0000	66.8000	67.7000	68.5000	69.3000	70.2000	71.0000	71.7000	72.5000	73.3000

Percent Un-ionized Ammonia in Aqueous Ammonia Solution

Temperature: Degrees Celsius

pH	15.0000	16.0000	17.0000	18.0000	19.0000	20.0000	21.0000	22.0000	23.0000	24.0000
6.0000	0.0284	0.0293	0.0306	0.0318	0.0330	0.0343	0.0356	0.0369	0.0383	0.0397
6.1000	0.0358	0.0372	0.0386	0.0401	0.0416	0.0431	0.0446	0.0461	0.0476	0.0490
6.2000	0.0451	0.0468	0.0486	0.0504	0.0523	0.0542	0.0561	0.0581	0.0601	0.0621
6.3000	0.0567	0.0589	0.0611	0.0635	0.0659	0.0684	0.0709	0.0736	0.0763	0.0792
6.4000	0.0714	0.0741	0.0769	0.0799	0.0829	0.0860	0.0893	0.0926	0.0961	0.0997
6.5000	0.0898	0.0931	0.0968	0.1010	0.1043	0.1080	0.1120	0.1170	0.1210	0.1250
6.6000	0.1130	0.1170	0.1220	0.1270	0.1310	0.1360	0.1410	0.1470	0.1520	0.1580
6.7000	0.1420	0.1480	0.1530	0.1580	0.1650	0.1720	0.1780	0.1850	0.1920	0.1990
6.8000	0.1790	0.1860	0.1930	0.2000	0.2080	0.2160	0.2240	0.2320	0.2410	0.2500
6.9000	0.2150	0.2240	0.2330	0.2520	0.2620	0.2720	0.2820	0.2920	0.3030	0.3150
7.0000	0.2840	0.2940	0.3060	0.3170	0.3290	0.3420	0.3550	0.3680	0.3810	0.3960
7.1000	0.3570	0.3700	0.3840	0.3990	0.4140	0.4300	0.4460	0.4630	0.4800	0.4980
7.2000	0.4490	0.4660	0.4830	0.5020	0.5210	0.5400	0.5610	0.5820	0.6030	0.6260
7.3000	0.5640	0.5860	0.6080	0.6310	0.6550	0.6790	0.7030	0.7310	0.7580	0.7860
7.4000	0.7090	0.7360	0.7640	0.7930	0.8230	0.8540	0.8860	0.9190	0.9530	0.9880
7.5000	0.8910	0.9250	0.9600	0.9660	1.0000	1.0700	1.1100	1.1500	1.2000	1.2400
7.6000	1.1200	1.1600	1.2100	1.2500	1.3000	1.3500	1.4000	1.4500	1.5000	1.5600
7.7000	1.4100	1.4600	1.5100	1.5700	1.6300	1.6900	1.7500	1.8200	1.8800	1.9500
7.8000	1.7600	1.8300	1.9000	1.9700	2.0400	2.1200	2.2000	2.2800	2.3600	2.4400
7.9000	2.2100	2.2900	2.3800	2.4700	2.5600	2.6500	2.7500	2.8500	2.9500	3.0600
8.0000	2.7700	2.8700	2.9700	3.0800	3.2000	3.3100	3.4400	3.5600	3.6900	3.8200
8.1000	3.4500	3.5800	3.7200	3.8500	3.9900	4.1400	4.2900	4.4400	4.6000	4.7600
8.2000	4.3100	4.4700	4.6300	4.8000	4.9800	5.1500	5.3400	5.5100	5.7200	5.9200
8.3000	5.2700	5.5600	5.7600	5.9700	6.1800	6.4000	6.6300	6.8600	7.1000	7.3400
8.4000	6.6700	6.9100	7.1500	7.4000	7.6600	7.9300	8.2000	8.4900	8.7700	9.0700
8.5000	8.2500	8.5400	8.8400	9.1400	9.4600	9.7800	10.1000	10.5000	10.8000	11.2000
8.6000	10.2000	10.5000	10.9000	11.2000	11.6000	12.0000	12.4000	12.8000	13.2000	13.7000
8.7000	12.5000	12.9000	13.3000	13.8000	14.2000	14.7000	15.1000	15.6000	16.1000	16.6000
8.8000	15.2000	15.7000	16.2000	16.7000	17.2000	17.8000	18.3000	18.9000	19.5000	20.0000
8.9000	18.4000	19.0000	19.6000	20.2000	20.8000	21.4000	22.0000	22.7000	23.3000	24.0000
9.0000	22.1000	22.8000	23.5000	24.1000	24.8000	25.5000	26.2000	27.0000	27.7000	28.4000
9.1000	26.4000	27.1000	27.8000	28.6000	29.4000	30.1000	30.9000	31.7000	32.5000	33.3000
9.2000	31.1000	31.9000	32.7000	33.5000	34.4000	35.2000	36.1000	36.9000	37.8000	38.6000
9.3000	36.2000	37.1000	38.0000	38.8000	39.7000	40.6000	41.5000	42.4000	43.3000	44.2000
9.4000	41.7000	42.6000	43.5000	44.4000	45.4000	46.3000	47.2000	48.1000	49.0000	49.9000
9.5000	47.3000	48.3000	49.2000	50.2000	51.1000	52.0000	52.9000	53.9000	54.8000	55.7000
9.6000	53.1000	54.0000	55.0000	55.9000	56.8000	57.7000	58.6000	59.5000	60.4000	61.3000
9.7000	58.8000	59.7000	60.6000	61.5000	62.3000	63.2000	64.1000	64.9000	65.7000	66.6000
9.8000	64.2000	65.1000	65.9000	66.8000	67.6000	68.4000	69.2000	70.0000	70.7000	71.5000
9.9000	69.3000	70.1000	70.9000	71.7000	72.4000	73.1000	73.9000	74.6000	75.3000	76.0000
10.0000	74.0000	74.7000	75.4000	76.1000	76.8000	77.4000	78.1000	78.7000	79.3000	79.9000

Percent Un-ionized Ammonia in Aqueous Ammonia Solution

Temperature: Degrees Celsius

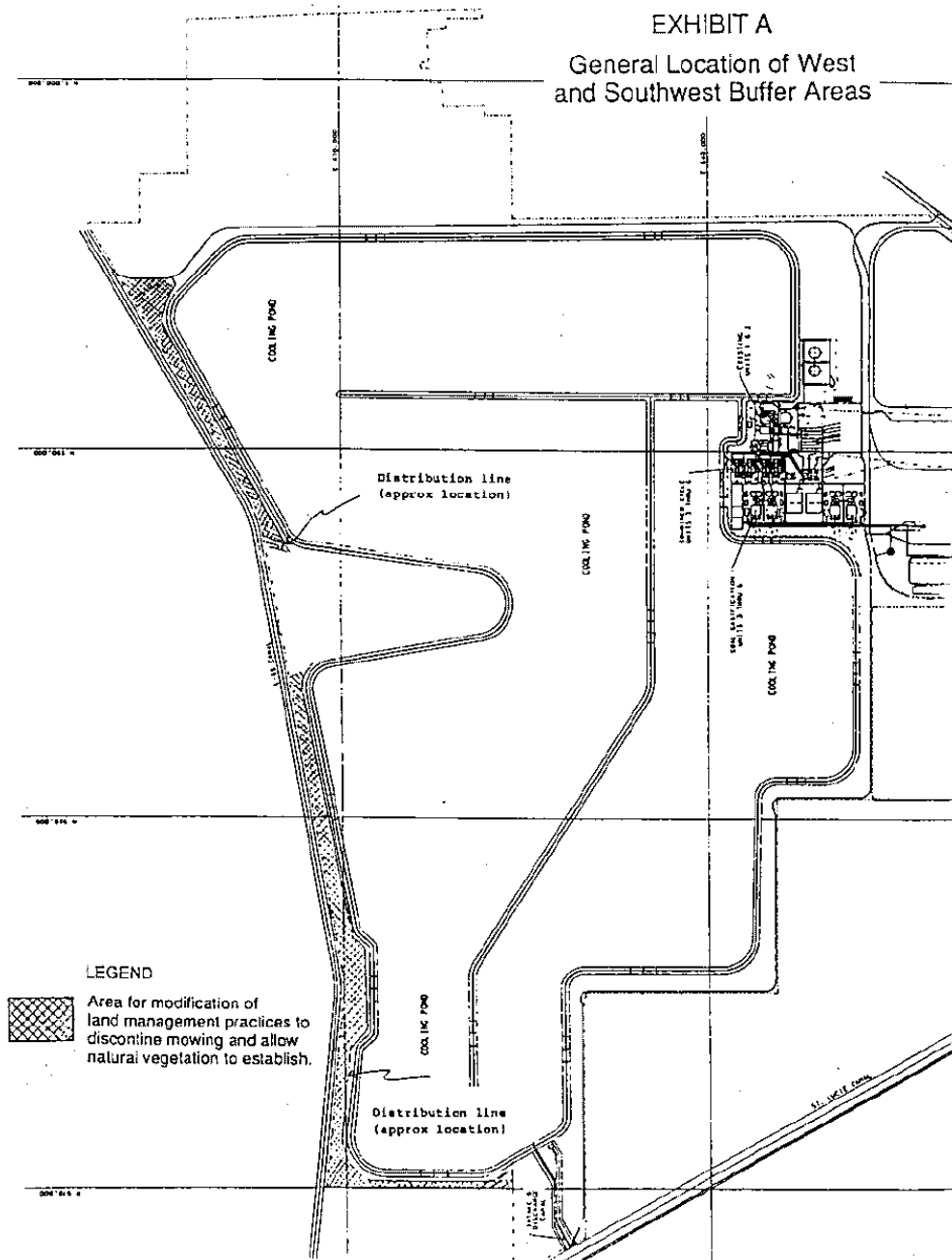
pH	20.5000	21.0000	21.5000	22.0000	22.5000	23.0000	23.5000	24.0000	24.5000	25.0000
6.0000	0.0412	0.0427	0.0443	0.0459	0.0476	0.0493	0.0511	0.0530	0.0549	0.0569
6.1000	0.0518	0.0538	0.0557	0.0578	0.0599	0.0621	0.0644	0.0667	0.0691	0.0716
6.2000	0.0653	0.0677	0.0702	0.0727	0.0754	0.0782	0.0810	0.0839	0.0870	0.0901
6.3000	0.0821	0.0852	0.0883	0.0916	0.0949	0.0984	0.1020	0.1060	0.1090	0.1130
6.4000	0.1030	0.1070	0.1110	0.1150	0.1190	0.1240	0.1280	0.1330	0.1380	0.1430
6.5000	0.1300	0.1350	0.1400	0.1450	0.1500	0.1560	0.1620	0.1670	0.1730	0.1800
6.6000	0.1640	0.1700	0.1760	0.1830	0.1890	0.1960	0.2030	0.2110	0.2180	0.2260
6.7000	0.2060	0.2140	0.2220	0.2300	0.2380	0.2470	0.2560	0.2650	0.2750	0.2840
6.8000	0.2590	0.2690	0.2790	0.2890	0.3000	0.3100	0.3220	0.3330	0.3450	0.3580
6.9000	0.3260	0.3380	0.3510	0.3640	0.3770	0.3900	0.4050	0.4190	0.4340	0.4500
7.0000	0.4100	0.4250	0.4410	0.4570	0.4740	0.4910	0.5090	0.5270	0.5460	0.5660
7.1000	0.5160	0.5350	0.5550	0.5750	0.5960	0.6170	0.6400	0.6630	0.6870	0.7110
7.2000	0.6490	0.6730	0.6970	0.7230	0.7490	0.7760	0.8040	0.8330	0.8630	0.8940
7.3000	0.8150	0.8450	0.8760	0.9080	0.9410	0.9750	1.0100	1.0500	1.0800	1.1200
7.4000	1.0200	1.0600	1.1000	1.1400	1.1800	1.2200	1.2700	1.3100	1.3600	1.4100
7.5000	1.2900	1.3300	1.3800	1.4300	1.4800	1.5400	1.5900	1.6500	1.7100	1.7700
7.6000	1.6100	1.6700	1.7300	1.8000	1.8600	1.9300	2.0000	2.0700	2.1400	2.2200
7.7000	2.0200	2.1000	2.1700	2.2500	2.3300	2.4100	2.5000	2.5900	2.6800	2.7700
7.8000	2.5300	2.6300	2.7200	2.8200	2.9200	3.0200	3.1300	3.2400	3.3500	3.4700
7.9000	3.1700	3.2800	3.4000	3.5200	3.6400	3.7700	3.9000	4.0400	4.1800	4.3300
8.0000	3.9600	4.1000	4.2400	4.3900	4.5500	4.7000	4.8700	5.0300	5.2100	5.3800
8.1000	4.9300	5.1000	5.2800	5.4700	5.6600	5.8500	6.0500	6.2600	6.4700	6.6900
8.2000	6.1300	6.3400	6.5600	6.7900	7.0200	7.2500	7.5000	7.7500	8.0100	8.2700
8.3000	7.6000	7.8600	8.1200	8.3900	8.6800	8.9600	9.2600	9.5600	9.8800	10.2000
8.4000	9.3800	9.6900	10.0000	10.3000	10.7000	11.0000	11.4000	11.7000	12.1000	12.5000
8.5000	11.5000	11.9000	12.3000	12.7000	13.1000	13.5000	13.9000	14.4000	14.8000	15.3000
8.6000	14.1000	14.5000	15.0000	15.5000	15.9000	16.4000	16.9000	17.4000	17.9000	18.5000
8.7000	17.1000	17.6000	18.2000	18.7000	19.3000	19.8000	20.4000	21.0000	21.6000	22.2000
8.8000	20.6000	21.2000	21.8000	22.5000	23.1000	23.7000	24.4000	25.1000	25.7000	26.4000
8.9000	24.7000	25.3000	26.0000	26.7000	27.4000	28.2000	28.9000	29.6000	30.4000	31.1000
9.0000	29.2000	29.9000	30.7000	31.5000	32.3000	33.0000	33.8000	34.6000	35.5000	36.3000
9.1000	34.2000	35.0000	35.8000	36.6000	37.5000	38.3000	39.2000	40.0000	40.9000	41.7000
9.2000	39.5000	40.4000	41.2000	42.1000	43.0000	43.9000	44.8000	45.7000	46.5000	47.4000
9.3000	45.1000	46.0000	46.9000	47.8000	48.7000	49.6000	50.5000	51.4000	52.3000	53.2000
9.4000	50.9000	51.8000	52.7000	53.6000	54.5000	55.4000	56.2000	57.1000	58.0000	58.9000
9.5000	56.6000	57.5000	58.3000	59.2000	60.1000	60.9000	61.8000	62.6000	63.5000	64.3000
9.6000	62.1000	63.0000	63.8000	64.6000	65.5000	66.3000	67.1000	67.8000	68.6000	69.4000
9.7000	67.4000	68.2000	68.9000	69.7000	70.5000	71.2000	71.9000	72.7000	73.4000	74.0000
9.8000	72.2000	72.9000	73.7000	74.3000	75.0000	75.7000	76.3000	77.0000	77.6000	78.2000
9.9000	76.6000	77.2000	77.9000	78.4000	79.1000	79.7000	80.3000	80.8000	81.4000	81.9000
10.0000	80.5000	81.0000	81.6000	82.1000	82.6000	83.2000	83.6000	84.1000	84.6000	85.1000

Percent Un-ionized Ammonia in Aqueous Ammonia Solution

Temperature: Degrees Celsius

pH	5.5000	6.0000	6.5000	7.0000	7.5000	8.0000	8.5000	9.0000	9.5000	10.0000
6.0000	0.0130	0.0136	0.0141	0.0147	0.0153	0.0159	0.0166	0.0172	0.0179	0.0186
6.1000	0.0164	0.0171	0.0178	0.0185	0.0192	0.0200	0.0208	0.0217	0.0225	0.0235
6.2000	0.0206	0.0215	0.0224	0.0233	0.0242	0.0252	0.0262	0.0273	0.0284	0.0295
6.3000	0.0260	0.0270	0.0282	0.0293	0.0305	0.0317	0.0330	0.0344	0.0357	0.0372
6.4000	0.0327	0.0340	0.0354	0.0369	0.0384	0.0400	0.0416	0.0432	0.0450	0.0469
6.5000	0.0412	0.0429	0.0446	0.0464	0.0483	0.0503	0.0523	0.0544	0.0566	0.0589
6.6000	0.0518	0.0539	0.0562	0.0585	0.0608	0.0633	0.0659	0.0685	0.0713	0.0741
6.7000	0.0652	0.0679	0.0707	0.0736	0.0766	0.0797	0.0829	0.0862	0.0897	0.0933
6.8000	0.0821	0.0855	0.0890	0.0926	0.0964	0.1000	0.1040	0.1090	0.1130	0.1170
6.9000	0.1030	0.1080	0.1120	0.1170	0.1210	0.1260	0.1310	0.1370	0.1420	0.1480
7.0000	0.1300	0.1350	0.1410	0.1470	0.1530	0.1590	0.1650	0.1720	0.1790	0.1860
7.1000	0.1640	0.1700	0.1770	0.1850	0.1920	0.2000	0.2080	0.2160	0.2250	0.2340
7.2000	0.2060	0.2140	0.2230	0.2320	0.2420	0.2520	0.2620	0.2720	0.2830	0.2940
7.3000	0.2590	0.2700	0.2810	0.2920	0.3040	0.3160	0.3290	0.3420	0.3560	0.3700
7.4000	0.3260	0.3390	0.3530	0.3680	0.3830	0.3980	0.4140	0.4310	0.4480	0.4660
7.5000	0.4100	0.4270	0.4440	0.4620	0.4810	0.5010	0.5210	0.5420	0.5630	0.5860
7.6000	0.5160	0.5370	0.5590	0.5820	0.6050	0.6290	0.6550	0.6810	0.7080	0.7360
7.7000	0.6480	0.6750	0.7020	0.7310	0.7600	0.7910	0.8230	0.8550	0.8900	0.9250
7.8000	0.8150	0.8480	0.8830	0.9190	0.9550	0.9940	1.0300	1.0700	1.1200	1.1600
7.9000	1.0200	1.0700	1.1100	1.1500	1.2000	1.2500	1.3000	1.3500	1.4000	1.4600
8.0000	1.2900	1.3400	1.3900	1.4500	1.5100	1.5700	1.6300	1.6900	1.7600	1.8300
8.1000	1.6100	1.6800	1.7500	1.8200	1.8900	1.9600	2.0400	2.1200	2.2100	2.2900
8.2000	2.0200	2.1000	2.1900	2.2800	2.3700	2.4600	2.5600	2.6600	2.7600	2.8700
8.3000	2.5300	2.6300	2.7400	2.8500	2.9600	3.0800	3.2000	3.3200	3.4500	3.5800
8.4000	3.1700	3.2900	3.4200	3.5600	3.7000	3.8400	3.9900	4.1500	4.3100	4.4700
8.5000	3.9500	4.1100	4.2700	4.4400	4.6100	4.7900	4.9700	5.1600	5.3600	5.5600
8.6000	4.9300	5.1200	5.3200	5.5300	5.7400	5.9600	6.1800	6.4200	6.6600	6.9100
8.7000	6.1300	6.3600	6.6100	6.8600	7.1200	7.3900	7.6600	7.9500	8.2400	8.5400
8.8000	7.5900	7.8800	8.1800	8.4800	8.8000	9.1200	9.4600	9.8000	10.2000	10.5000
8.9000	9.3700	9.7200	10.1000	10.5000	10.8000	11.2000	11.6000	12.0000	12.5000	12.9000
9.0000	11.5000	11.9000	12.4000	12.8000	13.3000	13.7000	14.2000	14.7000	15.2000	15.7000
9.1000	14.1000	14.6000	15.1000	15.6000	16.1000	16.7000	17.2000	17.8000	18.4000	19.0000
9.2000	17.1000	17.7000	18.3000	18.9000	19.5000	20.1000	20.8000	21.4000	22.1000	22.8000
9.3000	20.6000	21.3000	22.0000	22.7000	23.4000	24.1000	24.8000	25.6000	26.3000	27.1000
9.4000	24.6000	25.4000	26.2000	27.0000	27.7000	28.6000	29.4000	30.2000	31.0000	31.9000
9.5000	29.2000	30.0000	30.9000	31.7000	32.6000	33.5000	34.4000	35.3000	36.2000	37.1000
9.6000	34.1000	35.1000	36.0000	36.9000	37.8000	38.8000	39.7000	40.7000	41.6000	42.6000
9.7000	39.5000	40.5000	41.4000	42.4000	43.4000	44.4000	45.3000	46.3000	47.3000	48.3000
9.8000	45.1000	46.1000	47.1000	48.1000	49.1000	50.1000	51.1000	52.1000	53.1000	54.0000
9.9000	50.8000	51.9000	52.9000	53.9000	54.8000	55.8000	56.8000	57.8000	58.7000	59.7000
10.0000	56.6000	57.6000	58.5000	59.5000	60.5000	61.4000	62.3000	63.3000	64.2000	65.1000

Exhibit A to Condition XXXVI.B.



XLII. APPENDIX 1 - Permit 0850001-016-AC

APPENDIX 1

January 16, 2007

Electronically Sent – Received Receipt Requested

Mr. Craig Arcari, Plant General Manager
Martin Power Plant
Florida Power & Light Company
700 Universe Boulevard
Juno Beach, Florida 33408

Re: DEP File No. 0850001-016-AC
PSD-FL-146C and PSD-FL-327B
Combined Cycle Units 3, 4 and 8

Dear Mr. Arcari:

The Florida Department of Environmental Protection (“the Department”) reviewed your application to make some minor modifications to the PSD Permits related to Combined Cycle Units 3, 4 and 8 in conjunction with issuance of a Title V Operation Permit Renewal that incorporates the recently constructed Unit 8. The changes primarily address startup, testing, and as-built equipment descriptions.

The PSD Permit for Unit 8 has not yet expired. Therefore the changes requested will be addressed as an Air Construction Permit Modification and will also address the requests related to Units 3 and 4 to make them enforceable so they can be included in the requested Title V Operation Permit Renewal.

The Department addressed each request in its Technical Evaluation dated December 1, 2006. Following are the new conditions and changes to previous conditions applicable to Units 3, 4 and 8.

NEW CONDITIONS APPLICABLE TO COMBINED CYCLE UNITS 3 AND 4

The following condition supersedes Specific Condition No. 1 of PSD-FL-146 as previously modified on September 6, 1996.

1. Permitted Capacity. The maximum heat input to each Combustion Turbine (CT) shall neither exceed 1966 mmBtu/hr while firing natural gas, nor 1846 mmBtu/hr while firing fuel oil @ 40 degrees F. These heat input limitations are subject to change. Any changes shall be provided at least 90 days before commercial operation for each fuel available to the site which a unit is capable of firing, at which time this condition may be modified to reflect those parameters. Each combined cycle’s fuel consumption shall be continuously determined and recorded.

Operation During Testing. Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. Permitted capacity and operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department.

If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for

no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity.

If tested at less than capacity, the entire heat input versus inlet temperature curves will be adjusted by the increment equal to the difference between the design heat input value and 110 percent of the value reached during the test. Data, curves, and calculations necessary to demonstrate the heat input rate correction at both design and test conditions shall be submitted to the Department with the compliance test report.

[Rule 62-4.160(2), Rule 62-297.310(2), and Rule 62-210.200(PTE), F.A.C.; PSD-FL-146 and PSD-FL-146A (0850001-002 and 0850001-003-AC issued 9/6/96); Specific Condition No. 1. Rescission of Guidance DARM-EM-05; and Applicant Request dated April 5, 2006, Permit No. 0850001-016-AC.]

The following condition supersedes Specific Condition No. 10 of PSD-FL-146 as previously modified on September 6, 1996.

10. Compliance Test Methods: Tests shall be conducted using EPA reference methods, or equivalent, in accordance with 40 CFR 60 Appendix A.

Pollutant	EPA Reference Method	Initial testing		Annual testing	
		Gas	Oil	Gas	Oil
Particulate Matter (PM)	5 or 17		X		X
Sulfuric Acid Mist (SAM)	8		X		
Visible Emissions (VE)	9	X	X	X	X
Carbon Monoxide (CO)	10	X	X	X	X
Nitrogen Oxides (NOx)	7E, 20	X	X	X	X
Volatile Organic Compounds	18, 25 or 25A**	X	X		
	Test Method				
Lead (Pb)	EMTIC Test Method, or Method 7090, or 7091*		X		
Beryllium (Be)	EMTIC Test Method, or Method 104, or Method 7090, or 7091*		X		
Sulfur content	ASTM D 2880-96		X		X
	ASTM D 1072-90(94) E-1, ASTM D 3031-81(86), ASTM D 4084-94, or ASTM D 3246-92	X		X	
Mercury (Hg)	40 CFR 61, Appendix B EPA Reference Method 101*	X	X		

* Method 3040 sample extraction shall be used as described in the EPA solid waste regulations SW 846.

** EPA Method 18 may be conducted to account for the non-regulated methane fraction of the measured VOC emissions.

The stack test for each turbine shall be performed within 10% of the maximum heat rate input for the tested operating temperature. See Specific Condition No.1 of PSD-FL-146C for utilization of ambient temperature versus heat input curves during compliance testing.

Initial (I) compliance tests shall be performed on each Combustion Turbine using both fuels (based on information provided by the applicant, initial testing using distillate oil has not been done). It is not necessary to plan the firing of a fuel solely to complete the initial compliance test; instead, the initial test may be postponed until such time as the untested fuel is ready for service.

Annual (A) compliance tests shall be conducted for each combustion turbine to demonstrate compliance with the permitted emissions standards for normal gas firing, gas firing with power augmentation, and backup distillate oil firing. CO and NO_x performance tests shall be conducted concurrently. If conducted at permitted capacity, NO_x emissions data collected during the annual NO_x continuous monitor RATA required pursuant to 40 CFR 75 may be substituted for the required annual performance test. Tests required on an annual basis shall be conducted at least once during each federal fiscal year (October 1st to September 30th).

For each combustion turbine that fires distillate oil for less than 400 hours during the previous federal fiscal year, the annual performance tests when firing distillate oil for the current federal fiscal year of operation are not required. Combustion turbines firing more than 400 hours on oil will also be required to demonstrate compliance with PM standards.

For each combustion turbine that operates with power augmentation for less than 400 hours during the previous federal fiscal year, the annual performance tests when operating with power augmentation for the current federal fiscal year of operation are not required. During power augmentation each unit shall comply with the emissions limits stated in Specific Condition No.4 of PSD-FL-146.

[40 CFR Appendix A; Rule 62-204.800, F.A.C. and Rule 62-297.310(7)(a)4., F.A.C.; PSD-FL-146, Specific Condition No. 10; and applicant request letter dated April 5, 2006.]

MODIFICATIONS OF AIR CONSTRUCTION/PSD PERMIT 327 - COMBINED CYCLE UNIT 8

Specific conditions listed in Section III, Part A, No. 3, and No. 16, the entire Part B, and Part D, No. 1 are hereby modified; new Specific Condition No. 5 is added to Part D as shown below. Double-underline denotes additions and strikethrough (~~strikethrough~~) indicates deletions.

Section III, Part A - Combined Cycle Gas Turbines (EU 011, 012, 017 and 018)

Specific Condition No. 3 is modified as follows:

Gas Turbines: The permittee is authorized to install, tune, operate, and maintain four General Electric Model PG7241FA gas turbine-electrical generator sets each with a generating capacity of 170 MW. Each gas turbine shall include a modern ~~the Speedtronic™~~ automated gas turbine control system and have dual-fuel capability. Ancillary equipment includes an inlet air filtration system, an evaporative inlet air-cooling system, and a bypass stack for simple cycle operation. The gas turbines will utilize the “hot nozzle” DLN combustors, ~~which require natural gas to be preheated to approximately 290° F before combustion to increase overall unit efficiency.~~ Gas-fired Electric fuel heaters will preheat the natural gas during simple cycle operation and during startup to combined cycle operation. For full combined cycle operation, feedwater heat exchangers will preheat the natural gas.

Specific Condition No. 16.a is modified as follows:

Steam Turbine/HRSG System Cold Startup: For cold startup of the steam turbine system, excess emissions from any gas turbine/HRSG system shall not exceed ~~six~~ eight hours in any 24-hour period. Cold startup of the steam turbine system shall be completed within twelve hours. A cold “startup of the steam turbine system” is defined as startup of the 4-on-1 combined cycle system following a shutdown of the steam turbine lasting at least 48 hours. {Permitting Note: During a cold startup of the steam turbine system, each gas turbine/HRSG system is sequentially brought on line at low load to gradually increase the temperature of the steam-electrical turbine and prevent thermal metal fatigue. Note that shutdowns and documented malfunctions are separately regulated in accordance with the requirements of this condition.}

Specific Condition No. 16.d is modified as follows:

Fuel Switching: For ~~oil-to-gas~~ fuel switching (oil to gas or gas to oil), excess emissions shall not exceed one (1) hour in any 24-hour period.

The rest of Specific Condition 16 is unchanged.

Section III, Part B. Gas-Fired Fuel Heaters (EU 013)

This Part is deleted since FP&L installed Electrical Heaters to heat the fuel.

Section III, Part C. Cooling Tower (EU 020)

Specific Condition No. 1 is modified as follows:

Cooling Tower: The permittee installed one new 22-cell mechanical draft cooling tower with the following design characteristics: a circulating water flow rate of 310,000 gpm; design hot/cold water temperatures of 104° F/90° F; a design air flow rate of 1,386,055 per cell; a liquid-to-gas air flow ratio of 1.4; and drift eliminators with a drift rate of no more than 0.001 percent. ~~The permittee shall submit the final design details within 60 days of selecting the vendor.~~ [Application; Design]

(No other changes were made to Section III, Part C)

Section III, Part D. Distillate Oil Storage Tank (EU 014)

Specific Condition No. 1 is modified as follows:

NSPS Subpart Kb Applicability: The distillate oil tanks are not subject to Subpart Kb, which applies to any storage tank with a capacity greater than or equal to 10,300 gallons (40 cubic meters) that is used to store volatile organic liquids for which construction, reconstruction, or modification is commenced after July 23, 1984. Tanks with a capacity greater than or equal to 40,000 gallons (151 cubic meters) storing a liquid with a maximum true vapor pressure less than 3.5 kPa are exempt from the General Provisions (40 CFR 60, Subpart A) and from the provisions of NSPS Subpart Kb. ~~except for the record keeping requirements specified below.~~

[40 CFR 60.110b(a) and (c) and Rule 62-204.800(7)(b), F.A.C.]

A new condition, Specific Condition No. 5, is added to Section III, Part D as follows:

Fuel Oil Records: The permittee shall keep readily accessible records showing the maximum true vapor pressure of the stored liquid. The maximum true vapor pressure shall be less than 3.5 kPa. Compliance with this condition may be demonstrated by using the information from the respective MSDS for the low or ultralow sulfur fuel oil stored in the tanks.

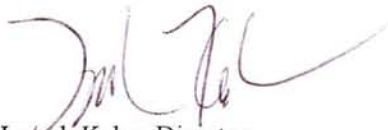
[62-4.070(3) F.A.C.]

{Permitting Note: An evaluation of several Material Safety Data Sheets (MSDS) by the Department demonstrated that the vapor pressure is much less than 3.5 kPa for low sulfur fuel oil and for ultralow sulfur fuel oil.}

(No other changes were made to Section III, Part D)

A copy of this letter shall be filed with the referenced permit and shall become part of the permit. Any party to this permitting decision (order) has the right to seek judicial review of it under Section 120.68 of the Florida Statutes, by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.



Joseph Kahn, Director
Division of Air Resource Management

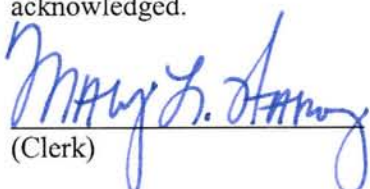
CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this FINAL PERMIT MODIFICATION was sent by electronic mail (with Received Receipt) before the close of business on 1/17/07 to the person(s) listed:

Craig Arcari, Florida Power & Light Company: craig_arcari@fpl.com
John Hampp, Florida Power & Light Company: john_hampp@fpl.com
Darrel Graziani, P.E., Southeast District Office: darrel.graziani@dep.state.fl.us
Jim Little, U.S. EPA, Region 4: little.james@epamail.epa.gov
Kennard F. Kosky, P.E., Golder Associates, Inc.: kkosky@golder.com
Mike Halpin, P.E., Siting Office: mike.halpin@dep.state.fl.us

Clerk Stamp

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


(Clerk) 1/17/07
(Date)

XLIII. APPENDIX 2 – Permit 0850001-017-AV

APPENDIX 2

Florida Power & Light Company
Martin Plant
Facility ID No. **0850001**
Martin County

DRAFT Permit Revision No. **0850001-017-AV**
Revision to **FINAL** Title V Permit No. **0850001-013-AV**

Permitting Authority:

State of Florida
Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation
Title V Section

Mail Station #5505
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Telephone: 850/488-0114
Fax: 850/922-6979

Compliance Authority:

Department of Environmental Protection
Southeast District
400 North Congress Avenue
West Palm Beach, Florida 33401-5425
Telephone: 407/681-6600
Fax: 407/681-6790

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Permittee

Florida Power & Light Company
700 Universe Boulevard
Juno Beach, FL 33408

DRAFT Permit Revision No. 0850001-017-AV**Facility ID No. 0850001****SIC Nos.:** 49, 4911**Project:** Title V Air Operation Permit Revision

The purpose of this permit is to revise the Title V Air Operation Permit by incorporating the "4 on 1" new 1,150 MW combined cycle gas turbines system, identified as Unit 8. This facility is located 7 miles North of Indiantown on State Road 710, Indiantown, Martin County; UTM Coordinates: Zone 17, 542.68 km East and 2992.65 km North; Latitude: 27° 03' 25" North and Longitude: 80° 33' 55" West.

This Title V air operation permit revision is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, 62-213, and 62-214. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the permitting authority, in accordance with the terms and conditions of this permit revision.

Referenced attachments made a part of this permit revision:

Appendix I-1, List of Insignificant Emissions Units and/or Activities
Appendix U-1, List of Unregulated Emissions Units and/or Activities
APPENDIX TV-4, TITLE V CONDITIONS (version dated 02/12/02)
APPENDIX SS-1, STACK SAMPLING FACILITIES (version dated 10/27/96)
Phase II Acid Rain Part Renewal Application received July 3, 2003
NSPS Custom Fuel Monitoring Schedule dated October 14, 1997
Appendix CP-1, Compliance Plan dated August 29, 2003, updated August 21, 2006.
Appendix A, NSPS Subpart A, General Provisions
Appendix A-1, NESHAP Subpart A, General Provisions
Appendix Da, NSPS Subpart Da Requirements for Duct Burners
Appendix GG, NSPS Subpart GG Requirements for Gas Turbines
Appendix SC, Standard Conditions
Appendix BD, Best Available Control Technology Determination
Appendix Dc: NSPS Requirements for Small Steam Generating Units, 40 CFR 60, Subpart Dc.
Appendix DDDDD: NESHAP Subpart DDDDD, Requirements for Industrial, Commercial, and Institutional Boilers and Process Heaters.
Appendix GG: NSPS Requirements for Gas Turbines, 40 CFR 60, Subpart GG.
Appendix ZZZZ: NESHAP Subpart ZZZZ, Requirements for Stationary Reciprocating Internal Combustion Engines.
FIGURE 1, Summary Report- Gaseous and Opacity Excess Emissions and Monitoring System Performance Report

Revision Effective Date:**Renewal Effective Date:** January 1, 2004**Renewal Application Due Date:** July 5, 2008**Expiration Date:** December 31, 2008

Joseph Kahn, P.E., Acting Director
Division of Air Resource
Management

JK/TLV/SMS/TH

Section I. Facility Information

Subsection A. Facility Description

This facility consists of two oil and natural gas fired conventional fossil fuel steam electric generating stations (Units 1 and 2), two oil and natural gas fired combined cycle units (Units 3 and 4), four two oil and natural gas fired combined-cycle combustion turbines (Unit 8), and associated support equipment.

Unit 1 and 2 fossil fuel fired steam electric generators, each consists of a boiler/steam generator which drives a single reheat turbine generator, and is equipped with low NO_x dual fuel firing burners to reduce emissions of nitrogen oxides; and, multicyclones, with fly ash reinjection, to control particulate matter emissions. The maximum capacity of each generator is 863.3 megawatts (MW).

Units 3 and 4 combined cycle combustion turbine systems (two “2-on-1” sets) consist of two General Electric Model PG7221(FA) combustion turbines (CTs) each nominally rated at 170 MW, with matched unfired heat recovery steam generator (HRSG) and a 160 MW single steam turbine-electrical generator that serves each pair of gas turbines/HRSG system. In addition, the system also includes inlet foggers installed at the compressor inlet to each of the CTs which reduce the turbine inlet air temperature. The temperature reduction improves the heat rate and increases power due to the cooler/denser inlet air. Nitrogen oxide emissions are controlled by using dry low NO_x combustors for natural gas with steam injection for fuel oil firing. Steam injection is also used for power augmentation. The total generating capacity of each turbine system is approximately 500 MW.

Unit 8 combined cycle combustion turbine system (“4-on-1”) consists of four General Electric Model PG7241(FA), each nominally rated at 170 MW, with matched 495 MMBtu/hr gas-fired heat recovery steam generator (HRSG), and a 470 MW single steam turbine-electrical generator that serves all four gas turbines/HRSG systems. In addition, the system also includes an automated gas turbine control system, inlet air filtration systems, evaporative inlet air cooling systems, exhaust stacks that are 120 feet in height and 19 feet in diameter, and associated support equipment. Natural gas is the primary fuel, with very low sulfur distillate oil as a limited backup fuel. Emissions of CO, PM/PM₁₀, SO₂, and VOC are minimized by the efficient combustion of these clean fuels at high temperatures. Dry low-NO_x (DLN) combustion technology for gas firing and water injection for oil firing reduce NO_x emissions during simple cycle operation. A selective catalytic reduction system in combination with the other NO_x controls further reduces NO_x emissions during combined cycle operation. The total generating capacity of the turbines system is approximately 1150 MW.

This facility also includes one auxiliary boiler, two diesel generators (one unregulated), two storage oil tanks, a mechanical cooling tower, and four natural gas fuel heaters. Also included in this permit are two unregulated emissions units identified as facility-wide particulate matter emissions, and facility-wide VOC emissions.

Based on the Title V permit Revision application received on March 3, 2006, this facility is a major source of hazardous air pollutants (HAPs).

Subsection B. Summary of Emissions Unit ID Nos. and Brief Descriptions

E.U. ID No.	Brief Description
-001	Fossil Fuel Fired Steam Generator No. 1
-002	Fossil Fuel Fired Steam Generator No. 2
-003	Combustion Turbine with Heat Recovery Steam Generator (CT 3A)
-004	Combustion Turbine with Heat Recovery Steam Generator (CT 3B)
-005	Combustion Turbine with Heat Recovery Steam Generator (CT 4A)
-006	Combustion Turbine with Heat Recovery Steam Generator (CT 4B)
-007	Auxiliary Boiler (for Units -003 to -006)
-009	Diesel Generator (0.718 MW, for Units -003 to -006)
-011	Combustion Turbine with Heat Recovery Steam Generator (CT 8A)
-012	Combustion Turbine with Heat Recovery Steam Generator (CT 8B)
-013	Four gas-fired fuel heaters for Unit 8
-014	Two distillate oil storage tanks for Unit 8 gas turbines
-017	Combustion Turbine with Heat Recovery Steam Generator (CT 8C)
-018	Combustion Turbine with Heat Recovery Steam Generator (CT 8D)
-019	Mechanical draft cooling tower for Unit 8

Unregulated Emissions Units and/or Activities

-015	Diesel Generator (for Units -001 and -002)
-016	Facility-wide Fugitive Emissions for PM
-016	Facility-wide Fugitive Emissions for VOCs

Please reference the Permit No., Facility ID No., and appropriate Emissions Units ID Nos. on all correspondence, test report submittals, applications, etc.

Subsection C. Relevant Documents

The documents listed below are not a part of this permit, however they are specifically related to this permitting action.

These documents are provided to the permittee for information purposes only:

Table 1-1, Summary of Air Pollution Standards and Terms

Table 2-1, Summary of Compliance Requirements

Appendix A-1, Abbreviations, Acronyms, Citations, and Identification Numbers

Appendix H-1, Permit History/ID Number Changes

Statement of Basis

These documents and all their related applications and correspondence are on file with the permitting authority:

Initial Title V Air Operation Permit 0850001-004-AV effective January 1, 1999

Title V Air Operation Permit Administrative Correction 0850001-006-AV effective July 26, 2000

Title V Air Operation Permit Revision 0850001-007-AV effective July 26, 2000

Title V Air Operation Permit Revision 0850001-012-AV effective June 20, 2003

Title V Air Operation Permit Renewal 0850001-013-AV effective January 1, 2004

Title V Air Operation Permit Revision 0850001-014-AV: Withdrawn

Title V Air Operation Permit Revision 0850001-017-AV: Pending

Section II. Facility-wide Conditions

The following conditions apply facility-wide:

1. Appendix TV-4, Title V Conditions, is a part of this permit.
{Permitting note: Appendix TV-4, Title V Conditions is distributed to the permittee only. Other persons requesting copies of these conditions shall be provided one copy when requested or otherwise appropriate.}
2. **Not federally enforceable:** General Pollutant Emission Limiting Standards. Objectionable Odor Prohibited. The permittee shall not cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 62-296.320(2), F.A.C.]
3. Prevention of Accidental Releases (Section 112(r) of CAA).
 - (a) The permittee shall submit its Risk Management Plan (RMP) to the Chemical Emergency Preparedness and Prevention Office (CEPPO) RMP Reporting Center when, and if, such requirement becomes applicable. Any Risk Management Plans, original submittals, revisions or updates to submittals, should be sent to:

RMP Reporting Center
Post Office Box 3346
Merrifield, VA 22116-3346
Telephone: 703/816-4434

and,
 - (b) The permittee shall submit to the permitting authority Title V certification forms or a compliance schedule in accordance with Rule 62-213.440(2), F.A.C. [40 CFR 68]
4. Insignificant Emissions Units and/or Activities. Appendix I-1, List of Insignificant Emissions Units and/or Activities, is a part of this permit.
[Rules 62-213.440(1), 62-213.430(6), and 62-4.040(1)(b), F.A.C.]
5. Unregulated Emissions Units and/or Activities. Appendix U-1, List of Unregulated Emissions Units and/or Activities, is a part of this permit. [Rule 62-213.440(1), F.A.C.]
6. General Particulate Emission Limiting Standards. General Visible Emissions Standard. Except for emissions units that are subject to a particulate matter or opacity limit set forth or established by rule and reflected by conditions of this permit, no person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20 percent opacity). EPA Method 9 is the method of compliance pursuant to Chapter 62-297, F.A.C.
[Rules 62-296.320(4)(b)1. & 4., F.A.C.]
7. Reasonable precautions to prevent emissions of unconfined particulate matter at this facility shall include the following activities. The following conditions are not federally enforceable:
 - (a) In order to perform sandblasting on fixed plant equipment, sandblasting enclosures shall be constructed and operated as necessary. Thick poly flaps shall be used over doorways to prevent sandblasting material from leaving the facility.
 - (b) Maintenance of paved areas and roads shall be performed as needed.
 - (c) Mowing of grass and care of vegetation shall be done on a regular basis.
 - (d) Access to plant property by unnecessary vehicles shall be controlled and limited. Vehicles shall be restricted to slow speeds at the plant site.
 - (e) Bagged chemical products (e.g., soda ash, di-, tri-, and monosodium phosphate) shall be stored in weather tight buildings until they are used.

(f) Spills of powdered chemical products shall be cleaned up as soon as practical.

[Rule 62-296.320(4)(c)2., F.A.C.; and proposed by applicant in the Title V permit renewal application received on July 3, 2003.]

{Note: This condition implements the requirements of Rules 62-296.320(4)(c)1., 3., & 4., F.A.C. (see Condition 57. of Appendix TV-4, Title V Conditions).}

8. All fugitive dust generated at this site shall be adequately controlled. This includes, but is not limited to, roadway dust. [Rule 62-296.320(4)(c)2, F.A.C.; AC43-4037; and AC43-4038]
9. When appropriate, any recording, monitoring, or reporting requirements that are time-specific shall be in accordance with the effective date of the permit, which defines day one.
[Rule 62-213.440, F.A.C.]
10. The permittee shall submit all compliance related notifications and reports required of this permit to the Department's Southeast District office:

Department of Environmental Protection
Southeast District
400 North Congress Avenue
West Palm Beach, Florida 33416-5425
Telephone: 407/681-6600
Fax: 407/681-6755

11. Please be advised that the Department does not condone nor authorize the permittee to by-pass waste materials from either air or wastewater facilities at any time that would result in a violation of the rules and regulations of the Department. In case of breakdown or lack of proper functioning of the facility causing or likely to cause discharge of improperly treated sewage or air emissions, it shall be the duty of the owner of the facility to promptly notify the Department. In addition to notifying this Department, the permittee shall notify the local County Health Officer. The owner of the impaired facility causing the violation shall be responsible for any and all damages which may result. If violations of State standards occur, enforcement actions may be initiated.
[AC43-4037; and AC43-4038]

12. Any reports, data, notifications, certifications, and requests required to be sent to the United States Environmental Protection Agency, Region 4, should be sent to:

United States Environmental Protection Agency
Region 4
Air, Pesticides & Toxics Management Division
Air and EPCRA Enforcement Branch, Air Enforcement Section
61 Forsyth Street
Atlanta, Georgia 30303
Telephone: 404/562-9155
Fax: 404/562-9163

13. Statement of Compliance. The annual statement of compliance pursuant to Rule 62-213.440(3)(a)2., F.A.C., shall be submitted to the Department and EPA within 60 (sixty) days after the end of the calendar year using DEP Form No. 62-213.900(7), F.A.C.
[Rules 62-213.440(3) and 62-213.900, F.A.C.]

{Permitting Note: This condition implements the requirements of Rules 62-213.440(3)(a)2. & 3., F.A.C. (see Condition 51. of Appendix TV-4, Title V Conditions).}

14. Certification by Responsible Official (RO). In addition to the professional engineering certification required for applications by Rule 62-4.050(3), F.A.C., any application form, report, compliance statement, compliance plan and compliance schedule submitted pursuant to Chapter 62-213, F.A.C., shall contain a certification signed by a responsible official that, based on information and belief

formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. Any responsible official who fails to submit any required information or who has submitted incorrect information shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary information or correct information.
[Rule 62-213.420(4), F.A.C.]

15. Compliance Plan. Appendix CP-1, Compliance Plan, is a part of this permit. Emissions units 011 and 012 have not, to date, been operated under the gas firing with peaking, and/or gas firing with power augmentation modes. Therefore, a compliance plan is included to cover initial testing requirements for these alternate methods of operation for emissions of CO and NO_x. Please see Specific Conditions **H.9**, **H.18** and **H.19**. [Rule 62-213.440(2), F.A.C.]

Section III. Emissions Units and Conditions.

Subsection A. Subsection A. This section addresses the following emissions units.

E.U. ID No.	Brief Description
-001	Fossil Fuel Fired Steam Generator No. 1
-002	Fossil Fuel Fired Steam Generator No. 2

Both emissions units are identical in configuration and each one is an 863.3 MW maximum capacity fossil fuel fired steam generator unit, equipped with low NO_x dual fuel firing burners to reduce emissions of nitrogen oxides; and, multicyclones (mechanical dust collectors), with fly ash reinjection, to control particulate matter emissions. In addition, the units have a continuous emission monitoring system for measuring opacity, NO_x, and sulfur dioxide. Emissions Unit 001 commenced commercial operation in December 1980. Emissions Unit 002 commenced commercial operation in June 1981.

The mechanical dust collectors are excluded from compliance assurance monitoring (CAM), because they are (a) inherent process equipment contained entirely within the flue ductwork, (b) use a passive method of particulate matter separation from the flue gas stream, (c) recover unburned carbon and ash from the flue gas system, and (d) have no moving parts, no control inputs, nor any controllable parameters.

{Permitting note: The emissions units are regulated under Acid Rain, Phase II and NSPS - 40 CFR 60, Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators; adopted and incorporated by reference in Rule 62-204.800(7)(b)1., F.A.C.}

The following conditions apply to the emissions units listed above:

General

- A.1. Definitions. For the purposes of Rule 62-204.800(7), F.A.C., the definitions contained in the various provisions of 40 CFR 60, shall apply except that the term "Administrator" when used in 40 CFR 60, shall mean the Secretary or the Secretary's designee.
[40 CFR 60.2; Rule 62-204.800(7)(a), F.A.C.]

Essential Potential to Emit (PTE) Parameters

- A.2. Permitted Capacity. Each boiler's maximum heat input is 8,650 mmBtu/hr on oil and 9,040 mmBtu/hr on natural gas. When a blend of fuel oil and natural gas is burned, the heat input is prorated based on the percent heat input of each fuel.
[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.; AC43-4037; AC43-4038]
{Permitting note: The heat input limitations have been placed in each permit to identify the capacity of each unit for the purposes of confirming that emissions testing is conducted within 90 to 100 percent of the unit's rated capacity (or to limit future operation to 110 percent of the test load), to establish appropriate emission limits and to aid in determining future rule applicability.}
- A.3. Methods of Operation. Fuels. The only fuels allowed to be burned are low sulfur fuel oil containing a maximum of 0.7% sulfur content, by weight; natural gas; or, a mixture of low sulfur fuel oil containing a maximum of 1.0% sulfur content, by weight, and natural gas in a ratio that shall not exceed the sulfur dioxide emission limiting standard of 0.80 pounds per million Btu heat input. [Rule 62-213.410, F.A.C.; AC43-4037; AC43-4038]
- A.4. Hours of Operation. The emissions units may operate continuously, i.e., 8760 hours/year.
[Rule 62-210.200(PTE), F.A.C.]

Emission Limitations and Standards

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

{Permitting note: Unless otherwise specified, the averaging times for Specific Conditions A.5. through A.11. are based on the specified averaging time of the applicable test method.}

A.5. Particulate Matter. No owner or operator shall cause to be discharged into the atmosphere from each of these emissions units any gases which:

- (a) Contain particulate matter in excess of 43 nanograms per joule heat input (0.10 lb per million Btu) derived from fossil fuel.
- (b) In addition, emissions shall not exceed 865 pounds per hour when firing 100 percent oil. [40 CFR 60.42(a)(1); AO43-170568 and AO43-170567]

A.6. [Reserved.]

A.7. Opacity. The opacity standards set forth in 40 CFR 60 shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard. [40 CFR 60.11(c)]

A.8. Visible Emissions. No owner or operator shall cause to be discharged into the atmosphere from each of these emissions units any gases which exhibit greater than 20 percent opacity except for one six-minute period per hour of not more than 27 percent opacity. [40 CFR 60.42(a)(2)]

A.9. Sulfur Dioxide.

- (a) No owner or operator shall cause to be discharged into the atmosphere from each of these emissions units any gases which contain sulfur dioxide in excess of:
 1. 340 nanograms per joule heat input (0.80 lb per million Btu) derived from liquid fossil fuel.
 2. In addition, emissions shall not exceed 6,920 pounds per hour when firing 100 percent oil.
- (c) Compliance shall be based on the total heat input from all fossil fuels burned, including gaseous fuels.

[40 CFR 60.43(a)(1) and (c); AO43-170568 and AO43-170567]

A.10. Nitrogen Oxides.

- (a) No owner or operator shall cause to be discharged into the atmosphere from each of these emissions units any gases which contain nitrogen oxides, expressed as NO₂ in excess of:
 1. 86 nanograms per joule heat input (0.20 lb per million Btu) derived from gaseous fossil fuel. In addition, emissions shall not exceed 1,808 pounds per hour.
 2. 129 nanograms per joule heat input (0.30 lb per million Btu) derived from liquid fossil fuel. In addition, emissions shall not exceed 2,595 pounds per hour.
- (b) When different fossil fuels are burned simultaneously in any combination, the applicable standard (in lb/mmBtu) is determined by proration using the following formula:

$$PS_{NOx} = [x(.20) + y(.30)] / (x + y)$$

where:

PS_{NOx} = is the prorated standard for nitrogen oxides when burning different fuels simultaneously, in lb/mmBtu heat input derived from all fossil fuels fired;

x = is the percentage of total heat input derived from gaseous fossil fuel;

y = is the percentage of total heat input derived from liquid fossil fuel.

[40 CFR 60.44(a)(1)and (2); 40 CFR 60.44(b); AO43-170568; and AO43-170567.]

- A.11. “On-Specification” Used Oil. Only “on-specification” used oil generated by the Florida Power and Light Company in the production and distribution of electricity shall be fired in these emissions units. The total combined quantity allowed to be fired at these emissions units shall not exceed 1,500,000 gallons per calendar year. “On-specification” used oil is defined as each used oil delivery that meets the 40 CFR 279 (Standards for the Management of Used Oil) specifications listed below. Used oil that does not meet all of the following specifications is considered “off-specification” used oil and shall not be fired. See Specific Conditions A.21., A.42. and A.43.

CONSTITUENT/PROPERTY*	ALLOWABLE LEVEL
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Total Halogens	1000 ppm maximum
Flashpoint	100 degrees F minimum
PCBs	less than 50 ppm

* As determined by approved methods specified in EPA Publication SW-846 (Test Methods for Evaluating Solid Waste, Physical/Chemical Methods).

[40 CFR 279.11; AO43-170568; and AO43-170567]

Excess Emissions

- A.12. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [40 CFR 60.11(d)]

- A.13. In order to minimize excess emissions during startup/shutdown/malfunction the following general procedures shall be followed:

Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration.

[Rules 62-210.700(1) & (2), F.A.C.; AO43-170568, Specific Condition 9.; and AO43-170567, Specific Condition 9.]

- A.14. Excess emission and monitoring system performance reports shall be submitted to the Administrator for every calendar quarter. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter. Each excess emission and MSP report shall include the information required in 40 CFR 60.7(c). Periods of excess emissions and monitoring systems (MS) downtime that shall be reported are defined as follows:

1. Opacity. Excess emissions are defined as any six-minute period during which the average opacity of emissions exceeds 20 percent opacity, except that one six-minute average per hour of up to 27 percent opacity need not be reported.

2. Sulfur dioxide. Excess emissions for affected facilities are defined as:

Any three-hour period during which the average emissions (arithmetic average of three contiguous one-hour periods) of sulfur dioxide as measured by a continuous monitoring system exceed the applicable standard under 40 CFR 60.43.

3. Nitrogen oxides. Excess emissions for affected facilities using a continuous monitoring system for measuring nitrogen oxides are defined as any three-hour period during which the average emissions (arithmetic average of three contiguous one-hour periods) exceed the applicable standards under 40 CFR 60.44.

[40 CFR 60.45(g)(1), (2), & (3)]

Test Methods and Procedures

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

- A.15. Opacity. Compliance with opacity standards in 40 CFR 60 shall be determined by conducting observations in accordance with Reference Method 9 in Appendix A of 40 CFR 60, any alternative method that is approved by the Administrator, or as provided in 40 CFR 60.11(e)(5).
[40 CFR 60.11(b)]
- A.16. Compliance with standards in 40 CFR 60, other than opacity standards, shall be determined in accordance with performance tests established by 40 CFR 60.8, unless otherwise specified in the applicable standard. [40 CFR 60.11(a)]
- A.17. Performance tests shall be conducted under such conditions as the Administrator shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard. [40 CFR 60.8(c)]
- A.18. Compliance.
- (b) The owner or operator shall determine compliance with the particulate matter, SO₂, and NO_x standards in 40 CFR 60.42, 60.43, and 60.44 as follows:
1. The emission rate (E) of particulate matter, SO₂, or NO_x shall be computed for each run using the following equation:
$$E = C F_d (20.9)/(20.9 - \% O_2)$$

Where,

E = emission rate of pollutant, ng/J (1b/million Btu).
C = concentration of pollutant, ng/dscm (1b/dscf).
% O₂ = oxygen concentration, percent dry basis.
F_d = factor as determined from Method 19.
 2. Method 5 shall be used to determine the particular matter concentration (C) at affected facilities without wet flue-gas-desulfurization (FGD) systems and Method 5B shall be used to determine the particulate matter concentration (C) after FGD systems.
 - i. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf). The probe and filter holder heating systems in the sampling train may be set to provide a gas temperature no greater than 160 ± 14 °C (320 ± 25 °F).
 - ii. The emission rate correction factor, integrated or grab sampling and analysis procedure of Method 3B shall be used to determine the O₂ concentration (%O₂). The O₂ sample shall be obtained simultaneously with, and at the same traverse points as, the particulate

- sample. If the grab sampling procedure is used, the O₂ concentration for the run shall be the arithmetic mean of all the individual O₂ sample concentrations at each traverse point.
- iii. If the particulate run has more than 12 traverse points, the O₂ traverse points may be reduced to 12 provided that Method 1 is used to locate the 12 O₂ traverse points.
- 3. Method 9 and the procedures in 40 CFR 60.11 shall be used to determine opacity.
 - 4. Method 6 shall be used to determine the SO₂ concentration.
 - i. The sampling site shall be the same as that selected for the particulate sample. The sampling location in the duct shall be at the centroid of the cross section or at a point no closer to the walls than 1 m (3.28 ft). The sampling time and sample volume for each sample run shall be at least 20 minutes and 0.020 dscm (0.71 dscf). Two samples shall be taken during a 1-hour period, with each sample taken within a 30-minute interval.
 - ii. The emission rate correction factor, integrated sampling and analysis procedure of Method 3B shall be used to determine the O₂ concentration (%O₂). The O₂ sample shall be taken simultaneously with, and at the same point as, the SO₂ sample. The SO₂ emission rate shall be computed for each pair of SO₂ and O₂ samples. The SO₂ emission rate (E) for each run shall be the arithmetic mean of the results of the two pairs of samples.
 - 5. Method 7 shall be used to determine the NO_x concentration.
 - i. The sampling site and location shall be the same as for the SO₂ sample. Each run shall consist of four grab samples, with each sample taken at about 15-minute intervals.
 - ii. For each NO_x sample, the emission rate correction factor, grab sampling and analysis procedure of Method 3B shall be used to determine the O₂ concentration (%O₂). The sample shall be taken simultaneously with, and at the same point as, the NO_x sample.
 - iii. The NO_x emission rate shall be computed for each pair of NO_x and O₂ samples. The NO_x emission rate (E) for each run shall be the arithmetic mean of the results of the four pairs of samples.
- (c) When combinations of fossil fuels are fired, the owner or operator (in order to compute the prorated standard as shown in 40 CFR 60.43(b) and 60.44(b)) shall determine the percentage (x or y) of the total heat input derived from each type of fuel as follows:
- 1. The heat input rate of each fuel shall be determined by multiplying the gross calorific value of each fuel fired by the rate of each fuel burned.
 - 2. ASTM Methods D 240-76 (liquid fuels), or D 1826-77 (gaseous fuels) (incorporated by reference-see 40 CFR 60.17) shall be used to determine the gross calorific values of the fuels.
 - 3. Suitable methods shall be used to determine the rate of each fuel burned during each test period, and a material balance over the steam generating system shall be used to confirm the rate.
- (d) The owner or operator may use the following as alternatives to the reference methods and procedures in 40 CFR 60.46 or in other sections as specified:
- 1. The emission rate (E) of particulate matter, SO₂ and NO_x may be determined by using the Fc factor, provided that the following procedure is used:
 - i. The emission rate (E) shall be computed using the following equation:

$$E = C F_c (100 / \%CO_2)$$

where:

E = emission rate of pollutant, ng/J (lb/million Btu).

C = concentration of pollutant, ng/dscm (lb/dscf).

%CO₂ = carbon dioxide concentration, percent dry basis.

F_c = factor as determined in appropriate sections of Method 19.

- ii. If and only if the average F_c factor in Method 19 is used to calculate E and either E is from 0.97 to 1.00 of the emission standard or the relative accuracy of a continuous emission monitoring system is from 17 to 20 percent, then three runs of Method 3B shall be used to determine the O₂ and CO₂ concentration according to the procedures in 40 CFR 60.46(b) (2)(ii), (4)(ii), or (5)(ii). Then if F_o (average of three runs), as calculated from the equation in Method 3B, is more than ± 3 percent than the average F_o value, as determined from the average values of F_d and F_c in Method 19, i.e., F_{oa} = 0.209 (F_{da} / F_{ca}), then the following procedure shall be followed:
 - (A) When F_o is less than 0.97 F_{oa}, then E shall be increased by that proportion under 0.97 F_{oa}, e.g., if F_o is 0.95 F_{oa}, E shall be increased by 2 percent. This recalculated value shall be used to determine compliance with the emission standard.
 - (B) When F_o is less than 0.97 F_{oa} and when the average difference ($\bar{d}$) between the continuous monitor minus the reference methods is negative, then E shall be increased by that proportion under 0.97 F_{oa}, e.g., if F_o is 0.95 F_{oa}, E shall be increased by 2 percent. This recalculated value shall be used to determine compliance with the relative accuracy specification.
 - (C) When F_o is greater than 1.03 F_{oa} and when $\bar{d}$ is positive, then E shall be decreased by that proportion over 1.03 F_{oa}, e.g., if F_o is 1.05 F_{oa}, E shall be decreased by 2 percent. This recalculated value shall be used to determine compliance with the relative accuracy specification.
2. For Method 5 or 5B, Method 17 may be used at facilities with or without wet FGD systems if the stack gas temperature at the sampling location does not exceed an average temperature of 160 °C (320 °F). The procedures of sections 2.1 and 2.3 of Method 5B maybe used with Method 17 only if it is used after wet FGD systems. Method 17 shall not be used after wet FGD systems if the effluent gas is saturated or laden with water droplets.
3. Particulate matter and SO₂ may be determined simultaneously with the Method 5 train provided that the following changes are made:
 - i. The filter and impinger apparatus in sections 2.1.5 and 2.1.6 of Method 8 is used in place of the condenser (section 2.1.7) of Method 5.
 - ii. All applicable procedures in method 8 for the determination of SO₂ including moisture) are used.
4. For Method 6, Method 6C may be used. Method 6A may also be used whenever Methods 6 and 3B data are specified to determine the SO₂ emission rate, under the conditions in 40 CFR 60.46(d)(1).
5. For Method 7, Method 7A, 7C, 7D, or 7E may be used. If Method 7C, 7D, or 7E is used, the sampling time for each run shall be at least 1 hour and the integrated sampling approach shall be used to determine the O₂ concentration (%O₂) for the emission rate correction factor.

6. For Method 3, Method 3A or 3B may be used.
7. For Method 3B, Method 3A may be used.

[40 CFR 60.46(b), (c) and (d)]

- A.19. Operating Rate During Testing. Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emissions unit operation at permitted capacity, which is defined as 90 to 100 percent of the maximum operation rate at the permitted capacity. If it is impracticable to test at permitted capacity, an emissions unit may be tested at less than the minimum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test load until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity.
[Rules 62-297.310(2) & (2)(b), F.A.C.; AO43-170568, Specific Condition 1.; and AO43-170567, Specific Condition 1.]
- A.20. All compliance tests shall be performed using reference test methods as given in 40 CFR 60, Appendix A, as adopted by reference in Rule 62-297.400, F.A.C. Any deviations from the test methodology in order to facilitate “representative” testing shall be approved by the Department pursuant to Rule 62-297.620, F.A.C., prior to conducting the tests.
[40 CFR 60, Appendix A; Rule 62-297.400, F.A.C.; Rule 62-297.620, F.A.C.; AO43-170568, Specific Condition 3.; and AO43-170567, Specific Condition 3.]
- A.21. Compliance with the “on-specification” used oil requirements will be determined from a sample collected from each batch delivered for firing. See Specific Conditions A.11., A.42., and A.43.
[Rules 62-4.070 and 62-213.440; and 40 CFR 279.]
- A.22. Testing While Injecting Additives. The owner or operator shall conduct emission tests while injecting additives consistent with normal operating practices.
[Rule 62-213.440, F.A.C.; and applicant agreement with EPA on March 3, 1998.]

Continuous Monitoring Requirements

- A.23. The permittee has installed and shall continue to calibrate, maintain, and operate continuous monitoring systems for measuring the opacity of emissions, sulfur dioxide emissions, nitrogen oxides emissions, and carbon dioxide emissions. [40 CFR 60.45(a)]
- A.24. For the purposes of 40 CFR 60.13, all continuous monitoring systems required under applicable subparts shall be subject to the provisions of 40 CFR 60.13 upon promulgation of performance specifications for continuous monitoring systems under Appendix B of 40 CFR 60 and, if the continuous monitoring system is used to demonstrate compliance with emission limits on a continuous basis, Appendix F of 40 CFR 60, unless otherwise specified in an applicable subpart or by the Administrator. Appendix F is applicable December 4, 1987. [40 CFR 60.13(a)]
- A.25. If the owner or operator of an affected facility elects to submit continuous opacity monitoring system (COMS) data for compliance with the opacity standard as provided under 40 CFR 60.11(e)(5), he shall conduct a performance evaluation of the COMS as specified in Performance Specification 1, Appendix B, of 40 CFR 60 before the performance test required under 40 CFR 60.8 is conducted. Otherwise, the owner or operator of an affected facility shall conduct a performance evaluation of the COMS or continuous emission monitoring system (CEMS) during any performance test required under 40 CFR 60.8 or within 30 days thereafter in accordance with the applicable performance specification in Appendix B of 40 CFR 60. The owner or operator of an affected facility shall conduct COMS or CEMS performance evaluations at such other times as may be required by the Administrator under section 114 of the Act. [40 CFR 60.13(c)]
- A.26. The owner or operator of an affected facility subject to an opacity standard may submit, for compliance purposes, continuous opacity monitoring system (COMS) data results produced during

any performance test required under 40 CFR 60.8 in lieu of Method 9 observation data. If an owner or operator elects to submit COMS data for compliance with the opacity standard, he shall notify the Administrator of that decision, in writing, at least 30 days before any performance test required under 40 CFR 60.8 is conducted. Once the owner or operator of an affected facility has notified the Administrator to that effect, the COMS data results will be used to determine opacity compliance during subsequent tests required under 40 CFR 60.8 until the owner or operator notifies the Administrator, in writing, to the contrary. For the purpose of determining compliance with the opacity standard during a performance test required under 40 CFR 60.8 using COMS data, the minimum total time of COMS data collection shall be averages of all 6-minute continuous periods within the duration of the mass emission performance test. Results of the COMS opacity determinations shall be submitted along with the results of the performance test required under 60.8. The owner or operator of an affected facility using a COMS for compliance purposes is responsible for demonstrating that the COMS meets the requirements specified in 40 CFR 60.13(c), that the COMS has been properly maintained and operated, and that the resulting data have not been altered in any way. If COMS data results are submitted for compliance with the opacity standard for a period of time during which Method 9 data indicates noncompliance, the Method 9 data will be used to determine opacity compliance. [40 CFR 60.11(e)(5)]

A.27.

- (1) Owners and operators of all continuous emission monitoring systems (CEMS) installed in accordance with the provisions of this part shall check the zero (or low-level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily in accordance with a written procedure. The zero and span shall, as a minimum, be adjusted whenever the 24-hour zero drift or 24-hour span drift exceeds two times the limits of the applicable performance specifications in Appendix B. The system must allow the amount of excess zero and span drift measured at the 24-hour interval checks to be recorded and quantified, whenever specified. For continuous monitoring systems measuring opacity of emissions, the optical surfaces exposed to the effluent gases shall be cleaned prior to performing the zero and span drift adjustments except that for systems using automatic zero adjustments. The optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds 4 percent opacity.
- (2) Unless otherwise approved by the Administrator, the following procedures shall be followed for continuous monitoring systems measuring opacity of emissions. Minimum procedures shall include a method for producing a simulated zero opacity condition and an upscale (span) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. Such procedures shall provide a system check of the analyzer internal optical surfaces and all electronic circuitry including the lamp and photo detector assembly.

[40 CFR 60.13(d)(1) and (2)]

A.28. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required under 40 CFR 60.13(d), all continuous monitoring systems (CMS) shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

- (1) All continuous monitoring systems referenced by 40 CFR 60.13(c) for measuring opacity of emissions shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.
- (2) All continuous monitoring systems referenced by 40 CFR 60.13(c) for measuring emissions, except opacity, shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

[40 CFR 60.13(e)(1) and (2)]

- A.29. All continuous monitoring systems (CMS) or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. Additional procedures for location of continuous monitoring systems contained in the applicable Performance Specifications of Appendix B of 40 CFR 60 shall be used.

[40 CFR 60.13(f)]

- A.30. When the effluents from a single affected facility or two or more affected facilities subject to the same emission standards are combined before being released to the atmosphere, the owner or operator may install applicable continuous monitoring systems (CMS) on each effluent or on the combined effluent. When the affected facilities are not subject to the same emission standards, separate continuous monitoring systems shall be installed on each effluent. When the effluent from one affected facility is released to the atmosphere through more than one point, the owner or operator shall install an applicable continuous monitoring system on each separate effluent unless the installation of fewer systems is approved by the Administrator. When more than one continuous monitoring system is used to measure the emissions from one affected facility (e.g., multiple breechings, multiple outlets), the owner or operator shall report the results as required from each continuous monitoring system. [40 CFR 60.13(g)]

- A.31. Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to 6-minute averages and for continuous monitoring systems other than opacity to 1-hour averages for time periods as defined in 40 CFR 60.2. Six-minute opacity averages shall be calculated from 36 or more data points equally spaced over each 6-minute period. For continuous monitoring systems other than opacity, 1-hour averages shall be computed from four or more data points equally spaced over each 1-hour period. Data recorded during periods of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this paragraph. An arithmetic or integrated average of all data may be used. The data may be recorded in reduced or non reduced form (e.g., ppm pollutant and percent O₂ or ng/J of pollutant). All excess emissions shall be converted into units of the standard using the applicable conversion procedures specified in subparts. After conversion into units of the standard, the data may be rounded to the same number of significant digits as used in the applicable subparts to specify the emission limit (e.g., rounded to the nearest 1 percent opacity). [40 CFR 60.13(h)]

- A.32. For performance evaluations under 40 CFR 60.13(c) and calibration checks under 40 CFR 60.13(d), the following procedures shall be used:

- (1) Methods 6, 7, and 3B, as applicable, shall be used for the performance evaluations of sulfur dioxide and nitrogen oxides continuous monitoring systems. Acceptable alternative methods for Methods 6, 7, and 3B are given in 40 CFR 60.46(d).
- (2) Sulfur dioxide or nitric oxide, as applicable, shall be used for preparing calibration gas mixtures under Performance Specification 2 of Appendix B to 40 CFR 60.
- (3) For affected facilities burning fossil fuel(s), the span value for a continuous monitoring system measuring the opacity of emissions shall be 80, 90, or 100 percent and for a continuous monitoring system measuring sulfur oxides or nitrogen oxides the span value shall be determined as follows:

Fossil fuel	Span value for sulfur dioxide (ppm)	Span value for nitrogen oxides (ppm)
Gas	{1}	500
Liquid	1,000	500
Combinations	1,000y	500(x+y)

{1}Not applicable.

where:

x = the fraction of total heat input derived from gaseous fossil fuel, and

y = the fraction of total heat input derived from liquid fossil fuel.

- (4) All span values computed under 40 CFR 60.45(c)(3) for burning combinations of fossil fuels shall be rounded to the nearest 500 ppm.
- (5) For a fossil fuel-fired steam generator that simultaneously burns fossil fuel and nonfossil fuel, the span value of all continuous monitoring systems shall be subject to the Administrator's approval.

[40 CFR 60.45(c)]

A.33. For any continuous monitoring system installed under 40 CFR 60.45(a), the following conversion procedures shall be used to convert the continuous monitoring data into units of the applicable standards (ng/J, lb/million Btu):

- (1) When a continuous monitoring system for measuring oxygen is selected, the measurement of the pollutant concentration and oxygen concentration shall each be on a consistent basis (wet or dry). Alternative procedures approved by the Administrator shall be used when measurements are on a wet basis. When measurements are on a dry basis, the following conversion procedure shall be used:

$$E = CF[20.9/(20.9\text{-percent O}_2)]$$

where:

E, C, F, and % O₂ are determined under 40 CFR 60.45(f).

- (2) When a continuous monitoring system for measuring carbon dioxide is selected, the measurement of the pollutant concentration and carbon dioxide concentration shall each be on a consistent basis (wet or dry) and the following conversion procedure shall be used:

$$E = CF_c [100/\text{percent CO}_2]$$

where:

E, C, F_c and %CO₂ are determined under 40 CFR 60.45(f).

[40 CFR 60.45(e)]

A.34. The values used in the equations under 40 CFR 60.45(e) (1) and (2) are derived as follows:

- (1) E = pollutant emissions, ng/J (lb/million Btu).
- (2) C = pollutant concentration, ng/dscm (lb/dscf), determined by multiplying the average concentration (ppm) for each one-hour period by 4.15×10^4 M ng/dscm per ppm (2.59×10^{-9} M lb/dscf per ppm) where M = pollutant molecular weight, g/g-mole (lb/lb-mole). M = 64.07 for sulfur dioxide and 46.01 for nitrogen oxides.
- (3) % O₂, %CO₂ = oxygen or carbon dioxide volume (expressed as percent), determined with equipment specified under 40 CFR 60.45(a).
- (4) F, F_c = a factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted (F), and a factor representing a ratio of the volume of carbon dioxide generated to the calorific value of the fuel combusted (F_c), respectively. Values of F and F_c are given as follows:

- iii. For liquid fossil fuels including crude, residual, and distillate oils, $F = 2.476 \times 10^{-7}$ dscm/J (9,220 dscf/million Btu) and $F_c = 0.384 \times 10^{-7}$ scm CO₂ /J (1,430 scf CO₂ /million Btu).

- iv. For gaseous fossil fuels, $F = 2.347 \times 10^{-7}$ dscm/J (8,740 dscf/million Btu). For natural gas, propane, and butane fuels, $F_c = 0.279 \times 10^{-7}$ scm CO₂ /J (1,040 scf CO₂ /million Btu) for natural gas, 0.322×10^{-7} scm CO₂ /J (1,200 scf CO₂ /million Btu) for propane, and 0.338×10^{-7} scm CO₂ /J (1,260 scf CO₂ /million Btu) for butane.
- (5) The owner or operator may use the following equation to determine an F factor (dscm/J or dscf/million Btu) on a dry basis (if it is desired to calculate F on a wet basis, consult the Administrator) or F_c factor (scm CO₂ /J, or scf CO₂ /million Btu) on either basis in lieu of the F or F_c factors specified in 40 CFR 60.45(f)(4):

SI Units:

$$F = 10^{-6} \frac{[227.2 (\text{pct. II}) + 95.5 (\text{pct. C}) + 35.6 (\text{pct. S}) + 8.7 (\text{pct. N}) - 28.7 (\text{pct. O})]}{\text{GCV}}$$

$$F_c = \frac{2.0 \times 10^{-5} (\text{pct. C})}{\text{GCV}}$$

English Units:

$$F = 10^6 \frac{3.64(\%H) + 1.53(\%C) + 0.57(\%S) + 0.14(\%N) - 0.46(\%O)}{\text{GCV}}$$

SI Units:

$$F_c = \frac{20.0(\%C)}{\text{GCV}}$$

English Units:

$$F_c = \frac{321 \times 10^3 (\%C)}{\text{GCV}}$$

- i. H, C, S, N, and O are content by weight of hydrogen, carbon, sulfur, nitrogen, and oxygen (expressed as percent), respectively, as determined on the same basis as GCV by ultimate analysis of the fuel fired, or computed from results using ASTM method D1137-53(75), D1945-64(76), or D1946-77 (gaseous fuels) as applicable. (These three methods are incorporated by reference-see 40 CFR 60.17.)
 - ii. GCV is the gross calorific value (kJ/kg, Btu/lb) of the fuel combusted determined by the ASTM test method D1826-77 for gaseous fuels as applicable. (This method is incorporated by reference-see 40 CFR 60.17.)
 - iii. For affected facilities which fire both fossil fuels and nonfossil fuels, the F or F_c value shall be subject to the Administrator's approval.
- (6) For affected facilities firing combinations of fossil fuels, the F or F_c factors determined by paragraphs 40 CFR 60.45(f)(4) or (f)(5) shall be prorated in accordance with the applicable formula as follows:

$$F = \sum_{i=1}^n X_i F_i \quad \text{or} \quad F_c = \sum_{i=1}^n X_i (F_c)_i$$

where:

X_i = the fraction of total heat input derived from each type of fuel (e.g. natural gas, etc.)

F_i or (F_c)_i = the applicable F or F_c factor for each fuel type determined in accordance with paragraphs (f)(4) and (f)(5) of this section.

n = the number of fuels being burned in combination.

[40 CFR 60.45(f)]

- A.35. Operation and maintenance of continuous emissions monitoring (CEM) systems shall be carried out according to the requirements of 40 CFR 60; reports thereof shall be submitted to the Department's Southeast District Office within thirty (30) days following each calendar quarter and will include information required under 40 CFR 60.7(c). The Department reserves the right to modify the format of the reports. For any periods of excess emissions, as defined in 40 CFR 60.45(g), the reports shall specify the cause and corrective actions taken as well as the specific operational conditions existing (i.e., steady-state output, load charging rate; sootblowing, limiting, or air preheated steam cleaning sequences), during the period of excess emissions.
[AO43-170568, Specific Condition No. 4; AO43-170567, Specific Condition No. 4]

Recordkeeping and Reporting Requirements

- A.36. The owner or operator subject to the provisions of 40 CFR 60 shall furnish the Administrator written notification as follows:

(4) A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 CFR 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice.

[40 CFR 60.7(a)(4)]

- A.37. The owner or operator subject to the provisions of 40 CFR 60 shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or, any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b)]
- A.38. The owner or operator required to install a continuous monitoring system (CMS) or monitoring device shall submit an excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or a summary report form [see 40 CFR 60.7(d)] to the Administrator semiannually, except when: more frequent reporting is specifically required by an applicable subpart; or, the CMS data are to be used directly for compliance determination, in which case quarterly reports shall be submitted; or, the Administrator, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. All reports shall be postmarked by the 30th day following the end of each calendar half (or quarter, as appropriate). Written reports of excess emissions shall include the following information:
- (1) The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.
 - (2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.
 - (3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
 - (4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

[40 CFR 60.7(c)(1), (2), (3), and (4)]

A.39. The summary report form shall contain the information and be in the format shown in Figure 1 (attached) unless otherwise specified by the Administrator. One summary report form shall be submitted for each pollutant monitored at each affected facility.

- (1) If the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time for the reporting period and CMS downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, only the summary report form shall be submitted and the excess emission report described in 40 CFR 60.7(c) need not be submitted unless requested by the Administrator.
- (2) If the total duration of excess emissions for the reporting period is 1 percent or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, the summary report form and the excess emission report described in 40 CFR 60.7(c) shall both be submitted.

{See attached Figure 1: Summary Report-Gaseous and Opacity Excess Emission and Monitoring System Performance}

[40 CFR 60.7(d)(1) and (2)]

A.40. (1) Notwithstanding the frequency of reporting requirements specified in 40 CFR 60.7(c), an owner or operator who is required by an applicable subpart to submit excess emissions and monitoring systems performance reports (and summary reports) on a quarterly (or more frequent) basis may reduce the frequency of reporting for that standard to semiannual if the following conditions are met:

- i. For 1 full year (e.g., 4 quarterly or 12 monthly reporting periods) the affected facility's excess emissions and monitoring systems reports submitted to comply with a standard under this part continually demonstrate that the facility is in compliance with the applicable standard;
 - ii. The owner or operator continues to comply with all recordkeeping and monitoring requirements specified in 40 CFR 60, Subpart A, and the applicable standard; and
 - iii. The Administrator does not object to a reduced frequency of reporting for the affected facility, as provided in 40 CFR 60.7(e)(2).
- (2) The frequency of reporting of excess emissions and monitoring systems performance (and summary) reports may be reduced only after the owner or operator notifies the Administrator in writing of his or her intention to make such a change and the Administrator does not object to the intended change. In deciding whether to approve a reduced frequency of reporting, the Administrator may review information concerning the source's entire previous performance history during the required recordkeeping period prior to the intended change, including performance test results, monitoring data, and evaluations of an owner or operator's conformance with operation and maintenance requirements. Such information may be used by the Administrator to make a judgment about the source's potential for noncompliance in the future. If the Administrator disapproves the owner or operator's request to reduce the frequency of reporting, the Administrator will notify the owner or operator in writing within 45 days after receiving notice of the owner or operator's intention. The notification from the Administrator to the owner or operator will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.
- (3) As soon as monitoring data indicate that the affected facility is not in compliance with any emission limitation or operating parameter specified in the applicable standard, the frequency of reporting shall revert to the frequency specified in the applicable standard, and the owner or operator shall submit an excess emissions and monitoring systems performance report (and summary report, if required) at the next appropriate reporting period following the noncomplying event. After demonstrating compliance with the applicable standard for another

full year, the owner or operator may again request approval from the Administrator to reduce the frequency of reporting for that standard as provided for in 40 CFR 60.7(e)(1) and (e)(2).

[40 CFR 60.7(e)(1)]

- A.41. The owner or operator subject to the provisions of 40 CFR 60 shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and, all other information required by 40 CFR 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least 5 (five) years following the date of such measurements, maintenance, reports, and records.

[40 CFR 60.7(f); Rule 62-213.440(1)(b)2.b., F.A.C.]

- A.42. Records shall be kept of each delivery of “on-specification” used oil with a statement of the origin of the used oil and the quantity delivered/stored for firing. In addition, monthly records shall be kept of the quantity of “on-specification” used oil fired in these emissions units. The above records shall be maintained in a form suitable for inspection, retained for a minimum of five years, and be made available upon request. See Specific Conditions **A.11.**, **A.21.**, and **A.43.**

[Rule 62-213.440(1)(b)2.b., F.A.C.; and 40 CFR 279.61 and 761.20(e)]

- A.43. The permittee shall include in the “Annual Operating Report for Air Pollutant Emitting Facility” a summary of the “on-specification” used oil analyses for the calendar year and a statement of the total quantity of “on-specification” used oil fired in Fossil Fuel Fired Steam Generators Nos. 1 and 2 during the calendar year. See Specific Conditions **A.11.**, **A.21.**, and **A.42.**

Rule 62-213.440(1)(b)2.b., F.A.C.]

- A.44. Until such time when the Environmental Protection Agency (EPA) promulgates final rules regarding fuel sampling and test methods, the Department will accept the current fuel sampling and analysis program, provided that daily as fired fuel oil samples are composited and analyzed for sulfur content on a monthly basis to demonstrate compliance with fuel oil sulfur content limits. Quarterly reports containing the results of the monthly fuel oil sampling and analysis shall be submitted to the Department no later than thirty (30) days after the end of each quarter.

The permittee shall be allowed 90 days after promulgation of fuel sampling and analysis methods to implement an EPA approved method of monitoring sulfur dioxide emissions either by fuel sampling and analysis methods or continuous in-stack monitoring or other methods as approved under the provisions of 40 CFR 60.45.

[AO43-170568, Specific Condition No. 5; and AO43-170567, Specific Condition No. 5.]

- A.45. COMS for Periodic Monitoring. The owner or operator is required to install continuous opacity monitoring systems (COMS) pursuant to 40 CFR Part 75. The owner or operator shall maintain and operate COMS and shall make and maintain records of opacity measured by the COMS, for purposes of periodic monitoring.

[Rule 62-213.440, F.A.C.; and applicant agreement with EPA on March 3, 1998.]

Miscellaneous

- A.46. Circumvention. No owner or operator subject to the provisions of 40 CFR 60 shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere. [40 CFR 60.12]

- A.47. The emissions units are also subject to the conditions contained in **Subsection E. Common Conditions**.

Subsection B. This section addresses the following emissions units.

E.U. ID No.	Brief Description
-003	Combustion Turbine with Heat Recovery Steam Generator (CT 3A)
-004	Combustion Turbine with Heat Recovery Steam Generator (CT 3B)
-005	Combustion Turbine with Heat Recovery Steam Generator (CT 4A)
-006	Combustion Turbine with Heat Recovery Steam Generator (CT 4B)

All four combined cycle units are identical in configuration. Nitrogen oxide emissions are controlled by using dry low NOx combustors for natural gas with steam injection for fuel oil firing. Steam injection is also used for power augmentation. Inlet foggers installed at the compressor inlet to each of the four CTs reduce the turbine inlet air temperature. The temperature reduction improves the heat rate and increases power due to the cooler/denser inlet air. Duct modules suitable for future installation of selective catalytic reduction (SCR) equipment have been installed on each combined cycle generating unit. Based on information contained in the initial Title V Permit Application, and recent correspondence from the Applicant, only natural gas has been fired in the units to date. Units 003 and 004 commenced commercial operation in February 1994. Units 005 and 006 commenced commercial operation in April 1994.

Compliance assurance monitoring (CAM) is not applicable to these combustion turbines since dry low-NOx combustors when firing natural gas are not considered a pollution control device under 40 CFR 64. When firing distillate fuel oil, the underlying emissions limits are based on CEMS and, therefore, the requirements of CAM are not required.

{Permitting notes: the emissions units are regulated under Acid Rain, Phase II and NSPS - 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines; adopted and incorporated by reference in Rule 62-204.800(7)(b)38., F.A.C.; PSD-FL-146, Prevention of Significant Deterioration (PSD), in Rule 62-212.400, F.A.C.; and Best Available Control Technology (BACT), in Rule 62-212.410, F.A.C.}

The following conditions apply to the emissions units listed above:

General

- B.1. Definitions. For the purposes of Rule 62-204.800(7), F.A.C., the definitions contained in the various provisions of 40 CFR 60, shall apply except that the term "Administrator" when used in 40 CFR 60, shall mean the Secretary or the Secretary's designee. [40 CFR 60.2; Rule 62-204.800(7)(a), F.A.C.]
- B.2. Circumvention. No owner or operator subject to the provisions of 40 CFR 60 shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere. [40 CFR 60.12]

Essential Potential to Emit (PTE) Parameters

- B.3. Permitted Capacity. The maximum heat input to each Combustion Turbine (CT) shall neither exceed 1966 mmBtu/hr while firing natural gas, nor 1846 mmBtu/hr while firing fuel oil @ 40 degrees F. These heat input limitations are subject to change. Any changes shall be provided at least 90 days before commercial operation for each fuel available to the site which a unit is capable of firing, at which time this condition may be modified to reflect those parameters. Each combined cycle's fuel consumption shall be continuously determined and recorded.

Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity.

If tested at less than capacity, the entire heat input versus inlet temperature curves will be adjusted by the increment equal to the difference between the design heat input value and 105 percent of the value reached during the test. Data, curves, and calculations necessary to demonstrate the heat input rate correction at both design and test conditions shall be submitted to the Department with the compliance test report.

[Rules 62-4.160(2), Rule 62-297.310(2), and 62-210.200(PTE), F.A.C.; and PSD-FL-146 and PSD-FL-146A (0850001-002 and 0850001-003-AC issued 9/6/96), Specific Condition No. 1 and Applicant Request dated April 5, 2006, Permit No. 0850001-016-AC]

{Permitting note: The heat input limitations have been placed in each permit to identify the capacity of each unit for the purposes of confirming that emissions testing is conducted within 90 to 100 percent of the unit's rated capacity (or to limit future operation to 110 percent of the test load), to establish appropriate emission limits and to aid in determining future rule applicability.}

B.4. Methods of Operation.

(a) Fuels. Only natural gas or No. 2 fuel oil shall be fired in the CTs.

(b) Inlet Foggers. Operation of the foggers on each unit may not exceed the following limits: 181,661 degree F-hours in aggregate firing natural gas fuel if no distillate fuel is fired. If distillate oil is fired in any of the CTs during a calendar year, the allowable degree F-hours for natural gas shall be decreased by 2.77 degree F-hours for every hour operated on distillate oil fuel. No CT may exceed 4,000 degree F-hours per year firing distillate oil fuel.

{Permitting Note: The permittee shall monitor both the hours of operation for the inlet foggers and the degrees of cooling afforded by the inlet foggers. Computation of the degree-hour will be performed as follows:

Degree-hours = # hours inlet fogger operating time X degrees F of cooling

Degrees of Cooling shall be calculated by subtracting the fogged compressor inlet air temperature from the unfogged compressor inlet temperature (upstream of the fogger). The above calculation shall be performed for each hour of fogger operation. Calculation records shall be maintained on the plant site and made available for inspection upon request.}

The temperature drop across the inlet foggers shall be monitored whenever water is injected at the foggers and hourly average temperature drops shall be calculated and recorded along with hours of operation automatically using a computer system. The product of each hour of fogger operation and the average temperature depression for that hour (degree F-hours) shall be summed for each calendar year and shall be submitted to the DEP SE District Office with the Annual Operating Report. The temperature monitoring system shall be calibrated annually (see Specific Condition **B.52.**).

[PSD-FL-146, Specific Condition No. 3; PSD-FL-146(G); and 0850001-005-AC.]

B.5. Hours of Operation. The emissions units may operate continuously, i.e., 8760 hours/year/CT.
[Rule 62-210.200(PTE), F.A.C.]

Emission Limitations and Standards

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

{Permitting note: Unless otherwise specified, the averaging times for Specific Conditions **B.6.** through **B.8.** are based on the specified averaging time of the applicable test method.}

B.6. The maximum allowable emissions from each CT, in accordance with the BACT determination, shall not exceed the following, at 40 degrees F, except during periods of startup and shutdown:

Pollutant	Fuel	Emission Limitations ^d		
		Concentration	lb/hr/CT	TPY/CT ^a
NO _x	Gas	25 ppmvd @ 15% O ₂	177	3108 (combined gas and oil total)
	Oil	65 ppmvd @ 15% O ₂	461	
VOC ^b	Gas	1.6 ppmvd	3	57 (combined gas and oil total)
	Oil	6 ppmvd	11.0	
CO	Gas	30 ppmvd	94.3	871 (combined gas and oil total)
	Oil	33 ppmvd	105.8	
PM/PM ₁₀	Gas		18	100 (combined gas and oil total)
	Oil		60.6	
Pb	Gas		negligible	0.015 (combined gas and oil total)
	Oil		0.015	
SO ₂	Gas		91.5	568 (combined gas and oil total)
	Oil ^c		920	

^a Tons per year (TPY) emission limits listed for natural gas and oil combined apply as an emissions cap based on limiting oil firing to an annual aggregate of 2,000 hours for the 4 CT's, with compliance to be demonstrated in annual operation reports.

^b Exclusive of background concentrations.

^c Sulfur dioxide emissions based on a maximum of 0.5 percent sulfur content, by weight, in oil for hourly emissions and an average sulfur content of 0.3 percent, by weight, for annual emissions. These sulfur content limitations are subject to change based on the analysis required in PSD Specific Condition No. 12. (See specific condition B.49.)

^d These limitations for Units 5 and 6 shall not be binding for subsequent BACT determinations.

[PSD-FL-146, Specific Condition No. 4.]

B.7. The following emissions, determined by BACT, are tabulated for PSD and inventory purposes:

Pollutant	Fuel	Maximum Allowable Emissions (@40 ° F)	
		lb/hr/CT	TPY/CT ^a
H ₂ SO ₄ Acid Mist ^b	Gas	11.2	70 (combined gas and oil total)
	Oil	113	
Mercury	Gas	0.021	0.34 (combined gas and oil total)
	Oil	0.0052	
Fluoride	Oil	0.055	0.055
Beryllium	Oil	0.004	0.004

^a Tons per year (TPY) emission limits for natural gas and oil combined apply as an emissions cap based on limiting oil firing to an annual aggregate of 2,000 hours for the 4 CT's, with compliance to be demonstrated in annual operation reports.

^b Sulfuric acid mist emissions assume a maximum of 0.5 percent sulfur content, by weight, in fuel oil for hourly emissions and an average sulfur content of 0.3 percent, by weight, for annual emissions.

[PSD-FL-146, Specific Condition No. 5.]

B.8. Opacity. Visible emissions shall neither exceed 10% opacity while burning natural gas, nor 20% opacity while burning distillate oil. [PSD-FL-146, Specific Condition No. 8.]

B.9. Opacity. Compliance with standards in 40 CFR 60, other than opacity standards, shall be determined in accordance with performance tests established by 40 CFR 60.8, unless otherwise specified in the applicable standard. [40 CFR 60.11(a)]

B.10. Opacity. The opacity standards set forth in 40 CFR 60 shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard. [40 CFR 60.11(c)]

B.11. Nitrogen Oxides. Nitrogen oxide emissions from each gas turbine/heat recovery steam generator unit shall be controlled by using dry low NOx combustors for natural gas with steam injection for fuel oil firing. The permittee has installed duct modules suitable for future installation of SCR equipment on each combined cycle generating unit. [PSD-FL-146, Specific Condition No. 9.]

Excess Emissions

B.12. Excess emissions resulting from malfunction shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]

B.13. Excess emissions resulting from startup or shutdown shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized. [Rule 62-210.700(2), F.A.C.]

B.14. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]

- B.15. The excess emissions authorized under Rule 62-210.700(1), F.A.C., shall be extended an additional two hours (four hours total) for a cold steam turbine start for the first CT of a unit. The second CT of each unit shall comply with established emission limits in accordance with Rule 62-210.700(1), F.A.C. [PSD-FL-146, Specific Condition No. 4.]
- B.16. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [40 CFR 60.11(d)]

Monitoring of Operations

- B.17. At all times, including periods of startup, shutdown and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [40 CFR 60.11(d)]
- B.18. The owner or operator of any stationary gas turbine subject to the provisions of 40 CFR 60, Subpart GG and using water injection to control NOX emissions shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. This system shall be accurate to within ± 5.0 percent and shall be approved by the Administrator. This specific condition does not apply if only natural gas is fired in the turbine. [40 CFR 60.334(a)]
- B.19. The owner or operator of any stationary gas turbine subject to the provisions of 40 CFR 60, Subpart GG shall monitor sulfur content and nitrogen content of the fuel being fired in the turbine. The frequency of determination of these values shall be as follows:
- (1) If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.
 - (2) If the turbine is supplied its fuel without intermediate bulk storage, the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Administrator before they can be used to comply with 40 CFR 60.334(b).
- [40 CFR 60.334(b)(1) and (2)]
- B.20. The Martin Plant facility requested approval for and was granted approval to utilize a customized fuel monitoring schedule for natural gas firing, pursuant to 40 CFR 60.334(b). See specific condition **B.19**. The schedule is as follows:

Custom Fuel Monitoring Schedule for Natural Gas (NG)

- (1) Monitoring of fuel nitrogen content shall not be required if NG is the only fuel being fired in the gas turbines.
- (2) Sulfur Monitoring
 - a. Analysis for fuel sulfur content of the natural gas shall be conducted using one of the approved ASTM reference methods for the measurement of sulfur in gaseous fuels, or an

approved alternative method. The reference methods are ASTM D1072-80, ASTM D3031-81, ASTM D3246-81, and ASTM D4084-82, as referenced in 40 CFR 60.335(b)(2), or the latest edition(s).

- b. This custom fuel monitoring schedule shall become effective on the date this permit becomes valid. Effective the date of this custom schedule, sulfur monitoring shall be conducted twice monthly for six months. If this monitoring shows little variability in the fuel sulfur content, and indicates consistent compliance with 40 CFR 60.333, then sulfur monitoring shall be conducted once per quarter for six quarters. If monitoring data is provided by the applicant which demonstrates consistent compliance with the requirements herein the applicant may begin monitoring as per the requirements of 2(c).
 - c. c. If after the monitoring required in item 2(b) above, or herein, the sulfur content of the fuel shows little variability and, calculated as sulfur dioxide, represents consistent compliance with the sulfur dioxide emission limits specified under 40 CFR 60.333, sample analysis shall be conducted twice per annum. This monitoring shall be conducted during the first and third quarters of each calendar year.
 - d. d. Should any sulfur analysis as required in items 2(b) or 2(c) above indicate noncompliance with 40 CFR 60.333, the owner or operator shall notify the Department of such excess emissions and the custom schedule shall be re-examined by the Environmental Protection Agency. Sulfur monitoring shall be conducted weekly during the interim period when this custom schedule is being re-examined.
- (3) If there is a change in fuel supply, the owner or operator must notify the Department of such change for re-examination of this custom schedule. A substantial change in fuel quality shall be considered as a change in fuel supply. Sulfur monitoring shall be conducted weekly during the interim period when this custom schedule is being re-examined.
- (4) Records of sample analysis and fuel supply pertinent to this custom schedule shall be retained for a period of five years, and be available for inspection by personnel of federal, state, and local air pollution control agencies.

[PSD-FL-146; and NSPS Custom Fuel Monitoring Schedule dated 10/14/97.]

Test Methods and Procedures

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

- B.21. To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 percent and are approved by the Department to determine the nitrogen content of the fuel being fired. This specific condition does **not apply** if only natural gas is fired in the turbine. [40 CFR 60.335(a)]
- B.22. The monitoring device of 40 CFR 60.334(a) shall be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with the permitted NO_x standard at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer. This specific condition does **not apply** if only natural gas is fired in the turbine. [40 CFR 60.335(c)(2)]
- B.23. The owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in 40 CFR 60.332 as follows:
- U.S. EPA. Method 20 (40 CFR 60, Appendix A) shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The NO_x emissions shall be determined at each of the load conditions specified

in 40 CFR 60.335(c)(2). See Specific Condition **B.20.** that describes the approved Custom Fuel Monitoring Schedule for Natural Gas for this facility. After initial testing, subsequent annual NO_x compliance tests for NO_x limits that are more stringent than 40 CFR 60, Subpart GG, shall not require an ISO correction or testing at four load points; rather, the testing shall be done at capacity (see Specific Condition **B.3.**). However, when testing shows that NO_x emissions exceed the standard when operating at capacity, the permittee shall recalibrate the NO_x emission control system using emission testing at four load points.

[40 CFR 60.335(c)(3); and applicant request letter dated July 29, 1998]

- B.24. The owner or operator shall determine compliance with the sulfur content standard of 0.5 percent, by weight, as follows: ASTM D 2880-96 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-90(94)E-1, D 3031-81(86), D 4084-94, or D 3246-92 shall be used for the sulfur content of gaseous fuels (incorporated by reference-see 40 CFR 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator. See specific condition B.20 that describes the approved Custom Fuel Monitoring Schedule for Natural Gas for this facility.
[40 CFR 60.335(d)]
- B.25. To meet the requirements of 40 CFR 60.334(b), the owner or operator shall use the methods specified in 40 CFR 60.335 (a) and 40 CFR 60.335(d) of 40 CFR 60.335 to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency. See Specific Condition **B.20** that describes the approved Custom Fuel Monitoring Schedule for Natural Gas for this facility. [40 CFR 60.335(e)]
- B.26. The owner or operator shall provide, or cause to be provided, stack sampling and performance testing facilities as follows:
- (1) Sampling ports adequate for test methods applicable to such facilities.
 - (2) Safe sampling platform(s).
 - (3) Safe access to sampling platform(s).
 - (4) Utilities for sampling and testing equipment.
- [40 CFR 60.8; PSD-FL-146, Specific Condition No. 21]
- B.27. It is not necessary to plan the firing of a fuel solely to complete the initial compliance test, instead, the initial test may be postponed until such time as the untested fuel is ready for service. Initial (I) compliance tests shall be performed on each Combustion Turbine using both fuels. The stack test for each turbine shall be performed within 10% of the maximum heat rate input for the tested operating temperature. Tests shall be conducted using EPA reference methods, or equivalent, in accordance with 40 CFR 60 Appendix A. (Note: based on information provided in the Title V Permit Application, initial testing using distillate oil has **not been done.**) See Specific Condition **B.3** for utilization of ambient temperature versus heat input curves during compliance testing.

Pollutant	EPA Reference Method	Initial testing		Annual testing	
		Gas	Oil	Gas	Oil
Particulate Matter	5 or 17		X		X
Sulfuric Acid Mist	8		X		
Visible Emissions	9	X	X	X	X
Carbon Monoxide	10	X	X	X	X
Nitrogen Oxides	7E, 20	X	X	X	X
Volatile Organic Compounds	18, 25 or 25A	X	X		
	Test Method				
Lead	EMTIC Test Method, or Method 7090, or 7091*		X		
Beryllium	EMTIC Test Method, or Method 104, or Method 7090, or 7091*		X		
Sulfur content	ASTM D 2880-96		X		X
	ASTM D 1072-90(94) E-1, ASTM D 3031-81(86), ASTM D 4084-94, or ASTM D 3246-92	X		X	
Mercury	40 CFR 61, Appendix B EPA Method 101	X	X		

*Method 3040 sample extraction shall be used as described in the EPA solid waste regulations SW 846.

{Note: EPA Method 18 may be conducted to account for the non-regulated methane fraction of the measured VOC emissions}

Annual (A) compliance tests shall be conducted for each combustion turbine to demonstrate compliance with CO, NO_x, PM and visible emissions (VE) standards for normal gas firing, gas firing with power augmentation, and backup distillate oil firing. Tests required on an annual basis shall be conducted at least once during each federal fiscal year (October 1st to September 30th). CO and NO_x performance tests shall be conducted concurrently. If conducted at permitted capacity, NO_x emissions data collected during the annual NO_x continuous monitor RATA required pursuant to 40 CFR 75 may be substituted for the required annual performance test.

For each combustion turbine that fires distillate oil for less than 200 hours during the previous federal fiscal year, the annual performance tests when firing distillate oil for the current federal fiscal year of operation are not required.

For each combustion turbine that operates with power augmentation for less than 200 hours during the previous federal fiscal year, the annual performance tests when operating with power augmentation for the current federal fiscal year of operation are not required.

[40 CFR Appendix A; Rule 62-204,800, F.A.C. and Rule 62-297.310(7)(a)4.,F.A.C.,PSD-FL-146, Specific Condition No. 10; and applicant request letter dated July 28, 1998 and April 5, 2006.]

- B.28. The average sulfur content of the light distillate oil shall not exceed 0.3%, by weight, during any consecutive 12-month period. The maximum sulfur content of the light distillate fuel oil shall not exceed 0.5%, by weight. The 12-month average sulfur content shall be calculated as a weighted average based upon the sulfur content of the oil and the amount burned on a daily basis. Compliance shall be demonstrated in accordance with the requirements of 40 CFR 60.334 by testing for sulfur content, for nitrogen content, and for heating value of oil storage tanks once per day when firing oil using ASTM D 2880-96.
[Rule 62-213.440, F.A.C., applicant agreement with EPA on March 3, 1998, and PSD-FL-146, Specific Condition No. 11]
- B.29. Opacity. Compliance with opacity standards in 40 CFR 60 shall be determined by conducting observations in accordance with Reference Method 9 in Appendix A of 40 CFR 60, any alternative method that is approved by the Administrator, or as provided in 40 CFR 60.11(e)(5).
[40 CFR 60.11(b)]
- B.30. Performance tests shall be conducted under such conditions as the Administrator shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard. [40 CFR 60.8(c)]

Continuous Monitoring Requirements

- B.31. Continuous emissions monitoring shall be installed, operated, and maintained in accordance with 40 CFR 75 for each combined cycle unit to monitor nitrogen oxides.
- (a) Each continuous emissions monitoring system (CEMS) shall meet performance specifications of 40 CFR 75, Appendices A, B, and F.
 - (b) CEMS data shall be recorded and reported in accordance with 40 CFR 75 and 40 CFR 60.7. The excess emissions report shall include periods of startup, shutdown, and malfunction and shall be based on NO_x data corrected to 15 % O₂ and 40 degrees F.
 - (c) A malfunction means any sudden and unavoidable failure of air pollution equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.
 - (d) For purposes of reports required under this permit, excess emissions are defined as any calculated average emission concentration which exceeds the applicable emission limits in specific condition **B.6**. See specific condition **B.39**.
[PSD-FL-146, Specific Condition No. 13]
- B.32. For the purposes of 40 CFR 60.13, all continuous monitoring systems required under applicable subparts shall be subject to the provisions of 40 CFR 60.13 upon promulgation of performance specifications for continuous monitoring systems under Appendix B of 40 CFR 60 and, if the continuous monitoring system is used to demonstrate compliance with emission limits on a continuous basis, Appendix F of 40 CFR 60, unless otherwise specified in an applicable subpart or by the Administrator. Appendix F is applicable December 4, 1987. [40 CFR 60.13(a)]
- B.33. If the owner or operator of an affected facility elects to submit continuous opacity monitoring system (COMS) data for compliance with the opacity standard as provided under 40 CFR 60.11(e)(5), he shall conduct a performance evaluation of the COMS as specified in Performance Specification 1, Appendix B, of 40 CFR 60 before the performance test required under 40 CFR

60.8 is conducted. Otherwise, the owner or operator of an affected facility shall conduct a performance evaluation of the COMS or continuous emission monitoring system (CEMS) during any performance test required under 40 CFR 60.8 or within 30 days thereafter in accordance with the applicable performance specification in Appendix B of 40 CFR 60. The owner or operator of an affected facility shall conduct COMS or CEMS performance evaluations at such other times as may be required by the Administrator under section 114 of the Act. [40 CFR 60.13(c)]

B.34. The owner or operator of an affected facility subject to an opacity standard may submit, for compliance purposes, continuous opacity monitoring system (COMS) data results produced during any performance test required under 40 CFR 60.8 in lieu of Method 9 observation data. If an owner or operator elects to submit COMS data for compliance with the opacity standard, he shall notify the Administrator of that decision, in writing, at least 30 days before any performance test required under 40 CFR 60.8 is conducted. Once the owner or operator of an affected facility has notified the Administrator to that effect, the COMS data results will be used to determine opacity compliance during subsequent tests required under 40 CFR 60.8 until the owner or operator notifies the Administrator, in writing, to the contrary. For the purpose of determining compliance with the opacity standard during a performance test required under 40 CFR 60.8 using COMS data, the minimum total time of COMS data collection shall be averages of all 6-minute continuous periods within the duration of the mass emission performance test. Results of the COMS opacity determinations shall be submitted along with the results of the performance test required under 60.8. The owner or operator of an affected facility using a COMS for compliance purposes is responsible for demonstrating that the COMS meets the requirements specified in 40 CFR 60.13(c), that the COMS has been properly maintained and operated, and that the resulting data have not been altered in any way. If COMS data results are submitted for compliance with the opacity standard for a period of time during which Method 9 data indicates noncompliance, the Method 9 data will be used to determine opacity compliance. [40 CFR 60.11(e)(5)]

B.35.

- (1) Owners and operators of all continuous emission monitoring systems (CEMS) installed in accordance with the provisions of this part shall check the zero (or low-level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily in accordance with a written procedure. The zero and span shall, as a minimum, be adjusted whenever the 24-hour zero drift or 24-hour span drift exceeds two times the limits of the applicable performance specifications in Appendix B. The system must allow the amount of excess zero and span drift measured at the 24-hour interval checks to be recorded and quantified, whenever specified. For continuous monitoring systems measuring opacity of emissions, the optical surfaces exposed to the effluent gases shall be cleaned prior to performing the zero and span drift adjustments except that for systems using automatic zero adjustments. The optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds 4 percent opacity.
- (2) Unless otherwise approved by the Administrator, the following procedures shall be followed for continuous monitoring systems measuring opacity of emissions. Minimum procedures shall include a method for producing a simulated zero opacity condition and an upscale (span) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. Such procedures shall provide a system check of the analyzer internal optical surfaces and all electronic circuitry including the lamp and photo detector assembly.

[40 CFR 60.13(d)(1) and (2)]

B.36. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required under 40 CFR 60.13(d), all continuous monitoring systems (CMS) shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

- (1) All continuous monitoring systems referenced by 40 CFR 60.13(c) for measuring opacity of emissions shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.
- (2) All continuous monitoring systems referenced by 40 CFR 60.13(c) for measuring emissions, except opacity, shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

[40 CFR 60.13(e)(1) and (2)]

- B.37. All continuous monitoring systems (CMS) or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. Additional procedures for location of continuous monitoring systems contained in the applicable Performance Specifications of Appendix B of 40 CFR 60 shall be used.
[40 CFR 60.13(f)]
- B.38. When the effluents from a single affected facility or two or more affected facilities subject to the same emission standards are combined before being released to the atmosphere, the owner or operator may install applicable continuous monitoring systems (CMS) on each effluent or on the combined effluent. When the affected facilities are not subject to the same emission standards, separate continuous monitoring systems shall be installed on each effluent. When the effluent from one affected facility is released to the atmosphere through more than one point, the owner or operator shall install an applicable continuous monitoring system on each separate effluent unless the installation of fewer systems is approved by the Administrator. When more than one continuous monitoring system is used to measure the emissions from one affected facility (e.g., multiple breechings, multiple outlets), the owner or operator shall report the results as required from each continuous monitoring system. [40 CFR 60.13(g)]
- B.39. Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to 6-minute averages and for continuous monitoring systems other than opacity to 1-hour averages for time periods as defined in 40 CFR 60.2. Six-minute opacity averages shall be calculated from 36 or more data points equally spaced over each 6-minute period. For continuous monitoring systems other than opacity, 1-hour averages shall be computed from four or more data points equally spaced over each 1-hour period. Data recorded during periods of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this paragraph. An arithmetic or integrated average of all data may be used. The data may be recorded in reduced or non-reduced form (e.g., ppm pollutant and percent O₂ or ng/J of pollutant). All excess emissions shall be converted into units of the standard using the applicable conversion procedures specified in subparts. After conversion into units of the standard, the data may be rounded to the same number of significant digits as used in the applicable subparts to specify the emission limit (e.g., rounded to the nearest 1 percent opacity). [40 CFR 60.13(h)]

Recordkeeping and Reporting Requirements

- B.40. To determine compliance with the oil firing heat input limitation, the permittee shall maintain daily records of fuel oil consumption and hourly usage for each turbine and heating value for each fuel. All records shall be maintained for a minimum of five (5) years after the date of each record and shall be made available to representatives of the Department upon request.
[PSD-FL-146, Specific Condition No. 14]
- B.41. The permittee shall have required sampling tests of the emissions performed within 60 after achieving the maximum turbine firing rate, but not later than 180 days from the start of operations. Thirty (30) days notice prior to the initial sampling test and fifteen (15) days notice before subsequent annual testing shall be provided to the Southeast District Office. Written reports of the

tests shall be submitted to the Southeast District Office within 45 days of test completion.
[PSD-FL-146, Specific Condition No. 17]

- B.42. Quarterly excess emission reports, in accordance with the July 1, 1996, version of 40 CFR 60.7(c) and 60.334(c), shall be submitted to the Department's Southeast District Office.

Annual reports shall be submitted to the District office in accordance with Rule 62-2.700(7), F.A.C.
[PSD-FL-146, Specific Condition No. 19]

- B.43. For the purpose of reports required under 40 CFR 60.7(c), periods of excess emissions that shall be reported are defined as follows:

Nitrogen oxides. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with the permitted nitrogen oxide standard by the initial performance test required in 40 CFR 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the initial performance test. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under 40 CFR 60.335(a).

[Rule 62-296.800, F.A.C.; 40 CFR 60.334(c)(1)]

- B.44. The owner or operator subject to the provisions of 40 CFR 60 shall furnish the Administrator written notification as follows:

(4)A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 CFR 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice.

[40 CFR 60.7(a)(4)]

- B.45. The owner or operator subject to the provisions of 40 CFR 60 shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or, any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b)]
- B.46. The owner or operator required to install a continuous monitoring system (CMS) or monitoring device shall submit an excess emissions and monitoring systems performance report and/or a summary report form [see 40 CFR 60.7(d)] to the Administrator semiannually, except when: more frequent reporting is specifically required by an applicable subpart; or, the CMS data are to be used directly for compliance determination, in which case quarterly reports shall be submitted; or, the Administrator, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. All reports shall be postmarked by the 30th day following the end of each calendar half (or quarter, as appropriate). Written reports of excess emissions shall include the following information:
- (1) The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

- (2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.
- (3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
- (4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

[40 CFR 60.7(c)(1), (2), (3), and (4)]

B.47. The summary report form shall contain the information and be in the format shown in Figure 1 (attached) unless otherwise specified by the Administrator. One summary report form shall be submitted for each pollutant monitored at each affected facility.

- (1) If the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time for the reporting period and CMS downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, only the summary report form shall be submitted and the excess emission report described in 40 CFR 60.7(c) need not be submitted unless requested by the Administrator.
- (2) If the total duration of excess emissions for the reporting period is 1 percent or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, the summary report form and the excess emission report described in 40 CFR 60.7(c) shall both be submitted.

{See attached Figure 1: Summary Report-Gaseous and Opacity Excess Emission and Monitoring System Performance}

[40 CFR 60.7(d)(1) and (2)]

B.48. Reporting Frequency Reduction.

- (1) Notwithstanding the frequency of reporting requirements specified in 40 CFR 60.7(c), an owner or operator who is required by an applicable subpart to submit excess emissions and monitoring systems performance reports (and summary reports) on a quarterly (or more frequent) basis may reduce the frequency of reporting for that standard to semiannual if the following conditions are met:
 - i. For 1 full year (e.g., 4 quarterly or 12 monthly reporting periods) the affected facility's excess emissions and monitoring systems reports submitted to comply with a standard under this part continually demonstrate that the facility is in compliance with the applicable standard;
 - ii. The owner or operator continues to comply with all recordkeeping and monitoring requirements specified in 40 CFR 60, Subpart A, and the applicable standard; and
 - iii. The Administrator does not object to a reduced frequency of reporting for the affected facility, as provided in 40 CFR 60.7(e)(2).
- (2) The frequency of reporting of excess emissions and monitoring systems performance (and summary) reports may be reduced only after the owner or operator notifies the Administrator in writing of his or her intention to make such a change and the Administrator does not object to the intended change. In deciding whether to approve a reduced frequency of reporting, the Administrator may review information concerning the source's entire previous performance history during the required recordkeeping period prior to the intended change, including performance test results, monitoring data, and evaluations of an owner or operator's conformance with operation and maintenance requirements. Such information may be used by the Administrator to make a judgment about the source's potential for noncompliance in the

future. If the Administrator disapproves the owner or operator's request to reduce the frequency of reporting, the Administrator will notify the owner or operator in writing within 45 days after receiving notice of the owner or operator's intention. The notification from the Administrator to the owner or operator will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.

- (3) As soon as monitoring data indicate that the affected facility is not in compliance with any emission limitation or operating parameter specified in the applicable standard, the frequency of reporting shall revert to the frequency specified in the applicable standard, and the owner or operator shall submit an excess emissions and monitoring systems performance report (and summary report, if required) at the next appropriate reporting period following the noncomplying event. After demonstrating compliance with the applicable standard for another full year, the owner or operator may again request approval from the Administrator to reduce the frequency of reporting for that standard as provided for in 40 CFR 60.7(e)(1) and (e)(2).

[40 CFR 60.7(e)(1)]

- B.49. The owner or operator subject to the provisions of 40 CFR 60 shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and, all other information required by 40 CFR 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least 5 (five) years following the date of such measurements, maintenance, reports, and records.

[40 CFR 60.7(f); Rule 62-213.440(1)(b)2.b., F.A.C.]

Miscellaneous

- B.50. In the supplemental application for approval of Phase II of the Project, the applicant shall include a cumulative air quality impact analysis and a PSD increment consumption analysis for the Everglades National Park Class I area. [PSD-FL-146, Specific Condition No. 12]

- B.51. The emissions units are also subject to the conditions contained in **Subsection E. Common Conditions**.

- B.52. Temperature Monitoring System Calibration. The temperature monitoring system shall be calibrated annually from 10 percent below to 10 percent above its normal operation range by the procedures recommended by the manufacturer. The temperature monitoring system generally consists of a thermocouple, a temperature indicator, and a recorder. The purpose of the calibration is to provide reasonable assurance that the temperature being recorded by the monitoring system is the actual temperature of the inlet air.

If the manufacturer has provided recommended calibration procedures, those procedures should be followed. If the manufacturer has not provided recommended calibration procedures, the following general calibration procedures should be used:

THERMOCOUPLE: The calibration points should bracket the temperature range over which the thermocouple is to be used. The thermocouple should be calibrated against a NIST (National Institute of Standards and Technology) traceable reference thermocouple. The thermocouple may be calibrated using ASTM E 220, Method B. Alternatively, the thermocouple can be replaced each year with a new thermocouple certified by the manufacturer to be accurate to within 0.9% of the temperatures being measured. A certificate of conformance from the manufacturer (certifying that the new thermocouple conforms to published specifications) will satisfy the annual calibration requirements.

TEMPERATURE INDICATOR: The instrument, which converts voltage output from the thermocouple to a temperature reading, can be calibrated by applying known voltages (mv), and reading the reported temperatures. The voltage values should correspond to the voltages generated by the thermocouple for temperatures over a range from 10% below to 10% above the inlet air temperatures to be used. The reference voltage supply should be accurate to within 0.1% of the reading.

RECORDER: The strip chart recorder or digital data acquisition system should be connected to the temperature indicator during its calibration and can be calibrated at the same time. The recorder should be adjusted to reproduce the readings of the temperature indicator.

The temperature monitoring system calibration error should not exceed 1% of the temperature reading.

[PSD-FL-146(G); 0850001-005-AC; and, Rule 62-297.310(5)(b)]

Subsection C. This section addresses the following emissions unit.

E.U. ID No.	Brief Description
-007	Auxiliary Boiler

This emissions unit is used to produce steam (60,000 lb/hr) to actuate the steam seals on the steam turbine components of the combined-cycle units (Emissions Units 003, 004, 005, and 006) during cold starts when steam is not otherwise available for this purpose. Initial startup of Emissions Unit 007 was on July 15, 1993.

Because the unit has no installed pollution control devices, the unit is not subject to compliance assurance monitoring (CAM).

{Permitting Notes: The emissions unit is regulated under NSPS - 40 CFR 60.40c, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units; adopted and incorporated by reference in Rule 62-204.800(8), F.A.C.; and 40 CFR 63, Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, or Institutional Boilers or Process Heaters, adopted by reference in Rule 62-204.800(11), F.A.C., Rule 212.400, F.A.C.; Prevention of Significant Deterioration (PSD), Best Available Control Technology (BACT); and Air Construction Permits PSD-FL-146}.

The following conditions apply to the emissions unit listed above:

General

- C.1. Definitions. For the purposes of Rule 62-204.800(7), F.A.C., the definitions contained in the various provisions of 40 CFR 60, shall apply except that the term "Administrator" when used in 40 CFR 60, shall mean the Secretary or the Secretary's designee. [40 CFR 60.2; Rule 62-204.800(7)(a), F.A.C.]
- C.2. Circumvention. No owner or operator subject to the provisions of 40 CFR 60 shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere. [40 CFR 60.12]

Essential Potential to Emit (PTE) Parameters

- C.3. Hours of Operation. The auxiliary boiler shall operate only during startup and shutdown of the combined-cycle units, and for periodic maintenance testing. [Rule 62-210.200(PTE), F.A.C.; PSD-FL-146, revised 7/19/93]
- C.4. Fuels. Only natural gas or No. 2 light distillate fuel oil shall be fired in the auxiliary boiler. Based on the Title V Permit Application, the unit is currently only capable of firing natural gas. [PSD-FL-146, Specific Condition No. 3]

Emission Limitations and Standards

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

{Permitting note: Unless otherwise specified, the averaging times for Specific Conditions C.5. through C.10. are based on the specified averaging time of the applicable test method.}

- C.5. Visible Emissions. Visible emissions shall not exceed twenty (20) percent opacity (6-minute average), except for one six-minute period per hour of not more than twenty seven (27) percent

- opacity. This standard applies at all times, except during periods of startup, shutdown, or malfunction. [40 CFR 60.43c(c) & (d)]
- C.6. Compliance with standards in 40 CFR 60, other than opacity standards, shall be determined in accordance with performance tests established by 40 CFR 60.8, unless otherwise specified in the applicable standard. [40 CFR 60.11(a)]
- C.7. Opacity. The opacity standards set forth in 40 CFR 60 shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard. [40 CFR 60.11(c)]
- C.8. Sulfur Dioxide. Sulfur dioxide emissions limitations for the auxiliary steam boiler are established by firing natural gas or limiting the light distillate fuel oil's average sulfur content to 0.3%, by weight, during any consecutive 12-month period. The 12-month average sulfur content shall be calculated as a weighted average based upon the sulfur content of the oil and the amount burned on a daily basis.
[Rule 62-213.440, F.A.C., applicant agreement with EPA on March 3, 1998, and PSD-FL-146, revised 7/19/93]
- C.9. For units listed under 40 CFR 60.42c(h)(1), compliance with the emission limits or fuel oil sulfur limits under this section may be determined based on a certification from the fuel supplier, as described under 40 CFR 60.48c(f)(1), as applicable.
- (1) Distillate oil-fired units with heat input capacities between 2.9 and 29 MW (10 and 100 million Btu/hr).
[40 CFR 60.42c(h)(1)]
- C.10. Nitrogen Oxides. NO_x emissions for the auxiliary steam boiler shall not exceed 0.3 lb/mmBtu for natural gas firing or oil firing. [PSD-FL-146, revised 7/19/93]

Test Methods and Procedures

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

- C.11. Compliance and performance test methods and procedures for sulfur dioxide. Compliance with the percent reduction requirements and SO₂ emission limits under 40 CFR 60.42c is based on the average percent reduction and the average SO₂ emission rates for 30 consecutive steam generating unit operating days. A separate performance test is completed at the end of each steam generating unit operating day, and a new 30-day average percent reduction and SO₂ emission rate are calculated to show compliance with the standard. **Note:** no annual testing is required if operational hours are less than 400 hours per year on oil. However, testing is required for permit renewal purposes. [40 CFR 60.44c(c); and, Rule 62-297.310(7), F.A.C.]
- C.12. If only oil is combusted in a unit, the procedures in Method 19 are used to determine the hourly SO₂ emission rate (E_h) and the 30-day average SO₂ emission rate (E_a). The hourly averages used to compute the 30-day averages are obtained from the continuous emission monitoring system (CEMS). Method 19 shall be used to calculate E_a when using daily fuel sampling or Method 6B.
- E_h is defined as the hourly average pollutant rate, in ng/J (lb/million Btu heat input), and
- E_a , defined as the average pollutant rate for the specified performance test period, in ng/J (lb/million Btu heat input), is computed using the following equation:

$$E_a = (1/H) \sum_{j=1}^n E_{hj}$$

Where

H= total number of operating hours for which pollutant rates are determined in the performance test period.

[40 CFR 60.44c(d) & 40 CFR 60, Appendix A.]

C.13. EPA Method 9 shall be used for determining the opacity of stack emissions.

[40 CFR 60.45c(a)(7)]

C.14. Testing for the sulfur content, for the nitrogen content, and for the heating value of oil storage tanks shall be conducted once per day when firing oil using ASTM D 2880-96.

[PSD-FL-146, Specific Condition No. 11.]

C.15. Opacity. Compliance with opacity standards in 40 CFR 60 shall be determined by conducting observations in accordance with Reference Method 9 in Appendix A of 40 CFR 60, any alternative method that is approved by the Administrator, or as provided in 40 CFR 60.11(e)(5).

[40 CFR 60.11(b)]

C.16. Performance tests shall be conducted under such conditions as the Administrator shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard. [40 CFR 60.8(c)]

Recordkeeping and Reporting Requirements

C.17.

- (b) The owner or operator of each unit subject to the SO₂ emission limits of 40 CFR 60.42c, or the PM or opacity limits of 40 CFR 60.43c, shall submit to the Administrator the performance test data from the initial and any subsequent performance tests.
- (d) The owner or operator of each unit subject to the SO₂ emission limits, fuel oil sulfur limits, or percent reduction requirements under 40 CFR 60.42c shall submit quarterly reports to the Administrator. The initial quarterly report shall be postmarked by the 30th day of the third month following the completion of the initial performance test. Each subsequent quarterly report shall be postmarked by the 30th day following the end of the reporting period.
- (e) The owner or operator of each unit subject to the SO₂ emission limits, fuel oil sulfur limits, or percent reduction requirements under 40 CFR 60.42c shall keep records and submit quarterly reports as required under 40 CFR 60.48c(d), including the following information, as applicable.
 - (1) Calendar dates covered in the reporting period.
 - (2) Each 30-day average SO₂ emission rate (ng/J or lb/million Btu), or 30-day average sulfur content (weight percent), calculated during the reporting period, ending with the last 30-day period in the quarter; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.
 - (3) Each 30-day average percent of potential SO₂ emission rate calculated during the reporting period, ending with the last 30-day period in the quarter; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.
 - (4) Identification of any steam generating unit operating days for which SO₂ or diluent (oxygen or carbon dioxide) data have not been obtained by an approved method for at least 75 percent of the operating hours; justification for not obtaining sufficient data; and a description of corrective actions taken.

- (5) Identification of any times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and a description of corrective actions taken if data have been excluded for periods other than those during which coal or oil were not combusted in the steam generating unit.
 - (6) Identification of the F factor used in calculations, method of determination, and type of fuel combusted.
 - (7) Identification of whether averages have been obtained based on CEMS rather than manual sampling methods.
 - (11) If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under 40 CFR 60.48c(f)(1), (2), or (3), as applicable. In addition to records of fuel supplier certifications, the quarterly report shall include a certified statement signed by the owner or operator of the unit that the records of fuel supplier certifications submitted represent all of the fuel combusted during the quarter.
- (f) Fuel supplier certification shall include the following information:
- (1) For distillate oil:
 - i. The name of the oil supplier; and
 - ii. A statement from the oil supplier that the oil complies with the specifications under the following definition of distillate oil:

"Distillate oil means fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396-78, "Standard Specification for Fuel Oils"."
 - (g) The owner or operator of each unit shall record and maintain records of the amounts of each fuel combusted during each day.
 - (h) The owner or operator of each unit subject to a Federally enforceable requirement limiting the annual capacity factor for any fuel or mixture of fuels under 40 CFR 60.42c or 40 CFR 60.43c shall calculate the annual capacity factor individually for each fuel combusted. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of the calendar month.
 - i. All records required under this section shall be maintained by the owner or operator of the affected facility for a period of 5 (five) years following the date of such record. **Note:** As long as the auxiliary boiler operates only during startup and shutdown and for periodic maintenance testing, **C.17(d)** and **(e)** requirements under this specific condition are not applicable. See specific condition **C.3**.

[40 CFR 60.48c]

- C.18. The owner or operator subject to the provisions of 40 CFR 60 shall furnish the Administrator written notification as follows:

(4) A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 CFR 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice.

[40 CFR 60.7(a)(4)]

C.19. The owner or operator subject to the provisions of 40 CFR 60 shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or, any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b)]

C.20. Reporting Frequency Reduction.

- (1) Notwithstanding the frequency of reporting requirements specified in 40 CFR 60.7(c), an owner or operator who is required by an applicable subpart to submit excess emissions and monitoring systems performance reports (and summary reports) on a quarterly (or more frequent) basis may reduce the frequency of reporting for that standard to semiannual if the following conditions are met:
 - i. For 1 full year (e.g., 4 quarterly or 12 monthly reporting periods) the affected facility's excess emissions and monitoring systems reports submitted to comply with a standard under this part continually demonstrate that the facility is in compliance with the applicable standard;
 - ii. The owner or operator continues to comply with all recordkeeping and monitoring requirements specified in 40 CFR 60, Subpart A, and the applicable standard; and
 - iii. The Administrator does not object to a reduced frequency of reporting for the affected facility, as provided in 40 CFR 60.7(e)(2).
- (2) The frequency of reporting of excess emissions and monitoring systems performance (and summary) reports may be reduced only after the owner or operator notifies the Administrator in writing of his or her intention to make such a change and the Administrator does not object to the intended change. In deciding whether to approve a reduced frequency of reporting, the Administrator may review information concerning the source's entire previous performance history during the required recordkeeping period prior to the intended change, including performance test results, monitoring data, and evaluations of an owner or operator's conformance with operation and maintenance requirements. Such information may be used by the Administrator to make a judgment about the source's potential for noncompliance in the future. If the Administrator disapproves the owner or operator's request to reduce the frequency of reporting, the Administrator will notify the owner or operator in writing within 45 days after receiving notice of the owner or operator's intention. The notification from the Administrator to the owner or operator will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.
- (3) As soon as monitoring data indicate that the affected facility is not in compliance with any emission limitation or operating parameter specified in the applicable standard, the frequency of reporting shall revert to the frequency specified in the applicable standard, and the owner or operator shall submit an excess emissions and monitoring systems performance report (and summary report, if required) at the next appropriate reporting period following the noncomplying event. After demonstrating compliance with the applicable standard for another full year, the owner or operator may again request approval from the Administrator to reduce the frequency of reporting for that standard as provided for in 40 CFR 60.7(e)(1) and (e)(2).
Note: As long as the auxiliary boiler operates only during startup and shutdown and for periodic maintenance testing, requirements under this specific condition are not applicable. See Specific Condition C.3.

[40 CFR 60.7(e)(1)]

C.21. The owner or operator subject to the provisions of 40 CFR 60 shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous

monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and, all other information required by 40 CFR 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least 5 (five) years following the date of such measurements, maintenance, reports, and records.
[40 CFR 60.7(f); Rule 62-213.440(1)(b)2.b., F.A.C.]

- C.22. This emissions unit is also subject to the conditions contained in **Subsection E. Common Conditions.**

Subsection D. This section addresses the following emissions unit.

E.U. ID No.	Brief Description
-009	Diesel Generator

This unit is used to supply power to Emissions Units 003, 004, 005, and 006 during power outages. The nameplate rating is 0.718 MW. Emissions are uncontrolled.

NESHAP and NSPS Applicability

{Permitting Notes: The emissions unit is regulated under 40 CFR 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) adopted in Rule 62-204.800(11) F.A.C., Rule 212.400, F.A.C.; Prevention of Significant Deterioration (PSD), Best Available Control Technology (BACT); and Air Construction Permits PSD-FL-146}.

The following specific conditions apply to the emissions unit listed above:

Essential Potential to Emit (PTE) Parameters

D.1. Hours of Operation. The diesel generator shall operate only for emergency power generation or periodic operational testing. [Rule 62-210.200(PTE), F.A.C.; and PSD-FL-146, revised 7/19/93.]

Emission Limitations and Standards

{Permitting note: Table 1-1, Summary of Air Pollutant Standards and Terms, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

{Permitting note: Unless otherwise specified, the averaging times for Specific Conditions D.2. through D.3. are based on the specified averaging time of the applicable test method.}

D.2. Nitrogen Oxides. NO_x emissions for the diesel generator shall not exceed 15.0 grams/hp-hr. [PSD-FL-146, revised 7/19/93.]

D.3. Sulfur Dioxide. Sulfur dioxide emissions limitations for the diesel generator are established by limiting the light distillate fuel oil's average sulfur content to 0.3%, by weight, during any consecutive 12-month period. The 12-month average sulfur content shall be calculated as a weighted average based upon the sulfur content of the oil and the amount burned on a daily basis. [Rule 62-213.440, F.A.C.; applicant agreement with EPA on March 3, 1998; and PSD-FL-146, revised 7/19/93.]

Test Methods and Procedures

{Permitting note: Table 2-1, Summary of Compliance Requirements, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

D.4. Distillate fuel oil fired in the emergency diesel generator shall meet the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D 396-78 (or the latest edition), "Standard Specifications for Fuel Oils." Compliance with these specifications shall be verified with a fuel analysis provided by the vendor upon each fuel delivery. [Requested by the applicant in electronic memorandum dated 09/18/97.]

Subsection E. Common Conditions.

E.U. ID No.	Brief Description
-001	Fossil Fuel Fired Steam Generator #1
-002	Fossil Fuel Fired Steam Generator #2
-003	Combustion Turbine with Heat Recovery Steam Generator (CT 3A)
-004	Combustion Turbine with Heat Recovery Steam Generator (CT 3B)
-005	Combustion Turbine with Heat Recovery Steam Generator (CT 4A)
-006	Combustion Turbine with Heat Recovery Steam Generator (CT 4B)
-007	Auxiliary Boiler
-011	Combustion Turbine with Heat Recovery Steam Generator (8A)
-012	Combustion Turbine with Heat Recovery Steam Generator (8B)
-017	Combustion Turbine with Heat Recovery Steam Generator (8C)
-018	Combustion Turbine with Heat Recovery Steam Generator (8D)
-013	Four gas-fired fuel heaters
-014	Two distillate oil storage tanks for Unit 8 gas turbines
-019	Mechanical draft cooling tower for Unit 8

The following conditions apply to the emissions units listed above:

Test Methods and Procedures

E.1. Required Number of Test Runs. For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five day period allowed for the test, the Secretary or his or her designee may accept the results of the two complete runs as proof of compliance, provided that the arithmetic mean of the results of the two complete runs is at least 20 percent below the allowable emission limiting standards. [Rule 62-297.310(1), F.A.C.]

E.1.1. Calculation of Emission Rate. The indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule.
[Rule 62-297.310(3), F.A.C.]

E.2. Applicable Test Procedures.

(a) Required Sampling Time.

1. Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes.

2. Opacity Compliance Tests. When either EPA Method 9 or DEP Method 9 is specified as the applicable opacity test method, the required minimum period of observation for a compliance test shall be sixty (60) minutes for emissions units which emit or have the potential to emit 100 tons per year or more of particulate matter, and thirty (30) minutes for emissions units which have potential emissions less than 100 tons per year of particulate matter and are not subject to a multiple-valued opacity standard. The opacity test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. Exceptions to these requirements are as follows:
 - a. For batch, cyclical processes, or other operations which are normally completed within less than the minimum observation period and do not recur within that time, the period of observation shall be equal to the duration of the batch cycle or operation completion time.
 - b. The observation period for special opacity tests that are conducted to provide data to establish a surrogate standard pursuant to Rule 62-297.310(5)(k), F.A.C., Waiver of Compliance Test Requirements, shall be established as necessary to properly establish the relationship between a proposed surrogate standard and an existing mass emission limiting standard.
 - c. The minimum observation period for opacity tests conducted by employees or agents of the Department to verify the day-to-day continuing compliance of a unit or activity with an applicable opacity standard shall be twelve minutes.
- (b) Minimum Sample Volume. Unless otherwise specified in the applicable rule, the minimum sample volume per run shall be 25 dry standard cubic feet.
- (c) Required Flow Rate Range. For EPA Method 5 particulate sampling, acid mist/sulfur dioxide, and fluoride sampling which uses Greenburg Smith type impingers, the sampling nozzle and sampling time shall be selected such that the average sampling rate will be between 0.5 and 1.0 actual cubic feet per minute, and the required minimum sampling volume will be obtained.
- (d) Calibration of Sampling Equipment. Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1.

TABLE 297.310-1
CALIBRATION SCHEDULE

ITEM	MINIMUM CALIBRATION FREQUENCY	REFERENCE INSTRUMENT	TOLERANCE
Liquid in glass thermometer	Annually	ASTM Hg in glass reference thermometer or equivalent, or thermometric points	+/-2%
Bimetallic thermometer	Quarterly	Calibration liquid in glass thermometer	5 degrees F
Thermocouple	Annually	ASTM Hg in glass reference thermometer, NBS calibrated reference and potentiometer	5 degrees F
Barometer	Monthly	Hg barometer or NOAA station	+/-1% scale
Pitot Tube	When required or when damaged	By construction or measurements in wind tunnel D greater than 16" and standard pitot tube	See EPA Method 2, Figures 2-2 and 2-3
Probe Nozzles	Before each test, or when nicked, dented, or corroded	Micrometer	+/-0.001" mean of the last three readings; maximum deviation between readings .004"
Dry gas meter and Orifice Meter	1. Full scale: when received, when 5% change observed, annually. 2. One point: Semiannually. 3. Check after each test series.	Spirometer or calibrated wet test or dry gas test meter Comparison check	2% 5%

- (e) Allowed Modification to EPA Method 5. When EPA Method 5 is required, the following modification is allowed: the heated filter may be separated from the impingers by a flexible tube. [Rule 62-297.310(4), F.A.C.]

E.3. Determination of Process Variables.

- (a) **Required Equipment.** The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
- (b) **Accuracy of Equipment.** Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

[Rule 62-297.310(5), F.A.C.]

E.4. The permittee shall comply with the requirements contained in APPENDIX SS-1, Stack Sampling Facilities, attached to this permit. [Rule 62-297.310(6), F.A.C.]

E.5. Frequency of Compliance Tests. The following provisions apply only to those emissions units that are subject to an emissions limiting standard for which compliance testing is required.

(a) General Compliance Testing.

3. The owner or operator of an emissions unit that is subject to any emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining a renewed operation permit. Emissions units that are required to conduct an annual compliance test may submit the most recent annual compliance test to satisfy the requirements of this provision. In renewing an air operation permit pursuant to Rule 62-210.300(2)(a)3.b., c., or d., F.A.C., the Department shall not require submission of emission compliance test results for any emissions unit that, during the year prior to renewal:
 - a. Did not operate; or
 - b. In the case of a fuel burning emissions unit, burned liquid and/or solid fuel for a total of no more than 400 hours.
4. During each federal fiscal year (October 1 -- September 30), unless otherwise specified by rule, order, or permit, the owner or operator of each emissions unit shall have a formal compliance test conducted for:
 - a. Visible emissions, if there is an applicable standard;
 - b. Each of the following pollutants, if there is an applicable standard, and if the emissions unit emits or has the potential to emit: 5 tons per year or more of lead or lead compounds measured as elemental lead; 30 tons per year or more of acrylonitrile; or 100 tons per year or more of any other regulated air pollutant; and
 - c. Each NESHAP pollutant, if there is an applicable emission standard.
5. An annual compliance test for particulate matter emissions shall not be required for any fuel burning emissions unit that, in a federal fiscal year, does not burn liquid and/or solid fuel, other than during startup, for a total of more than 400 hours.
9. The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator.
10. An annual compliance test conducted for visible emissions shall not be required for units exempted from permitting at Rule 62-210.300(3)(a), F.A.C., or units permitted under the General Permit provisions at Rule 62-210.300(4), F.A.C.

(b) Special Compliance Tests. When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it may require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department.

(c) Waiver of Compliance Test Requirements. If the owner or operator of an emissions unit that is subject to a compliance test requirement demonstrates to the Department, pursuant to the procedure established in Rule 62-297.620, F.A.C., that the compliance of the emissions unit with an applicable weight emission limiting standard can be adequately determined by means

other than the designated test procedure, such as specifying a surrogate standard of no visible emissions for particulate matter sources equipped with a bag house or specifying a fuel analysis for sulfur dioxide emissions, the Department shall waive the compliance test requirements for such emissions units and order that the alternate means of determining compliance be used, provided, however, the provisions of Rule 62-297.310(7)(b), F.A.C., shall apply.

[Rule 62-297.310(7), F.A.C.; SIP approved]

Recordkeeping and Reporting Requirements

E.6. Malfunction Reporting. In the case of excess emissions resulting from malfunctions, each owner or operator shall notify the Department in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]

E.7. Test Reports.

- (a) The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test.
- (b) The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed.
- (c) The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information:
 1. The type, location, and designation of the emissions unit tested.
 2. The facility at which the emissions unit is located.
 3. The owner or operator of the emissions unit.
 4. The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.
 5. The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.
 6. The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.
 7. A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.
 8. The date, starting time and duration of each sampling run.
 9. The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.
 10. The number of points sampled and configuration and location of the sampling plane.
 11. For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.
 12. The type, manufacturer and configuration of the sampling equipment used.
 13. Data related to the required calibration of the test equipment.

14. Data on the identification, processing and weights of all filters used.
15. Data on the types and amounts of any chemical solutions used.
16. Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.
17. The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.
18. All measured and calculated data required to be determined by each applicable test procedure for each run.
19. The detailed calculations for one run that relate the collected data to the calculated emission rate.
20. The applicable emission standard, and the resulting maximum allowable emission rate for the emissions unit, plus the test result in the same form and unit of measure.
21. A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

[Rule 62-297.310(8), F.A.C.]

Subsection F. Reserved.

Refer to Subsection H which replaced this Subsection. PSD-FL-286 for these units is superseded by PSD-FL-327 for the “4-on-1” combined cycle combustion turbine system.

Subsection G. Reserved.

Refer to Subsection I which replaced this Subsection. PSD-FL-286 for these units is superseded by PSD-FL-327 for the “4-on-1” combined cycle combustion turbine system

Subsection H. This section addresses the following emissions units.

E.U. ID No.	Emission Unit Description
011	Unit 8A gas turbine (170 MW) with heat recovery steam generator (495 MMBtu/hr)
012	Unit 8B gas turbine (170 MW) with heat recovery steam generator (495 MMBtu/hr)
017	Unit 8C gas turbine (170 MW) with heat recovery steam generator (495 MMBtu/hr)
018	Unit 8D gas turbine (170 MW) with heat recovery steam generator (495 MMBtu/hr)

Each unit consists of a nominal 170 MW General Electric Model PG7241(FA) gas turbine-electrical generator set, an automated gas turbine control system, an inlet air filtration system, an evaporative inlet air cooling system, a heat recovery steam generator (HRSG) each equipped with a 495 MMBtu/hr natural gas fired duct burner, a stack, and associated support equipment. Steam from each HRSG is delivered to the single steam turbine-electrical generator, which has a nominal capacity of 470 MW. The total nominal generating capacity of the “4 on 1” combined cycle unit system is 1150 MW. Each stack is 120 ft tall (19 ft diameter). At a compressor inlet air temperature of 59° F, each gas turbine heat input (LHV) is approximately 1600 MMBtu/hr (gas) and 1811 MMBtu/hour (oil). The exhaust flow rate is 1,004,200 ACFM (gas) and 1,193,900 ACFM (oil) at a temperature of 202° F and 295° F respectively.

The units are fired with natural gas as the primary fuel and distillate oil as a restricted alternate fuel. The efficient combustion of natural gas at high temperatures minimizes emissions of CO, PM/PM₁₀, SAM, SO₂, and VOC. NO_x emissions are reduced by Dry Low-NO_x (DLN) combustion technology (simple cycle mode). A selective catalytic reduction (SCR) system combined with Dry Low-NO_x (DLN) combustion technology further reduces NO_x emissions during combined cycle mode. These emissions units commenced commercial operation in June 2005.

Each gas turbine is equipped with continuous emissions monitoring system (CEMS) to measure and record CO and NO_x emissions as well as flue gas oxygen or carbon dioxide content.

Compliance assurance monitoring (CAM) does not apply since these emissions units have NO_x CEMS which are used to demonstrate continuous compliance. The units have the following manufacturers’ CEMs installed: (a) Thermo Environmental Instruments (Model 42CHL) for NO_x, and (b) Servomex (Model 1420C) for O₂.

Emissions Units 8A and 8B commenced commercial simple cycle operation in November 2001. In a permitting action issued on 2003, these two existing units in addition to two new units conformed the “4-on-1” combined cycle combustion system (Units 8A, 8B, 8C and 8D) that commenced commercial operation on June 30, 2005.

{Permitting note: These emissions units are regulated under Acid Rain-Phase II, 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines; 40CFR60, Subpart Da, Standards of Performance for Electric Utility Generating Units for Which Construction is Commenced After September 18, 1978, and 40 CFR 63, Subpart YYYY – National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines, all adopted by reference in Rule 62-204.800(8) and in Rule 62-204.800(11), F.A.C., Rule 212.400, F.A.C.; Prevention of Significant Deterioration (PSD), Best Available Control Technology (BACT); and Air Construction Permits PSD-FL-286 and PSD-FL-327 (0850001-010-AC) issued 04/16/03 and modified on 7/7/2005. PSD-FL-327 replaces and supersedes PSD-FL-286. On March 5, 2004, EPA promulgated 40 CFR 63, Subpart YYYY – National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines built after January 14, 2003. Unit 3 was under contractual obligations before this date and is therefore an existing unit. Currently, ‘existing combustion turbines’ are not required to meet the emission limitations, notifications, reporting or any other requirements of Subpart YYYY. EPA may at a future date promulgate standards for existing units.}

The following conditions apply to the emission units listed above:

Applicable Standards and Regulations

- H.1. BACT Determinations: Determinations of the Best Available Control Technology (BACT) were made for carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM/PM₁₀), sulfuric acid mist (SAM), and sulfur dioxide (SO₂), and volatile organic compounds (VOC). See Appendix BD of this permit for a summary of the final BACT determinations. [Rule 62-212.400(BACT), F.A.C.]
- H.2. NSPS Requirements: The Department determines that compliance with the BACT emissions performance and monitoring requirements also assures compliance with the New Source Performance Standards for Subpart Da (duct burners) and Subpart GG (gas turbines) in 40 CFR 60. For completeness, the applicable requirements of Subparts Da and GG are included in Appendices Da and GG of this permit. [Rule 62-204.800(7), F.A.C.]

Equipment

- H.3. Gas Turbines: The permittee is authorized to install, tune, operate, and maintain four General Electric Model PG7241FA gas turbine-electrical generator sets each with a generating capacity of 170 MW. Each gas turbine shall include the SpeedtronicTM automated gas turbine control system and have dual-fuel capability. Ancillary equipment includes an inlet air filtration system, an evaporative inlet air-cooling system, and a bypass stack for simple cycle operation. The gas turbines will utilize the "hot nozzle" DLN combustors, which require natural gas to be preheated to approximately 290° F before combustion to increase overall unit efficiency. Gas-fired fuel heaters will preheat the natural gas during simple cycle operation and during startup to combined cycle operation. For full combined cycle operation, feedwater heat exchangers will preheat the natural gas.

{Permitting Note: In accordance with Air Permit No. PSD-FL-286, two existing simple cycle gas turbines (Emission Unit Nos. 011 and 012) have been installed. These units will be incorporated into the "4-on-1" combined cycle Unit 8.} [Application; Design]

H.4. Gas Turbine NO_x Controls

- (a) *DLN Combustion*: The permittee shall operate and maintain the General Electric DLN 2.6 combustion system (or better) to control NO_x emissions from each gas turbine when firing natural gas. Prior to the initial emissions performance tests required for each gas turbine, the DLN combustors and automated gas turbine control system shall be tuned to achieve the simple cycle permitted levels for CO and NO_x emissions. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations.
- (b) *Water Injection*: The permittee shall install, operate, and maintain a water injection system to reduce NO_x emissions from each gas turbine when firing distillate oil. Prior to the initial emissions performance tests required for each gas turbine, the water injection system shall be tuned to achieve the permitted levels for CO and NO_x emissions. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations. The automated control system shall be programmed to establish a water-to-fuel ratio designed to achieve the NO_x emission standard for simple cycle oil firing on a 1-hour basis.
- (c) *(SCR) System*: The permittee shall install, tune, operate, and maintain a selective catalytic reduction (SCR) system to control NO_x emissions from each gas turbine during combined cycle operation when firing either natural gas or distillate oil. The SCR system consists of an ammonia injection grid, catalyst, ammonia storage, monitoring and control system, electrical, piping and other ancillary equipment. The SCR system shall be designed, constructed and operated to achieve the permitted levels for NO_x emissions and ammonia slip.

{Permitting Note: In accordance with 40 CFR 60.130, the storage of ammonia shall comply with all applicable requirements of the Chemical Accident Prevention Provisions in 40 CFR 68.}

[Design; Rule 62-212.400(BACT), F.A.C.]

- H.5. HRSGs: The permittee is authorized to install, operate, and maintain four new heat recovery steam generators (HRSGs) with separate HRSG exhaust stacks. Each HRSG shall be designed to recover heat energy from one of the four gas turbines (8A-8D) and deliver steam to the steam turbine electrical generator through a common manifold. Each HRSG may be equipped with supplemental gas-fired duct burners having a maximum heat input rate of 495 MMBtu per hour (LHV). The duct burners shall be designed in accordance with the following specifications: 0.04 lb CO/MMBtu and 0.08 lb NO_x/MMBtu. {Permitting Note: The four HRSGs deliver steam to a single steam turbine-electrical generator with a generating capacity of 470 MW.} [Application; Design]

Performance Restrictions

- H.6. Permitted Capacity - Gas Turbines: The maximum heat input rate to each gas turbine is 1600 MMBtu per hour when firing natural gas and 1811 MMBtu per hour when firing distillate oil (based on a compressor inlet air temperature of 59° F, the lower heating value (LHV) of each fuel, and 100% load). Heat input rates will vary depending upon gas turbine characteristics, ambient conditions, alternate methods of operation, and evaporative cooling. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial compliance testing. Operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. [Rule 62-210.200(PTE), F.A.C.]
- H.7. Permitted Capacity - HRSG Duct Burners: The total maximum heat input rate to the duct burners for each HRSG is 495 MMBtu per hour based on the lower heating value (LHV) of natural gas. Only natural gas shall be fired in the duct burners. [Rule 62-210.200(PTE), F.A.C.]
- H.8. Methods of Operation: Subject to the restrictions and requirements of this permit, the gas turbines may operate under the following methods of operation.
- (a) *Hours of Operation*: Subject to the operational restrictions of this permit, the gas turbines may operate throughout the year (8760 hours per year). Restrictions on individual methods of operation are specified below.
 - (b) *Authorized Fuels*: Each gas turbine shall fire natural gas as the primary fuel, which shall contain no more than 2.0 grains of sulfur per 100 standard cubic feet of natural gas. As a restricted alternate fuel, each gas turbine may fire No. 2 distillate oil (or a superior grade) containing no more than 0.05% sulfur by weight. Each gas turbine shall fire no more than 500 hours of distillate oil during any consecutive 12 months.
 - (c) *Simple Cycle Operation*: Each gas turbine may operate individually in simple cycle mode to produce only direct, shaft-driven electrical power subject to the following operational restrictions.
 - 1. Each gas turbine shall operate in simple cycle mode for no more than 3390 hours during any consecutive 12 months.
 - 2. After demonstrating initial compliance in combined cycle mode, the combined group of four gas turbines shall operate in simple cycle mode for no more than an average of 1000 hours per gas turbine during any consecutive 12 months.
 - (d) *Combined Cycle Operation*: Each gas turbine/HRSG system may operate to produce direct, shaft-driven electrical power and steam-generated electrical power from the steam turbine-electrical generator as a four-on-one combined cycle unit subject to the restrictions of this permit. In accordance with the specifications of the SCR and HRSG manufacturers, the SCR system shall be on line and functioning properly during combined cycle operation or when the HRSG is producing steam.

- (e) Inlet Fogging: In accordance with the manufacturer's recommendations and appropriate ambient conditions, the evaporative cooling system may be operated to reduce the compressor inlet air temperature and provide additional direct, shaft-driven electrical power. This method of operation is commonly referred to as "fogging" and may be used in either simple cycle or combined cycle modes.
- (f) Peaking: When firing natural gas, each gas turbine may operate in a high-temperature peaking mode to generate additional direct, shaft-driven electrical power to respond to peak demands. During any consecutive 12 months, each gas turbine shall operate while in the peaking mode for no more than 60 hours of simple cycle operation and no more than 400 hours of combined cycle operation.
- (g) *Power Augmentation*: When firing natural gas in either simple cycle or combined cycle modes, steam may be injected into each gas turbine to generate additional direct, shaft-driven electrical power to respond to peak demands. To qualify as "power augmentation", the combustion turbine must operate at a load of 95% or greater than that of the manufacturer's maximum base load rate adjusted for the compressor inlet air conditions. Prior to activating and after deactivating the power augmentation mode, the operator shall log the date, time, and new mode of operation. The gas turbines shall not operate simultaneously in peaking and power augmentation modes. Total combined operation of power augmentation and peaking modes shall not exceed 400 hours per unit during any consecutive 12 months.
- (h) *Combined Cycle Operation with HRSG Duct Firing*: When firing natural gas and operating in combined cycle mode, each HRSG system may fire natural gas in the duct burners to provide additional steam-generated electrical power. The total combined heat input rate to the duct burners (all four HRSGs) shall not exceed 5,702,400 MMBtu (LHV) during any consecutive 12 months.

[Application; Rules 62-210.200(PTE) and 62-212.400(BACT), F.A.C.]

Emissions Limitations and Standards

H.9. Emissions Standards: Emissions from each gas turbine shall not exceed the following standards.

Pollutant	Fuel	Method of Operation	Stack Test, 3-Run Average		CEMS Block Average
			ppmvd @ 15% O2	lb/hour	ppmvd @ 15% O2
CO ^a	Oil	Simple or Combined Cycle	14.4	64.7	15.0, 24-hr
	Gas	Simple Cycle	7.4	27.5	8.0, 24-hr
		Simple Cycle w/PA	12.0	45.0	12.0, 24-hr
		Combined Cycle, Normal	7.4	27.5	10.0, 24-hr
		Combined Cycle, All Modes	NA	NA	
NOx ^b	Oil	Simple Cycle	42.0	319.2	42.0, 3-hr
		Combined Cycle w/SCR	10.0	76.0	10.0, 24-hr
	Gas	Simple Cycle	9.0	58.7	9.0, 24-hr
		Simple Cycle w/PA	12.0	76.2	12.0, 24-hr
		Simple Cycle w/Peaking	15.0	95.3	15.0, 24-hr
		Combined Cycle w/SCR, Normal	2.5	16.3	2.5, 24-hr
		Combined Cycle w/SCR and DB	2.5	23.6	
		Combined Cycle w/SCR, All Modes	NA	NA	
PM/PM10 ^c	Oil/Gas	Simple or Combined Cycle	Fuel Specifications		
		Simple or Combined Cycle	Visible emissions shall not exceed 10% opacity for each 6-minute block average.		
SAM/SO2 ^d	Oil/Gas	Simple or Combined Cycle	Fuel Specifications		
VOC ^e	Oil	Simple or Combined Cycle	2.5	6.0	NA
	Gas	Simple or Normal Combined Cycle	1.3	2.8	NA
		Combined Cycle, w/DB and/or PA	4.0	10.5	NA
Ammonia ^f	Oil/Gas	Combined Cycle w/SCR	5	NA	NA

- Compliance with the CO standards shall be demonstrated based on data collected by the required CEMS. Compliance may also be determined by EPA Method 10. Compliance with the 24-hour CO CEMS standards shall be determined separately for each method of operation based on the hours of operation for each method. *{Permitting Note: A 24-hour compliance average may be based on as little as 1-hour of CEMS data or as much as 24-hours of CEMS data.}*
- Compliance with the NOx standards shall be demonstrated based on data collected by the required CEMS. Compliance may also be determined by EPA Method 7E or 20. NOx mass emission rates are defined as oxides of nitrogen expressed as NO2. Compliance with the 24-hour NOx CEMS standards during simple cycle operation shall be determined separately for each method of operation based on the hours of operation for each method. *{Permitting Note: A 24-hour compliance average may be based on as little as 1-hour of CEMS data or as much as 24-hours of CEMS data.}*
- The fuel specifications established in Condition No. H.8 of this section combined with the efficient combustion design and operation of each gas turbine represents the Best Available Control Technology (BACT) determination for PM/PM10 emissions. Compliance with the fuel specifications, CO standards, and visible emissions standards shall serve as indicators of good combustion. Compliance with the fuel specifications shall be demonstrated by keeping records of the fuel sulfur content. Compliance with the visible emissions standard shall be demonstrated by conducting tests in accordance with EPA Method 9. *{Permitting Note: PM10 emissions for gas*

firing are estimated at 9 lb/hour for simple cycle operation, 11 lb/hour for combined cycle operation, and 17 lb/hour for combined cycle operation with duct burning. PM₁₀ emissions for oil firing are estimated at 17 lb/hour for simple cycle operation and 37 lb/hour for combined cycle operation.}

- d. The fuel sulfur specifications in Condition No. H.8 of this section effectively limit the potential emissions of SAM and SO₂ from the gas turbines and represent the Best Available Control Technology (BACT) determination for these pollutants. Compliance with the fuel sulfur specifications shall be determined by the requirements in Condition No. H.27 of this section. {Permitting Note: SO₂ emissions for gas firing are estimated at 9.8 lb/hour for simple and combined cycle operation and 12.8 lb/hour for combined cycle operation with duct burning. SO₂ emissions for oil firing are estimated at 99 lb/hour for simple and combined cycle operation. SAM emissions are estimated to be less than 10% of the SO₂ emissions.}
- e. Compliance with the VOC standards shall be demonstrated by conducting tests in accordance with EPA Method 25A. Optionally, EPA Method 18 may also be performed to deduct emissions of methane and ethane. The emission standards are based on VOC measured as methane.
- f. Subject to the requirements of Condition No. H.21 of this section, each SCR system shall be designed and operated for an initial ammonia slip target of less than 5 ppmvd corrected to 15% oxygen based on the average of three test runs. Compliance with the ammonia slip standard shall be demonstrated by conducting tests in accordance with EPA Method CTC-027.

{Permitting Notes: "DB" means duct burning. "PA" means power augmentation. "SCR" means selective catalytic reduction. "NA" means not applicable. The mass emission rate standards are based on a turbine inlet condition of 59° F and may be adjusted to actual test conditions in accordance with the performance curves and/or equations on file with the Department. Initial compliance tests under normal conditions for gas and oil firing have already been conducted for the existing Unit 8 gas turbines.}

[Rule 62-212.400(BACT), F.A.C.]

H.10. Combined Cycle Operation With Steam Dumped to Condenser: If the steam-electrical turbine generator is off line, the permittee is authorized to operate the gas turbine/HRSG systems by dumping steam to the condenser. When operating in this manner, each unit shall comply with the standards established for combined cycle operation with ammonia injection (SCR). [Application]

H.11. Duct Burners: The duct burners are also subject to the provisions of Subpart Da of the New Source Performance Standards in 40 CFR 60, which are summarized in Appendix Da.

{Permitting Note: During duct firing, compliance with the limits of this permit also demonstrates compliance with the standards of NSPS Subpart Da for duct burners.} [Subpart Da, 40 CFR 60]

Excess Emissions

H.12. Operating Procedures: The Best Available Control Technology (BACT) determinations established by this permit rely on "good operating practices" to reduce emissions. Therefore, all operators and supervisors shall be properly trained to operate and maintain the gas turbines, HRSGs, and pollution control systems in accordance with the guidelines and procedures established by each manufacturer. The training shall include good operating practices as well as methods of minimizing excess emissions. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

H.13. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. All such preventable emissions shall be included in any compliance determinations based on CEMS data. [Rule 62-210.700(4), F.A.C.]

- H.14. Alternate Visible Emissions Standard: Visible emissions due to startups, shutdowns, and malfunctions shall not exceed 10% opacity except for up to ten, 6-minute averaging periods during a calendar day, which shall not exceed 20% opacity. [Rule 62-212.400(BACT), F.A.C.]
- H.15. Excess Emissions Allowed: As specified in this condition, excess emissions resulting from startup, shutdown, oil-to-gas fuel switches and documented malfunctions are allowed provided that operators employ the best operational practices to minimize the amount and duration of emissions during such incidents. A “documented malfunction” means a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail. For each gas turbine/HRSG system, excess emissions resulting from startup, shutdown, or documented malfunctions shall not exceed two hours in any 24-hour period except for the following specific cases.
- (a) *Cold Startup of the Steam Turbine*: For cold startup of the steam turbine system, excess emissions from any gas turbine/HRSG system shall not exceed eight (8) hours in any 24-hour period. Cold startup of the steam turbine system shall be completed within twelve hours. A cold “startup of the steam turbine system” is defined as startup of the 4-on-1 combined cycle system following a shutdown of the steam turbine lasting at least 48 hours. *{Permitting Note: During a cold startup of the steam turbine system, each gas turbine/HRSG system is sequentially brought on line at low load to gradually increase the temperature of the steam-electrical turbine and prevent thermal metal fatigue. Note that shutdowns and documented malfunctions are separately regulated in accordance with the requirements of this condition.}*
 - (b) *Shutdown*: For shutdown of the steam turbine system, excess emissions from any gas turbine/HRSG system shall not exceed three (3) hours in any 24-hour period.
 - (c) *Cold startup of a Gas Turbine/HRSG system*: For cold startup of a gas turbine/HRSG system, excess emissions shall not exceed four (4) hours in any 24-hour period. “Cold startup of a gas turbine/HRSG system” is defined as a startup after the pressure in the high-pressure (HP) steam drum falls below 450 psig for at least a one-hour period.
 - (d) *Fuel Switching*: For oil-to-gas fuel switching, excess emissions shall not exceed one (1) hour in any 24-hour period.

Ammonia injection shall begin as soon as operation of the gas turbine/HRSG system achieves the operating parameters specified by the manufacturer. As authorized by Rule 62-210.700(5), F.A.C., the above conditions allow excess emissions only for specifically defined periods of startup, shutdown, and documented malfunction of the gas turbines. [Design; Rules 62-212.400(BACT) and 62-210.700, F.A.C.]

- H.16. DLN Tuning: CEMS data collected during initial or other major DLN tuning sessions shall be excluded from the CEMS compliance demonstration provided the tuning session is performed in accordance with the manufacturer’s specifications. A “major tuning session” would occur after completion of initial construction, a combustor change-out, a major repair or maintenance to a combustor, or other similar circumstances. Prior to performing any major tuning session, the permittee shall provide the Compliance Authority with an advance notice that details the activity and proposed tuning schedule. The notice may be by telephone, facsimile transmittal, or electronic mail. [Design; Rule 62-4.070(3), F.A.C.]

Emissions Performance Testing

H.17. Test Methods: Any required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
CTM-027	Procedure for Collection and Analysis of Ammonia in Stationary Source {Notes: This is an EPA conditional test method. The minimum detection limit shall be 1 ppm.}
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Notes: The method shall be based on a continuous sampling train.}
18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography {Note: EPA Method 18 may be used (optional) concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions.}
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
25A	Determination of Volatile Organic Concentrations

Method CTM-027 is published on EPA's Technology Transfer Network Web Site at "<http://www.epa.gov/ttn/emc/ctm.html>". The other methods are described in Appendix A of 40 CFR 60, adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rules 62-204.800, F.A.C.; 40 CFR 60, Appendix A]

H.18. Special Compliance Determinations: The Department may require the permittee to conduct additional tests after major replacement or major repair of any air pollution control equipment, such as the SCR catalyst, DLN combustors, etc. Each gas turbine shall be stack tested to demonstrate compliance with the emission standards for CO, NO_x, VOC, visible emissions, and ammonia slip. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated for each unit configuration (i.e., simple cycle and combined cycle operation), but not later than 180 days after startup of each unit configuration. Each unit shall be tested when firing natural gas and distillate oil. CEMS data collected during the required Relative Accuracy Test Assessments (RATA) may be used to demonstrate compliance with the CO and NO_x standards. With appropriate flow measurements (or fuel measurements and approved F-factors), CEMS data may be used to demonstrate compliance with the CO and NO_x mass rate emissions standards. CO and NO_x emissions recorded by the CEMS shall also be reported for each run during tests for visible emissions, VOC and ammonia slip. CO and VOC emissions tests performed during simple cycle operation may be used to satisfy the test requirements for similar operation in combined cycle mode. [Rule 62-297.310(7)(a)1, F.A.C. and 40 CFR 60.8]

H.19. Continuous Compliance: The permittee shall demonstrate continuous compliance with the CO and NO_x emissions standards based on data collected by the certified CEMS. Within 45 days of conducting any Relative Accuracy Test Assessments (RATA) on a CEMS, the permittee shall submit a report to the Compliance Authority summarizing results of the RATA. Compliance with the CO emission standards also serves as an indicator of efficient fuel combustion, which reduces emissions of particulate matter and volatile organic compounds. [Rule 62-212.400 (BACT), F.A.C.]

H.20. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), each gas turbine shall be tested to demonstrate compliance with the emission standards for visible emissions. Annual testing to determine the ammonia slip shall be conducted while firing the primary fuel. NOx emissions recorded by the CEMS shall be reported for each ammonia slip test run. CO emissions recorded by the CEMS shall be reported for the visible emissions observation period.

{Permitting Note: After initial compliance with the VOC standards is demonstrated, annual compliance tests for VOC emissions are not required. Compliance with the continuously monitored CO standards shall indicate efficient combustion and low VOC emissions.}

[Rules 62-212.400 (BACT) and 62-297.310(7)(a)4, F.A.C.]

H.21. Additional Ammonia Slip Testing: If the tested ammonia slip rate for a gas turbine exceeds 5 ppmvd corrected to 15% oxygen when firing natural gas during the annual test, the permittee shall:

- (a) Begin testing and reporting the ammonia slip for each subsequent calendar quarter;
- (b) Before the ammonia slip exceeds 7 ppmvd corrected to 15% oxygen, take corrective actions that result in lowering the ammonia slip to less than 5 ppmvd corrected to 15% oxygen; and
- (c) Test and demonstrate that the ammonia slip is no more than 5 ppmvd corrected to 15% oxygen within 15 days after completing the corrective actions.

Corrective actions may include, but are not limited to, adding catalyst, replacing catalyst, or other SCR system maintenance or repair. After demonstrating that the ammonia slip level is no more than 5 ppmvd corrected to 15% oxygen, testing and reporting shall resume on an annual basis.

[Rules 62-4.070(3) and 62-297.310(7)(b), F.A.C.]

Continuous Monitoring Requirements

H.22. CEM Systems: The permittee shall install, calibrate, maintain, and operate continuous emission monitoring systems (CEMS) to measure and record the emissions of CO and NOx from the combined cycle gas turbine in a manner sufficient to demonstrate continuous compliance with the CEMS emission standards of this section. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial performance tests. Within one working day of discovering emissions in excess of a CO or NOx standard (and subject to the specified averaging period), the permittee shall notify the Compliance Authority.

- (a) *CO Monitors*. The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4 or 4A. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10 in Appendix A of 40 CFR 60 and shall be based on a continuous sampling train. The CO monitor span values shall be set appropriately considering the allowable methods of operation and corresponding emission standards.
- (b) *NOx Monitors*. Each NOx monitor shall be certified, operated, and maintained in accordance with the requirements of 40 CFR 75. Record keeping and reporting shall be conducted pursuant to Subparts F and G in 40 CFR 75. The RATA tests required for the NO_x monitor shall be performed using EPA Method 20 or 7E in Appendix A of 40 CFR 60. In addition to the requirements of Appendix A of 40 CFR 75, the NOx monitor span values shall be set appropriately considering the allowable methods of operation and corresponding emission standards.
- (c) *Diluent Monitors*. The oxygen (O₂) or carbon dioxide (CO₂) content of the flue gas shall be monitored at the location where CO and NOx are monitored to correct the measured emissions rates to 15% oxygen. If a CO₂ monitor is installed, the oxygen content of the flue gas shall be

calculated using F-factors that are appropriate for the fuel fired. Each monitor shall comply with the performance and quality assurance requirements of 40 CFR 75.

- (d) *1-Hour Block Averages.* Hourly average values shall begin at the top of each hour. Each hourly average value shall be computed using at least one data point in each fifteen-minute quadrant of an hour, where the unit combusted fuel during that quadrant of an hour. Notwithstanding this requirement, an hourly value shall be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant of an hour). If less than two such data points are available, the hourly average value is not valid. An hour in which any oil is fired is attributed towards compliance with the permit standards for oil firing. The permittee shall use all valid measurements or data points collected during an hour to calculate the hourly average values. The CEMS shall be designed and operated to sample, analyze, and record data evenly spaced over an hour. If the CEMS measures concentration on a wet basis, the CEM system shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Alternatively, the owner or operator may develop through manual stack test measurements a curve of moisture contents in the exhaust gas versus load for each allowable fuel, and use these typical values in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Final results of the CEMS shall be expressed as ppmvd corrected to 15% oxygen. The CEMS shall be used to demonstrate compliance with the CEMS emission standards for CO and NO_x as specified in this permit. For purposes of determining compliance with the CEMS emissions standards of this permit, missing (or excluded) data shall not be substituted. Upon request by the Department, the CEMS emission rates shall be corrected to ISO conditions to demonstrate compliance with the applicable standards of 40 CFR 60.332.
- (e) *3-hour Block Averages:* For oil firing during simple cycle operation, the 3-hour block average shall be calculated from three consecutive hourly average emission rate values. For purposes of determining compliance with the CEMS emission standards of this permit, missing (or excluded) data shall not be substituted. Instead, the 3-hour block average shall be determined using the remaining hourly data in the 3-hour block. [Rule 62-212.400(BACT), F.A.C.]
- (f) *24-hour Block Averages:* A 24-hour block shall begin at midnight of each operating day and shall be calculated from 24 consecutive hourly average emission rate values. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of available valid hourly average emission rate values for the 24-hour block. For purposes of determining compliance with the 24-hour CEMS standards, missing (or excluded) data shall not be substituted. Instead, the 24-hour block average shall be determined using the remaining hourly data in the 24-hour block. {Permitting Note: There may be more than one 24-hour compliance demonstration required for CO and NO_x emissions depending on the use of alternate methods of operation}. [Rule 62-212.400(BACT), F.A.C.]
- (g) *Data Exclusion.* Each CEMS shall monitor and record emissions during all operations including episodes of startup, shutdown, malfunction, fuel switches, and DLN tuning. CEMS emissions data recorded during some of these episodes may be excluded from the corresponding CEMS compliance demonstration subject to the provisions of Condition Nos. 16 and 18 of this section. All periods of data excluded shall be consecutive for each such episode. The permittee shall minimize the duration of data excluded for such episodes to the extent practicable. Data recorded during such episodes shall not be excluded if the episode was caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented. Best operational practices shall be used to minimize hourly emissions that occur during such episodes. Emissions of any quantity or duration that occur entirely or in part from poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented, shall be prohibited.

- (h) *Availability.* Monitor availability for the CEMS shall be 95% or greater in any calendar quarter. The quarterly permit excess emissions report shall be used to demonstrate monitor availability. In the event 95% availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit, except as otherwise authorized by the Department's Compliance Authority.

{Permitting Note: Compliance with these requirements ensure compliance with the other applicable CEM system requirements such as: NSPS Subparts Da and GG; Rule 62-297.520, F.A.C.; 40 CFR 60.7(a)(5) and 40 CFR 60.13; 40 CFR Part 51, Appendix P; 40 CFR 60, Appendix B - Performance Specifications; and 40 CFR 60, Appendix F - Quality Assurance Procedures.}
[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

- H.23. Water Injection Monitoring Requirements: In accordance with the manufacturer's specifications, the permittee shall install, calibrate, operate and maintain a monitoring system to continuously measure and record the water-to-fuel ratio when firing distillate oil. The permittee shall document the water-to-fuel ratio required to meet permitted emissions levels over the range of load conditions allowed by this permit. The NOx CEMS is used to demonstrate compliance with the NOx emissions standards. During NOx CEMS downtimes or malfunctions, the permittee shall monitor the water-to-fuel ratio and operate at a level that is consistent with the documented flow rate for the gas turbine load condition.

{Permitting Note: The water-to-fuel ratio at maximum load to achieve the NOx standards during simple cycle oil firing is approximately 1.1 or a water injection rate of approximately 101,000 pounds per hour. The actual water-to-fuel ratio will vary depending on operating conditions and load.}

[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

- H.24. Ammonia Monitoring Requirements: In accordance with the manufacturer's specifications, the permittee shall install, calibrate, operate and maintain an ammonia flow meter to measure and record the ammonia injection rate to the SCR system. The permittee shall document the general range of ammonia flow rates required to meet permitted emissions levels over the range of load conditions allowed by this permit by comparing NOx emissions recorded by the CEM system with ammonia flow rates recorded using the ammonia flow meter. During NOx monitor downtimes or malfunctions, the permittee shall operate at the ammonia flow rate that is consistent with the documented flow rate for the combustion turbine load condition.

[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

Records and Reports

- H.25. Monitoring of Capacity: The permittee shall monitor and record the operating rate of each gas turbine and HRSG duct burner system on a daily average basis, considering the number of hours of operation during each day (including the times of startup, shutdown and malfunction). Such monitoring shall be made using a monitoring component of the CEM system required above, or by monitoring daily rates of consumption and heat content of each allowable fuel in accordance with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

- H.26. Monthly Operations Summary: By the fifth calendar day of each month, the permittee shall record the following for each fuel in a written or electronic log for each gas turbine for the previous month of operation: fuel consumption, hours of operation, hours of power augmentation, hours of peaking, hours of duct firing, and the updated 12-month rolling totals for each. Information recorded and stored as an electronic file shall be available for inspection and printing within at least three days of a request by the Department. The fuel consumption shall be monitored in accordance with the

provisions of 40 CFR 75 Appendix D.
[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

- H.27. **Fuel Sulfur Records:** The permittee shall demonstrate compliance with the fuel sulfur limits specified in this permit by maintaining the following records of the sulfur contents.
- (a) Compliance with the fuel sulfur limit for natural gas shall be demonstrated by keeping reports obtained from the vendor indicating the average sulfur content of the natural gas being supplied from the pipeline for each month of operation. Methods for determining the sulfur content of the natural gas shall be ASTM methods D4084-82, D3246-81 or more recent versions.
 - (b) Compliance with the distillate oil sulfur limit shall be demonstrated by taking a sample, analyzing the sample for fuel sulfur, and reporting the results to each Compliance Authority before initial startup. Sampling the fuel oil sulfur content shall be conducted in accordance with ASTM D4057-88, Standard Practice for Manual Sampling of Petroleum and Petroleum Products, and one of the following test methods for sulfur in petroleum products: ASTM D129-91, ASTM D1552-90, ASTM D2622-94, or ASTM D4294-90. More recent versions of these methods may be used. For each subsequent fuel delivery, the permittee shall maintain a permanent file of the certified fuel sulfur analysis from the fuel vendor. At the request of a Compliance Authority, the permittee shall perform additional sampling and analysis for the fuel sulfur content.

The above methods shall be used to determine the fuel sulfur content in conjunction with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-4.160(15), F.A.C.]

- H.28. **Malfunction Notification:** Within one working day of a malfunction that causes emissions in excess of a standard (subject to the specified averaging periods), the permittee shall notify the Compliance Authority. The notification shall include a preliminary report of: the nature, extent, and duration of the emissions; the probable cause of the emissions; and the actions taken to correct the problem. If requested by the Compliance Authority, the permittee shall submit written quarterly reports summarizing the malfunctions. [Rule 62-210.700, F.A.C.]
- H.29. **Semiannual NSPS Excess Emissions Report:** In accordance with 40 CFR 60.7(d), the permittee shall submit a report to the Compliance Authority summarizing any emissions in excess of the NSPS standards within 30 days following the end of each calendar quarter. For purposes of reporting emissions in excess of NSPS Subpart GG, excess emissions from the gas turbine are defined as: any CEMS hourly average value exceeding the NSPS NO_x emission standard identified in Appendix GG; and any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds the NSPS standard identified in Appendix GG. For purposes of reporting emissions in excess of NSPS Subpart Da, excess emissions from duct firing are defined as: NO_x or PM emissions in excess of the NSPS standards except during periods of startup, shutdown, or malfunction; and SO₂ emissions in excess of the NSPS standards except during startup or shutdown. An example of the report is provided on Appendix XS. [40 CFR 60.7]
- H.30. **Quarterly Permit Excess Emission Report:** Within 30 days following the end of each quarter, the permittee shall submit a report to the Compliance Authority summarizing periods of excess CO and NO_x emissions. Such information shall also be summarized for simple/combined cycle startups, simple/combined cycle shutdowns, malfunctions, and major tuning sessions. In addition, the report shall summarize the CEMS systems monitor availability for the previous quarter.
[Rules 62-4.130, 62-204.800, 62-210.700(6), F.A.C.; and 40 CFR 60.7]
- H.31. **Definitions.** For the purposes of Rule 62-204.800(7), F.A.C., the definitions contained in the various provisions of 40 CFR 60 shall apply, except that the term "Administrator" when used in 40 CFR 60 shall mean the Secretary or the Secretary's designee.
[40 CFR 60.2; and Rule 62-204.800(7)(a), F.A.C.]

- H.32. Concealment. No owner or operator subject to the provisions of 40 CFR 60 shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere. [40 CFR 60.12]
- H.33. Circumvention. The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly.
[Rule 62-210.650, F.A.C.; and 0850001-008-AC, Specific Condition 14. (Facility Information Section)]
- H.34. These emissions units are also subject to the conditions contained in Subsection E. Common Conditions and all applicable requirements of the attached **Appendices**, made part of the permit.

Subsection I. This section addresses the following emissions units.

This section of the permit addresses the following new emissions units.

EU No.	Emission Unit Description
013	Four gas-fired fuel heaters with a maximum heat input of 24 MMBtu per hour

NESHAP and NSPS Applicability

{Permitting Notes: The emissions units are regulated under NESHAP - 40 CFR 63, Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, or Institutional Boilers or Process Heaters, adopted by reference in Rule 62-204.800(11), F.A.C., Prevention of Significant Deterioration (PSD), Best Available Control Technology (BACT); and Air Construction Permits PSD-FL-327.

FPL requested a determination from the Department on the applicability of NSPS Subpart Dc to the gas-fired fuel heaters. The Department agreed with FPL that it did not believe that Subpart Dc should apply to these units, but referred the request to EPA Region 4 for interpretation of the federal standards. In a letter dated February 5, 2003, EPA Region 4 concurred that Subpart Dc did not apply to the gas-fired fuel heaters.}

Equipment Specifications

I.1. Equipment: The permittee is authorized to install, operate, and maintain four fuel heaters fired exclusively with natural gas at a maximum heat input rate of 24 MMBtu per hour. The fuel heaters will be designed to preheat the natural gas during simple cycle operation and during startup to combined cycle operation. For full combined cycle operation, feedwater heat exchangers will preheat the natural gas. *{Permitting Note: In accordance with Air Permit No. PSD-FL-286, construction of two gas-fired fuel heaters has been completed.}* [Applicant Request; Rule 62-210.200(PTE), F.A.C.]

Emissions and Performance Requirements

I.2. Hours of Operation: The hours of operation for the gas-fired fuel heaters are not restricted (8760 hours per year). [Applicant Request; Rule 62-210.200(PTE), F.A.C.]

I.3. Good Combustion: If visible emissions are greater than 5% opacity, the permittee shall investigate the cause, take appropriate corrective actions, and document the incident. This condition does not impose any initial or periodic testing.
[Rules 62-4.070(3) and 62-210.700(4), F.A.C.; 40 CFR 60, Appendix A]

Notification, Reporting and Records

I.4. Fuel Records: The permittee shall maintain records of the amount of natural gas fired in the fuel heaters. These records shall be used to prepare the required annual operating reports.
[Rule 62-210.370(3), F.A.C.]

General

I.5. These emissions units are also subject to applicable requirements of the conditions contained in **Subsection E. Common Conditions** and all applicable requirements of the attached **Appendices**, made part of the permit.

Subsection J. This section addresses the following emissions units.

This section of the permit addresses the following new emissions unit.

Emission Unit ID	Emission Unit Description
020	18-cell mechanical draft cooling tower

Equipment

- J.1. Cooling Tower: The permittee is authorized to install one new 18-cell mechanical draft cooling tower with the following design characteristics: a circulating water flow rate of 310,000 gpm; design hot/cold water temperatures of 104° F/90° F; a design air flow rate of 1,386,055 per cell; a liquid-to-gas air flow ratio of 1.4; and drift eliminators with a drift rate of no more than 0.001 percent. The permittee shall submit the final design details within 60 days of selecting the vendor. [Application; Design]

Emissions and Performance Requirements

- J.2. Drift Rate: Within 60 days of commencing operation, the permittee shall submit certification that the cooling tower was constructed to achieve the specified drift rate of no more than 0.001 percent of the circulating water flow rate.

{Permitting Note: This work practice standard is established as BACT for PM/PM₁₀ emissions from the cooling tower. Based on this design criteria, potential emissions are expected to be less than 34 tons of PM per year and less than 10 tons of PM₁₀ per year. Actual emissions are expected be less than half these rates.}.

[Rule 62-212.400(BACT), F.A.C.]

General

- J.3. This emissions unit is also subject to applicable requirements of the conditions contained in **Subsection E. Common Conditions** and all applicable requirements of the attached **Appendices**, made part of the permit.

Subsection K. This section addresses the following emissions units.

This section of the permit addresses the following emissions units.

Emissions Unit ID	Emission Unit Description
014	Two distillate oil storage tanks for Unit 8 gas turbines (2.1 million gallons each)

NSPS Applicability

- K.1. NSPS Subpart Kb Applicability: The distillate oil tanks are subject to Subpart Kb, which applies to any storage tank with a capacity greater than or equal to 10,300 gallons (40 cubic meters) that is used to store volatile organic liquids for which construction, reconstruction, or modification is commenced after July 23, 1984. Tanks with a capacity greater than or equal to 40,000 gallons (151 cubic meters) storing a liquid with a maximum true vapor pressure less than 3.5 kPa are exempt from the General Provisions (40 CFR 60, Subpart A) and from the provisions of NSPS Subpart Kb except for the record keeping requirements specified below.
[40 CFR 60.110b(a) and (c); Rule 62-204.800(7)(b), F.A.C.]

Equipment Specifications

- K.2. Equipment: The permittee is authorized to install, operate, and maintain two, 2.1 million gallon distillate oil storage tank designed to provide low sulfur distillate oil to the Unit 8 gas turbines.
[Applicant Request; Rule 62-210.200(PTE), F.A.C.]

{Permitting Note: One existing 2.1 million gallon distillate oil storage tank was permitted under PSD-FL-286.}

Emissions and Performance Requirements

- K.3. Hours of Operation: The hours of operation are not restricted (8760 hours per year). [Applicant Request; Rule 62-210.200(PTE), F.A.C.]

Notification, Reporting and Records

- K.4. Oil Tank Records: The permittee shall keep readily accessible records showing the dimension of each storage vessel and an analysis showing the capacity of each storage tank. Records shall be retained for the life of the facility. The permittee shall also keep records sufficient to determine the annual throughput of distillate oil for each storage tank for use in the Annual Operating Report.
[Rule 62-204.800(7)(b)16, F.A.C.; 40 CFR 60.116b(a) and (b)]

{Permitting Note: These new distillate oil storage tanks serve Unit 8. An existing 50,000-barrel distillate oil storage tank was constructed as part of Units 3 and 4. The existing tank was identified for use in Permit No. PSD-FL-268 issued for simple cycle Units 8A and 8B. Unit 8 will utilize both the existing and new distillate oil storage tanks.}

General

- K.5. These emissions units are also subject to applicable requirements of the conditions contained in **Subsection E. Common Conditions** and all applicable requirements of the attached **Appendices**, made part of the permit.

Section IV. This section is the Acid Rain Part.

Operated by: Florida Power and Light Company

ORIS code: 6043

Subsection A. This subsection addresses Acid Rain, Phase II.

The emissions units listed below are regulated under Phase II of the Federal Acid Rain Program.

E.U. ID No.	EPA ID	Brief Description
-001	PMR1	Fossil Fuel Fired Steam Generator #1
-002	PMR2	Fossil Fuel Fired Steam Generator #2
-003	HRSG3A	Combustion Turbine with Heat Recovery Steam Generator (CT 3A)
-004	HRSG3B	Combustion Turbine with Heat Recovery Steam Generator (CT 3B)
-005	HRSG4A	Combustion Turbine with Heat Recovery Steam Generator (CT 4A)
-006	HRSG4B	Combustion Turbine with Heat Recovery Steam Generator (CT 4B)
-011	PMR8A	Combustion Turbine with Heat Recovery Steam Generator (CT 8A)
-012	PMR8B	Combustion Turbine with Heat Recovery Steam Generator (CT 8B)
-017	PMR8C	Combustion Turbine with Heat Recovery Steam Generator (CT 8C)
-018	PMR8D	Combustion Turbine with Heat Recovery Steam Generator (CT 8D)

A.1. The Phase II part application submitted for this facility, as approved by the Department, is a part of this permit. The owners and operators of these Phase II acid rain units must comply with the standard requirements and special provisions set forth in the application listed below:

- a. DEP Form No. 62-210.900(1)(a), Phase II Acid Rain Part Application, signed by the Designated Representative on April 7, 2003, and received by the Department on July 3, 2003.

[Chapter 62-213, F.A.C. and Rule 62-214.320, F.A.C.]

A.2. Sulfur dioxide (SO₂) allowance allocations for each Acid Rain unit are as follows:

E.U. ID No.	EPA ID	Year	2004	2005	2006	2007	2008
-001	PMR1	SO ₂ allowances, under Table 2 of 40 CFR Part 73	5092*	5092*	5092*	5092*	5092*
-002	PMR2	SO ₂ allowances, under Table 2 of 40 CFR Part 73	6039*	6039*	6039*	6039*	6039*

E.U. ID No.	EPA ID	Year	2004	2005	2006	2007	2008
-003	HRSG3 A	SO2 allowances, under Table 2 of 40 CFR Part 73	1275*	1275*	1275*	1275*	1275*
-004	HRSG3 B	SO2 allowances, under Table 2 of 40 CFR Part 73	1275*	1275*	1275*	1275*	1275*
-005	HRSG4 A	SO2 allowances, under Table 2 of 40 CFR Part 73	1275*	1275*	1275*	1275*	1275*
-006	HRSG4 B	SO2 allowances, under Table 2 of 40 CFR Part 73	1275*	1275*	1275*	1275*	1275*
-011	PMR8A	SO2 allowances to be determined by U.S. EPA	N/A	0	0	0	0
-012	PMR8B	SO2 allowances to be determined by U.S. EPA	N/A	0	0	0	0
-017	PMR8C	SO2 allowances to be determined by U.S. EPA	N/A	0	0	0	0
-018	PMR8D	SO2 allowances to be determined by U.S. EPA	N/A	0	0	0	0

*The number of allowances held by an Acid Rain source in a unit account may differ from the number allocated by the USEPA under Table 2 of 40 CFR 73.

A.3. Emission Allowances. Emissions from sources subject to the Federal Acid Rain Program (Title IV) shall not exceed any allowances that the source lawfully holds under the Federal Acid Rain Program. Allowances shall not be used to demonstrate compliance with a non-Title IV applicable requirement of the Act.

- (1) No permit revision shall be required for increases in emissions that are authorized by allowances acquired pursuant to the Federal Acid Rain Program, provided that such increases do not require a permit revision pursuant to Rule 62-213.400(3), F.A.C.

(2) No limit shall be placed on the number of allowances held by the source under the Federal Acid Rain Program.

(3) Allowances shall be accounted for under the Federal Acid Rain Program.

[Rule 62-213.440(1)(c), F.A.C.]

A.4. Fast-Track Revisions of Acid Rain Parts. Those Acid Rain sources making a change described at Rule 62- 214.370(4), F.A.C., may request such change as provided in Rule 62-213.413, F.A.C., Fast-Track Revisions of Acid Rain Parts.

[Rule 62-213.413, F.A.C.]

A.5. Comments, notes, and justifications: None.

Appendix I-1. List of Insignificant Emissions Units and/or Activities.

The facilities, emissions units, or pollutant-emitting activities listed in Rule 62-210.300(3)(a), F.A.C., Categorical Exemptions, or that meet the criteria specified in Rule 62-210.300(3)(b)1., F.A.C., Generic Emissions Unit Exemption, are exempt from the permitting requirements of Chapters 62-210, 62-212 and 62-4, F.A.C.; provided, however, that exempt emissions units shall be subject to any applicable emission limiting standards and the emissions from exempt emissions units or activities shall be considered in determining the potential emissions of the facility containing such emissions units. Emissions units and pollutant-emitting activities exempt from permitting under Rules 62-210.300(3)(a) and (b)1., F.A.C., shall not be exempt from the permitting requirements of Chapter 62-213, F.A.C., if they are contained within a Title V source; however, such emissions units and activities shall be considered insignificant for Title V purposes provided they also meet the criteria of Rule 62-213.430(6)(b), F.A.C. No emissions unit shall be entitled to an exemption from permitting under Rules 62-210.300(3)(a) and (b)1., F.A.C., if its emissions, in combination with the emissions of other units and activities at the facility, would cause the facility to emit or have the potential to emit any pollutant in such amount as to make the facility a Title V source.

The below listed emissions units and/or activities are considered insignificant pursuant to Rule 62-213.430(6), F.A.C.

	Brief Description of Emissions Units and/or Activities
1	Chemical Feed Skid , consisting of: Ammonia Feed Tanks Vent Hydrazine Feed Tanks Vent H. P. Phosphate Feed Tanks Vent I. P. Phosphate Feed Tanks Vent
2	Fire Protection Equipment with: .75" Vents to Atmosphere Diesel Engine Exhaust 2" Diesel Day Tank Vent CT Lube Seal Trip, and Hydraulic Oil 3" Bearing Drain Enlargement Exhausters Vent to Atmosphere Auxiliary Buildings H.V.A.C. Vent/Exhaust System for, Switchgear Rooms Chemical Storage Room Water Chemistry Lab Fume Hoods
3	Main Liquid Fuel .75" Vents to Atmosphere 2" Liquid Fuel Drain Tank Vent (235 gallon) 8" Vent with Filter for Units 3 and 4 Liquid Fuel Storage Tank (2,000,000 gallon)
4	Auxiliary Steam, Chemical Feed, Chlorine and Gas Purging , comprised of: Ash Pit <u>Potable Water</u> Bleach Tank 2" Vent (2,000 gallons)

	<u>Lube Oil</u> Lube Oil Storage Tanks Vent <u>B.F.P. Lube Oil</u> B.F.P. Lube Oil Reservoir Vent Fan 4" B.F.P. Lube Oil Batch Tank 3" Vent and Filter B.F.P. Lube Oil Conditioner Vent Fan 4" <u>Light Oil System</u> Light Oil Tank 6" Vent (2,000 bbl) Water Draw-Off Sump Diesel Day Tank .75" Vent - (550 gallon) Chemical Feed Tank Vent <u>Turbine Gland Seal Steam and Drain</u> Gland Steam Condenser Exhauster 6" Vent to Atmosphere <u>Fuel Oil at Burners</u> 1" Vents to Atmosphere Natural Gas 2" Vent to Atmosphere 6" Vent to Atmosphere <u>Ignition (LP) Gas</u> 1" Control Vent to Atmosphere L.P. Gas Tanks Relief Valve <u>Fuel Oil at Heaters</u> 1" Vents to Atmosphere M.C.C. Areas Exhaust Fans Lab Exhaust Hood <u>Turbine Generator Lube Oil</u> Generator Loop Seal Tank Exhauster 4" Vent to Atmosphere Turbine Lube Oil Reservoir Vapor Extractor 6" Vent Turbine Generator Lube Oil Batch Tank 4" Vent with Filter Turbine Generator Lube Oil Conditioner Vapor Extractor 4" Vent 1" Polishing Filter Vent 1" Air Educator Vent Electrically Heated Equipment Used for Heat Treating, Tracing, Drying, Soaking, Case Hardening or Surface Conditioning
5	Gas Metering Area (for Units 1 and 2) Gas Oil Separator Tank 8" Exhaust Vent Gas Oil Separator Tank 1.5" Vent Relief Valve 6" Blowdown Valve Gas Scrubber Relief Valve Condensate Tank with Filter
6	Sand Blast Booth
7	Evaporation of Non-Hazardous Boiler Chemical Cleaning Waste

Appendix U-1. List of Unregulated Emissions Units and/or Activities.

Unregulated Emissions Units and/or Activities. An emissions unit which emits no “emissions-limited pollutant” and which is subject to no unit-specific work practice standard, though it may be subject to regulations applied on a facility-wide basis (e.g., unconfined emissions, odor, general opacity) or to regulations that require only that it be able to prove exemption from unit-specific emissions or work practice standards.

The below listed emissions units and/or activities are neither ‘regulated emissions units’ nor ‘insignificant emissions units’.

E.U. ID No.	Brief Description of Emissions Units and/or Activities
-015	Diesel Generator (for Units -001 and -002)
-016	Facility-wide Fugitive Emissions for PM
-016	Facility-wide Fugitive Emissions for VOCs

APPENDIX 10.5

MONITORING PROGRAMS

APPENDIX 10.5.1

**FLORIDA DIVISION OF HISTORICAL RESOURCES
CLEARANCE LETTER**



FLORIDA DEPARTMENT OF STATE

Jim Smith
Secretary of State

DIVISION OF HISTORICAL RESOURCES

R.A. Gray Building
500 South Bronough

Tallahassee, Florida 32399-0250

Director's Office

Telecopier Number (FAX)

(904) 488-1480

(904) 488-3353

January 18, 1990

Hamilton S. Oven, Jr.
Administrator, Office of
Siting Coordination
Division of Air Resource Management
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

In Reply Refer To:
Susan M. Henefield
Historic Sites
Specialist
(904) 487-2333
Project File No. 900098

RE: Your January 5, 1990 Letter and Attachments
Cultural Resource Assessment Request
Florida Power & Light Company
Martin Coal Gasification/Combined Cycle Project
Power Plant Site Certification Application PA 89-27
Martin County, Florida

Dear Mr. Oven:

In accordance with the provisions of the National Historic Preservation Act of 1966 as amended, which are implemented by the procedures in 36 C.F.R., Part 800, as well as the provisions contained in Chapter 403.918(2)(a)6, Florida Statutes, we have reviewed the above referenced project.

We have reviewed the above referenced application and have the following comments. We have reviewed the survey report entitled, "Cultural Resource Assessment Survey of the Florida Power and Light Martin Coal Gasification/Combined Cycle Project Site, Martin County, Florida" by William G. Johnson, Robert J. Austin and Janice R. Ballo of Piper Archaeological Research, Inc. On the basis of the information presented, we concur with the findings of the archaeologists. We note that two previously unrecorded archaeological sites, 8MT71 (Lone Flake Site) and 8MT72 (Black Bottom Slough) were encountered. Site 8MT34 (Camp Andrew) could not be relocated and was determined not to be within the project area. We also concur with the archaeologists' assessment that site 8MT72, which is outside of the parcel to be developed, is potentially eligible for listing in the National Register of Historic Places, and recommend site preservation. If preservation is not feasible, Phase II testing is recommended.

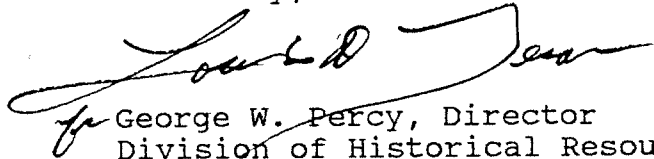
Mr. Owen
January 18, 1990
Page 2

Thus it is the opinion of this agency that project activities occurring within the 1,300 acres of the Martin Site to be used for the Coal Gasification/Combined Cycle project will have no effect on any archaeological or historic sites or properties listed, or eligible for listing, in the National Register of Historic Places, or otherwise of national, state, regional, or local significance. The project is consistent with the historic preservation aspects of Florida's coastal zone program, and may proceed without further involvement with this agency.

With regard to the corridor location and layout, we note that Florida Power and Light has addressed archaeological and historic site issues in Section 6.2.6.5 on pages 6.2.6-7 through 6.2.6-9 and in Section 6.2.8.7 on page 6.2.8-10. We look forward to further consultation on future archaeological and historic sites assessment surveys and the opportunity to review and comment on the resulting reports.

If you have any questions concerning our comments, please do not hesitate to contact us. Your interest in protecting Florida's archaeological and historic resources is appreciated.

Sincerely,

A handwritten signature in dark ink, appearing to read "George W. Percy", is written over the typed name.

George W. Percy, Director
Division of Historical Resources
and

State Historic Preservation Officer

GWP/smh

APPENDIX 10.5.2

SITE PHOTOGRAPHS



Photo 1. Palmetto prairie (FLUCFCS 321) with sparse slash pine canopy



Photo 2. Typical slash pine flatwoods (FLUCFCS 411) with saw palmetto understory



Photo 3. Drainage ditch (FLUCFCS 511) adjacent to Martin Plant access road



Photo 4. Melaleuca wetland (FLUCFCS 619) – exotic species encroaching upon historical wet prairie wetland



Photo 5. Mixed wetland forest (FLUCFCS 630) dominated by cypress and cabbage palm



Photo 6. Typical freshwater marsh (FLUCFCS 641) dominated by pickerelweed and maidencane



Photo 7. Freshwater marsh (FLUCFCS 641) dominated by sawgrass; wet prairie (FLUCFCS 643) in background



Photo 8. Wet prairie (FLUCFCS 643) dominated by bushy bluestem

APPENDIX 10.6

THERMINOL MSDS

(Example of Available Heat Transfer Fluid)

Solutia Inc.

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: THERMINOL® VP1 Heat transfer fluid

Reference Number: 000000000211

Date: 12/03/2004

Company Information:

United States:

Solutia Inc.
575 Maryville Center Drive, P.O. Box 66760
St. Louis, MO 63166-6760
Emergency telephone: Chemtrec: 1-800-424-9300
Non-Emergency telephone: 1-314-674-6661

Canada:

Solutia Canada Inc.
6800 St. Patrick Street
LaSalle, PQ H8N 2H3
Emergency telephone: CANUTEC: 1-613-996-6666
Non-Emergency telephone: 1-314-674-6661

Mexico:

Solutia MEXICO, S. DE R.L. DE C.V.
Paseo de la Reforma No. 2654 Piso 3-A
Col. Lomas Altas
C.P. 11950 Mexico D.F.
Emergency telephone: SETIQ: (in Mexico) 01-800-002-1400
Non-Emergency telephone: (in Mexico) 01-55-5259-6800

Brazil:

Solutia Brazil Ltd.
Avenue Carlos Marcondes, 1200
CEP: 12241-420-São José dos Campos/SP-Brazil
Emergency telephone: 55 12 3932 7100 (PABX)
Non-Emergency telephone: 55 11 3365 1800 (PABX)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Form: liquid
Colour: clear to colourless
Odour: characteristic

WARNING STATEMENTS

WARNING!
Causes eye irritation
Causes skin irritation
Causes respiratory tract irritation
Contains material which can cause liver and nerve damage

POTENTIAL HEALTH EFFECTS

Likely routes of exposure: eye and skin contact
inhalation

Eye contact:	Highly irritating to eyes.
Skin contact:	Highly irritating to skin. Prolonged or repeated skin contact may result in irritant dermatitis.
Inhalation:	Severely irritating if inhaled. No more than slightly toxic if inhaled. Significant adverse health effects are not expected to develop under normal conditions of exposure.
Ingestion:	No more than slightly toxic if swallowed. Significant adverse health effects are not expected to develop if only small amounts (less than a mouthful) are swallowed.
Signs and symptoms of overexposure:	headache fatigue nausea/vomiting indigestion abdominal pain tremors
Target organs/systems:	May cause liver damage May cause nerve damage

Refer to Section 11 for toxicological information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Components</u>	<u>CAS No.</u>	<u>Average concentration</u>	<u>Concentration range</u>	<u>Units</u>
diphenyl ether	101-84-8	73.5		%
biphenyl	92-52-4	26.5		%

4. FIRST AID MEASURES

If in eyes:	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove any contact lenses. Get medical attention. Remove material from skin and clothing.
If on skin:	Immediately flush the area with plenty of water. Remove contaminated clothing. Wash skin gently with soap as soon as it is available. Get medical attention. Wash clothing before reuse.
If inhaled:	Remove patient to fresh air. If not breathing, give artificial respiration. If breathing is difficult give oxygen. Remove material from eyes, skin and clothing.
If swallowed:	Immediate first aid is not likely to be required. A physician or Poison Control Center can be contacted for advice.

Wash heavily contaminated clothing before reuse.

5. FIRE FIGHTING MEASURES

Fire point:	127 C
Hazardous products of combustion:	carbon monoxide (CO); carbon dioxide; hydrocarbons
Extinguishing media:	Water spray, foam, dry chemical, or carbon dioxide
Unusual fire and explosion hazards:	None known
Fire fighting equipment:	Firefighters, and others exposed, wear self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.
Miscellaneous advice:	This product is not classified as a fire-resistant heat transfer fluid. Precautions to avoid sources of ignitions should be taken.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Use personal protection recommended in section 8.
Environmental precautions:	Keep out of drains and water courses.
Methods for cleaning up:	Contain large spills with dikes and transfer the material to appropriate containers for reclamation or disposal. Absorb remaining material or small spills with an inert material and then place in a chemical waste container. Flush spill area with water.

Refer to Section 13 for disposal information and Sections 14 and 15 for reportable quantity information.

7. HANDLING AND STORAGE

Handling

Avoid contact with eyes, skin and clothing.
Avoid breathing vapour or mist.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.
Precautions against ignitions and fire should be taken with this product.
Heat transfer fluids are intended for INDIRECT heating purposes ONLY.
This product has not been approved for food grade use.

Emptied containers retain vapour and product residue. Observe all recommended safety precautions until container is cleaned, reconditioned or destroyed. Do not cut, drill, grind or weld on or near this container. The reuse of this material's container for non industrial purposes is prohibited and any reuse must be in consideration of the data provided in this material safety data sheet.

Storage

General: Stable under normal conditions of handling and storage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits: (ml/m3 = ppm)

THERMINOL® VP1 No specific occupational exposure limit has been established.

biphenyl ACGIH TLV: 0.2 ml/m³ ; mist ; 8-hr TWA
OSHA PEL: 0.2 ml/m³ ; 1.0 mg/m³ ; ; 8-hr TWA
Mexican OEL: 0.2 ml/m³ ; 1.5 mg/m³ ; ; 8-hr TWA
Mexican OEL: 0.6 ml/m³ ; 4 mg/m³ ; ; 15-min STEL

diphenyl ether ACGIH TLV: 1 ml/m³ ; ; 8-hr TWA
ACGIH TLV: 2 ml/m³ ; ; 15-min STEL
OSHA PEL: 1 ml/m³ ; 7 mg/m³ ; ; 8-hr TWA
Mexican OEL: 1 ml/m³ ; 7 mg/m³ ; ; 8-hr TWA
Mexican OEL: 2 ml/m³ ; 14 mg/m³ ; ; 15-min STEL

Eye protection: Wear safety goggles.
Have eye flushing equipment available.

Hand protection: Wear chemical resistant gloves.
Consult the glove/clothing manufacturer to determine the appropriate type
glove/clothing for a given application.
See Solutia Glove Facts for permeation data.

Body protection: Wear suitable protective clothing.
Consult the glove/clothing manufacturer to determine the appropriate type
glove/clothing for a given application.
Wear full protective clothing if exposed to splashes.
Wash contaminated skin promptly.
Launder contaminated clothing and clean protective equipment before reuse.
Wash thoroughly after handling.
Have safety shower available at locations where skin contact can occur.

Respiratory protection: Avoid breathing vapour or mist.
Use approved respiratory protection equipment (full facepiece recommended) when
airborne exposure limits are exceeded.
If used, full facepiece replaces the need for face shield and/or chemical goggles.
Consult the respirator manufacturer to determine the appropriate type of equipment for
a given application.
Observe respirator use limitations specified by the manufacturer.

Ventilation: Provide natural or mechanical ventilation to control exposure levels below airborne
exposure limits.
If practical, use local mechanical exhaust ventilation at sources of air contamination
such as processing equipment.

Components referred to herein may be regulated by specific Canadian provincial legislation. Please refer to exposure
limits legislated for the province in which the substance will be used.

9. PHYSICAL AND CHEMICAL PROPERTIES

Flash point: 110 C Pensky-Martens closed tester
124 C Cleveland Open Cup

Autoignition temperature: 612 C ASTM D-2155

Density: 1.06 g/cm³ @ 25 C

Boiling point : 257 C
Crystallising point : 12 C
Water solubility: ~25 mg/l

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

Conditions to avoid: All sources of ignition.
Materials to avoid: Contact with strong oxidizing agents.
Hazardous reactions: Hazardous polymerization does not occur.
Hazardous decomposition products: None known;

11. TOXICOLOGICAL INFORMATION

This product has been tested for toxicity. Results from Solutia sponsored studies or from the available public literature are described below.

Acute animal toxicity data

Oral: LD50 , rat, 2,050 mg/kg , No more than slightly toxic
Dermal: LD50 , rabbit, > 5,010 mg/kg , Practically nontoxic after skin application in animal studies.
Inhalation: LC50 , rat, 2.66 mg/l , 4 h, Toxic based on animal inhalation exposure studies.
Skin irritation: rabbit , Slightly irritating to skin., 24 h

Repeat dose toxicity: rat, inhalation, 13 weeks,
Produced effects on body weight, serum enzymes and/or organ weights in repeat dose studies.

Repeat dose toxicity: rat, gavage, 26 weeks,
Produced effects on body weight, serum enzymes and/or organ weights in repeat dose studies. Effects only observed at very high dose levels.
Target organs affected kidneys, liver, spleen

Repeat dose toxicity: rat, diet, subchronic,
Repeated oral exposure produced liver and kidney changes in animal models.
Target organs affected liver, kidneys

Developmental toxicity: rat, gavage, , No effects on offspring observed in laboratory animals in the presence of maternal toxicity.

Mutagenicity: No genetic effects were observed in standard tests using bacterial and animal cells.

Components

Data from Solutia studies and/or the available scientific literature on the components of this material which have been identified as hazardous chemicals under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200) or the Canadian Hazardous Products Act are discussed below.

biphenyl	Chronic exposure has been reported to cause headache, fatigue, nausea, indigestion, abdominal pain, tremor, central and peripheral nerve damage and liver injury. Slightly toxic following oral administration. Practically nontoxic after skin application in animal studies. Practically non irritating to skin (rabbit). Slightly irritating to eyes (rabbit). No mortality or signs of toxicity at the highest level achievable. Irritating to respiratory system in animal models. Produced effects on body weight, serum enzymes and/or organ weights in repeat dose studies. Produced no dermal sensitization (guinea pigs). No effects on offspring observed in laboratory animals in the presence of maternal toxicity. No genetic effects were observed in standard tests using bacterial and animal cells.
diphenyl ether	Predictive patch testing on human volunteers did not produce irritation or sensitization. Slightly toxic following oral administration. Practically nontoxic after skin application in animal studies. Slightly irritating to eyes (rabbit). Slightly irritating to skin (rabbit). Repeated exposure produced respiratory tract irritation in animal models. Repeated exposure produced eye irritation in animal models. No genetic effects were observed in standard tests using bacterial and animal cells.

12. ECOLOGICAL INFORMATION

Environmental Toxicity:

Invertebrates	48 h, EC50	Water flea (<i>Daphnia magna</i>)	2.4 mg/l
Fish:	96 h, LC50	Rainbow trout (<i>Oncorhynchus mykiss</i>)	7.6 mg/l
	96 h, LC50	Fathead minnow (<i>Pimephales promelas</i>)	24 mg/l
Algae:	96 h, EC50	Algae (<i>Selenastrum capricornutum</i>)	1.3 mg/l
Biodegradation	Modified SCAS (OECD 302A) Primary degradation 99 %		

13. DISPOSAL CONSIDERATIONS

US EPA RCRA Status: This material when discarded may be a hazardous waste as that term is defined by the Resource Conservation and Recovery Act (RCRA), 40 CFR 261.24, due to its toxicity characteristic. This material should be analyzed in accordance with Method 1311 for the compound(s) below.

US EPA RCRA hazardous waste number:	D018	Compound/Characteristic:	BENZENE
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Disposal considerations: Incineration

Miscellaneous advice: This product meets the criteria for a synthetic used oil under the U.S. EPA Standards for the Management of Used Oil (40 CFR 279). Those standards govern recycling and disposal in lieu of 40 CFR 260 -272 of the Federal hazardous waste program in states that have adopted these used oil regulations. Consult your attorney or appropriate regulatory official to be sure these standards have been adopted in your state. Recycle or burn in accordance with the applicable standards.
Solutia operates a used fluid return program for certain fluids under these used oil standards. Contact your Sales Representative for details.
This product should not be dumped, spilled, rinsed or washed into sewers or public waterways.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

US DOT

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
biphenyl
Hazard Class: 9
Hazard Identification number: UN3082
Packing Group: Packing Group III
Transport label: Class 9
Special provisions: This material meets the definition of a marine pollutant.
Other: Applies ONLY to containers with an RQ or for shipments in bulk or via intercoastal water transportation.

Canadian TDG

Other: Not regulated for transport.

Reportable Quantity/Limit

US DOT RQ 100 lb *biphenyl*
Package size containing reportable amount: 377 lb

ICAO/IATA Class

Other: See DOT Information

15. REGULATORY INFORMATION

All components are in compliance with the following inventories: U.S. TSCA, EU EINECS, Canadian DSL, Australian AICS, Korean, Japanese ENCS, Phillipine PICCS, Chinese

Canadian WHMIS classification: D2(A) - Materials Causing Other Toxic Effects
D2(B) - Materials Causing Other Toxic Effects

SARA Hazard Notification:

Hazard Categories Under Title III Rules (40 CFR 370): Immediate
Delayed

Section 302 Extremely Hazardous Not applicable

Substances:

Section 313 Toxic Chemical(s): biphenyl

CERCLA Reportable Quantity:

100 lbs biphenyl

For this/these chemicals, release of more than the Reportable Quantity to the environment in a 24 hour period requires notification to the National Response Center (800-424-8802 or 202-426-2675).

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation and the MSDS contains all the information required by the Canadian Controlled Products Regulation.

Refer to Section 11 for OSHA/HPA Hazardous Chemical(s) and Section 13 for RCRA classification.

Safety data sheet also created in accordance with Brazilian law NBR 14725

16. OTHER INFORMATION

Product use: Heat transferring agents

Reason for revision: New ANSI Standard

	Health	Fire	Reactivity	Additional Information
Suggested NFPA Rating	2	1	0	
Suggested HMIS Rating:	2	1	0	G

Prepared by the Solutia Hazard Communication Group. Please consult Solutia @ 314-674-6661 if further information is needed.

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APPENDIX 10.7

PRELIMINARY CONCEPTUAL DRAINAGE PLAN AND CONCEPTUAL DRAINAGE PERMIT DRAWINGS

PRELIMINARY CONCEPTUAL DRAINAGE PLAN

Preliminary Conceptual Drainage Plan

Engineering Calculations & Supplementary Documents
Supporting a Surface Water Management System Serving

Florida Power & Light Company Martin Solar Energy Center

Prepared for the benefit of

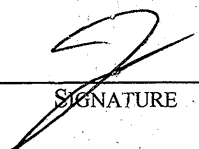


Prepared By:

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April 2008

ENGINEER OF RECORD
MARCOS MONTES DE OCA, P.E.
BOYLE ENGINEERING CORP. NO. 2005
FLORIDA REGISTRATION NO. 63897
3550 S.W. CORPORATE PARKWAY
PALM CITY, FLORIDA 34990

 4/24/08
SIGNATURE DATE

Preliminary Conceptual Drainage Plan – Table of Contents

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List of Enclosed Exhibits and Appendices

DESCRIPTION

Exhibits

A	Post-Development Basin Characteristics, Land Use Summary, & Stage Storage
B	Aerial Location Map
C	Post-Development Nodal Diagram
D	Basin Curve Number Summary
E	10y1d, 25y3d, 100y 3d, & 100y3d-0 Discharge, Node & Link Max Comparison Reports
F	Post-Development Water Quality Calculations
G	Culvert Sizing Calculations and Contributing Area Exhibit
H	Post-Development Model Inputs

PROJECT DESCRIPTION AND DRAINAGE SUMMARY

The Florida Power & Light Company (FPL) has an existing power plant facility located south of State Road 710 in Indiantown, Florida. The project area is located within Sections 20, 21, 28, and 29 of Township 39 South, Range 38 East. The site is 675± acres; however, proposed improvements are for 535± acres of the available area. Proposed improvements include the addition of a solar field and a solar power block. Currently, the site consists of a power block area, a transmission corridor, and undeveloped area. Please refer to *Exhibit B* for an aerial map of the site.

DRAINAGE DESIGN

The proposed surface water management system (SWMS) for the project will consist of swales located between the rows of solar panels and dry detention areas. The SWMS is separated into three drainage basins which will operate independently of one another. Additionally, culverts will be installed under the proposed access road to allow for conveyance of water along the roadway swale. Please refer to the attached preliminary conceptual drainage plans to view the location of culverts, swales, and dry detention areas. Please refer to the attached *Exhibit G* for additional information on the proposed culvert sizing.

EXISTING CONDITIONS:

The existing project area currently sheetflows to the adjacent roadside swale. Once offsite, the stormwater discharges into the St. Lucie Canal. The existing developed area (Basin 3) current has a SWMS structure and associated improvements. The existing outfall structure in basin 3 will be utilized in conjunction with the proposed improvements.

PROPOSED CONDITIONS:

The proposed SWMS for the project (Post-Development) will provide the required amount of water quality treatment prior to discharge. The project area was separated into three basins which will operate independently of each one another. Runoff from the site flows into dry detention areas (one for each basin) which will then discharge into an existing drainage ditch via control structures. A brief description of each basin is given below:

Basin 1 (Basin-01) consists of a solar field and green space. The discharge from this basin will be directed via dry detention swales located between the rows of solar panels to a dry detention area located at the northern edge of the basin. From the dry detention area, stormwater will be discharged through a control structure into an existing ditch located at the western edge of the basin. The basin will be controlled at 23.8' NAVD (25.0' NGVD).

Basin 2 (Basin-02) consists of a solar field, a construction area, and green space. The discharge from this basin will be directed via dry detention swales located between the rows of solar panels to a dry detention area located at the southern edge of the basin. From the dry detention area, stormwater will be discharged through a control structure into an existing ditch located at the western edge of the basin. The basin will be controlled at 23.8' NAVD (25.0' NGVD).

The excess runoff from the existing Transmission Area will be rerouted to the north of basin 1, thus not affecting the discharge from either basin 1 or basin 2.

Basin 3 (Basin-03) consists of a solar field, an existing drainage basin, and green space. The basin currently is comprised of buildings, roadways, and a dry detention basin with a control structure. Basin 3 will be modified by the addition of a new berm, the relocation of an existing ditch, and the addition of a new dry detention area. Inflows from Basin 4 are allowed to pass through the proposed system. The site improvements will allow the proposed area to mimic its existing conditions. The discharge from proposed area will be directed via dry detention swales located between the rows of solar panels to a dry detention area located at the southern edge of the basin. From the dry detention area, stormwater will be discharged through an existing control structure into ditch located at the south-eastern edge of the basin. The remaining area will utilize existing facilities to convey the stormwater to the existing control structure. The basin will be controlled at 23.8' NAVD (25.0' NGVD). Calculations for Basin 3 have been not included due to the existing structure utilized and previous impervious and grading assumptions based upon the previously submitted drainage report prepared by Howard Searcy, P.E..

Basin 4 (Basin 04), modeled as a dummy node, is north of basin 3. This node was given a rating curve to mimic two 24 inch culverts conveying overflow stormwater. Runoff flows exceeding the 10 year 3 day storm pass through two

24 inch culverts and a grease trap structure. Basin 4 discharges into basin 3 through the two culverts at a maximum rate of 5.5 cfs. This contributing inflow was modeled for the 25year 3day and 100year 3day event.

The water quality treatment methodology utilized consists of dry detention swales located between the solar panels that run throughout the project and three dry detention areas. Water quality calculations for these areas are attached as **Exhibit F**.

SUMMARY OF RESULTS

The analysis shows that the post-development site discharge for Basins 1 and 2 will be the same as the pre-development discharge. The pre-development conditions outlined in the 1990 report prepared by Howard Searcy, P.E. demonstrated that during the 25 year, 3 day design storm event Basins 1 and 2 will discharge 0.2 cfs / acre. Likewise, from the post-development model, the site will discharge 24.6 cfs from Basin 1 and 28.1 cfs from Basin 2 resulting in a discharge of 0.11 cfs/acre. Similarly, Basin 3 discharges 52.9 cfs (0.46 cfs/acre) from the existing control structure. Compared to predevelopment conditions outlined in the 1990 report prepared by Howard Searcy, P.E., the average discharge for this area was 0.4 cfs/acre.

A summary of the results for the post-development model is attached as **Exhibit E**. The minimum finished floor, minimum perimeter berm, and minimum road crown elevations for each basin are as follows:

	Finish Floor	Perimeter Berm	Road Crown
Basin 1	28.3	27.4	26.4
Basin 2	29.0	28.0	26.8
Basin 3	29.5	28.1	26.6

* All elevations are in ft NAVD

Exhibit A

Post Development Basin Characteristics, Land Use Summary, & Stage Storage

POST-DEVELOPMENT **BASIN CHARACTERISTICS - Basin 1**

Soil Type = Flatwoods Soil

Soil Condition = Compacted

Time of Concentration = 1.00 hours = 60.0 minutes

Basin 1	Building	Access Roadway	Solar Panel Pads	Dry Detention	Dry Detention Slope	Open Area	Total Area
Total Areas (Ac.)	0.52	48.71	78.52	20.51	61.33	69.71	279.3
Bldg. %	100%	0%	0%	0%	0%	0%	0%
Bldg. Area	0.5	0.0	0.0	0.0	0.0	0.0	0.5
Pervious %	0%	0%	30%	10%	25%	95%	38%
Pervious Area (Ac.)	0.0	0.0	23.6	2.1	15.3	66.2	107.2
Impervious %	0%	100%	70%	90%	75%	5%	61%
Impervious Area (Ac.)	0.0	48.7	55.0	18.5	46.0	3.5	171.6

Computation Type Stage-Storage

Starting Stage = 24.80

Ending Stage = 33.00

Stage Increment = 0.50

Name	Building	Access Roadway	Solar Panel Pads	Dry Detention	Dry Detention Slope	Open Area	
Area Available for Surface							
Water Storage	0.5	48.7	78.5	20.5	61.3	69.7	
Start Elev	31.50	30.00	29.00	24.80	24.80	28.50	
End Elev		31.00	29.50		28.30	31.50	
Stage	Vert	Linear	Linear	Vert	Linear	Linear	Total
Feet	Storage	Storage	Storage	Storage	Storage	Storage	Storage
NGVD	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft
24.80	0.0	0.0	0.0	0.0	0.0	0.0	0.00
25.30	0.0	0.0	0.0	10.3	2.2	0.0	12.45
25.80	0.0	0.0	0.0	20.5	8.8	0.0	29.27
26.30	0.0	0.0	0.0	30.8	19.7	0.0	50.48
26.80	0.0	0.0	0.0	41.0	35.0	0.0	76.07
27.30	0.0	0.0	0.0	51.3	54.8	0.0	106.03
27.80	0.0	0.0	0.0	61.5	78.9	0.0	140.38
28.30	0.0	0.0	0.0	71.8	107.3	0.0	179.11
28.80	0.0	0.0	0.0	82.0	138.0	1.0	221.08
29.30	0.0	0.0	7.1	92.3	168.7	7.4	275.46
29.80	0.0	0.0	43.2	102.6	199.3	19.6	364.69
30.30	0.0	2.2	82.4	112.8	230.0	37.6	465.07
30.80	0.0	15.6	121.7	123.1	260.7	61.5	582.47
31.30	0.0	39.0	161.0	133.3	291.3	91.1	715.65
31.80	0.2	63.3	200.2	143.6	322.0	125.5	854.74
32.30	0.4	87.7	239.5	153.8	352.6	160.3	994.39
32.80	0.7	112.0	278.7	164.1	383.3	195.2	1134.04

POST-DEVELOPMENT **BASIN CHARACTERISTICS - Basin 2**

Soil Type = Flatwoods Soil

Soil Condition = Compacted

Time of Concentration = 1.00 hours = 60.0 minutes

Basin 2	Construction Area	Access Roadway	Solar Panel Pads	Dry Detention	Dry Detention Slope	Open Area	Total Area
Total Areas (Ac.)	32.00	23.34	35.01	10.02	34.36	76.27	211.0
Bldg. %	0%	0%	0%	0%	0%	0%	0%
Bldg. Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pervious %	0%	0%	30%	10%	25%	95%	44%
Pervious Area (Ac.)	0.0	0.0	10.5	1.0	8.6	72.5	92.6
Impervious %	100%	100%	70%	90%	75%	5%	56%
Impervious Area (Ac.)	32.0	23.3	24.5	9.0	25.8	3.8	118.4

Computation Type Stage-Storage

Starting Stage = 24.80

Ending Stage = 33.00

Stage Increment = 0.50

Name	Construction Area	Access Roadway	Solar Panel Pads	Dry Detention	Dry Detention Slope	Open Area	
Area Available for Surface							
Water Storage	32.0	23.3	35.0	10.0	34.4	76.3	
Start Elev	29.50	29.50	28.50	24.80	24.80	28.00	
End Elev	30.50	30.50	29.00		28.30	31.00	
Stage	Linear	Linear	Linear	Vert	Linear	Linear	Total
Feet	Storage	Storage	Storage	Storage	Storage	Storage	Storage
NGVD	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft
24.80	0.0	0.0	0.0	0.0	0.0	0.0	0.00
25.30	0.0	0.0	0.0	5.0	1.2	0.0	6.24
25.80	0.0	0.0	0.0	10.0	4.9	0.0	14.93
26.30	0.0	0.0	0.0	15.0	11.0	0.0	26.07
26.80	0.0	0.0	0.0	20.0	19.6	0.0	39.67
27.30	0.0	0.0	0.0	25.1	30.7	0.0	55.73
27.80	0.0	0.0	0.0	30.1	44.2	0.0	74.24
28.30	0.0	0.0	0.0	35.1	60.1	1.1	96.34
28.80	0.0	0.0	3.2	40.1	77.3	8.1	128.68
29.30	0.0	0.0	19.3	45.1	94.5	21.5	180.32
29.80	1.4	1.1	36.8	50.1	111.7	41.2	242.21
30.30	10.2	7.5	54.3	55.1	128.9	67.2	323.18
30.80	25.6	18.7	71.8	60.1	146.0	99.7	421.85
31.30	41.6	30.3	89.3	65.1	163.2	137.3	526.84
31.80	57.6	42.0	106.8	70.1	180.4	175.4	632.34
32.30	73.6	53.7	124.3	75.2	197.6	213.6	737.84
32.80	89.6	65.4	141.8	80.2	214.8	251.7	843.34

POST-DEVELOPMENT **BASIN CHARACTERISTICS - Basin 3**

Soil Type = Flatwoods Soil

Soil Condition = Compacted

Time of Concentration = 1.00 hours = 60.0 minutes

Basin 3	Building	Access Roadway	Solar Panel Pads	Dry Detention	Dry Detention Slope	Open Area	Total Area
Total Areas (Ac.)	11.23	14.92	13.50	7.87	11.22	55.36	114.1
Bldg. %	100%	0%	0%	0%	0%	0%	10%
Bldg. Area	11.2	0.0	0.0	0.0	0.0	0.0	11.2
Pervious %	0%	0%	30%	10%	25%	95%	53%
Pervious Area (Ac.)	0.0	0.0	4.1	0.8	2.8	52.6	60.2
Impervious %	0%	100%	70%	90%	75%	5%	37%
Impervious Area (Ac.)	0.0	14.9	9.5	7.1	8.4	2.8	42.6

Computation Type Stage-Storage

Starting Stage = 24.80

Ending Stage = 33.00

Stage Increment = 0.50

Name	Building	Access Roadway	Solar Panel Pads	Dry Detention	Dry Detention Slope	Open Area	
Area Available for Surface							
Water Storage	11.2	14.9	13.5	7.9	11.2	55.4	
Start Elev	31.00	29.50	28.50	24.80	24.80	28.00	
End Elev		30.50	29.00		28.30	31.00	
Stage	Vert	Linear	Linear	Vert	Linear	Linear	Total
Feet	Storage	Storage	Storage	Storage	Storage	Storage	Storage
NGVD	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft
24.80	0.0	0.0	0.0	0.0	0.0	0.0	0.00
25.30	0.0	0.0	0.0	3.9	0.4	0.0	4.34
25.80	0.0	0.0	0.0	7.9	1.6	0.0	9.47
26.30	0.0	0.0	0.0	11.8	3.6	0.0	15.41
26.80	0.0	0.0	0.0	15.7	6.4	0.0	22.15
27.30	0.0	0.0	0.0	19.7	10.0	0.0	29.69
27.80	0.0	0.0	0.0	23.6	14.4	0.0	38.04
28.30	0.0	0.0	0.0	27.5	19.6	0.8	48.01
28.80	0.0	0.0	1.2	31.5	25.2	5.9	63.85
29.30	0.0	0.0	7.4	35.4	30.9	15.6	89.29
29.80	0.0	0.7	14.2	39.4	36.5	29.9	120.56
30.30	0.0	4.8	20.9	43.3	42.1	48.8	159.87
30.80	0.0	11.9	27.7	47.2	47.7	72.3	206.85
31.30	3.4	19.4	34.4	51.2	53.3	99.6	261.29
31.80	9.0	26.9	41.2	55.1	58.9	127.3	318.34
32.30	14.6	34.3	47.9	59.0	64.5	155.0	375.39
32.80	20.2	41.8	54.7	63.0	70.1	182.7	432.44

Exhibit B
Aerial Location Map

Exhibit C
Post-Development Nodal Diagram

DWG: P:\17038\17038\17038 NODAL.dwg Layout Name: POST Plotted by: Ryan, Russell Date: 4/24/2008 3:34 PM
XREFS:

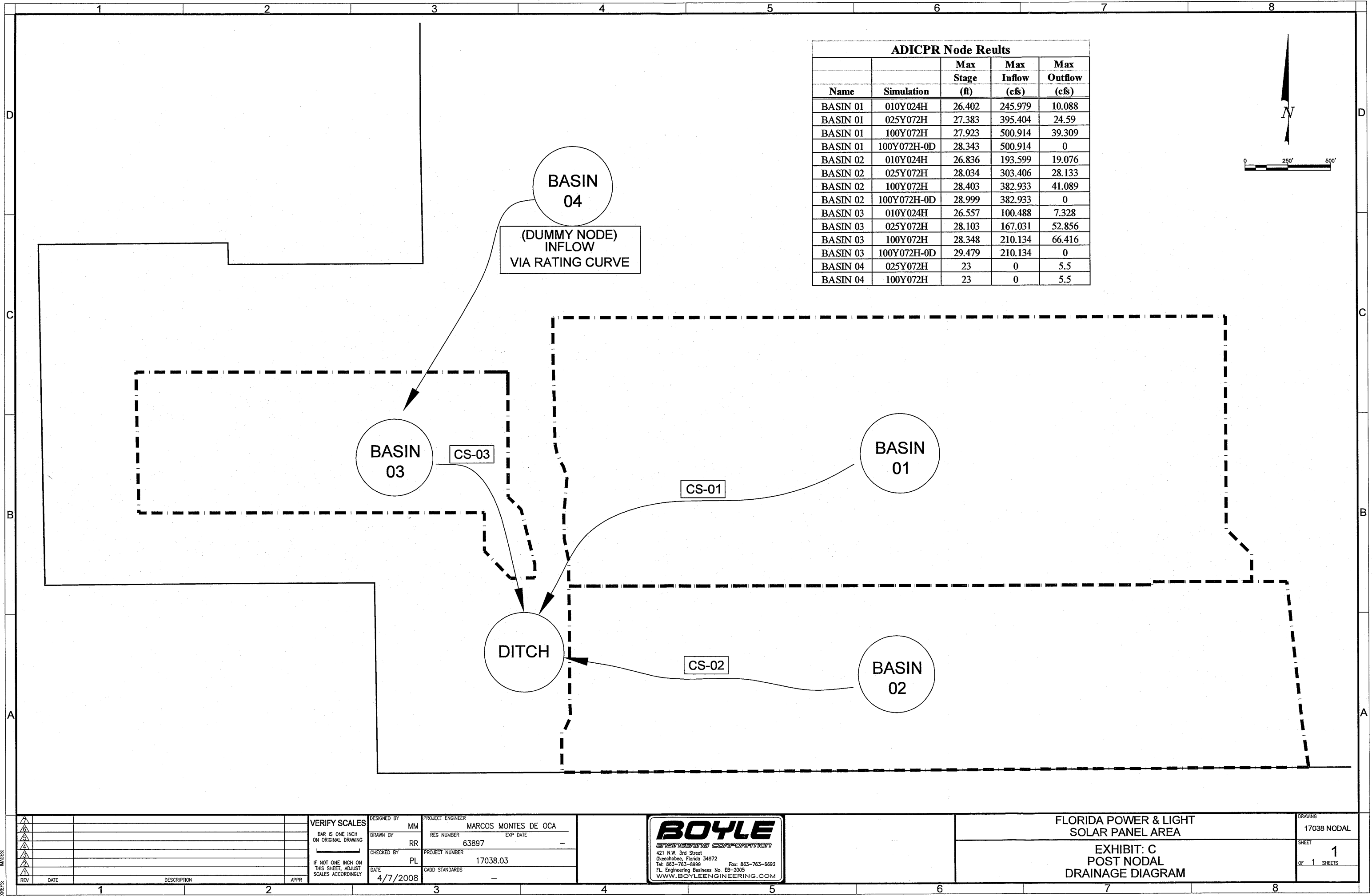


Exhibit D

Basin Curve Number Summary

Project: Florida Power and Light
 Prj. # 17038
 Engineer: JRB

Overall Project Curve Number

	Project Areas		
	Basin 1	Basin 2	Total
Building	0.52	0	0.52
Switch Yard	0	32	32
Access Roadway	48.71	23.34	72.05
Solar Panel Pads	78.52	35.01	113.53
Dry Detention Bottom	19.37	9.01	28.38
Dry Detention Slope	77.16	30.85	108.01
Open Area	55.02	80.79	135.81
Total	279.3	211	490.3

Curve Number Calculations

	Basin 1		
	Area	CN	Weighted CN
Building	0.52	98	51.0
Construction Area	0	98	0.0
Access Roadway	48.71	95	4627.5
Solar Panel Pads	78.52	70	5496.4
Dry Detention Bottom	20.51	94	1927.9
Dry Detention Slope	61.33	83	5090.4
Open Area	69.71	70	4879.7
OVERALL CN FOR BASIN			79.0
Soil Storage			2.65 inch

	Basin 2		
	Area	CN	Weighted CN
Building	0	98	0.0
Construction Area	32	98	3136.0
Access Roadway	23.34	95	2217.3
Solar Panel Pads	35.01	70	2450.7
Dry Detention Bottom	10.02	94	941.9
Dry Detention Slope	34.36	83	2851.9
Open Area	76.27	70	5338.9
OVERALL CN FOR BASIN			80.3
Soil Storage			2.46 inch

	Basin 3		
	Area	CN	Weighted CN
Building	11.23	98	1100.5
Construction Area	0	98	0.0
Access Roadway	14.92	95	1417.4
Solar Panel Pads	13.5	70	945.0
Dry Detention Bottom	7.87	94	739.8
Dry Detention Slope	11.22	83	931.3
Open Area	55.36	70	3875.2
OVERALL CN FOR BASIN			79.0
Soil Storage			2.66 inch

Exhibit E

3y1d, 10y1d, 25y3d, & 100y 3d
Node & Link Max Comparison Reports

Project	Florida Power and Light
Prj. #	17038
Engineer	JRB

ADICPR Node Reults

Name	Simulation	Max Time Stage (hrs)	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surf Area (ft ²)	Max Time Inflow (hrs)	Max Inflow (cfs)	Max Time Outflow (hrs)	Max Outflow (cfs)
BASIN 01	010Y024H	23.99	26.402	31	0.3751	3174015	12.51	245.979	23.99	10.088
BASIN 01	025Y072H	69.72	27.383	31	0.0327	4060017	60.52	395.404	69.69	24.59
BASIN 01	100Y072H	68.34	27.923	31	0.0359	2368478	60.5	500.914	68.35	39.309
BASIN 01	100Y072H-0D	72	28.343	31	0.0386	5059201	60.5	500.914	0	0
BASIN 02	010Y024H	20.07	26.836	31	0.0907	560049	12.5	193.599	20.07	19.076
BASIN 02	025Y072H	66.47	28.034	31	0.025	1856380	60.52	303.406	66.34	28.133
BASIN 02	100Y072H	65.75	28.403	31	0.0207	2927340	60.5	382.933	65.75	41.089
BASIN 02	100Y072H-0D	72	28.999	31	0.0229	4117397	60.5	382.933	0	0
BASIN 03	010Y024H	22.36	26.557	31	0.1346	569515	12.51	100.488	22.36	7.328
BASIN 03	025Y072H	63.52	28.103	31	0.0267	1035903	60.52	167.031	63.52	52.856
BASIN 03	100Y072H	63.45	28.348	31	0.03	1607241	60.5	210.134	63.45	66.416
BASIN 03	100Y072H-0D	100	29.479	31	0.0774	2896455	60.5	210.134	0	0
BASIN 04	025Y072H	0	23	0	0	113	0	0	60	5.5
BASIN 04	100Y072H	0	23	0	0	113	0	0	60	5.5

ADICPR Link Reults

Name	Simulation	Max Time Flow (hrs)	Max Time Flow (cfs)	Max Delta Q (cfs)	Max US Stage (hrs)	Max Time US Stage (ft)	Max DS Stage (hrs)	Max Time DS Stage (ft)
CS 01	010Y024H	23.99	10.088	1.26	23.99	26.402	48.01	25
CS 01	025Y072H	69.69	24.59	0.344	69.72	27.383	48	25
CS 01	100Y072H	68.35	39.309	0.15	68.34	27.923	48	25
CS 02	010Y024H	20.07	19.076	0.285	20.07	26.836	48.01	25
CS 02	025Y072H	66.34	28.133	-0.103	66.47	28.034	48	25
CS 02	100Y072H	65.75	41.089	0.061	65.75	28.403	48	25
CS 03	010Y024H	22.36	7.328	0.225	22.36	26.557	48.01	25
CS 03	025Y072H	63.52	52.856	-0.18	63.52	28.103	48	25
CS 03	100Y072H	63.45	66.416	-0.183	63.45	28.348	48	25

Note:

All Elevations are FT NAVD

10Y024H: Ten Year, One Day Routing Storm Event

25Y072H: Twenty-Five Year, Three Day Routing Storm Event

100Y072H: One-Hundred Year, Three Day Routing Storm Event

100Y072H-0D: One-Hundred Year, Three Day Routing Storm Event - 0 Discharge

Exhibit F
Post-Development Water Quality
Calculations

Exhibit E-III.M

POST-Development Water Quality & Attenuation Calculations

Project Name: Florida Power and Electric
LBFH File No: 17038
Engineer: JRB
Date: April 24, 2008

Basin 1

Require Water Quality Detention Volume

Total Area	279.3	acres
Building Area	0.5	acres
SWMS Impervious Area	0.0	acres
Site Area = Total Area - Building - SWMS	278.8	acres
Pervious Area	107.2	acres
Impervious Area w/o SWMS Area =	171.6	acres
% Impervious =	62%	

Detention Volume is the greater of 1" over the entire project or 2.5" x % of impervious area

Treatment Method	Dry Detention
Percent of Treatment Required	75%

1" over the Project Area = 17.46 acre-feet

2.5" x % Impervious Area = 26.87 acre-feet

Detention Volume Required = 26.87 acre-feet

Elevation Water Quality Volume is Met = 25.73 FT NAVD

Basin Control Elevation = 23.80 FT NAVD

Note: Water Quality Volume is strictly accounted for in storage provided by the wet detention areas that meet the spatial requirements.

Discharge Capacities

Water Quality Discharge			Onsite Contributing Area for Peak Discharge		
Calculated allowable 24-hour average discharge rate based on 1/2 inch per day for the treatment area.			Basin 1	279.3	acres
Basin 1 Project Area =	279.3	acres	Total Contributing Area =	279.3	acres
Allowable WQ Discharge =	5.87	cfs			

Bleeder Shape & Sizing

V-Notch Weir - Using Method provided in SFWMD Vol. IV

$$\Theta = 2 \tan^{-1}(0.492 V_{DET}/H^{2.5})$$

V_{DET} = 11.64 acre-feet

H = 1.93 feet

Theta = 177.00 degrees

Due to construction limitations this V-Notch configuration is not feasible.

Circular Orifice Equation

D = 1.10 ft = 13.2 inches

a = 0.95 feet²

C = 0.63

g = 32.20 ft/sec²

h = 1.38 feet

Q = 5.64 cfs

Orifice Equation

$$Q = CA\sqrt{2gh}$$

Weir Equation

$$Q = CLH^{3/2}$$

Rectangular Orifice Discharge

H = 0.25 ft = 3.0 inches

W = 3.25 ft = 39.0 inches

C = 0.63

g = 32.20 ft/sec²

h = 1.81 feet

Q = 5.52 cfs

NOT USED

Exhibit E-III.M
POST-Development Water Quality & Attenuation Calculations

Project Name: Flordia Power and Electric
LBFH File No: 17038
Engineer: JRB
Date: April 24, 2008

Basin 1

Peak Discharge Weir Sizing

Peak Allowable Q = 64.00 CSM
Peak Allowable Q for Contributing Area = 27.93 cfs

Design Storm Peak Stage =	27.40	FT NAVD
Peak Discharge Weir Invert =	25.73	FT NAVD
Control Elevation =	23.80	FT NAVD
Tail Water =	25.00	FT NAVD

Water Quality Structure Data
Shape = Circular Orifice

D =	1.1 ft =	13.2 inches
a =	0.95	feet ²
C =	0.63	
g =	32.20	ft/sec ²
h =	3.05	feet
Q =	8.39	cfs

Water Quality Structure Data
Shape = Rectangular Orifice

H =	0.25 ft =	3.0 inches
W =	3.25 ft =	39.0 inches
C =	0.60	
g =	32.20	ft/sec ²
h =	3.48	feet
Q =	7.29	cfs

NOT USED

Peak Allowable Less WQ Peak Discharge =	19.54	cfs
Peak Discharge Weir C =	3.13	
Peak Discharge Weir H =	1.67	feet

$$Q = CLH^{3/2}$$

Resulting Peak Discharge Weir Length (L) =	2.89	feet
--	------	------

Exhibit E-III.M
POST-Development Water Quality & Attenuation Calculations

Project Name: Florida Power and Electric
 LBFH File No: 17038
 Engineer: JRB
 Date: April 24, 2008

Basin 2

Require Water Quality Detention Volume

Total Area	211.0	acres
Building Area	0.0	acres
SWMS Impervious Area	0.0	acres
Site Area = Total Area - Building - SWMS	211.0	acres
Pervious Area	92.6	acres
Impervious Area w/o SWMS Area =	118.4	acres
% Impervious =	56%	

Detention Volume is the greater of 1" over the entire project or 2.5" x % of impervious area

Treatment Method Dry Detention
 Percent of Treatment Required 75%

1" over the Project Area = 13.19 acre-feet

2.5" x % Impervious Area = 18.51 acre-feet

Detention Volume Required = 18.51 acre-feet

Elevation Water Quality Volume is Met = 25.96 FT NAVD

Basin Control Elevation = 23.80 FT NAVD

Note: Water Quality Volume is strictly accounted for in storage provided by the wet detention areas that meet the spatial requirements.

Discharge Capacities

Water Quality Discharge		Onsite Contributing Area for Peak Discharge	
Calculated allowable 24-hour average discharge rate based on 1/2 inch per day for the treatment area.		Basin 2	211.0 acres
Basin 2 Project Area =	211.0 acres	Total Contributing Area =	211.0 acres
Allowable WQ Discharge =	4.43 cfs		

Bleeder Shape & Sizing

V-Notch Weir - Using Method provided in SFWMD Vol. IV

$$\Theta = 2 \tan^{-1}(0.492 V_{DET}/H^{2.5})$$

V_{DET} = 8.79 acre-feet

H = 2.16 feet

Theta = 177.00 degrees

Due to construction limitations this V-Notch configuration is not feasible.

Circular Orifice Equation

D = 0.90 ft = 10.8 inches

a = 0.64 feet²

C = 0.63

g = 32.20 ft/sec²

h = 1.71 feet

Q = 4.21 cfs

Orifice Equation

$$Q = CA\sqrt{2gh}$$

Weir Equation

$$Q = CLH^{3/2}$$

Rectangular Orifice Discharge

H = 0.25 ft = 3.0 inches

W = 2.50 ft = 30.0 inches

C = 0.63

g = 32.20 ft/sec²

h = 2.04 feet

Q = 4.51 cfs

NOT USED

Resulting discharge does not meet project requirements.

Exhibit E-III.M**POST-Development Water Quality & Attenuation Calculations**

Project Name: Florida Power and Electric

LBFH File No: 17038

Engineer: JRB

Date: April 24, 2008

Basin 2**Peak Discharge Weir Sizing**

Peak Allowable Q = 64.00 CSM

Peak Allowable Q for Contributing Area = 21.10 cfs

Design Storm Peak Stage =	28.00	FT NAVD
Peak Discharge Weir Invert =	25.96	FT NAVD
Control Elevation =	23.80	FT NAVD
Tail Water =	25.00	FT NAVD

Water Quality Structure Data
Shape = Circular Orifice

D =	0.9 ft =	10.8 inches
a =	0.64	feet ²
C =	0.60	
g =	32.20	ft/sec ²
h =	3.75	feet
Q =	5.93	cfs

Water Quality Structure Data
Shape = Rectangular Orifice

H =	0.25 ft =	3.0 inches
W =	2.50 ft =	30.0 inches
C =	0.60	
g =	32.20	ft/sec ²
h =	4.08	feet
Q =	6.07	cfs

NOT USED

Peak Allowable Less WQ Peak Discharge =	15.17	cfs
Peak Discharge Weir C =	3.13	
Peak Discharge Weir H =	2.04	feet

$$Q = CLH^{3/2}$$

Resulting Peak Discharge Weir Length (L) =	1.66	feet
--	------	------

Exhibit G

Culvert Sizing Calculations

Project: Florida Power and Light
Prj. # 17038
Engineer: JRB

Pipe Sizing for Driveway

Pre-existing Discharge 0.204 cfs / acre

Contributing Area = 2272 Acres

Flow = 463.5 cfs

Culvert Flow Equation

$$H = \left\{ \left[\frac{2.5204 * (1 + K_e)}{D^4} \right] + \left[\frac{466.18 * n^2 * L}{D^{5.33}} \right] \right\} * (Q / 10)^2$$

H = Headloss (ft)

n = Mannings Number

L = Pipe Length (ft)

D = Pipe Diameter (ft)

Q = Flow (cfs)

K_e = Entrance Loss Coefficient

*CMP = .024 (2" x .5" corrugations)

To solve for flow (Q) enter the known variables:

K_e = 0.5
n = 0.024
L = 50 ft
D = 5 ft
H = 1 ft

Q = 108.0 cfs

5 x 60 inch CMP can adequately accept the resulting inflow from the contributing area with 1 foot of head.
The combined flow for the culverts is 540 cfs

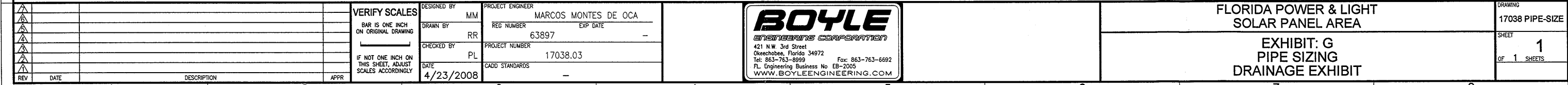


Exhibit H

Post-Development Model Inputs

ADICPR Inputs

Basins

Name: BASIN 01 Node: BASIN 01 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 60.00
Area(ac): 279.300 Time Shift(hrs): 0.00
Curve Number: 79.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: BASIN 02 Node: BASIN 02 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph

Unit Hydrograph: UH256 Peaking Factor: 256.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 60.00
Area(ac): 211.000 Time Shift(hrs): 0.00
Curve Number: 80.30 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: BASIN 03 Node: BASIN 03 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph

Unit Hydrograph: UH256 Peaking Factor: 256.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 60.00
Area(ac): 114.100 Time Shift(hrs): 0.00
Curve Number: 79.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Nodes

Name: BASIN 01 Base Flow(cfs): 0.000 Init Stage(ft): 23.800
Group: BASE Bottom Area(ac): 20.5100 Warn Stage(ft): 31.000
Type: Stage/Volume

Stage(ft)	Volume(af)
-----------	------------

23.800	0.0000
24.800	0.0010
25.300	12.4500
25.800	29.2700
26.300	50.4800
26.800	76.0700
27.300	106.0300
27.800	140.3800
28.300	179.1100
28.800	221.0800
29.300	275.4600
29.800	364.6900
30.300	465.0700
30.800	582.4700
31.300	715.6500
31.800	854.7400
32.300	994.3900
32.800	1134.0400

Name: BASIN 02 Base Flow(cfs): 0.000 Init Stage(ft): 23.800
Group: BASE Bottom Area(ac): 10.0200 Warn Stage(ft): 31.000
Type: Stage/Volume

Stage(ft)	Volume(af)
-----------	------------

23.800	0.0000
24.800	0.0010
25.300	6.2400
25.800	14.9300
26.300	26.0700
26.800	39.6700

27.300	55.7300
27.800	74.2400
28.300	96.3400
28.800	128.6800
29.300	180.3200
29.800	242.2100
30.300	323.1800
30.800	421.8500
31.300	526.8400
31.800	632.3400
32.300	737.8400
32.800	843.3400

Name: BASIN 03	Base Flow(cfs): 0.000	Init Stage(ft): 23.800
Group: BASE	Bottom Area(ac): 7.8700	Warn Stage(ft): 31.000
Type: Stage/Volume		

Stage(ft)	Volume(af)
23.800	0.0000
24.800	0.0010
25.300	4.3400
25.800	9.4700
26.300	15.4100
26.800	22.1500
27.300	29.6900
27.800	38.0400
28.300	48.0100
28.800	63.8500
29.300	89.2900
29.800	120.5600
30.300	159.8700
30.800	206.8500
31.300	261.2900
31.800	318.3400
32.300	375.3900
32.800	432.4400

Name: BASIN 04	Base Flow(cfs): 0.000	Init Stage(ft): 23.000
Group: BASE	Warn Stage(ft): 24.000	
Type: Stage/Area		

Stage(ft) Area(ac)

23.000 0.0000

32.000 0.0001

Name: Ditch Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 25.600
Type: Time/Stage

Time(hrs) Stage(ft)

0.00 23.000

48.00 25.000

400.00 23.000

== Cross Sections ==

Name: Group: BASE
Encroachment: No

Station(ft) Elevation(ft) Manning's N

== Operating Tables ==

Name: Inflow Group: BASE
Type: Rating Curve
Function: Time vs. Discharge

Time(hrs) Discharge(cfs)

0.00 0.00

60.00 5.50

66.00 5.50

120.00 0.00

Drop Structures

Name: CS 01
Group: BASE

From Node: BASIN 01
To Node: Ditch

Length(ft): 76.00
Count: 1

UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 36.00	36.00	Flow: Both
Rise(in): 36.00	36.00	Entrance Loss Coef: 0.500
Invert(ft): 23.000	23.000	Exit Loss Coef: 0.000
Manning's N: 0.024000	0.024000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 3 for Drop Structure CS 01 ***

TABLE

Count: 1	Bottom Clip(in): 0.000
Type: Vertical: Mavis	Top Clip(in): 0.000
Flow: Both	Weir Disc Coef: 3.200
Geometry: Circular	Orifice Disc Coef: 0.600
Span(in): 12.00	Invert(ft): 23.800
Rise(in): 12.00	Control Elev(ft): 23.800

*** Weir 2 of 3 for Drop Structure CS 01 ***

TABLE

Count: 1	Bottom Clip(in): 0.000
Type: Horizontal	Top Clip(in): 0.000
Flow: Both	Weir Disc Coef: 3.200
Geometry: Rectangular	Orifice Disc Coef: 0.600
Span(in): 27.30	Invert(ft): 27.400
Rise(in): 27.30	Control Elev(ft): 23.800

*** Weir 3 of 3 for Drop Structure CS 01 ***

TABLE

Count: 1	Bottom Clip(in): 0.000
Type: Vertical: Mavis	Top Clip(in): 0.000
Flow: Both	Weir Disc Coef: 3.200

Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 34.68

Invert(ft): 25.730

Rise(in): 20.04

Control Elev(ft): 23.800

Name: CS 02

From Node: BASIN 02

Length(ft): 70.00

Group: BASE

To Node: Ditch

Count: 1

UPSTREAM

DOWNSTREAM

Friction Equation: Average Conveyance

Geometry: Circular

Circular

Solution Algorithm: Automatic

Span(in): 36.00

36.00

Flow: Both

Rise(in): 36.00

36.00

Entrance Loss Coef: 0.500

Invert(ft): 23.000

23.000

Exit Loss Coef: 0.000

Manning's N: 0.024000

0.024000

Outlet Ctrl Spec: Use dc or tw

Top Clip(in): 0.000

0.000

Inlet Ctrl Spec: Use dn

Bot Clip(in): 0.000

0.000

Solution Incs: 10

Upstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

*** Weir 1 of 3 for Drop Structure CS 02 ***

TABLE

Count: 1

Bottom Clip(in): 0.000

Type: Vertical: Mavis

Top Clip(in): 0.000

Flow: Both

Weir Disc Coef: 3.200

Geometry: Circular

Orifice Disc Coef: 0.600

Span(in): 10.80

Invert(ft): 23.800

Rise(in): 10.80

Control Elev(ft): 23.800

*** Weir 2 of 3 for Drop Structure CS 02 ***

TABLE

Count: 1

Bottom Clip(in): 0.000

Type: Horizontal

Top Clip(in): 0.000

Flow: Both

Weir Disc Coef: 3.200

Geometry: Rectangular

Orifice Disc Coef: 0.600

Span(in): 27.30

Invert(ft): 28.000

Rise(in): 27.30

Control Elev(ft): 23.800

*** Weir 3 of 3 for Drop Structure CS 02 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
 Type: Horizontal Top Clip(in): 0.000
 Flow: Both Weir Disc Coef: 3.200
 Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 19.92 Invert(ft): 25.960
 Rise(in): 24.48 Control Elev(ft): 23.800

Name: CS 03 From Node: BASIN 03 Length(ft): 90.00
 Group: BASE To Node: Ditch Count: 1

UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 51.00	51.00	Flow: Both
Rise(in): 51.00	51.00	Entrance Loss Coef: 0.500
Invert(ft): 23.000	23.000	Exit Loss Coef: 0.000
Manning's N: 0.024000	0.024000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Solution Incs: 10

Upstream FHWA Inlet Edge Description:
 Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
 Circular Concrete: Square edge w/ headwall

*** Weir 1 of 3 for Drop Structure CS 03 ***

TABLE

Count: 1 Bottom Clip(ft): 0.000
 Type: Vertical: Mavis Top Clip(ft): 0.000
 Flow: Both Weir Disc Coef: 3.200
 Geometry: Trapezoidal Orifice Disc Coef: 0.600

Bottom Width(ft): 0.00 Invert(ft): 23.800
 Left Sd Slp(h/v): 0.23 Control Elev(ft): 23.800
 Right Sd Slp(h/v): 0.23 Struct Opening Dim(ft): 9999.00

*** Weir 2 of 3 for Drop Structure CS 03 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
 Type: Horizontal Top Clip(in): 0.000
 Flow: Both Weir Disc Coef: 3.200
 Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 135.00 Invert(ft): 30.320
Rise(in): 72.00 Control Elev(ft): 23.800

*** Weir 3 of 3 for Drop Structure CS 03 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 111.00 Invert(ft): 27.020
Rise(in): 39.60 Control Elev(ft): 23.800

Breaches

Name: From Node: Count: 1
Group: BASE To Node: Flow: Both

Bottom Width(ft): 0.00 Water Surface Elev(ft): 0.000
Left Side Slope(h/v): 0.00 Breach Duration(hrs): 0.00
Right Side Slope(h/v): 0.00 Power Coef: 0.00
Bottom Breach Elev(ft): 0.000 Weir Discharge Coef: 0.000
Top Breach Elev(ft): 0.000

Rating Curves

Name: Inflow From Node: BASIN 04 Count: 1
Group: BASE To Node: BASIN 03 Flow: Both

TABLE	ELEV ON(ft)	ELEV OFF(ft)
#1: Inflow	23.000	22.500
#2:	0.000	0.000
#3:	0.000	0.000
#4:	0.000	0.000

Hydrology Simulations

Name: 003Y024H
Filename: P:\17038\Permit\AdICPR\Post\003Y024H.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Sfwmd-24
Rainfall Amount(in): 4.50

Time(hrs)	Print Inc(min)
-----------	----------------

24.000	5.00
--------	------

Name: 010Y024H
Filename: P:\17038\Permit\AdICPR\Post\010Y024H.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Sfwmd-24
Rainfall Amount(in): 5.50

Time(hrs)	Print Inc(min)
-----------	----------------

24.000	5.00
--------	------

Name: 025Y072H
Filename: P:\17038\Permit\AdICPR\Post\025Y072H.R32

Override Defaults: Yes
Storm Duration(hrs): 72.00
Rainfall File: Sfwmd72
Rainfall Amount(in): 9.00

Time(hrs)	Print Inc(min)
-----------	----------------

72.000	1.00
--------	------

Name: 100Y072H
Filename: P:\17038\Permit\AdICPR\Post\100Y072H.R32

Override Defaults: Yes
Storm Duration(hrs): 72.00
Rainfall File: Sfwmd72
Rainfall Amount(in): 11.00

Time(hrs)	Print Inc(min)
72.000	5.00

Routing Simulations

Name: 003Y024H Hydrology Sim: 003Y024H
Filename: P:\17038\Permit\AdICPR\Post\003Y024H.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.50	Delta Z Factor: 0.05000
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 200.00
Min Calc Time(sec): 0.1000	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
12.000	5.000
24.000	1.000
48.000	10.000
200.000	30.000

Group	Run
BASE	Yes

Name: 010Y024H Hydrology Sim: 010Y024H
Filename: P:\17038\Permit\AdICPR\Post\010Y024H.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.50
Time Step Optimizer: 10.000
Start Time(hrs): 0.000
Min Calc Time(sec): 0.5000
Boundary Stages:

Delta Z Factor: 0.05000
End Time(hrs): 200.00
Max Calc Time(sec): 60.0000
Boundary Flows:

Time(hrs)	Print Inc(min)
-----------	----------------

12.000	5.000
24.000	1.000
48.000	10.000
200.000	30.000

Group	Run
-------	-----

BASE	Yes
------	-----

Name: 025Y072H Hydrology Sim: 025Y072H
Filename: P:\17038\Permit\AdICPR\Post\025Y072H.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.50
Time Step Optimizer: 10.000
Start Time(hrs): 0.000
Min Calc Time(sec): 0.5000
Boundary Stages:

Delta Z Factor: 0.05000
End Time(hrs): 400.00
Max Calc Time(sec): 60.0000
Boundary Flows:

Time(hrs)	Print Inc(min)
-----------	----------------

24.000	2.000
72.000	1.000
96.000	2.000
120.000	5.000
200.000	10.000
400.000	15.000

Group	Run
-------	-----

BASE	Yes
------	-----

Name: 100Y072H Hydrology Sim: 100Y072H
Filename: P:\17038\Permit\AdICPR\Post\100Y072H.I32

Execute: No Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 0.50 Delta Z Factor: 0.05000
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 100.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
24.000	5.000
48.000	2.000
60.000	1.000
72.000	2.000
100.000	10.000

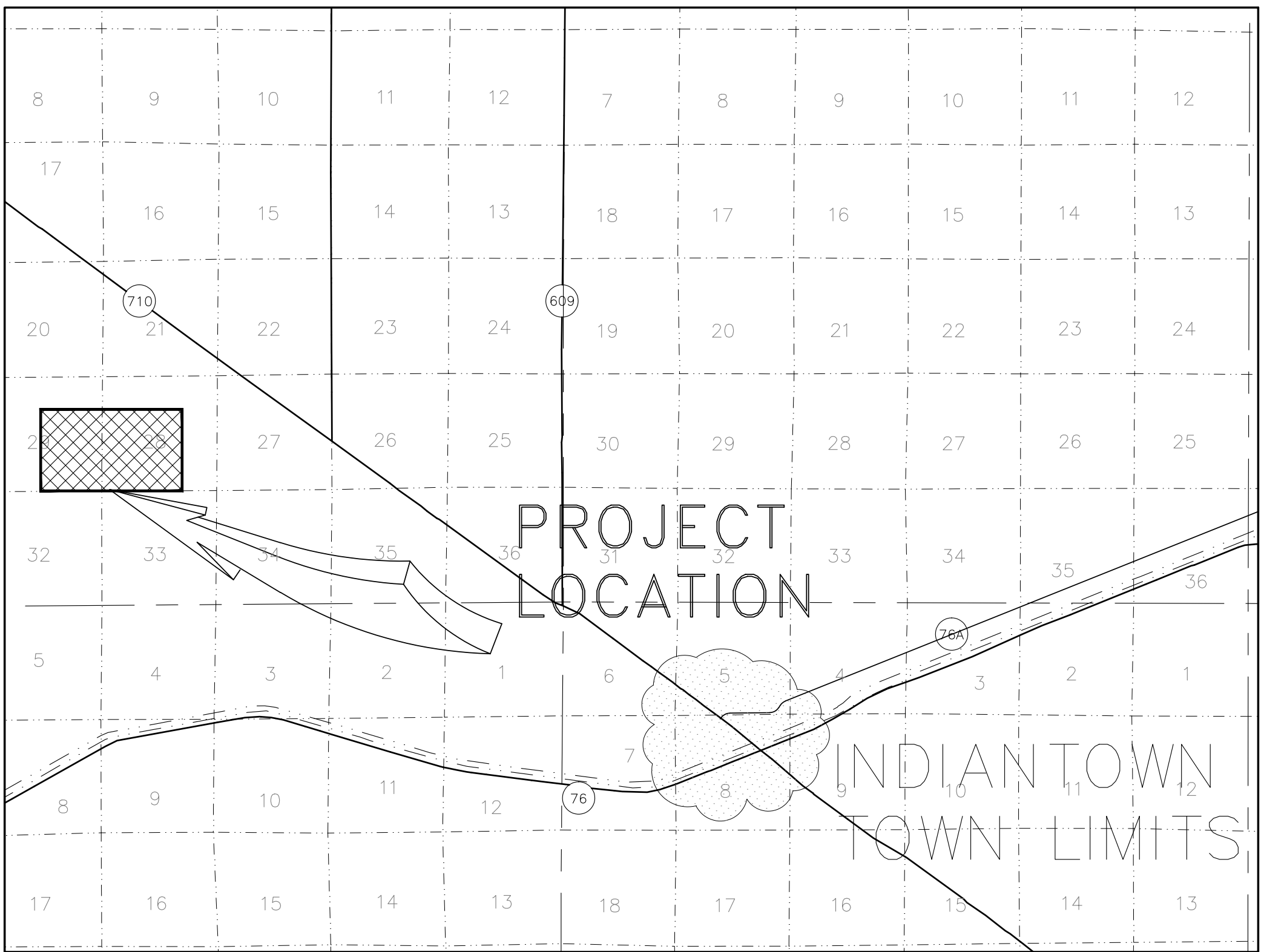
Group	Run
BASE	Yes

CONCEPTUAL DRAINAGE PERMIT DRAWINGS

CONCEPTUAL DRAINAGE PERMIT DRAWINGS
FOR

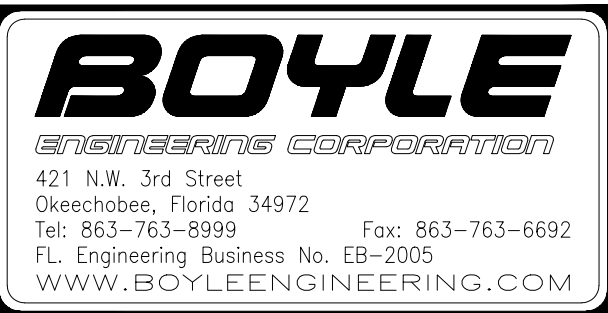
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"MARTIN SOLAR ENERGY CENTER"

SECTIONS 28 & 29, TOWNSHIP 39S, RANGE 38E
MARTIN COUNTY, FLORIDA



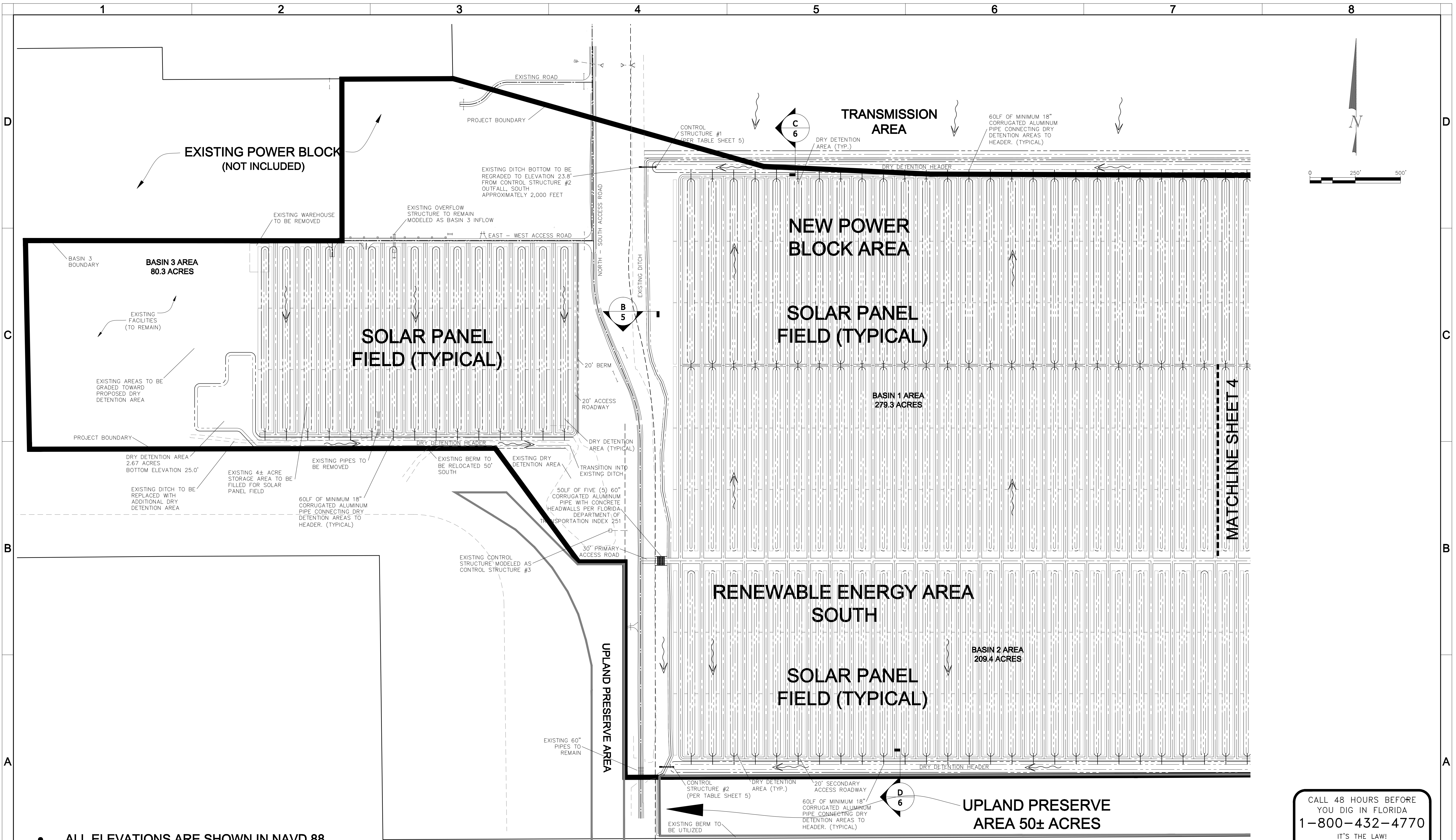
SHEET INDEX

SHEET NUMBER	SHEET TITLE/DESCRIPTION
1	COVER SHEET
2	KEY SHEET
3-4	CONCEPTUAL DRAINAGE PLAN
5-6	CONCEPTUAL DRAINAGE DETAILS
7	CONSTRUCTION DRAINAGE PLAN



Submittal Date: April 24, 2008

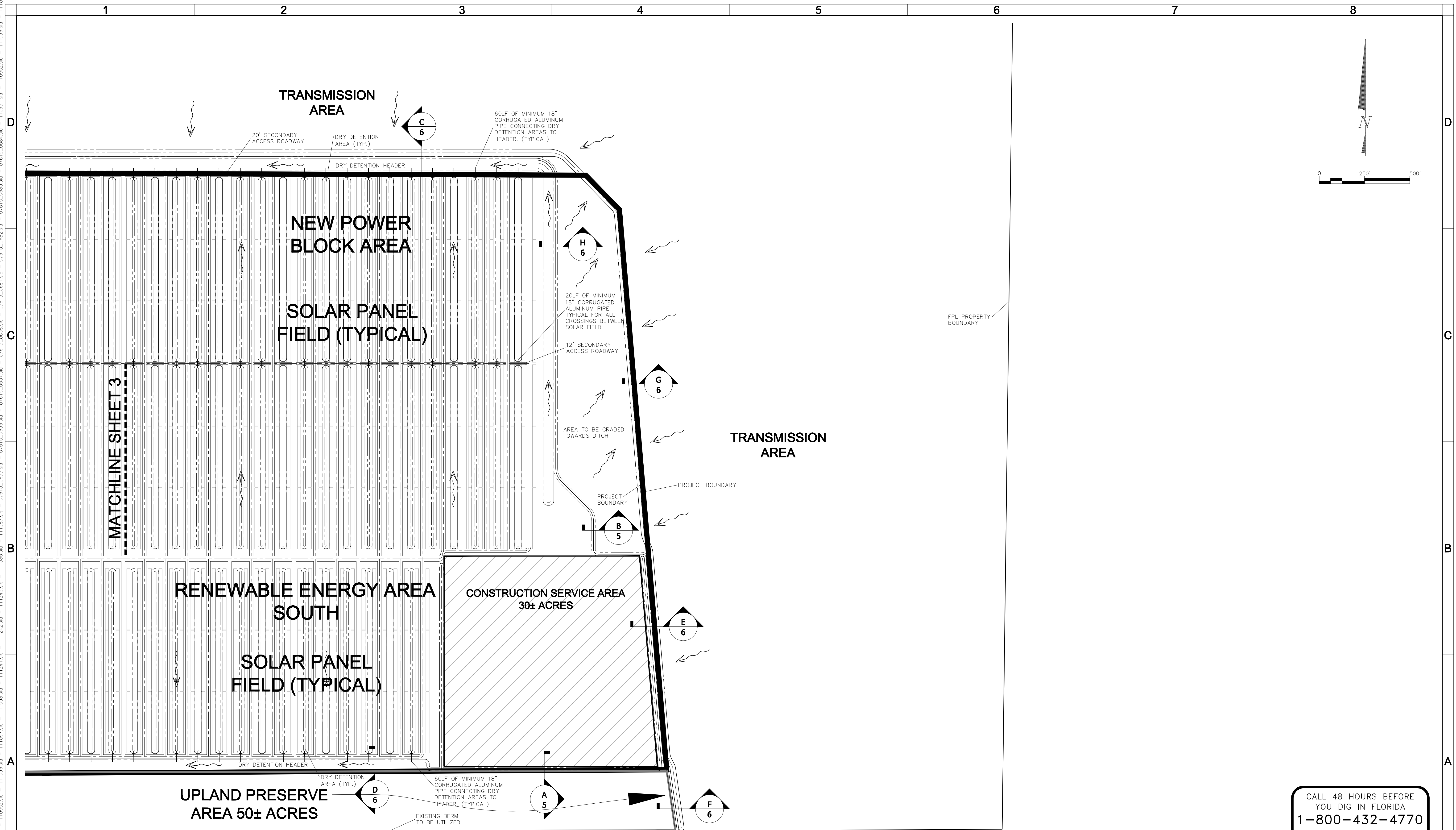
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DESIGNED BY MM	PROJECT ENGINEER MARCOS MONTES DE OCA		
	DRAWN BY RR	REG. NUMBER 63897	EXP. DATE -	
	CHECKED BY PL	PROJECT NUMBER 17038.03		
	DATE 4/8/2008	CADD STANDARDS -		
	REV	DATE	DESCRIPTION	APPR
		4-23-08	GENERAL PLAN REVISIONS	MM
		4-18-08	GENERAL PLAN REVISIONS	MM



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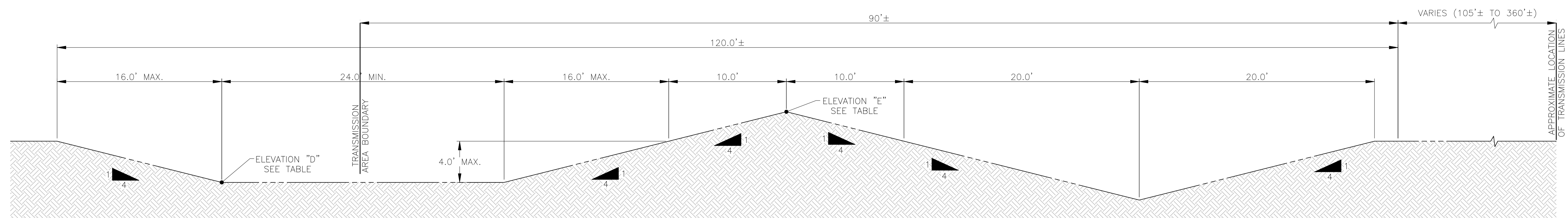
                                																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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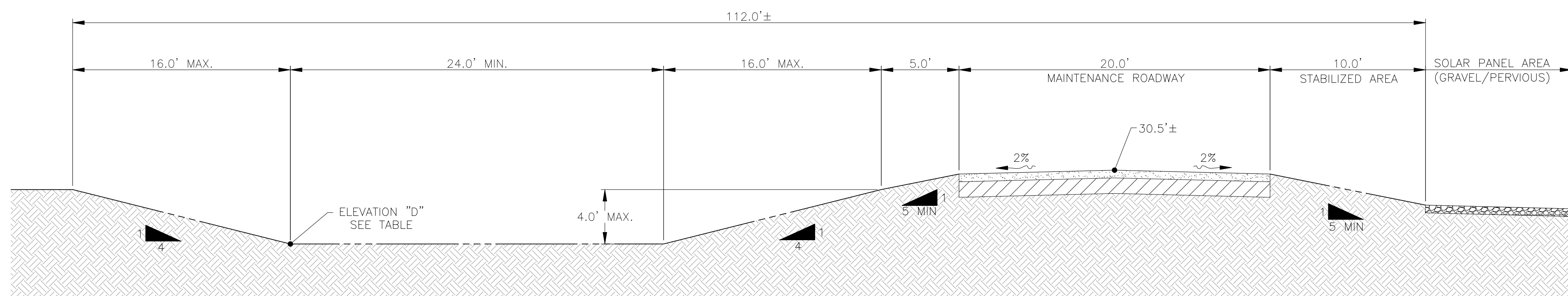
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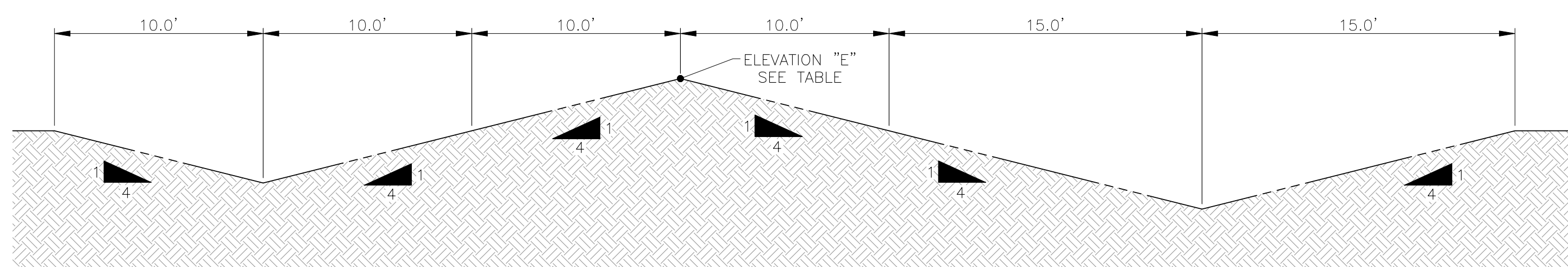
SECTION C
SCALE: NOT TO SCALE



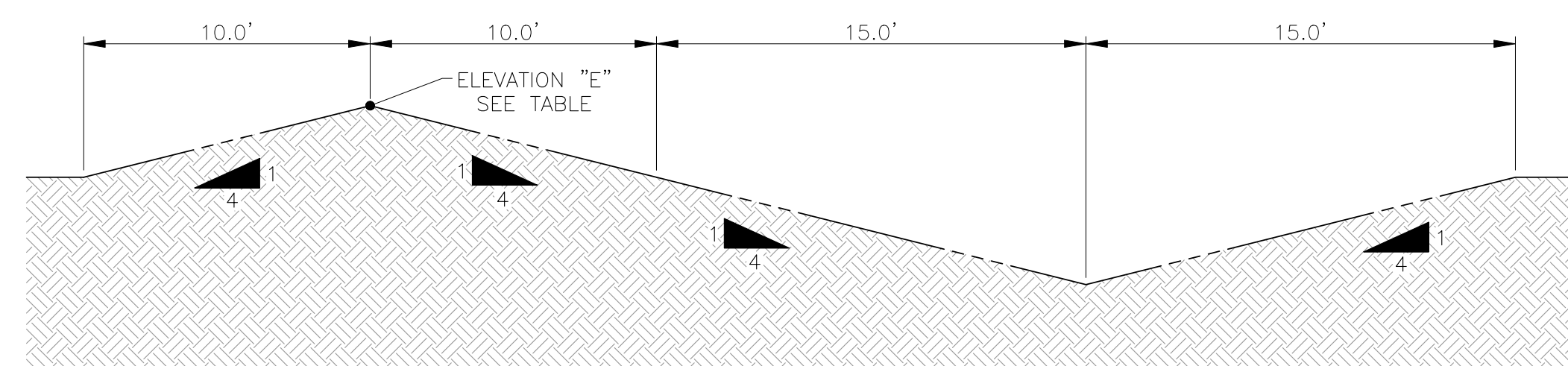
SECTION D
SCALE: NOT TO SCALE

DETAILS ELEVATION SCHEDULE					
BASIN #	ELEVATION A	ELEVATION B	ELEVATION C	ELEVATION D	ELEVATION E
1	30.3'±	29.3'±	28.3'	24.8'	28.5'
2	30.3'±	29.3'±	28.3'	24.8'	28.5'
3	30.3'±	29.3'±	28.3'	24.8'	28.5'

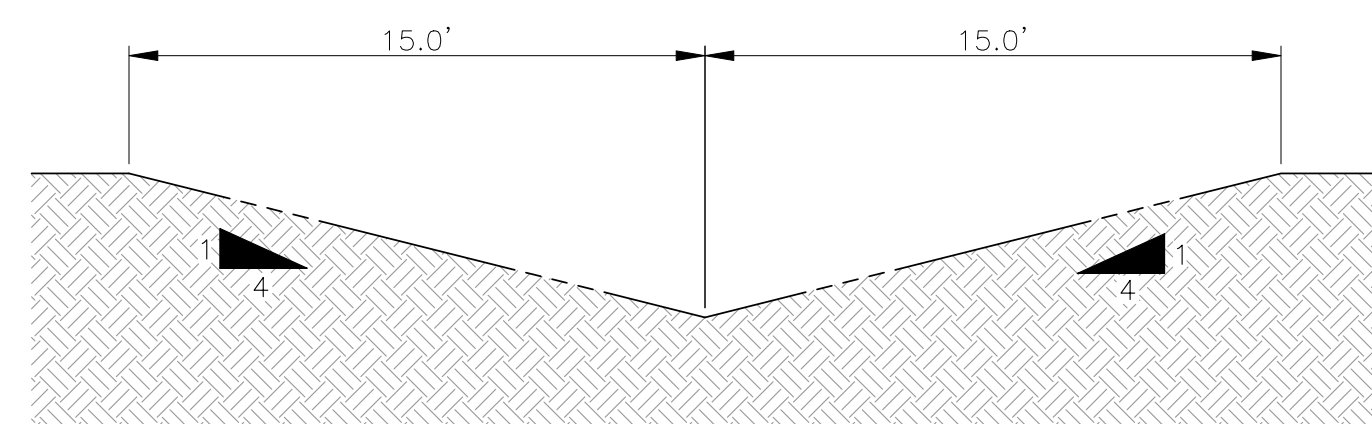
NOTE: ALL ELEVATIONS ARE IN NAVD 88.



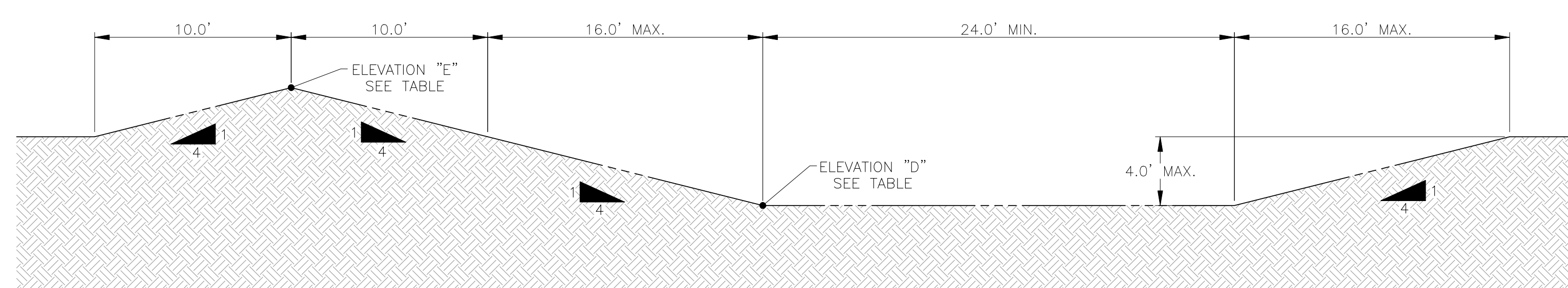
SECTION E
SCALE: NOT TO SCALE



SECTION F
SCALE: NOT TO SCALE



SECTION G
SCALE: NOT TO SCALE



SECTION H
SCALE: NOT TO SCALE

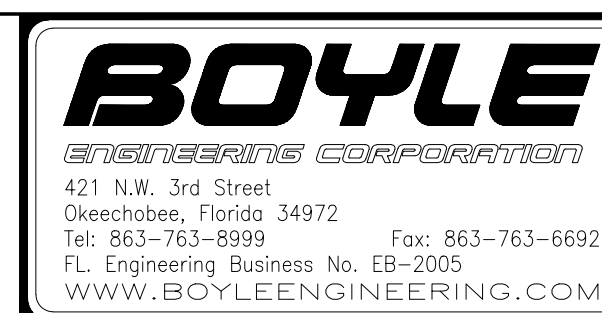
			
			
			
			
			
			
			
			
REF	DATE	DESCRIPTION	APPR

VERIFY SCALES
BAR IS ONE INCH
ON ORIGINAL DRAWING

IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY

DESIGNED BY	MM
DRAWN BY	RR
CHECKED BY	PL
DATE	4/1/2008

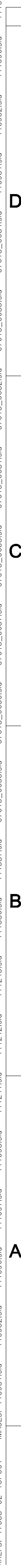
PROJECT ENGINEER		MARCOS MONTES DE OCA	
REG NUMBER	EXP DATE		
63897			-
PROJECT NUMBER		17038	
CADD STANDARDS			



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DETAILS

DRAWING	17038 DETAILS
SHEET	6
OF 7 SHEETS	

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