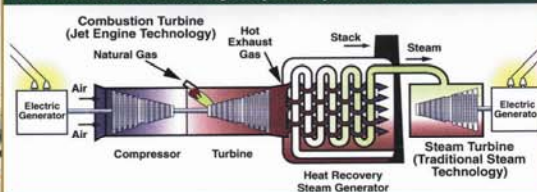


West County e n e r g y c e n t e r



How does a combined-cycle power plant work?



Volume 2 of 3

**SITE CERTIFICATION APPLICATION
WEST COUNTY ENERGY CENTER**

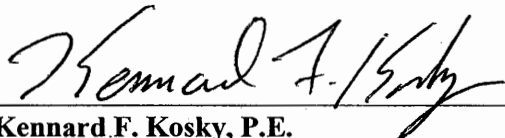
VOLUME 2 OF 3

Submitted by:

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

April 2005

0437649



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

**Golder Associates Inc.*
6241 NW 23rd Street, Suite 500
Gainesville, Florida 32653-1500
*Board of Professional Engineers
Certificate of Authorization No. 00001670**

SEAL



APPLICANT INFORMATION

Please supply the following information:

Applicant's Official Name Florida Power and Light Company (FPL)

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 Linkiewicz, Environmental Licensing Manager, New Generation Projects, Environmental Services, 700 Universe Boulevard, Juno Beach, FL 33408 Phone: (561) 691-7518 Fax: (561) 691-7049

Site Location (county) 4000 205th Street, Loxahatchee, Palm Beach County, FL 33470

Nearest Incorporated City Wellington, FL (about 5 miles west of nearest boundary)

Latitude and Longitude 26° 41' 54.98" 80° 22' 29.54" (HRSG Stack Unit 2; 2nd stack toward north; approx. center of power blocks).

UTMs: Northerly 2,953.04 km N

Easterly 562.19 km E (Zone 17)

Section, Township, Range Portions of Sections 29 and 32 of Township 43S, Range 40E

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

Name Plate Generating Capacity Site Certification: Unit 1 Nominal 1,100 MW (2009); Unit 2 Nominal 1,100 MW (2010)

Capacity of Proposed Additions and Ultimate Site Capacity (where applicable):
Ultimate Site Capacity: Nominal 3,300 MW (an addition of a Nominal 1,100 MW as Unit 3)

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

Project Name: West County Energy Center

EXHIBIT A

LEGAL DESCRIPTION

Part of Parcel I in Sections 29 and 32, Township 43 South, Range 40 East, Palm Beach County, Florida described as follows: Commencing at the Northwest corner of Section 29, Township 43 South, Range 40 East, Palm Beach County, Florida, thence South 88°52'46" East 745.00 feet along the North line of Section 29 to the East right-of-way line of the Florida Power & Light Company corridor as recorded in O.R.B. 2222, Page 1696, thence South 0°49'13" West 589.00 feet along a line parallel with the West line of said Section 29, along the East right-of-way line of the aforementioned Florida Power & Light Company corridor to the Southwest corner of the East 900 feet of the West 1,645 feet of the North 589 feet of said Section 29 and the point of beginning of Parcel II, thence South 88°52'46" East 1,200.00 feet along the South line of the East 900 feet of the West 1,645 feet of the North 589 feet of said Section 29 and its Easterly extension, thence South 0°49'13" West 4,658.85 feet along a line parallel with East right-of-way line of the Florida Power & Light company corridor, to the North line of Section 32, Township 43 South, Range 40 East, thence South 0°56'55" West 3,378.92 feet along a line parallel with the East right-of-way line of the aforesaid Florida Power & Light Company corridor to the North right-of-way line of State Road 80 thence North 88°28'14" West 1,100.09 feet along said right-of-way line of State Road 80, to the East right-of-way line of the Florida Power & Light Company corridor, thence North 0°56'55" East 880.76 feet along a line parallel with said West line of Section 32, Township 43 South, Range 40 East, thence North 89°03'05" West 100.00 feet at right angles to the preceding course, then North 0°56'55" East 2,501.94 feet along the East right-of-way line of Florida Power & Light Company corridor to the South line of Section 29, Township 43 South, Range 40 East, thence North 0°49'13" East 4,647.51 feet along said right-of-way line to the Point of Beginning.

Parcel = Approximately 220 acres.

TABLE OF CONTENTS

VOLUME 1

Applicant Information

Legal Description

<u>SECTION</u>	<u>PAGE</u>
1.0 NEED FOR POWER AND THE PROPOSED FACILITIES	1-1
1.1 INTRODUCTION – THE PROJECT	1-1
1.2 THE APPLICANT	1-2
1.3 OVERVIEW OF THE PROJECT	1-3
1.4 FPL'S RESOURCE PLANNING PROCESS	1-4
1.5 NEED FOR THE PROJECT	1-4
1.5.1 FPL'S CAPACITY NEEDS	1-4
1.5.2 OTHER CONSIDERATIONS	1-6
1.5.3 FPL'S REQUEST FOR PROPOSALS	1-8
1.6 BENEFITS OF THE PROJECT	1-8
1.7 ULTIMATE SITE CAPACITY	1-8
1.8 SUMMARY OF PUBLIC OUTREACH PROGRAM	1-9
2.0 SITE VICINITY CHARACTERIZATION	2-1
2.1 SITE AND ASSOCIATED FACILITIES DELINEATION	2-1
2.1.1 SITE LOCATION	2-1
2.1.2 EXISTING SITE USES	2-1
2.1.3 ADJACENT PROPERTIES	2-1
2.1.4 USES WITHIN THE SITE	2-2
2.1.5 ONE HUNDRED-YEAR FLOOD ZONE	2-2
2.1.6 PROPERTY DELINEATION	2-2
2.2 SOCIO-POLITICAL ENVIRONMENT	2-2
2.2.1 GOVERNMENTAL JURISDICTIONS	2-2
2.2.2 ZONING AND LAND USE PLANS	2-3
2.2.3 DEMOGRAPHY AND ONGOING LAND USE	2-5
2.2.4 EASEMENTS, TITLE, AGENCY WORKS	2-6
2.2.5 REGIONAL SCENIC, CULTURAL, AND NATURAL LANDMARKS ..	2-6
2.2.6 ARCHAEOLOGICAL AND HISTORICAL SITES	2-7
2.2.7 SOCIOECONOMICS AND PUBLIC SERVICES	2-7
2.3 BIO-PHYSICAL ENVIRONMENT	2-12
2.3.1 GEOHYDROLOGY	2-12
2.3.2 SUBSURFACE HYDROLOGY	2-16
2.3.3 SITE WATER BUDGET AND AREA USERS	2-19
2.3.4 SURFICIAL HYDROLOGY	2-21
2.3.5 VEGETATION/LAND USE	2-22
2.3.6 ECOLOGY	2-23
2.3.7 METEOROLOGICAL AND AMBIENT AIR QUALITY	2-29
2.3.8 NOISE	2-35



TABLE OF CONTENTS

(Cont'd)

3.0	THE PLANT AND DIRECTLY ASSOCIATED FACILITIES.....	3-1
3.1	BACKGROUND	3-1
3.2	SITE LAYOUT.....	3-3
3.3	FUEL.....	3-4
3.4	AIR EMISSIONS CONTROLS.....	3-6
3.4.1	AIR EMISSIONS TYPES AND SOURCES.....	3-6
3.4.2	AIR EMISSION CONTROLS.....	3-9
3.4.3	CONTROL TECHNOLOGY DESCRIPTION AND BEST AVAILABLE CONTROL TECHNOLOGY.....	3-9
3.4.4	DESIGN DATA FOR CONTROL EQUIPMENT	3-12
3.4.5	DESIGN PHILOSOPHY	3-12
3.5	PLANT WATER USE.....	3-13
3.5.1	CIRCULATING WATER HEAT REJECTION SYSTEM.....	3-13
3.5.2	DOMESTIC/SANITARY WASTEWATER.....	3-14
3.5.3	POTABLE WATER SYSTEMS	3-14
3.5.4	PROCESS WATER SYSTEMS.....	3-14
3.5.5	WATER SUPPLY ALTERNATIVES	3-15
3.5.6	UIC INJECTION WELL	3-15
3.6	CHEMICAL AND BIOCIDES WASTE	3-15
3.6.1	COOLING SYSTEM WATER CHEMICAL TREATMENT.....	3-15
3.6.2	STEAM CYCLE WATER TREATMENT	3-16
3.6.3	SANITARY WASTEWATER TREATMENT	3-16
3.6.4	MAKEUP WATER DEMINERALIZATION.....	3-16
3.6.5	CHEMICAL CLEANING	3-16
3.6.6	MISCELLANEOUS DRAINS.....	3-17
3.7	SOLID AND HAZARDOUS WASTE.....	3-17
3.7.1	SOLID WASTE.....	3-18
3.7.2	HAZARDOUS WASTE	3-18
3.8	SITE DRAINAGE	3-18
3.8.1	DESIGN CRITERIA AND APPLICABLE REGULATIONS	3-18
3.8.2	CONSTRUCTION SITE DRAINAGE.....	3-18
3.8.3	OPERATIONAL SITE DRAINAGE.....	3-19
3.9	MATERIALS HANDLING.....	3-20
3.9.1	CONSTRUCTION MATERIALS AND EQUIPMENT	3-20
3.9.2	ROADS.....	3-20

TABLE OF CONTENTS

(Cont'd)

4.0	ENVIRONMENTAL EFFECTS OF SITE PREPARATION AND PLANT AND ASSOCIATED FACILITIES CONSTRUCTION	4-1
4.1	LAND IMPACTS	4-1
4.1.1	GENERAL CONSTRUCTION IMPACTS	4-1
4.1.2	ROADS	4-4
4.1.3	FLOOD ZONES	4-4
4.1.4	TOPOGRAPHY AND SOILS	4-4
4.1.5	CONSTRUCTION OF THE UIC INJECTION WELL	4-5
4.2	IMPACT ON SURFACE WATER BODIES AND USES	4-8
4.2.1	IMPACT ASSESSMENT	4-8
4.2.2	MEASURING AND MONITORING PROGRAMS	4-10
4.3	GROUNDWATER IMPACTS	4-10
4.3.1	PHYSICAL AND CHEMICAL IMPACTS	4-10
4.3.2	MEASURING AND MONITORING PROGRAM	4-11
4.4	ECOLOGICAL IMPACTS	4-11
4.4.1	IMPACT ASSESSMENT	4-11
4.4.2	MEASURING AND MONITORING PROGRAMS	4-12
4.5	AIR IMPACTS	4-12
4.5.1	AIR EMISSIONS	4-12
4.5.2	CONTROL MEASURES	4-13
4.6	IMPACT ON HUMAN POPULATIONS	4-13
4.6.1	CONSTRUCTION WORKFORCE	4-14
4.6.2	TRANSPORTATION	4-14
4.6.3	HOUSING	4-16
4.6.4	EDUCATION	4-16
4.6.5	CONSTRUCTION NOISE IMPACTS	4-16
4.7	IMPACTS ON LANDMARKS AND SENSITIVE AREAS	4-19
4.8	IMPACT ON ARCHAEOLOGICAL AND HISTORIC SITES	4-19
4.9	SPECIAL FEATURES	4-19
4.10	BENEFITS OF CONSTRUCTION	4-20
4.11	VARIANCES	4-20
5.0	EFFECTS OF PLANT OPERATION	5-1
5.1	EFFECTS OF THE OPERATION OF THE HEAT DISSIPATION SYSTEM	5-1
5.1.1	TEMPERATURE EFFECT ON RECEIVING BODY OF WATER	5-1
5.1.2	EFFECTS ON AQUATIC LIFE	5-1
5.1.3	BIOLOGICAL EFFECTS OF MODIFIED CIRCULATION	5-3
5.1.4	EFFECTS OF OFFSTREAM COOLING	5-3
5.1.5	MEASUREMENT PROGRAM	5-8

TABLE OF CONTENTS

(Cont'd)

5.2	EFFECTS OF CHEMICAL AND BIOCIDES DISCHARGES	5-8
5.2.1	INDUSTRIAL WASTEWATER DISCHARGES	5-8
5.2.2	COOLING TOWER BLOWDOWN AND INDUSTRIAL WASTEWATERS	5-9
5.2.3	MEASUREMENT PROGRAMS	5-13
5.3	IMPACTS ON WATER SUPPLIES	5-13
5.3.1	SURFACE WATER	5-13
5.3.2	GROUNDWATER	5-16
5.3.3	DRINKING WATER	5-17
5.3.4	RUNOFF AND LEACHATE	5-17
5.3.5	MEASUREMENT PROGRAMS	5-17
5.4	IMPACTS FROM DISPOSAL OF BYPRODUCTS AND SOLID AND HAZARDOUS WASTES	5-18
5.4.1	SOLID WASTE	5-18
5.4.2	HAZARDOUS WASTE	5-18
5.5	SANITARY AND OTHER WASTE DISCHARGES	5-18
5.6	AIR QUALITY IMPACTS	5-18
5.6.1	IMPACT ASSESSMENT	5-19
5.6.2	MONITORING PROGRAMS	5-34
5.7	NOISE IMPACTS	5-35
5.8	CHANGES TO NON-AQUATIC SPECIES POPULATION	5-37
5.8.1	IMPACTS	5-37
5.8.2	MONITORING	5-37
5.9	OTHER PLANT OPERATION EFFECTS	5-37
5.9.1	OPERATIONS TRAFFIC	5-37
5.10	ARCHAEOLOGICAL SITES	5-38
5.11	RESOURCES COMMITTED	5-38
5.12	VARIANCES	5-39
6.0	TRANSMISSION LINES AND OTHER LINEAR FACILITIES	6-1
7.0	ECONOMIC AND SOCIAL EFFECTS OF PLANT CONSTRUCTION AND OPERATION	7-1
7.1	SOCIO-ECONOMIC BENEFITS	7-1
7.1.1	DIRECT SOCIO-ECONOMIC BENEFITS	7-1
7.1.2	INDIRECT ECONOMIC BENEFITS	7-3
7.1.3	OTHER ECONOMIC BENEFITS	7-4
7.1.4	RECREATIONAL AND ENVIRONMENTAL VALUES	7-4

TABLE OF CONTENTS

(Cont'd)

7.1.5	ONSITE ENHANCEMENTS.....	7-4
7.1.6	OTHER ENVIRONMENTAL BENEFITS.....	7-4
7.1.7	SUMMARY OF BENEFITS.....	7-5
7.2	SOCIO-ECONOMIC COSTS.....	7-5
7.2.1	TEMPORARY EXTERNAL COSTS.....	7-5
7.2.2	LONG-TERM EXTERNAL COSTS.....	7-6
8.0	SITE AND DESIGN ALTERNATIVES.....	8-1
9.0	COORDINATION.....	9-1
	REFERENCES.....	REF-1

VOLUME 2**LIST OF APPENDICES**

10.1	Federal Permit Applications and Approvals
10.1.1	316 Demonstrations
10.1.2	NPDES Application/Permits
10.1.3	Hazardous Waste Disposal Application/Permit
10.1.4	Section 10 or 404 Applications/Permits
10.1.5	FDEP Air Permit/PSD Application ? <u>VOLUME 3</u>
10.1.6	FAA Report and Letter
10.1.8	Exploratory Well Construction, Testing, and Monitor Well Completion Application
10.2	Land Use Zoning
10.3	Land Use Descriptions
10.5.1	Site Photographs
10.5.2	Noise Information
10.6	Stormwater Management and Calculations
10.7	Groundwater Modeling Evaluation
10.8	Water Supply Alternatives Analysis

TABLE OF CONTENTS

(Cont'd)

LIST OF TABLES

Table 2.3.3-1	Mean Monthly Temperature, Precipitation, and Evaporation
Table 2.3.3.2	Existing Water Use Permits Within 5 Miles of FPL West County Energy Center
Table 2.3.4-1	Mean Monthly Flow in L10/L12 Canal and L8 Canal
Table 2.3.4-2	Historical Water Quality of L10/L12 Canal
Table 2.3.4-3	Most Recent Water Quality Data for L10/L12 Canal
Table 2.3.6-1	Threatened, Endangered, and Species of Special Concern Known to Occur Within Palm Beach County, Florida
Table 2.3.7-1	Monthly and Annual Average Temperatures Measured at Palm Beach International Airport
Table 2.3.7-2	Monthly and Annual Precipitation and Relative Humidity Measured at Palm Beach International Airport
Table 2.3.7-3	Seasonal and Annual Average Wind Direction and Wind Speed Measured at Palm Beach International Airport
Table 2.3.7-4	Seasonal and Annual Average Atmospheric Stability Classes Determined at Palm Beach International Airport
Table 2.3.7-5	Seasonal and Annual Average Morning and Afternoon Mixing Heights Determined at Palm Beach International Airport
Table 2.3.7-6	National and State AAQS, Allowable PSD Increments, and Significant Impact Levels
Table 2.3.7-7	Summary of Maximum PM ₁₀ , O ₃ , NO ₂ , CO, and SO ₂ Concentrations Measured at Palm Beach County and Representative of the West County Energy Center Project, 2001 to June 2004
Table 2.3.8-1	Baseline Noise Monitoring, West County Energy Center
Table 3.3.0-1	Typical Natural Gas Composition
Table 3.3.0-2	Expected Ultra Low-sulfur Light Oil Composition
Table 3.4.1-1	Stack, Operating, and Emission Data for Each CT/HRSG and Duct Burners for Combined Cycle Operation – Natural Gas Combustion
Table 3.4.1-2	Stack, Operating, and Emission Data for Each CT/HRSG for Combined Cycle Operation – Ultra Low-sulfur Light Oil Combustion
Table 3.4.1-3	Physical, Performance, and Emissions Data for the Mechanical Draft Cooling Tower for Each Nominal 1,100 MW Unit
Table 3.4.1-4	Summary of Maximum Potential Annual Emissions (Project)

TABLE OF CONTENTS

(Cont'd)

Table 3.5.0-1	L10/L12 Water Quality Design Criteria
Table 3.5.0-2	Upper Floridan Aquifer Water Quality Design Criteria
Table 3.6.0-1	West County Energy Center Waste Streams, Characterization and Disposal Method
Table 3.7.0-1	FPL General Handling Waste Guidelines
Table 4.6.2-1	Level of Service (LOS) for Roadway Links During Peak Construction Traffic – FPL West County Energy Center (2008)
Table 4.6.5-1	Summary of Construction Noise Sources Associated with Heavy Construction Activities
Table 4.6.5-2	Baseline Sound Levels and Sound Level Impacts (dBA) of Construction of the FPL West County Energy Center
Table 5.1.4-1	Estimated Drift Emission Spectrum for the West County Energy Center Cooling Tower
Table 5.1.4-2	Predicted Plume Characteristics and Drift Deposition from West County Energy Center Mechanical Draft Cooling Towers
Table 5.2.2-1	Injection Zone Pressure Results
Table 5.6.1-1	Summary of Maximum Pollutant Concentrations Predicted for the Project and Ultimate Site Capacity, Compared to the EPA Class II Significant Impact Levels
Table 5.6.1-2	Summary of Maximum Pollutant Concentrations Predicted for the Project, Compared to the EPA Class I Significant Impact Levels
Table 5.6.1-3	Maximum Predicted 24-hour Average PM ₁₀ Impacts for Comparison to the AAQS and PSD Increments
Table 5.7.0-1	Baseline Sound Levels and Sound Level Impacts (dBA) for the Operation of the FPL West County Energy Center

TABLE OF CONTENTS

(Cont'd)

LIST OF FIGURES

Figure 1.1.0-1	Plant Site Location
Figure 1.2.0-1	FPL Service Territory
Figure 2.1.1-1	Plant Site Location
Figure 2.1.2-1	Aerial Photograph of West County Energy Center Site
Figure 2.1.6-1a-c	Boundary Survey Maps
Figure 2.2.1-1	Municipalities in the Vicinity of the Project
Figure 2.2.2-1a	Generalized Future Land Use
Figure 2.2.2-1b-c	Future Land Use Classifications
Figure 2.3.1-1	Generalized Geology and Hydrogeology of Palm Beach County
Figure 2.3.1-2	East-West Hydrogeological Cross Section
Figure 2.3.1-3	North-South Hydrogeological Cross Section
Figure 2.3.3-1	Potable Wells Located Within a 5-mile Radius of the Site
Figure 2.3.5-1	Vegetation/Land Use Map of the Project Area
Figure 2.3.7-1	Annual Wind Rose for 1987 to 1991
Figure 2.3.7-2	Winter Wind Rose for December through February 1987 to 1991
Figure 2.3.7-3	Spring Wind Rose for March through May 1987 to 1991
Figure 2.3.7-4	Summer Wind Rose for June through August 1987 to 1991
Figure 2.3.7-5	Fall Wind Rose for September through November 1987 to 1991
Figure 2.3.8-1	Noise Monitoring Locations
Figure 3.2.0-1	Site Plan for West County Energy Center – 4-on-1 Configuration
Figure 3.2.0-2	Site Plan for West County Energy Center – 3-on-1 Configuration
Figure 3.2.0-3	Plot Plan for West County Energy Center – 4-on-1 Configuration
Figure 3.2.0-4	Plot Plan for West County Energy Center – 3-on-1 Configuration
Figure 3.2.0-5	Profile of Combustion Turbine and Heat Recovery Steam Generator
Figure 3.5.0-1	Intake Structure at West County Energy Center
Figure 3.5.0-2	Alternate Inlet Structure at West County Energy Center
Figure 3.5.0-3	Water Mass Balance for West County Energy Center – Primary Source – Surface Water, Two 1,100-MW Units
Figure 3.5.0-4	Water Balance for West County Energy Center – Secondary Source (Backup) – Groundwater, Two 1,100-MW Units
Figure 3.5.6-1	Conceptual Injection Well Design
Figure 5.2.2-1	Schematic Model of Proposed Injection Well
Figure 5.7.0-1	Maximum Predicted Noise Levels for Project (2,200 MW)
Figure 5.7.0-2	Maximum Predicted Noise Levels for Ultimate Site Capacity (3,300 MW)



APPENDIX 10.1

**FEDERAL PERMIT
APPLICATIONS AND APPROVALS**

APPENDIX 10.1.1

316 DEMONSTRATIONS

[Note: The Project does not require a 316 demonstration.

Refer to Chapter 5 of the SCA.]

APPENDIX 10.1.2

NPDES APPLICATION/PERMITS

**[Note: An NPDES Industrial Wastewater Permit
is not required for the Project.]**

APPENDIX 10.1.3

HAZARDOUS WASTE DISPOSAL APPLICATION/PERMIT

**[Note: No Federal or State application or permit for
Hazardous waste disposal is required for the Project.]**

APPENDIX 10.1.4

SECTION 10 OR 404 APPLICATIONS/PERMITS

[Note: Attached is a preliminary application for a General federal dredge and fill permit that will be finalized and submitted when authorization is obtained from the SFWMD for either the intake structure or alternative inlet structure located on the SFWMD's L10/L12 Canal.]

JOINT APPLICATION FOR
ENVIRONMENTAL RESOURCE PERMIT/

AUTHORIZATION TO USE
SOVEREIGN SUBMERGED LANDS/

FEDERAL DREDGE AND FILL PERMIT

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION/
WATER MANAGEMENT DISTRICTS/
U.S. ARMY CORPS OF ENGINEERS

**INSTRUCTIONS FOR JOINT APPLICATION FOR ENVIRONMENTAL RESOURCE
PERMIT/AUTHORIZATION TO USE STATE OWNED SUBMERGED LANDS/FEDERAL DREDGE AND
FILL PERMIT**

INTRODUCTION

Attached is a joint application for:

- 1) activities regulated under Part IV of Chapter 373, F.S.;
- 2) activities which require authorization to use state owned submerged lands; and
- 3) activities which require federal dredge and fill permit.

Certain activities may qualify for an exemption. If an activity qualifies for an exemption, an application is not required, although the use of this application form is the most expeditious way for the agencies to make the determination that the activity qualifies for an exemption. Attachment 2 lists various regulated activities and the type of permit required for each activity. If you have any questions, please contact the staff of the nearest office of either the Florida Department of Environmental Protection (DEP) or a Water Management District (WMD).

PROCESSING AGENCY/DISTRICT SERVICE CENTERS

The Department of Environmental Protection ("Department" or "DEP") regulates some types of activities, and the Water Management Districts ("WMDs") regulate others. Attachment 1, DEP/WMD Permitting Responsibilities, specifies which activities are regulated by each agency. Environmental Resource Permit Applications shall be made to the appropriate District/Department office serving the area in which the activity is proposed. Attachment 4 designates the appropriate agency office for each geographic area.

COPIES/APPLICATION FEES

Submit an original signed application form plus **four** copies of the form, and **five** complete sets of all the requested drawings and other information to the appropriate DEP or WMD office. Submit the appropriate fee with your application. Application fees are listed in Attachment 3.

DISTRIBUTION TO U.S. ARMY CORPS OF ENGINEERS

When activities are proposed in, on or over wetlands or other surface waters, a portion of the application (Section A and Section C, with the associated drawings) will be forwarded to the Army Corps of Engineers (ACOE) by the reviewing agency. The ACOE will advise you of any additional information that may be required to complete your federal dredge and fill permit application. It is not necessary for the applicant to submit a separate application to the ACOE. The information requested in this application form may be more than required to make a complete application to the ACOE. However, it is useful and may be essential for subsequent evaluation. Reducing unnecessary paperwork and delays is a continuing goal of the ACOE.

DISTRIBUTION TO THE DEP FOR STATE LAND APPROVAL

If the applicant checks the box to request authorization to use sovereign submerged lands, the Department will begin processing the request for sovereign submerged lands approval. Additionally, if at any time during the processing of the application, it appears that the proposed activities may take place on sovereign submerged lands, the Department will initiate a review for the authorization to use such lands. For an explanation of sovereign submerged lands approval see Attachment 5.

NOTE: The information listed in Sections B, D, E, and F of this application package is not intended to be all-inclusive. Additional information may be requested by the reviewing agency in order to complete your application.

TABLE OF CONTENTS

FOR ERP APPLICATION FORM PACKAGE

HEADING:	SUBJECT:
Section A	Basic application form
Section B	Information for noticed general environmental resource permits
Section C	Notice of receipt of application
Section D	Information required for standard general and individual environmental resource permit applications related to a single family dwelling unit
Section E	Information requested for standard general, individual and conceptual environmental resource permit applications not related to a single family dwelling unit
Table 1	Project impact summary
Table 2	On-site mitigation summary
Table 3	Off-site mitigation summary
Table 4	Docking facility summary
Table 5	Shoreline stabilization summary
Section F	Information for mitigation banks
Section G	Application for authorization to use sovereign submerged lands
Attachment 1	DEP and WMD permitting responsibilities
Attachment 2	Summary of activities typically authorized by each permit type
Attachment 3	Permit application processing fees
Attachment 4	Mailing instructions for submitting ERP applications to DEP, with map showing the DEP district boundaries and addresses
Attachment 5	Proprietary verses regulatory authorization

“What Sections of the Application Must I Fill Out?”

Section:	Noticed General Permits	Individual Permits		
		Single- Family Residences	Others	Mitigation Banks
Section A	Yes	Yes	Yes	Yes
Section B	Yes			
Section C		Yes	Yes	Yes
Section D		Yes		
Section E			Yes	
Section F				Yes
Section G	As Needed	As Needed	As Needed	As Needed

SECTION A

FOR AGENCY USE ONLY	
ACOE Application #	DEP/WMD Application #
Date Application Received	Date Application Received
Proposed Project Lat.	Fee Received \$
Proposed Project Long.	Fee Receipt #

PART 1:

Are any of the activities described in this application proposed to occur in, on, or over wetlands or other surface waters?

☒ yes ☐ no

Is this application being filed by or on behalf of a government entity or drainage district? ☐ yes ☒ no

A. Type of Environmental Resource Permit Requested (check at least one). See Attachment 2 for thresholds and descriptions.

- ☒ Noticed General - include information requested in Section B.
- ☐ Standard General (Single Family Dwelling) - include information requested in Sections C and D.
- ☐ Standard General (all other Standard General projects) - include information requested in Sections C and E.
- ☐ Individual (Single Family Dwelling) - include information requested in Sections C and D.
- ☐ Individual (all other Individual projects) - include information requested in Sections C and E.
- ☐ Conceptual - include information requested in Sections C and E.
- ☐ Mitigation Bank Permit (construction) - include information requested in Sections C and F. (If the proposed mitigation bank involves the construction of a surface water management system requiring another permit defined above, check the appropriate box and submit the information requested by the applicable section.)
- ☐ Mitigation Bank (conceptual) - include information requested in Sections C and F.

B. Type of activity for which you are applying (check at least one)

- ☒ Construction or operation of a new system, other than a solid waste facility, including dredging or filling in, on or over wetlands and other surface waters.
- ☐ Construction, expansion or modification of a solid waste facility.
- ☐ Alteration or operation of an existing system which was not previously permitted by a WMD or DEP.
- ☐ Modification of a system previously permitted by a WMD or DEP.
 Provide previous permit numbers:

☐ Alteration of a system	☐ Extension of permit duration
☐ Abandonment of a system	☐ Construction of additional phases of a system
☐ Removal of a system	

C. Are you requesting authorization to use Sovereign Submerged Lands?

☐ yes ☒ no

(See Section G and Attachment 5 for more information before answering this question.)

D. For activities in, on, or over wetlands or other surface waters, check type of federal dredge and fill permit requested:

- | | | |
|--|---|----------------------------------|
| ☐ Individual | ☐ Programmatic General | ☐ General |
| ☒ Nationwide | ☐ Not Applicable | |

E. Are you claiming to qualify for an exemption? ☐ yes ☒ no

If yes, provide rule number if known. _____

PART 3:	B. ENTITY TO RECEIVE PERMIT (IF OTHER THAN OWNER)
A. OWNER(S) OF LAND	
Name	Name Florida Power and Light Company
Title and Company	Title and Company
Address	Address 700 Universe Boulevard
City, State, Zip	City, State, Zip Juno Beach, FL 33408
Telephone and Fax	Telephone and Fax (561) 691-7518; (561) 691-7049
C. AGENT AUTHORIZED TO SECURE PERMIT	D. CONSULTANT (IF DIFFERENT FROM AGENT)
Name Barbara Linkiewicz	Name
Title and Company FPL Manager of New Capacity Projects	Title and Company
Address 700 Universe Boulevard	Address
City, State, Zip Juno Beach, FL 33408	City, State, Zip
Telephone and Fax (561) 691-7518; (561) 691-7049	Telephone and Fax

PART 4: (Please provide metric equivalent for federally funded projects):

A. Name of Project, including phase if applicable: West County Energy Center

B. Is this application for part of a multi-phase project?
☐ yes ☒ no

C. Total applicant-owned area contiguous to the project?
 ac.; ha.

D. Total area served by the system: N/A ac.; ha.

E. Impervious area for which a permit is sought: ac.; ha.

F. Volume of water that the system is capable of impounding:
N/A ac. ft.; m

G. What is the total area of work in, on, or over wetlands or other surface waters?
 ac.; ha. sq. ft.; sq. m.

H. Total volume of material to be dredged: yd; m

I. Number of new boat slips proposed: 0 wet slips; 0 dry slips

PART 5:

Project location (use additional sheets if needed):

County(ies)Palm Beach

Section(s) 32

Township 43

Range 40

Section(s)

Township

Range

Section(s)

Township

Range

Land Grant name, if applicable:

Tax Parcel Identification Number: _____

Street Address Road or other location:20125 State Road 80

City, Zip Code, if applicable: Loxahatchee 33470

PART 6: Describe in general terms the proposed project, system, or activity.

Construction of cooling water intake structure adjacent to and within SFWMD L-10 Canal to support new West County Energy Center electric generation facility to be located immediately north of State Road 80.

PART 7:

A. If there have been any pre-application meetings, including on-site meetings, with regulatory staff, please list the date(s), location(s), and names of key staff and project representatives.

B. Please identify by number any MSSW/Wetland Resource/ERP/ACOE Permits pending, issued or denied for projects at the location, and any related enforcement actions.

Agency	Date	No./Type of Application	Action Taken
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

C. Note: The following information is required for projects proposed to occur in, on or over wetlands that need a federal dredge and fill permit or an authorization to use state owned submerged lands. Please provide the names, addresses and zip codes of property owners whose property directly adjoins the project (excluding application) and/or (for proprietary authorizations) is located within a 500 ft. radius of the applicant's land. Please attach a plan view showing the owner's names and adjoining property lines. Attach additional sheets if necessary.

- | | |
|---------------------------------------|----|
| 1. | 2. |
| SFWMD | |
| 3. | 4. |
| Property owner to south of L-10 canal | |
| 5. | 6. |
| 7. | 8. |

PART 8:

A. By signing this application form, I am applying, or I am applying on behalf of the applicant, for the permit and any proprietary authorizations identified above, according to the supporting data and other incidental information filed with this application. I am familiar with the information contained in this application and represent that such information is true, complete and accurate. I understand this is an application and not a permit, and that work prior to approval is a violation. I understand that this application and any permit issued or proprietary authorization issued pursuant thereto, does not relive me of any obligation for obtaining any other required federal, state, water management district or local permit prior to commencement of construction. I agree, or I agree on behalf of the applicant, to operate and maintain the permitted system unless the permitting agency authorizes transfer of the permit to a responsible operation entity. I understand that knowingly making any false statement or representation in this application is a violation of Section 373.430, F.S. and 18 U.S.C. Section 1001.

Barbara Linkiewicz,

Typed/Printed Name of Applicant (If no Agent is used) or Agent (If one is so authorized below)

Signature of Applicant/Agent
Environmental Licensing Manager
(Corporate Title if applicable)

Date

AN AGENT MAY SIGN ABOVE ONLY IF THE APPLICANT COMPLETES THE FOLLOWING:

B. I hereby designate and authorize the agent listed above to act on my behalf, or on behalf of my corporation, as the agent in the processing of this application for the permit and/or proprietary authorization indicated above; and to furnish, on request, supplemental information in support of the application. In addition, I authorize the above-listed agent to bind me, or my corporation, to perform any requirements which may be necessary to procure the permit or authorization indicated above. I understand that knowingly making any false statement or representation in this application is a violation of Section 373.430, F.S. and 18 U.S.C. Section 1001.

Typed/Printed Name of Applicant

Signature of Applicant

Date

(Corporate Title if applicable)

Please note: The applicant's original signature (not a copy) is required above.

PERSON AUTHORIZING ACCESS TO THE PROPERTY MUST COMPLETE THE FOLLOWING:

C. I either own the property described in this application or I have legal authority to allow access to the property, and I consent, after receiving prior notification, to any site visit on the property by agents or personnel from the Department of Environmental Protection, the Water Management District and the U.S. Army Corps of Engineers necessary for the review and inspection of the proposed project specified in this application. I authorize these agents or personnel to enter the property as many times as may be necessary to make such review and inspection. Further, I agree to provide entry to the project site for such agents or personnel to monitor permitted work if a permit is granted.

Typed/Printed Name of Applicant

Signature of Applicant

Date

(Corporate Title if applicable)

SECTION B

INFORMATION FOR NOTICED GENERAL ENVIRONMENTAL RESOURCE PERMITS

INSTRUCTIONS: To qualify for a Noticed General Permit (NGP) for specific activities, the project must strictly comply with all of the terms, conditions, requirements, limitations and restrictions applicable to the desired NGP. A summary of the types of NGP's available is contained in Attachment 2. Carefully review the rule section of the NGP for which you are applying to ensure that your project meets the requirements of that NGP. Please complete Section A and submit it along with the information required in this Section (on 8 1/2" x 11" paper).

1. Indicate the project boundaries on a USGS quad map, reduced or enlarged as necessary to legibly show the entire project. If not apparent from the quad map, provide a location map (in sufficient detail to allow a person unfamiliar with the site to find it), containing a north arrow and a graphic scale and showing the boundary of the proposed activity and Section(s), Township(s), and Range(s).

See Attachment B.1 for site locations. The proposed intake structure location is on the southern bank of the SFWMD L-10 Canal, within Section 32, Township 43, Range 40, immediately south of State Road 80. The alternative inlet location is on the north side of the SFWMD L-10 Canal.

2. A legible site plan showing the following features:

- a) property boundaries and dimensions
- b) name and location of any adjoining public streets or roads
- c) location and dimensions of all existing structures
- d) label all impervious and pervious area
and indicate their size (area)
- e) the direction of drainage relative to the proposed improvements (using arrows)
- f) locations of all proposed works
- g) permanent and temporary erosion, sedimentation and turbidity controls
- h) boundaries of wetlands and other surface waters, identifying open water areas
- i) boundary area and volume of all temporary and permanent earthwork, including pre and post construction grades

See Attachment B.2 Site Plans for the proposed intake structure located on the south side of SFWMD L-10 Canal and the alternative inlet structure located on the north side of the SFWMD L-10 Canal.

3. Description of wetland or aquatic habitat .

The L-10 Canal is an artificial waterbody constructed for water storage and conveyance purposes by the SFWMD. The banks are relatively steep sloped, and do not support a wide littoral shelf for wetland vegetation to become established. Species on the banks of the Canal include the exotic shrub Brazilian pepper (*Schinus terebinthifolius*), common reed (*Phragmites australis*), elderberry (*Sambucus canadensis*), torpedo grass (*Panicum repens*), and cabbage palm (*Sabal palmetto*).

The site proposed for the West County Energy Center has been previously mined and filled with sand and shell to an elevation of approximately 13 feet above the surrounding land. No wetland or aquatic habitat is present at the site. The site plan in Attachment B.1 shows the location of the West County Energy Center relative to the proposed intake and alternative inlet locations.

Please see representative photographs of the intake structure location and West County Energy Center site in Attachment B.3.

4. Construction methods and schedule.

See Attachment B.4 presents the construction methods and schedule.

5. Additional information that would show that you qualify for the general permit, addressing all the parameters, thresholds and conditions required in the general permit. Errors and omissions will be identified within 30 days by the processing agency.

Criteria stated in the General Permit for Installation, Maintenance, Repair, and Removal of Underground Cable, Conduit, or Pipeline will be adhered to, specifically:

- (a) the maximum width of the disturbed corridor in wetlands shall not exceed 30 feet. The maximum width of the excavated trench shall not exceed eight feet, with temporary spoil storage banks not to exceed ten feet in width;
- (b) the total area of wetland disturbance shall not exceed 0.5 acres of forested wetlands per ten miles of cable, conduit, or pipeline;
- (c) for a trench with a top width greater than three feet in herbaceous wetlands, the upper layer of the soil horizon shall initially be scraped and segregated into a spoil bank that is separated from the spoil bank resulting from the excavation of the trench for the utility line. The upper layer of the soil horizon shall be replaced as the last step of restored grades to facilitate natural revegetation;
- (d) maintenance trimming or removal of trees in wetlands will be conducted only within the impacted areas authorized under this general permit and only as necessary to perform repairs on the cable, conduit, or pipeline;
- (e) this general permit does not authorize construction in surface waters other than wetlands;
- (f) there shall be no net placement of permanent fill resulting from the activities authorized by this general permit;
- (g) there shall be no dredging or filling in wetlands to access the work areas authorized by this general permit, except for temporary mats. All temporary mats shall be removed within thirty days after completion of the installation of the line within the wetland portion of the project;
- (h) the works authorized by this general permit shall not impede the flow of water in wetlands or other surface waters, except for a maximum period of 30 days during construction, provided that the impeded flow does not cause flooding and shall not adversely affect the wetlands or other surface waters;
- (i) temporary spoil banks shall contain breaches that prevent impoundment or restriction of surface water flows;
- (j) this general permit does not authorize the installation of conduit for draining wetlands or other surface waters;
- (k) pre-construction ground elevations and the contours of all disturbed soils, including vehicle ruts in wetlands and other surface waters, shall be restored within 30 days of completion of line installation. Restored grades shall be stabilized within 72 hours following completion of elevation and contour restoration to minimize erosion;
- (l) vehicle usage in wetlands and other surface waters shall be conducted so as to minimize tire rutting and erosion impacts;
- (m) for purposes of this general permit, vehicular access in wetlands and other surface waters shall be limited to existing roads, trails, rights-of-way or easements, and to other previously disturbed corridors where they exist;
- (n) the L-10 Canal is not considered to be an Outstanding Florida Water, Outstanding National Resource Water, Aquatic Preserve, or Class I water; and
- (o) during the initial clearing event and when conducting subsequent normal maintenance activities, the permittee shall eradicate all Brazilian pepper (*Schinus terebinthifolius*), Australian pine (*Casuarina* spp.), and punk tree (*Melaleuca quinquinerva*) from the wetland portions of the utility right of way. No Australian pine or punk tree is present on the banks of the L-10 Canal in the intake structure location.

Criteria stated in the General Permit for Subaqueous Utility Crossings of Artificial Waterways will be adhered to, specifically:

- (1) the L-10 Canal is an artificial waterway
- (a) the L-10 Canal is not considered an Outstanding Florida Water, Aquatic Preserve, Outstanding National Resource Water, Class I water, Class II water or water approved, conditionally approved, restricted, or conditionally restricted by the FDEP for shellfish harvesting;
- (b) construction shall be limited only to non-navigable watercourses or to those waterways in which navigation can be maintained at all times without the necessity of removing or relocating turbidity control devices to allow boat passage;
- (c) no dredging or filling shall be conducted in wetlands or other surface waters, which are located landward of the top of the banks of an artificial waterway. Dredging and back filling of littoral zones and wetland vegetation growing on the side slopes of the artificial waterway may be performed only as is reasonably necessary to install the subaqueous utility line crossing and restore the banks to their original design specifications;
- (d) there shall be no dewatering or construction of temporary berms or dikes;

- (e) the maximum length of the utility crossing shall not exceed 150 feet from top of bank to top of bank. Excavated trench dimensions shall be limited to a depth of not more than ten feet below existing bottom contours and a trench top width of not more than ten feet;
 - (f) the maximum width of the area disturbed by equipment during construction shall be no more than 30 feet wide;
 - (g) all previously excavated contours are restored with onsite native backfill, coarse sand, or clean, non-toxic rock bedding or cap material, as appropriate, within 72 hours following installation of the utility line;
 - (h) this general permit shall only authorize utility installations extending from bank to opposite bank on a particular waterway. The placement of utility lines paralleling the watercourse alignment is not authorized; and
 - (i) placement of the utility line shall not result in a navigational hazard. Customary navigation through the waterway shall be maintained at all times during installation.
- (2) This general permit shall be subject to the following specific conditions:
- (a) measures shall be taken to prevent violations of state water quality standards during and after construction arising from the work, such as the use of turbidity curtains, staked filter cloth, and staked hay bales. Where turbidity curtains, filter cloth, hay bales, and similar structural measures are not sufficient to contain turbid runoff, additional measures, such as restricting work to periods of low flow and dry season months, shall be taken to ensure that construction can be performed in a manner which will not violate state water quality standards;
 - (b) all erodible ground areas and slopes disturbed during construction shall be revegetated with sod, mulch, seed, or wetland species or otherwise stabilized within 72 hours after installation of the utility line and at any other time as necessary to prevent violations of state water quality standards in wetlands or other surface waters;
 - (c) temporary or permanent spoil disposal sites shall be located exclusively on uplands and shall be sited or designed to prevent violations of state water quality standards in wetlands or other surface waters;
 - (d) the utility crossing shall be designed in accordance with generally recognized practices of sound engineering;
 - (e) signs shall be installed and maintained at conspicuous locations to identify the alignment and type of the utility line within wetlands or other surface waters.
- (3) For purposes of this general permit, utility crossings or lines include: crossings and lines transporting potable water, raw non-wastewater, including well water and reservoir water or domestic wastewater, propane gas, natural gas; electric power cables and conduits that are not subject to Sections 403.52 - 403.539, F.S.; and telephone and other electronic communication cables and conduits.

Criteria stated in the ACOE Nationwide Permit 12 for Utility Line Activities will be adhered to, specifically:

12. Utility Line Activities. Activities required for the construction, maintenance and repair of utility lines and associated facilities in waters of the US as follows:

- (i) **Utility lines:** The construction, maintenance, or repair of utility lines, including outfall and intake structures and the associated excavation, backfill, or bedding for the utility lines, in all waters of the US, provided there is no change in preconstruction contours. A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication (see Note 1, below). Material resulting from trench excavation may be temporarily sidecast (up to three months) into waters of the US, provided that the material is not placed in such a manner that it is dispersed by currents or other forces. The District Engineer may extend the period of temporary side casting not to exceed a total of 180 days, where appropriate. In wetlands, the top 6" to 12 of the trench should normally be backfilled with topsoil from the trench. Furthermore, the trench cannot be constructed in such a manner as to drain waters of the US (e.g., backfilling with extensive gravel layers, creating a french drain effect). For example, utility line trenches can be backfilled with clay blocks to ensure that the trench does not drain the waters of the US through which the utility line is installed. Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.
- (ii) **Utility line substations:** The construction, maintenance, or expansion of a substation facility associated with a power line or utility line in non-tidal waters of the US, excluding non-tidal wetlands adjacent to tidal waters, provided the activity does not result in the loss of greater than 1/2-acre of non-tidal waters of the US
- (iii) **Foundations for overhead utility line towers, poles, and anchors:** The construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the US, provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible.
- (iv) **Access roads:** The construction of access roads for the construction and maintenance of utility lines, including overhead power lines and utility line substations, in non-tidal waters of the US, excluding non-tidal wetlands adjacent to tidal waters, provided the discharges do not cause the loss of greater than 1/2-acre of non-tidal waters of the US. Access roads shall be the minimum width necessary (see Note 2, below). Access roads must be constructed

so that the length of the road minimizes the adverse effects on waters of the US and as near as possible to preconstruction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads). Access roads constructed above preconstruction contours and elevations in waters of the US must be properly bridged or culverted to maintain surface flows. The term "utility line" does not include activities which drain a water of the US, such as drainage tile, or French drains; however, it does apply to pipes conveying drainage from another area. For the purposes of this NWP, the loss of waters of the US includes the filled area plus waters of the US that are adversely affected by flooding, excavation, or drainage as a result of the project.

Activities authorized by paragraph (i) through (iv) may not exceed a total of 1/2-acre loss of waters of the US. Waters of the US temporarily affected by filling, flooding, excavation, or drainage, where the project area is restored to preconstruction contours and elevation, is not included in the calculation of permanent loss of waters of the US. This includes temporary construction mats (e.g., timber, steel, geotextile) used during construction and removed upon completion of the work. Where certain functions and values of waters of the US are permanently adversely affected, such as the conversion of a forested wetland to a herbaceous wetland in the permanently maintained utility line right-of-way, mitigation will be required to reduce the adverse effects of the project to the minimal level. Mechanized land clearing necessary for the construction, maintenance, or repair of utility lines and the construction, maintenance and expansion of utility line substations, foundations for overhead utility lines, and access roads is authorized, provided the cleared area is kept to the minimum necessary and preconstruction contours are maintained as near as possible. The area of waters of the US that is filled, excavated, or flooded must be limited to the minimum necessary to construct the utility line, substations, foundations, and access roads. Excess material must be removed to upland areas immediately upon completion of construction. This NWP may authorize utility lines in or affecting navigable waters of the US even if there is no associated discharge of dredged or fill material (See 33 CFR part 322).

Notification: The permittee must notify the District Engineer in accordance with General Condition 13, if any of the following criteria are met:

- (a) Mechanized land clearing in a forested wetland for the utility line right-of-way;
- (b) A Section 10 permit is required;
- (c) The utility line in waters of the US, excluding overhead lines, exceeds 500 feet;
- (d) The utility line is placed within a jurisdictional area (i.e., water of the US), and it runs parallel to a stream bed that is within that jurisdictional area;
- (e) Discharges associated with the construction of utility line substations that result in the loss of greater than 1/10-acre of waters of the US; or
- (f) Permanent access roads constructed above grade in waters of the US for a distance of more than 500 feet
- (g) Permanent access roads constructed in waters of the US with impervious materials. (Sections 10 and 404)

Note 1: Overhead utility lines constructed over Section 10 waters and utility lines that are routed in or under Section 10 waters without a discharge of dredged or fill material require a Section 10 permit; except for pipes or pipelines used to transport gaseous, liquid, liqescent, or slurry substances over navigable waters of the US, which are considered to be bridges, not utility lines, and may require a permit from the USCG pursuant to section 9 of the Rivers and Harbors Act of 1899. However, any discharges of dredged or fill material associated with such pipelines will require a Corps permit under Section 404.

Note 2: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the utility line must be removed upon completion of the work and the area restored to preconstruction contours, elevations, and wetland conditions. Temporary access roads for construction may be authorized by NWP 33.

Note 3: Where the proposed utility line is constructed or installed in navigable waters of the US (i.e., Section 10 waters), copies of the PCN and NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), for charting the utility line to protect navigation.

6. Provide the rule section number of the NGP for which you are applying.

62-341.453, F.A.C. – General Permit for Installation, Maintenance, Repair, and Removal of Underground Cable, Conduit, or Pipeline

62-341.457, F.A.C. – General Permit for Subaqueous Utility Crossings of Artificial Waterways

ACOE Nationwide Permit 12, Utility Line Activities

7. The construction plans and supporting calculations must be signed, sealed, and dated by an appropriate registered professional as required by the relevant statutory provisions when the design of the system requires the services of an appropriate registered professional.

Construction drawings will be developed for either the intake of inlet structures and submitted prior to construction.

SECTION G

Application for Authorization to Use Sovereign Submerged Lands

Part 1: Sovereign Submerged Lands title information (see Attachment 5 for an explanation). Please read and answer the applicable questions listed below:

A. I have a sovereign submerged lands title determination from the Division of State Lands which indicates that the proposed project is NOT ON sovereign submerged lands (Please attach a copy of the title determination to the application). Yes ☒ No ☐

- If you answered Yes to Question A and you have attached a copy of the Division of State Lands Title Determination to this application, you do not have to answer any other questions under Part I or II of Section G.

See Attachment G.1.A. - Letter from the Division of State Lands indicating that the proposed project is not on sovereign submerged lands.

B. I have a sovereign submerged lands title determination from the Division of State Lands which indicates that the proposed project is ON sovereign submerged lands (Please attach a copy of the title determination to the application). Yes ☐ No ☐

- If you answered yes to question B please provide the information requested in Part II. Your application will be deemed incomplete until the requested information is submitted.

C. I am not sure if the proposed project is on sovereign submerged lands (please check here). ☐

- If you have checked this box department staff will request that the Division of State Lands conduct a title determination. If the title determination indicates that the proposed project or portions of the project are located on sovereign submerged lands you will be required to submit the information requested in Part II of this application. The application will be deemed incomplete until the requested information is submitted.

D. I am not sure if the proposed project is on sovereign submerged lands and I DO NOT WISH to contest the Department's findings (please check here). ☐

- If you have checked this box refer to Part II of this application and provide the requested information. The application will be deemed incomplete until the requested information is submitted.

E. It is my position that the proposed project is NOT on sovereign submerged lands (please check here) ☐

- If you have evidence that indicates that the proposed project is not on sovereign submerged lands please attach the documentation to the application. If the Division of State Lands title determination indicates that your proposed project or portion of your proposed project are on sovereign submerged lands you will be required to provide the information requested in Part II of this application.

F. If you wish to contest the findings of the title determination conducted by the Division of State Lands please contact the Department of Environmental Protection's Office of General Counsel. Your proposed project will be deemed incomplete until either the information requested in Part II is submitted or a legal ruling indicates that the proposed project is not on sovereign submerged lands.

Part II: If you were referred to this section by Part I, please provide this additional information. Please note that if your proposed project is on sovereign submerged lands and the below requested information is not provided, your application will be considered incomplete.

A. Provide evidence of title to the subject riparian upland property in the form of a recorded deed, title insurance, legal opinion of title, or a long-term lease which specifically includes riparian rights. Evidence submitted must demonstrate that the application has sufficient title interest in the riparian upland property.

B. Provide a detailed statement describing the existing and proposed upland uses and activities. For commercial uses, indicate the specific type of activity, such as marina, ship repair, dry storage (including the number of storage spaces), commercial fishing/seafood processing, fish camp, hotel, motel resort restaurant, office complex, manufacturing operation, etc.

For rental operations, such as trailer or recreational vehicle parks and apartment complexes, indicate the number of wet slip units/spaces available for rent or lease and describe operational details (e.g., are spaces rented on a month-to-month basis or through annual leases).

For multi-family residential developments, such as condominiums, townhomes, or subdivisions, provide the number of living units/lots and indicate whether or not the common property (including the riparian upland property) is or will be under the control of a homeowners association.

For projects sponsored by a local government, indicate whether or not the facilities will be open to the general public. Provide a breakdown of any fees that will be assessed, and indicate whether or not such fees will generate revenue or will simply cover costs associated with maintaining the facilities.

C. Provide a detailed statement describing the existing and proposed activities located on or over the sovereign submerged lands at the project site. This statement must include a description of docks and piers, types of vessels (e.g., commercial fishing, liveaboards, cruise ships, tour boats), length and draft of vessels, sewage pumped facilities, fueling facilities, boat hoists, boat ramps, travel lifts, railways, and any other structure or activities existing or proposed to be located waterward of the mean/ordinary high water line.

If slips are existing and/or proposed, please indicate the number of powerboat slips and sailboat slips and the percentage of those slips available to the general public on a "first come, first served" basis. This statement must include a description of channels, borrow sites, bridges, groins, jetties, pipelines, or other utility crossings, and any other structures or activities existing or proposed to be located waterward of the mean/ordinary high water line. For shoreline stabilization activities, this statement must include a description of seawalls, bulkheads, riprap, filling activities, and any other structure or activities existing or proposed to be located along the shoreline.

D. Provide the linear footage of shoreline at the mean/ordinary high water line owned by the application which borders sovereign submerged lands.

E. Provide a recent aerial photo of the area. A scale of 1"=200' is preferred. Photos are generally available at minimal cost from your local government property appraiser's office or from district Department of Transportation offices. Indicate on the photo the specific location of your property/project site.

PROPRIETARY PROJECT DESCRIPTIONS

Please check the most applicable activity which applies to your project(s):

Leases

- ☐ Commercial marinas (renting wet slips) including condos, etc., if 50% or more of their wet slips are available to the general public
- ☐ Public/Local governments
- ☐ Yacht Clubs/Country Clubs (when a membership is required)
- ☐ Condominiums (requires upland ownership)
- ☐ Commercial Uplands Activity (temporary docking and/or fishing pier associated with upland revenue generating activities, i.e., restaurants, hotels, motels) for use of the customer at not charge
- ☐ Miscellaneous Commercial Upland Enterprises where there is a charge associated with the use of overwater structure (Charter Boats, Tour Boats, Fishing Piers)
- ☐ Ship Building/Boat Repair Service Facilities
- ☐ Commercial Fishing Related (Offloading, Seafood Processing)
- ☐ Private Single-family Residential Docking Facilities; Townhome Docking Facilities; Subdivision Docking Facilities (upland lots privately owned)

Public Easements and Use Agreements

- ☐ Miscellaneous Public Easements and Use Agreements
- ☐ Bridge Right-of-way (DOT, local government)
- ☐ Breakwater of groin
- ☐ Subaqueous Utility Cable (TV, telephone, electrical)
- ☐ Subaqueous Outfall or Intake
- ☐ Subaqueous Utility Water/Sewer
- ☐ Overhead Utility w/Support Structure on Sovereign Submerged Lands
- ☐ Disposal Site for Dredged Material
- ☐ Pipeline (gas)
- ☐ Borrow Site

Private Easements

- ☐ Miscellaneous Private Easements
- ☐ Bridge Right-of-way
- ☐ Breakwater Groin
- ☐ Subaqueous Utility Cable (TV, telephone, electrical)
- ☐ Subaqueous Outfall or Intake
- ☐ Subaqueous Utility Water/Sewer
- ☐ Overhead Utility Crossing
- ☐ Disposal Site for Dredged Material
- ☐ Pipeline (gas)

Consents of Use

- ☐ Aerial Utility Crossing w/no support structures on sovereign submerged lands
- ☐ Private Dock
- ☐ Public Dock
- ☐ Multi-family Dock
- ☐ Fishing Pier (private or Multi-family)
- ☐ Private Boat Ramp
- ☐ Sea Wall
- ☐ Dredge
- ☐ Maintenance Dredge
- ☐ Navigation Aids/Markers
- ☐ Artificial Reef
- ☐ Riprap
- ☐ Public Boat Ramp
- ☐ Public Fishing Pier
- ☐ Repair/Replace Existing Public Fishing Pier
- ☐ Repair/Replace Existing Private Dock
- ☐ Repair/Replace Existing Public Dock
- ☐ Repair/Replace Existing Multi-family Dock
- ☐ Repair/Replace Existing Fishing Pier (Private or Multi-family)
- ☐ Repair/Replace Existing Private Boat Ramp
- ☐ Repair/Replace Existing Sea Wall, Revetments, or Bulkheads
- ☐ Repair/Replace/Modify structures/activities within an exiting lease, easement, management agreement or use agreement area or repair/replace existing grandfathered structures
- ☐ Repair/Replace Existing Public Boat Ramp

Miscellaneous

- ☐ Biscayne Bay Letters of Consistency/Inconsistency w/258.397, F.S.
- ☐ Management Agreements - Submerged Lands
- ☐ Reclamation
- ☐ Purchase of Filled, Formerly Submerged Lands
- ☐ Purchase of Reclaimed Lake Bottom
- ☐ Treasure Salvage
- ☐ Insect Control Structures/Swales
- ☐ Miscellaneous projects which do not fall within the activity codes listed above

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

ATTACHMENTS TO FORM 62-343.900(1):
JOINT APPLICATION FOR
ENVIRONMENTAL RESOURCE PERMIT
AUTHORIZATION TO USE SOVEREIGN SUBMERGED LANDS
FEDERAL DREDGE AND FILL PERMIT

Attachment No.	Title	Effective Date
1	DEP and WMD Permitting Responsibilities	October 3, 1995
2	Summary of Activities Typically Authorized by Each Permit Type	October 3, 1995
3	Permit Application Processing Fees	October 3, 1995
4	Mailing instructions for submitting ERP applications to DEP, with Map Showing the DEP District Boundaries and Addresses	October 3, 1995
5	Proprietary v. Regulatory Authorization	October 3, 1995

**Attachment 1 to Instructions for Joint
Summary of DEP and WMD Permitting Responsibilities**

The Department of Environmental Protection ("Department" or "DEP") is responsible for issuing (or denying) permits for some types of activities. The Water Management Districts ("WMDs") issue (or deny) the remaining types. You must submit your permit application to the agency which is responsible for permitting your proposed activities. This summary covers typical cases; applicants with non-typical situations or who need further clarification should contact the nearest DEP or WMD office.

THE DEPARTMENT is responsible for reviewing and taking agency action on the following activities (including compliance and enforcement):

- Systems designed to accommodate only one single-family dwelling unit, duplex, triplex, or quadruplex on a contiguous ownership of property of five acres or less, provided the single-family dwelling unit, duplex, triplex, or quadruplex is not part of a larger common plan of development or sale proposed by the applicant. The term "system" means a stormwater management system, dam, impoundment, reservoir, appurtenant work or works, or any combination thereof, including dredged or filled areas. This term includes the construction of docks, seawalls, structures, and all other types of dredging or filling in surface waters and wetlands.
- Projects that also need a waste treatment or management permit from DEP:
 - Solid waste (except certain activities that qualify for general permits)
 - Hazardous waste (except where the storage of hazardous waste is an incidental part of the facility)
 - Domestic wastewater (except for certain applications)
 - Industrial wastewater (except certain activities that qualify for general permits)
- All mining projects (excluding borrow pits).
- Power plants and electrical distribution and transmission lines, including associated facilities
- Communication cables and lines.
- Natural gas or petroleum exploration activities and facilities, and product pipelines.
- Docking facilities involving the creation of 10 or more new boat slips, including adjacent docking-related development and associated navigational dredging, except where the docking facility and associated navigational dredging is part of a larger plan of other commercial or residential development that has received or requires a permit under Part IV of Chapter 373, F.S. The term "adjacent docking-related development" includes parking areas for the docking facility, dry storage facilities, boat sales and supply facilities, maintenance and repair facilities, associated seafood loading and processing facilities, restaurants, and harbor master and marina administration facilities.
- Activities proposed in whole or in part seaward of the coastal construction control line.
- Navigational dredging conducted by governmental entities.
- Seaports and adjacent seaport-related development where the applicant or property owner is a port authority.
- The following activities in wetlands and other surface waters when such activities are not part of a larger plan of development: boat ramps, ski jumps, ski slalom courses, aids to navigation, mooring buoys and fields, piling supported structures which are not physically connected to uplands, estuarine and marine aquaculture facilities, fish attractors, artificial reefs, treasure salvage, and archaeological research or exploration.
- Temporary systems for commercial film productions.
- High speed rail facilities.

- Magnetic levitation demonstration projects.
- Mitigation banks primarily for: mining or power production; governmental solid waste facilities; governmental domestic wastewater facilities; industrial waste facilities; communication cables and lines; natural gas or petroleum exploration activities and facilities; and product pipelines; navigational dredging projects conducted by governmental entities; seaports; and modifications of permits previously issued by the Department.
- Modification of permits issued by the Department. If the permit has been modified, the agency that issued the last modification to the permit shall process the modification. Modifications to Management and Storage of Surface Waters (MSSW) Permits shall be processed by the appropriate Water Management District, except that the Department shall process modifications of MSSW permits for solid waste facilities and mining projects.
- All applications for wetland resource permits within the territory of the Northwest Florida Water Management District.

THE SOUTH FLORIDA, SOUTHWEST FLORIDA, ST. JOHNS RIVER, AND SUWANNEE RIVER WATER MANAGEMENT DISTRICTS are responsible for reviewing and taking agency action (including compliance and enforcement) on all other Environmental Resource Permit Applications. THE NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT is responsible for reviewing and taking agency action (including compliance and enforcement) for agriculture and silviculture activities.

Attachment 2 to Instructions for Joint Application Summary of Activities Typically Authorized by Each Permit Type

These summary lists will assist an applicant in determining what type of permit their project will normally require. These lists are only a brief summary of the various exemptions or permit types and do not contain all of the requirements for each exemption or permit. Applicants unfamiliar with the details of all the requirements which apply to the various exemptions or permit types, or uncertain of how the conditions would apply to a specific situation, should discuss their project with staff of the appropriate reviewing agency before submitting an application.

EXEMPTIONS

You do not normally need to apply for a permit for these activities. If you are uncertain if your specific project meets the conditions for an Exemption, contact the agency with jurisdiction in the location where the activity is proposed.

- The repair or replacement of existing functional pipes or culverts, the purpose of which is the discharge or conveyance of stormwater
- The performance of maintenance dredging of existing manmade canals, channels, basins, berths, and intake and discharge structures
- The maintenance of functioning insect control structures, and the maintenance of functioning dikes and functioning irrigation and drainage ditches, including roadway drainage ditches
- The maintenance of previously-permitted minor silviculture surface water management systems
- The restoration of less than 100 feet in length of existing insect control impoundment dikes and the connection of such impoundments to tidally-influenced waters
- The installation, replacement or repair of mooring pilings and dolphins associated with private docking facilities
- The installation of private docks of 1000 square feet or less of surface area over wetlands or other surface waters or 500 square feet or less of surface area over wetlands or other surface waters for docks which are located in Outstanding Florida Waters
- Construction of private docks in artificially-created waterways where construction will not violate water quality standards, impede navigation, or adversely affect flood control
- The replacement or repair of existing docks and mooring piles
- The installation and maintenance to design specifications of boat ramps on artificial bodies of water, or the installation and maintenance to design specifications of boat ramps open to the public in any wetlands or other surface waters
- Construction of seawalls or riprap in artificially-created waterways
- The restoration of a seawall or riprap at its previous location or within one foot waterward of its previous location
- The construction of vertical seawalls in wetlands or other surface waters and the construction of riprap revetments, where such construction adjoins at both ends existing seawalls or riprap, follows a continuous and uniform construction line with the existing seawalls or riprap, is no more than 150 feet in length
- The installation of subaqueous transmission and distribution lines laid on, or embedded in, the bottoms of wetlands or other surface waters
- The replacement or repair of subaqueous transmission and distribution lines laid on, or embedded in, the bottoms of wetlands or other surface waters
- Activities necessary to preserve, restore, repair, remove, or replace an existing communication or power pole or line
- Installation, removal, and replacement of utility poles that support telephone or communication cable lines, or electric distribution lines of 35 kV or less
- The replacement or repair of existing open-trestle foot bridges and vehicular bridges that are 100 feet or less in length and two lanes or less in width
- Construction or maintenance of culverted driveways or roadway crossings and bridges of artificial waterways
- The installation of aids to navigation
- The use of rotenone, by Florida Game and Fresh Water Fish Commission
- Construction of fresh water fish attractions by Florida Game and Fresh Water Fish Commission, U.S. Forest Service, and county and municipal governments

- Installation of piling support structures associated with water quality testing or monitoring equipment by the Department or the Water Management Districts

NOTICED GENERAL ENVIRONMENTAL RESOURCE PERMIT

Listed below are activities which may qualify for a Noticed General Permit. Applicants who believe their projects might qualify should discuss the proposed project with the agency with jurisdiction in the location where the activity is proposed; obtain a copy of the applicable rule section(s) where the detailed terms, conditions, limitations and restrictions are listed; and then file an application.

- General Permit for installation, alteration or maintenance of boat ramps and associated accessory docks (Section 62-341.417, F.A.C.)
- General Permit for certain piers and associated structures (Section 62-341.427, F.A.C.)
- General Permit for installation of riprap (Section 62-341.431, F.A.C.)
- General Permit for installation of fences (Section 62-341.437, F.A.C.)
- General Permit for the construction or maintenance of culverted driveway or roadway crossings and bridges of artificial waterways (Section 62-341.439, F.A.C.)
- General Permit to the Florida Department of Transportation, counties and municipalities, for minor bridge alteration, replacement, maintenance and operation (Section 62-341.443, F.A.C.)
- General Permit to the Florida Department of Transportation, counties and municipalities for minor activities within existing rights-of-way or easements (Section 62-341.447, F.A.C.)
- General Permit for installation, maintenance, repair, and removal of underground cable, conduit, or pipeline (Section 62-341.453, F.A.C.)
- General Permit for the construction of aerial pipeline, cable, and conduit crossings of certain waters (Section 62-341.455, F.A.C.)
- General Permit for subaqueous utility crossings of artificial waterways (Section 62-341.457, F.A.C.)
- General Permit for the construction and operation of culverts and associated water control structures in mosquito control impoundments by governmental mosquito control agencies (Section 62-341.463, F.A.C.)
- General Permit for breaching mosquito control impoundments by governmental mosquito control agencies (Section 62-341.467, F.A.C.)
- General Permit for minor activities (Section 62-341.475, F.A.C.)
- General Permit for the U.S. Forest Service for minor works within National Forests (Section 62-341.495, F.A.C.)
- General Permit for the construction of artificial reefs (Section 62-341.600, F.A.C.)
- General Permit for clam and oyster culture on sovereignty submerged lands aquaculture leases (Section 62-341.601, F.A.C.)
- General Permit for installation and maintenance of intake and discharge pipes associated with marine bivalve facilities (Section 62-341.602, F.A.C.)
- General Permit for non-nursery cultivation and wild collection of aquatic plants (Section 62-341.603, F.A.C.)
- General Permit to perform prospecting activities for phosphate minerals (Section 62-341.610, F.A.C.)
- General Permit for temporary dragline crossings of waters (Section 62-341.611, F.A.C.)
- General Permit for low water crossings (Section 62-341.612, F.A.C.)
- General Permit for the construction and maintenance of electric powerlines by electric utilities (Section 62-341.620, F.A.C.)
- General Permit for relocation of aerial electric and communication lines associated with road improvement projects (Section 62-341.621, F.A.C.)

STANDARD GENERAL ENVIRONMENTAL RESOURCE PERMIT

Activities which do not qualify for an exemption or a noticed general permit may qualify for a Standard General Permit, if those activities meet all (except as noted) the criteria listed below. Applicants who are uncertain, especially with regard to "incidental site activities", should contact the appropriate reviewing agency. Applicants must file a permit application for any project which meets the criteria for a Standard General Permit.

- System must not be capable of impounding a volume of water more than 120 acre-feet, and

- Construction or alteration involving less than one acre of wetlands, and
- Project size is less than 100 acres, and
- The number of boat slips is less than ten.

or

- Is limited to incidental site activities (not applicable in St. Johns River WMD and Southwest Florida WMD).

INDIVIDUAL, AND CONCEPTUAL, ENVIRONMENTAL RESOURCE PERMIT

Any project or activity involving the construction, alteration, operation, maintenance, repair, or abandonment of any surface water or stormwater management system, dam, impoundment, reservoir, appurtenant work or works - including dredging and filling, and establishment and maintenance of a mitigation bank - must receive an Individual, or a Conceptual, Environmental Resource Permit, unless the project qualifies for an exemption or some type of general permit.

U.S. ARMY CORPS OF ENGINEERS GENERAL PERMITS

GP Number	ACTIVITY	COUNTY	ISSUED DATE	DATE EXPIRES
SAJ-5	Maintenance Dredge of Residential Canals	All Florida	8-15-94	8-15-99
SAJ-9	Private Piers	Palm Beach	7-22-94	7-22-99
SAJ-12	Boat Ramp	All Florida	3-1-94	3-1-99
SAJ-13	Aerial Transmission Lines	All Florida	3-1-94	3-1-99
SAJ-14	Subaqueous Transmission Lines	All Florida	3-1-94	3-1-99
SAJ-17	Minor Structures	All Florida	12-7-90	12-7-95
SAJ-18	Boat Slips	All Florida	3-31-94	3-31-99
SAJ-20	Private Piers	All Florida	3-1-94	3-1-99
SAJ-33	Private Multi-family Piers	All Florida	3-1-94	3-1-99
SAJ-34	Commercial Piers	All Florida	3-1-94	3-1-99
SAJ-41	Bulkheads and Backfill	Pine Island	4-13-89	4-13-94
SAJ-42	Private Piers	Dade	2-16-94	2-16-99
SAJ-46	Bulkheads and Backfill in Residential Canals	All Florida	1-19-95	1-19-00
SAJ-48	Fill	Alligator Alley	10-12-88	10-12-93
SAJ-50	Artificial Reefs	All Florida	7-1-89	7-1-94
SAJ-59	Fill	Dade: Bird Drive Basin	8-2-94	8-2-99
SAJ-67	Minor Structures	Okeechobee Waterway	1-24-91	1-24-99
SAJ-68	Restricted Zones	All Florida	5-1-90	5-1-95
SAJ-70	Bulheads and Backfill	Monroe: Cudjoe Gardens	11-9-90	11-9-95

Notes: ALL GENERAL PERMITS ARE SUBJECT TO GENERAL CONDITIONS.

As of March 1, 1994, all general permits for single-family piers that have been revoked are now replaced by SAJ-20.

U. S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMITS

Nationwide Permit Number & Description	Water Quality Certification	Coastal Zone Consistency	Predischarge Notification Requirements
1: Aids to Navigation	Certified	Certified	None
2: Structures in Artificial Canals	Certified	Certified	None
3: Maintenance	Certified	Certified	None
4: Fish & Wildlife Harvesting, Enhancement and Attraction Devices and Activities	Certified	Certified	None
5: Scientific Measurement Devices	Certified	Certified	No PDN coordination required
6: Survey Activities	Certified	Certified	None
7: Outfall Structures	Certified	Certified	No PDN coordination required
8: Oil and Gas Structures	Denied	Denied	
9: Structures in Fleeting and Anchorage Areas	Certified	Certified	None
10: Mooring Buoys	Certified	Certified	None
11: Temporary Recreational Structures	Certified	Certified	None
12: Utility Line Backfill and Bedding	Certified	Certified	None
13: Bank Stabilization	Certified	Certified	PDNs will be coordinated with all Federal agencies
14: Road Crossing	Certified	Certified	PDN coordination for tidal crossings only
15: USCG Approved Bridges	Certified	Certified	None
16: Return Water from Upland CDF (contained disposal facility)	Denied	Certified	None
17: Hydropower Projects	Certified	Certified	PDN required for all applications with coordination with all agencies
18: Minor Discharges	Certified	Certified	PDNs coordinated with all agencies
19: 25 Cubic Yards of Dredging	Certified	Certified	None

Nationwide Permit Number & Description	Water Quality Certification	Coastal Zone Consistency	Predischarge Notification Requirements
20: Oil-Spill Cleanup	Certified	Certified	None
22: Removal of Vessels	Certified	Certified	None
23: Approved Categorical Exclusions	Certified	Certified	None
24: State-Administered Section 404 Program	NA	NA	None
25: Structural Discharge	Certified	Certified	None
26: Headwaters and Isolated Waters Discharges	Denied	Certified	All work between 1 and 5 acres coordinated with EPA, NMFS and USF&WS. Work between 5 and 10 acres coordinated with ALL agencies, including State Clearinghouse in Tallahassee
27: Wetland Restoration Activities	Certified	Certified	None
28: Modification of Existing Marinas	Certified	Certified	None
32: Completed Enforcement Actions	Certified	Certified	None
33: Temporary Construction and Access	Certified	Certified	No PDN coordination required
35: Maintenance Dredging of Existing Basins	Certified	Certified	None
36: Boat Ramps	Certified	Certified	None
37: Emergency Watershed Protection	Certified	Certified	No PDN coordination required with ALL agencies
38: Cleanup of Hazardous and Toxic Waste	Certified	Certified	No PDN coordination required with ALL agencies
40: Farm Buildings	Certified	Certified	None

Notes: Further explanations of listed activities can be found at 33 CFR Part 330 Appendix B.

Nationwide permit program revised - January 21, 1992
 Information on nationwides as of June 28, 1993

ATTACHMENT 3 TO INSTRUCTIONS FOR JOINT APPLICATION PERMIT APPLICATION PROCESSING FEES FOR DEP

(Note - fees may be different if application is processed by a WMD)

Environmental Resource Permits

For individual, conceptual approval or standard general permit applications that involve a combination of the fee categories listed in Paragraphs A and B below, the highest fee in these paragraphs that applies to the project in question shall be the correct application fee.

- A. Individual and Conceptual Approval Permits (those systems that involve \$ 1 acre of construction or alteration in, on or over wetlands or other surface waters, involve \$ 10 new boat slips, are capable of impounding > 120 acre feet, serve a total land area \$ 100 acres, or provide for the placement of \$ 12 acres of impervious surface):
1. For a system that involves < 1 acre of construction or alteration in, on or over wetlands or other surface waters and involves < 10 new boat slips but reaches any of the following three thresholds:
 - a. is capable of impounding > 120 acre feet;
 - b. serves a total land area \$ 100 acres; or
 - c. provides for the placement of \$ 12 acres of impervious surface..... \$2,500.00
 2. For a system involving the following total acreage of construction or alteration in, on or over wetlands or other surface waters:
 - a. $\geq$ 100 acres\$10,000.00
 - b. < 100 acres and \$ 50 acres\$8,000.00
 - c. < 50 acres and \$ 10 acres.....\$6,500.00
 - d. < 10 acres and \$ 5 acres.....\$5,500.00
 - e. < 5 acres and \$ 2 acres.....\$4,000.00
 - f. < 2 acres and \$ 1 acre.....\$3,000.00
 3. For a system involving 10 or more new boat slips and either capable of impounding \$ 40 acre feet, serving a total land area \$ 40 acres, providing for the placement of \$ 12 acres of impervious surface, or involving construction or alteration (other than new boat slips) in, on or over wetlands or other surface waters, with the following number of new slips:
 - a. 50 or more.....\$6,500.00
 - b. 30 - 49.....\$5,500.00
 - c. 10 - 29.....\$4,000.00

4. For a system involving 10 or more new boat slips and capable of impounding < 40 acre feet, serving a total land area < 40 acres, providing for the placement of < 12 acres of impervious surface, and not involving construction or alteration (other than new boat slips) in, on or over wetlands or other surface waters, with the following number of new slips:
 - a. 50 or more.....\$4,000.00
 - b. 30 - 49.....\$3,000.00
 - c. 10 - 29.....\$1,500.00
5. For a system involving a new solid waste facility.....\$7,500.00
6. For a system involving an existing solid waste facility.....\$8,500.00
- B. Standard General Permits (those systems below the thresholds listed in Paragraph A, above):
 1. For a system serving a project with a total land area < 100 acres and > 40 acres, with the following additional activities:
 - a. Both the construction of 1 - 9 new boat slips and the construction or alteration (other than new boat slips) in, on or over a total area of wetlands or other surface waters < 1 acre and > 0 acres.....\$1,500.00
 - b. Either the construction of 1 - 9 new boat slips or the construction or alteration (other than new boat slips) in, on or over a total area of wetlands or other surface waters < 1 acre and > 0 acres.....\$1,000.00
 - c. No construction or alteration in, on or over wetlands or other surface waters.....\$700.00
 2. For a system serving a project with a total land area < 40 acres and > 1 acre, with the following additional activities:
 - a. 3 - 9 new boat slips.....\$700.00
 - b. 1 - 2 new boat slips.....\$600.00
 - c. Construction or alteration (other than new boat slips) in, on or over a total area of wetlands or other surface waters < 1 acre and > 0 acres.....\$600.00
 3. For a system serving a project with a total land area # 1 acre, with the following additional activities:
 - a. 3 - 9 new boat slips.....\$600.00
 - b. 1 - 2 new boat slips.....\$300.00
 - c. Construction or alteration (other than new boat slips) in, on or over a total area of wetlands or other surface waters < 1 acre and > 0 acres.....\$500.00
- C. Environmental Resource Permit for a system serving a project with a total land area < 40 acres and involving no construction or alteration in, on or over wetlands or other surface waters.....\$300.00

- D. For a Noticed General Permit.....\$100.00
- E. Modifications:
1. For major modifications of Individual and Conceptual Approval Permits (no increase in project area).....\$700.00
 2. For major modifications of Individual and Conceptual Approval Permits (with an increase in project area).....\$2,000.00
 3. For major modifications of Individual and Conceptual Approval Permits for solid waste facilities.....\$4,000.00
 4. For major modifications of Standard General Permits50% of original application fee
 5. For minor modifications of Individual and Conceptual Approval Permits for solid waste facilities.....\$1,500.00
 6. For other minor modifications.....Fee specified in F.A.C. Rule 62-4.050(4)(r)
 7. For permit extensions.....\$50.00

Mitigation Bank

Mitigation Bank and Mitigation Bank Conceptual Approval Permits.....\$4,000.00

Variances

- A. To the prohibition of work in Class II Waters, approved for shellfish harvesting.....\$100.00
- B. To mangrove prohibitions in Chapter 17-321, F.A.C.....\$100.00
- C. Other variances\$500.00

Formal Determinations of Wetlands and Other Surface Waters

Petitions for Formal Determinations of the Landward Extent of Wetlands and Other Surface Waters:

- A. Petition application fees shall be based on the acreage of the entire property for which the petition is filed, according to the following schedule:
 1. > 0 acres and $\leq$ 1 acre.....\$250.00
 2. > 1 acre and $\leq$ 10 acres.....\$550.00
 3. > 10 acres and $\leq$ 40 acres.....\$750.00
 4. > 40 acres and $\leq$ 100 acres.....\$1,500.00
 5. For property greater than 100 acres in size, the fee will be **\$1,500.00** plus an additional **\$200.00** for each additional 100 acres (or portion thereof) that exceeds the first 100 acres.

- B. For a new formal determination that covers property on which a valid formal determination exists, provided that the petition for the new formal determination is filed within 60 days of the date of expiration of the existing formal determination and the physical conditions on the property have not changed, other than changes authorized by a permit, so as to alter the boundaries of surface waters or wetlands, and provided the methodology for determining the extent of surface waters and wetlands authorized by Sections 373.421 and 373.4211, F.S., has not been amended since the previous formal determination.....\$250.00

ATTACHMENT 5 TO INSTRUCTIONS FOR JOINT APPLICATION
PROPRIETARY VERSUS REGULATORY

Prior to the merger into the Department of Environmental Protection (DEP), the Department of Environmental Regulation had regulatory jurisdiction over certain activities affecting air, water, and land. The Department of Natural Resources had proprietary jurisdiction over uses of sovereign submerged lands. The following explains the proprietary and regulatory functions of DEP's Submerged Lands and Environmental Resources Program.

The word **regulatory** refers to a type of authority that allows an entity of the government, such as DEP, to limit certain activities on your property, as well as on publicly owned lands, to some specific degree for the greater public good. DEP, in its regulatory capacity, is required by acts of the Florida Legislature, to protect the natural resources of the state, such as air, water and wildlife, to insure that these resources will be healthy and abundant for present and future generations. DEP's Submerged Lands and Environmental Resources Program reviews applications for proposed works in wetlands and other surface waters, as well as works in uplands that can affect water quality and quantity, to ensure compliance with the Florida Administrative Code and Florida Statutes.

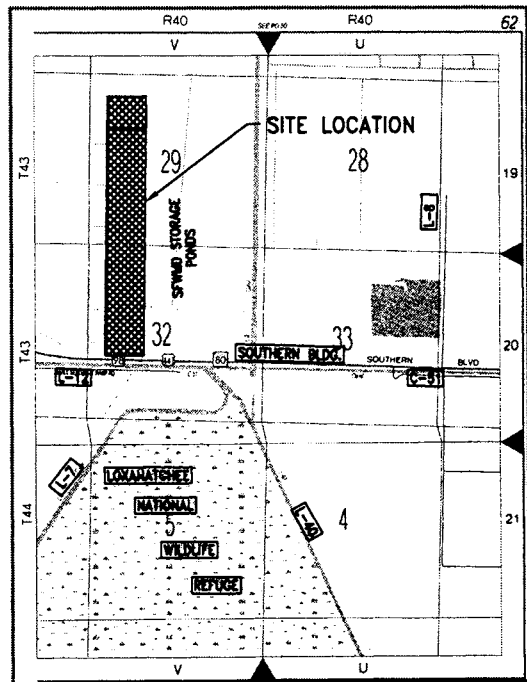
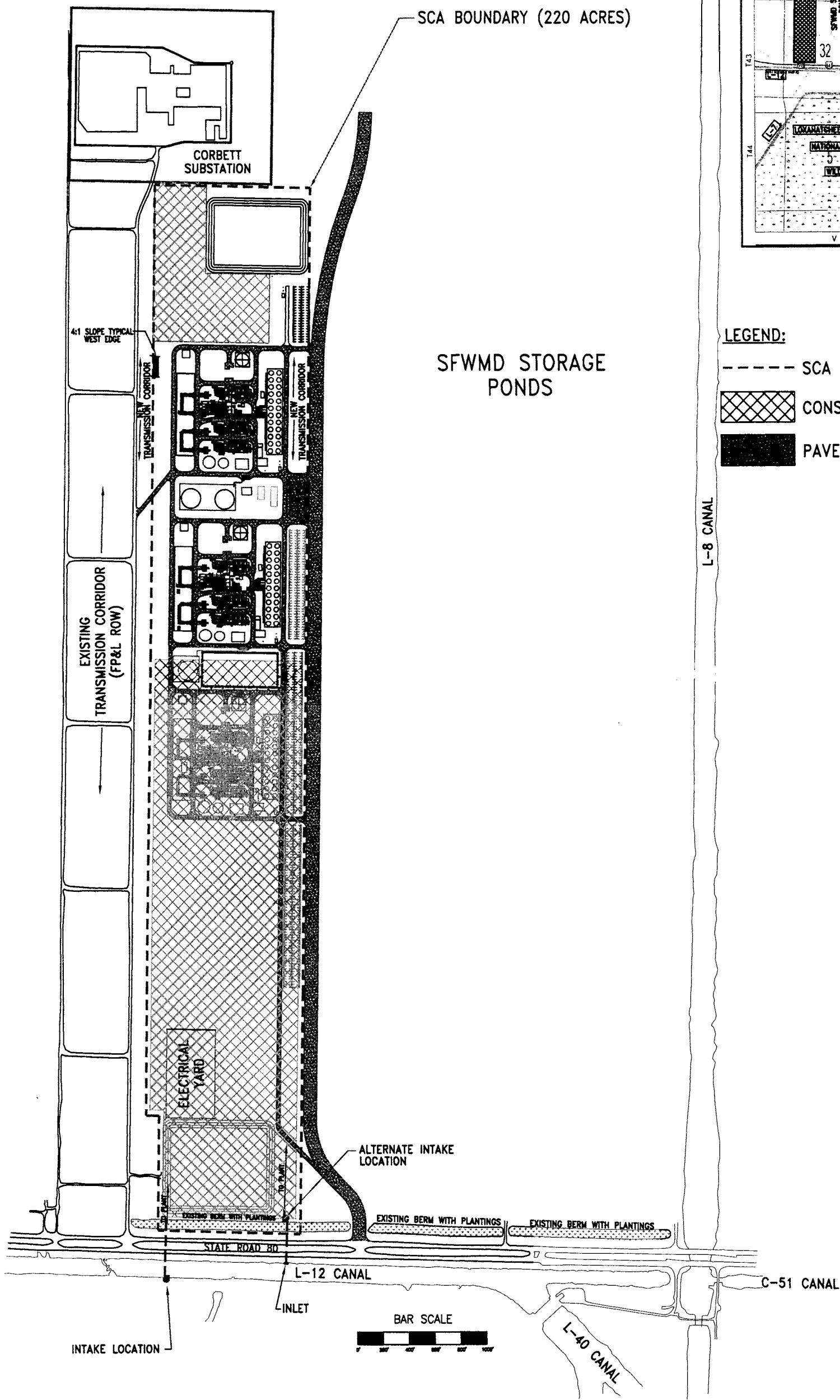
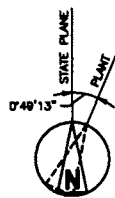
Over a century ago, the Governor and Cabinet, as the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees), were designated by the state legislature as the Trustees of sovereign submerged lands. All tidally influenced waters to the mean high water line and navigable fresh waterbodies to the ordinary high water line in existence when Florida became a state in 1845 are considered sovereign. In accordance with the Constitution of the State of Florida, these lands are held in trust by the state for all the people. As the Trustees, the Governor and Cabinet have **proprietary** (ownership) authority over sovereign submerged lands and their uses and are responsible for insuring that these lands and the associated aquatic resources remain healthy and in abundance for present and future generations.

The Department of Environmental Protection, in addition to its regulatory capacity, acts as the staff to the Trustees in the review of proposed uses of sovereign submerged lands. If you are proposing to conduct an activity in waters that are not sovereign submerged lands, you will only be required to meet regulatory standards. If your proposed activity is located on sovereign submerged lands, you may be required to meet both regulatory and proprietary requirements as found in the Florida Statutes and Florida Administrative Code.

n:\rules\rules/forms\joint.app\62-343.900(1).doc

updated 11/29/99 kg

ATTACHMENT B.1



SITE MAP

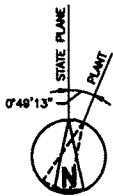
LEGEND:

- SCA AREA (220 ACRES)
- CONSTRUCTION AREA
- PAVED AREAS

REV	DATE	ISSUED FOR USE	REVISION DESCRIPTION
3	03/14/05	ISSUED FOR USE	

GMG	BY	CH	COR	APR	PGD	ORG

	SYSTEM	N/A	DISCIPLINE	CS	PLANT/UNIT	WEST COUNTY ENERGY CENTER
	SCALE	1"=800'	CAD FILE NAME	COMP.DWG	TITLE	3-3X1 POWER BLOCKS SITE PLAN
	DRAWING SIZE	AB (8.5X11)	FPL ARCHIVE NAME	N/A		
	DRAWING NUMBER	SCA-003	SHEET	1 OF 1	REV	3



SCA BOUNDARY (220 ACRES)

CORBETT
SUBSTATION

4:1 SLOPE TYPICAL
WEST EDGE

TRANSMISSION CORRIDOR

EXISTING
TRANSMISSION CORRIDOR
(F&L ROW)

TRANSMISSION CORRIDOR

ELECTRICAL
YARD

ALTERNATE INTAKE
LOCATION

STATE ROAD 80

L-12 CANAL

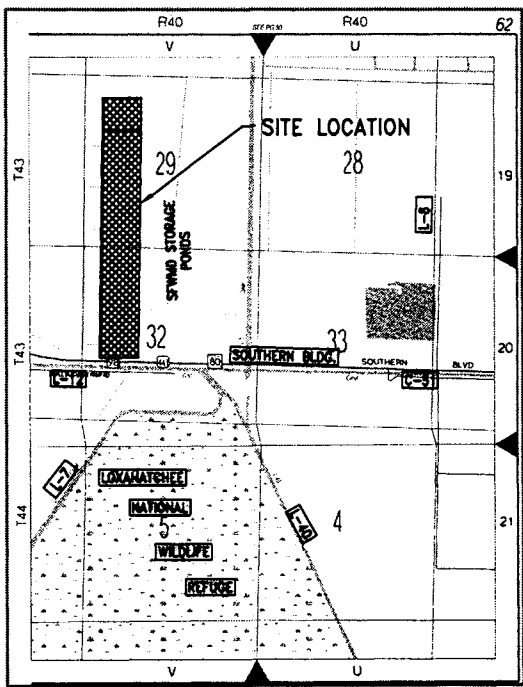
INLET

BAR SCALE



L-40 CANAL

C-51 CANAL



SITE MAP

LEGEND:

- SCA AREA (220 ACRES)
- CONSTRUCTION AREA
- PAVED AREAS

SFWMD STORAGE
PONDS

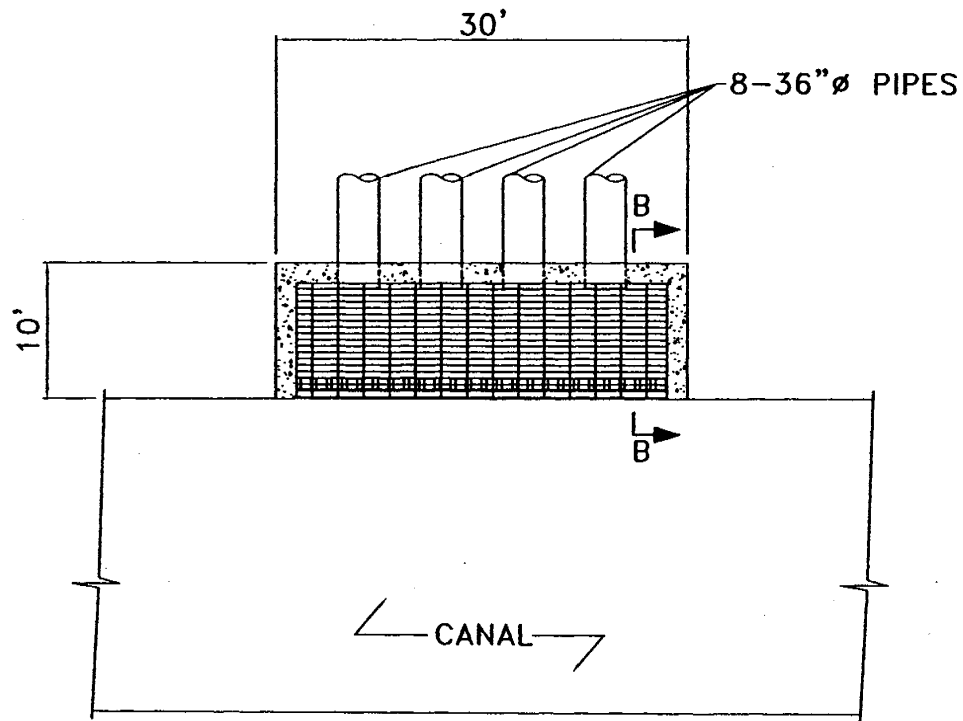
L-8 CANAL

	SYSTEM N/A	DISCIPLINE CS	PLANT/UNIT WEST COUNTY ENERGY CENTER
	SCALE 1"=800'	CAD FILE NAME COMP.DWG	TITLE 3-4X1 POWER BLOCKS SITE PLAN
	DRAWING SIZE AB (8.5X11)	FPL ARCHIVE NAME N/A	
	DRAWING NUMBER SCA-001		
REV	DATE	REVISION DESCRIPTION	SHEET 1 OF 1
3	03/14/05	ISSUED FOR USE	REV 3

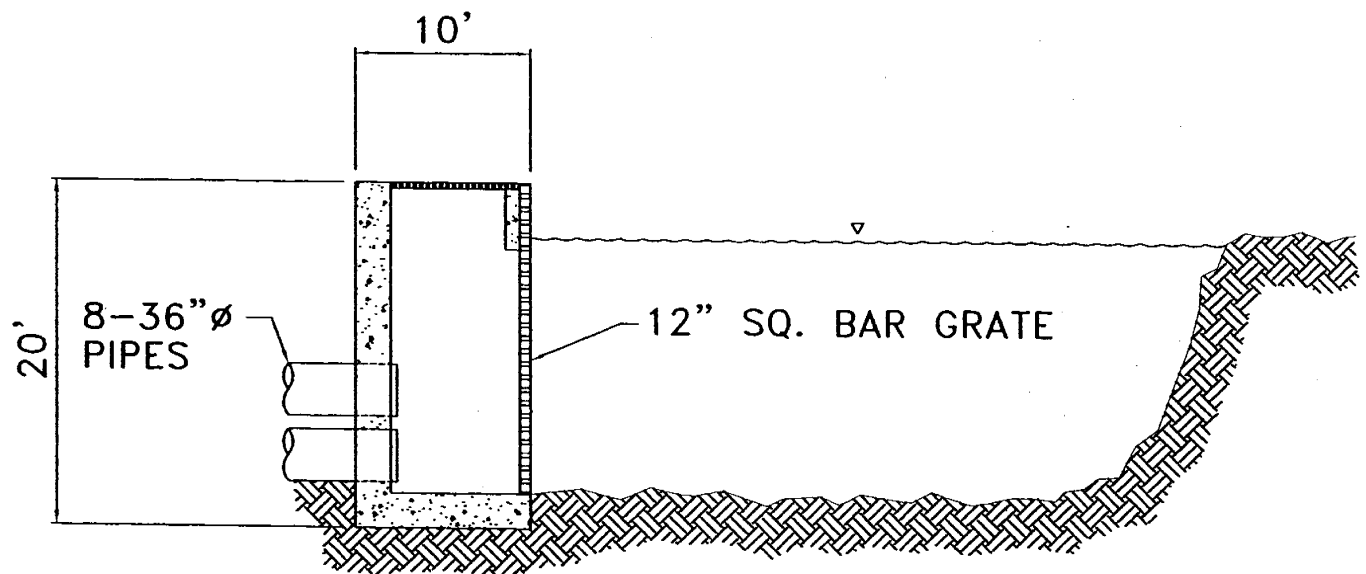
ATTACHMENT B.2



										 FPL		SYSTEM N/A		DISCIPLINE CS		PLANT/UNIT FIGURE 3.5.0-1													
												SCALE NTS		CAD FILE NAME IS-05.DWG		TITLE INTAKE STRUCTURE AT WCEC PLAN, SECTIONS & DETAILS PALM BEACH COUNTY, FL													
												DRAWING SIZE A (8.5X11)		FPL ARCHIVE NAME N/A															
0 02/21/05 ISSUED FOR USE										GMC												DRAWING NUMBER 0437649/4/4.2SCA/Figures/IntakeX-Secs.dwg		SHEET 1 OF 1		REV 0			
REV		DATE		REVISION DESCRIPTION						BY		CH		COR		APR		ORG											



PLAN VIEW ALTERNATE INLET STRUCTURE



SECTION B-B

				SYSTEM N/A	DISCIPLINE CS	PLANT/UNIT FIGURE 3.5.0-2			
				SCALE NTS	CAD FILE NAME IS-05.DWG	TITLE ALTERNATE INLET STRUCTURE AT WCEC PLAN, SECTIONS & DETAILS PALM BEACH COUNTY, FL			
				DRAWING SIZE A (8.5X11)	FPL ARCHIVE NAME N/A				
				DRAWING NUMBER 0437649/4/4.2SCA/Figures/IntakeX-Secs.dwg					
REV	DATE	REVISION DESCRIPTION	BY	CH	COR	APR	PGD	SHEET 1 OF 1	REV 0

ATTACHMENT B.3



Photo 1. SFWMD L-10 Canal – location for the proposed intake structure, photograph taken from State Road 80 ROW facing southeast.

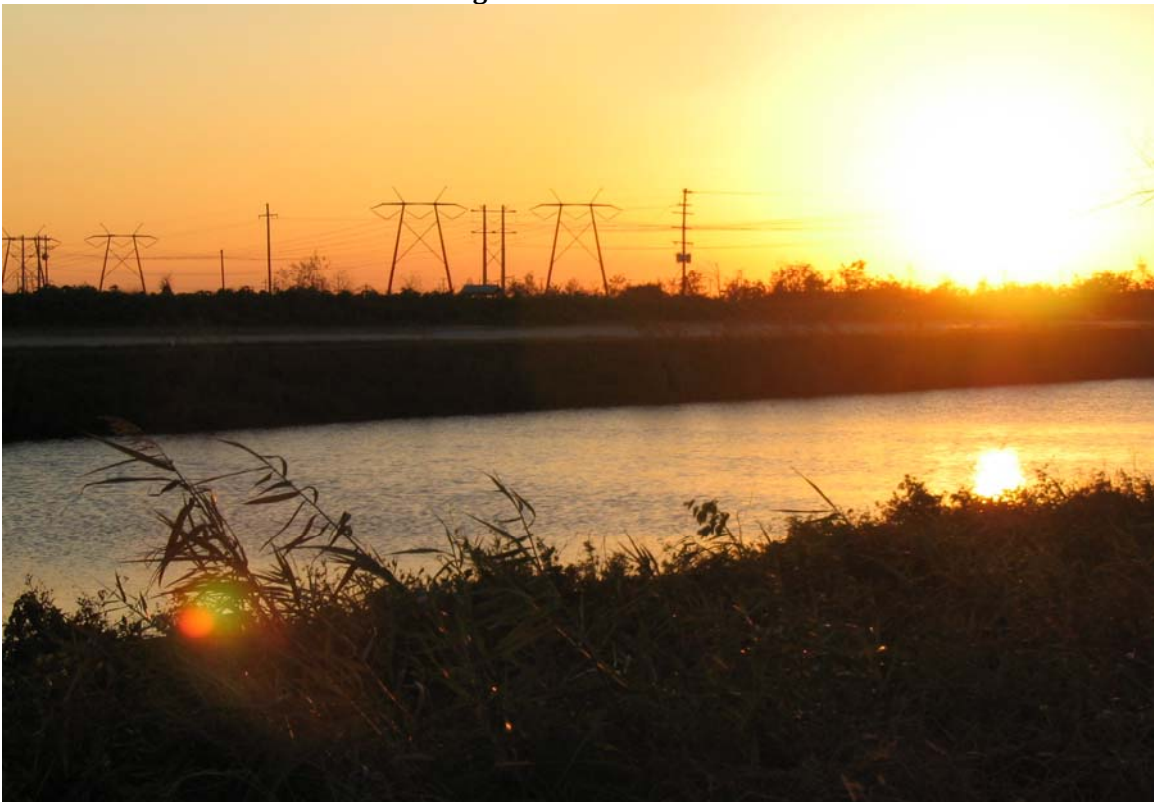


Photo 2. L-10 canal at the proposed intake structure location, facing southwest.



Photo 3. West County Energy Center Project Site – open land cleared of vegetation, filled, and graded.



Photo 4. View of filled WCEC Project Site berm from substation access road facing east.

ATTACHMENT B.4

ATTACHMENT B.4

CONSTRUCTION METHODS AND SCHEDULE

Prior to beginning any construction or earth disturbing activities, adjacent to open lands, the area will be protected by sediment containment and erosion controls. These shall include silt fences, hay bales, sediment basins, and/or grassing. Along the perimeter of areas that will be excavated for the intake/inlet structure, silt fence may not be appropriate. Therefore, an impermeable barrier (e.g., sheet piling) will be placed along the perimeter of those areas to prevent erosion and to keep sediment within area designated for the structures. The erosion controls will be installed at the beginning of the Project and relevant environmental protection features will be maintained throughout the construction period or until the area has been stabilized.

All construction equipment and materials will be transported by truck via State Road 80 to an upland staging area adjacent to intake/inlet locations. Large materials, such as pipe, may be stored on the West County Energy Center site until needed.

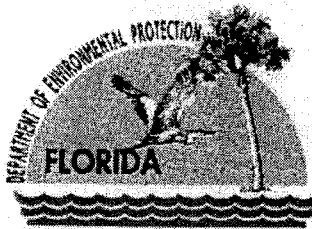
After sediment containment has been installed, material will be removed from the intake/inlet structure area. This material, primarily organic soils, muck and rock, will be transported to the West County Energy Center site or an approved disposal area.

Temporary dewatering effluent for initial site preparation will be routed to a sedimentation area. Dewatering will be accomplished by localized pumping of surface water in the excavated area. The dewatering system will be designed to control turbidity. Lowering the water table allows construction of the concrete intake/inlet structure. After the concrete intake/inlet structures are constructed, the surrounding excavated area will be backfilled with limerock. The areas surrounding the construction site will be seeded.

The duration of each dewatering will generally be limited to 6 months. Based on the location of dewatering areas within the 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. Once the detailed design is completed, a dewatering plan, if required, will be submitted prior to commencing dewatering activities.

The work will be supervised by FPL personnel and contractors. A general contractor, to be selected after bids for the Project are received and reviewed, will perform the actual construction for the project. Construction phase of the Project is estimated to occur between spring 2007 and summer 2009. FPL will be responsible for monitoring, record drawings, and as-built certifications for the Project.

ATTACHMENT G.1.A.



Jeb Bush
Governor

**Department of
Environmental Protection** **GAINESVILLE**

GOLDER ASSOCIATES INC

MAR - 7 2005

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Colleen M. Castille
Secretary

February 28, 2005

Mr. Karl Bullock
Golder Associates, Inc.
6241 NW 23rd Street, Suite 500
Gainesville, Florida 32653-1500

RE: L-12 (West Palm Beach) Canal

Dear Mr. Bullock:

This letter is in response to your February 24, 2005, request for a determination of ownership for the C-12 Canal in Section 32, Township 43 South, Range 40 East, Palm Beach County.

Records on file in the Title and Lands Records Section, Bureau of Survey and Mapping, indicate the subject canal is man-made. Therefore, we recommend that the proprietary requirements that would normally apply to state owned lands not apply to this site. Copies of pertinent maps are attached.

For this opinion we have relied only on records in our central repository. Additional records will be reviewed if provided. This opinion is not a disclaimer of state-owned lands.

Should you have any questions regarding this determination, please contact Jennie Kasdorf, GOC I, at the above address, Mail Station 108, or 850/245-2788.

Sincerely,

Terry E. Wilkinson, Chief
Bureau of Survey and Mapping
Division of State Lands

Attachment: Maps
TEW/jk

F:\Title\Jennie\Bullock2-28-05.doc

APPENDIX 10.1.5

AIR CONSTRUCTION PERMIT AND PSD APPLICATION

SEE VOLUME III.

APPENDIX 10.1.6

FAA LETTER AND NOTICE



Mr. Ceasar Perez
Federal Aviation Administration
Southern Regional Office
Air Traffic Division, ASO-520
P.O. Box 20636
Atlanta, GA 30320

March 25, 2005

**RE: Notice of Proposed Construction or Alteration
Exhaust Stacks and Temporary Construction Crane
Florida Power and Light Company
West County Energy Center, Palm Beach County, Florida**

Dear Mr Perez:

Enclosed is the Notice of Proposed Construction for the Florida Power and Light Company West County Energy Center, located in Palm Beach County, Florida. Figure 1 shows the location of the site relative to Palm Beach International Airport.

Project Description

The West County Energy Center will consist of up to three nominal 1,100 MW combined cycle combustion turbine (CT) units. Each unit will consist of three of four CTs depending on the final configuration. There will be two potential configurations for each unit. The first configuration is referred to as "4-on-1" combined cycle unit. The "4-on-1" unit will consist of four GE "F" Class advanced combustion turbines (CTs), and four heat recovery steam generators (HRSGs). The GE "F" Class turbines being considered for the West County Energy Center includes the nominal 170-MW Frame 7FA combustion turbine and the nominal 190-MW Frame 7FB combustion turbine. The second configuration is referred to as a "3-on-1" combined cycle unit. The "3-on-1" unit will consist of three nominal 250-MW "G" Class advanced combustion turbines (CTs) and three heat recovery steam generators (HRSGs). The "G" Class combustion turbines being considered for the West County Energy Center are the Siemens/Westinghouse House 501G combustion turbines and the Mitsubishi Heavy Industries (MHI) M501G combustion turbines. The "4-on-1" and "3-on-1" configurations will have a total nominal generating capacity of 1,100 MW.

The West County Energy Center Site encompasses 220 acres. Figures 2 and 3 present the site plans for the 4-on-1 and 3-on-1 combined cycle configurations, respectively. Included on these figures are the UTM and Latitude/Longitude coordinates for each combustion turbine stack. FPL will notify the FAA of the final site configuration upon selection.

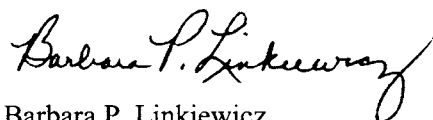
Notice of Proposed Construction

There are three Notices of Proposed Construction enclosed. One notification pertains configuration 1, the construction of twelve (12) new 149-foot (maximum potential) above ground level (AGL) exhaust stacks associated with construction for the project. The second notification pertains to configuration 2, the construction of nine (9) new 149-foot (maximum potential) AGL exhaust stacks associated with construction for the project. The Latitude and

Longitude coordinates are listed for each new stack. The third notification pertains to the proposed use of temporary crane during the construction phase of the project. The maximum potential height of the crane is 250 feet AGL. Construction is currently scheduled to begin in January 2007 and to end in December 2011.

Please do not hesitate to contact me at (561) 691-7518, if there is any way that I can help to expedite the aeronautical studies.

Sincerely,

A handwritten signature in black ink, reading "Barbara P. Linkiewicz". The signature is fluid and cursive, with the first name "Barbara" and last name "Linkiewicz" clearly legible.

Barbara P. Linkiewicz
Environmental Licensing Manager

cc: K. Kosky, Golder Associates Inc.



Failure To Provide All Requested Information May Delay Processing of Your Notice

FOR FAA USE ONLY

Aeronautical Study Number

- OE

U.S. Department of Transportation
Federal Aviation Administration**Notice of Proposed Construction or Alteration****1. Sponsor (person, company, etc. proposing this action) :**Attn. of: BARBARA LINKIEWICZ, ENVIR. LICENSING MGR. NEW
GENERATION PROJECTSName: FLORIDA POWER & LIGHT COMPANYAddress: 700 UNIVERSE BLVD.City: JUNO BEACH State: FL Zip: 33408Telephone: (561) 691-7518 Fax: (561) 691-7049**2. Sponsor's Representative (if other than #1) :**

Attn. of: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

3. Notice of: ☒ New Construction ☐ Alteration ☐ Existing**4. Duration:** ☒ Permanent ☐ Temporary**5. Work Schedule:** Beginning January 2007 End December 2011**6. Type:** ☐ Antenna Tower ☒ Crane ☐ Building ☐ Power Line☐ Landfill ☐ Water Tank ☐ Other _____**7. Marking/Painting and/or Lighting Preferred:**☐ Red Lights and Paint ☐ Dual - Red and Medium Intensity White☐ White - Medium Intensity ☐ Dual - Red and High Intensity White☐ White - High Intensity ☐ Other _____**8. FCC Antenna Structure Registration Number (if applicable):**N/A**9. Latitude:** Crane: Variable see CT Construction Form**10. Longitude:** Crane: Variable see CT Construction Form**11. Datum:** ☐ NAD 83 ☒ NAD 27 ☐ Other _____**12. Nearest:** City: Loxahatchee State: FL**13. Nearest Public-use (not private-use) or Military Airport or Heliport:**PALM BEACH INTERNATIONAL AIRPORT**14. Distance from #13. to Structure:** 16.5 miles**15. Direction from #13. to Structure:** WEST**16. Site Elevation (AMSL):** 23 ft.**17. Total Structure Height (AGL):** 250 ft.**18. Overall height (#16. + #17.) (AMSL):** 273 ft.**19. Previous FAA Aeronautical Study Number (if applicable):**
N/A - OE**20. Description of Location:** (Attach a USGS 7.5 minute
Quadrangle Map with the precise site marked and any certified survey.)The plant site lies approximately 4.8 miles west of Loxahatchee, Florida. It is
approximately 12.2 miles west of the intersection of State Road 80 and 91.
See attached Figure 1.**21. Complete Description of Proposal:**

- Temporary construction cranes for use in construction of new 149-foot (maximum potential AGL) exhaust stacks for a combined-cycle combustion turbine power plant.
- The maximum boom height for the cranes will be 250 feet.
- Latitude and Longitude coordinates will vary depending on the CT being constructed. See attached construction forms for Latitude and Longitude of CTs.

Frequency/Power (kW)

Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of \$1,000 per day until the notice is received, pursuant to 49 U.S.C., section 46301 (a).

I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark and/or light the structure in accordance with established marking and lighting standards as necessary.

Date

April 14, 2005

Typed or Printed name and Title of Person Filing Notice

Barbara P. Linkiewicz, Environmental Licensing Manager

Signature

NSN: 0052-00-012-0008



Failure To Provide All Requested Information May Delay Processing of Your Notice

U.S. Department of Transportation
Federal Aviation Administration**Notice of Proposed Construction or Alteration****FOR FAA USE ONLY**

Aeronautical Study Number

- - - OE

1. Sponsor (person, company, etc. proposing this action) :Attn. of: BARBARA LINKIEWICZ, ENVIR. LICENSING MGR. NEW
GENERATION PROJECTSName: FLORIDA POWER & LIGHT COMPANYAddress: 700 UNIVERSE BLVD.City: JUNO BEACH State: FL Zip: 33408Telephone: (561) 691-7518 Fax: (561) 691-7049**2. Sponsor's Representative (if other than #1) :**

Attn. of: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

3. Notice of: ☒ New Construction ☐ Alteration ☐ Existing**4. Duration:** ☒ Permanent ☐ Temporary**5. Work Schedule:** Beginning January 2007 End December 2011**6. Type:** ☐ Antenna Tower ☐ Crane ☐ Building ☐ Power Line
☐ Landfill ☐ Water Tank ☒ Other EXHAUST STACKS**7. Marking/Painting and/or Lighting Preferred:**☐ Red Lights and Paint ☐ Dual - Red and Medium Intensity White
☐ White - Medium Intensity ☐ Dual - Red and High Intensity White
☐ White - High Intensity ☐ Other _____**8. FCC Antenna Structure Registration Number (if applicable):**N/A**9. Latitude:** Configuration 1: See Attached Figure 3.2.0-2**10. Longitude:** Configuration 1: See Attached Figure 3.2.0-2**11. Datum:** ☐ NAD 83 ☒ NAD 27 ☐ Other _____**12. Nearest:** City: Loxahatchee State: FL**13. Nearest Public-use (not private-use) or Military Airport or Heliport:**PALM BEACH INTERNATIONAL AIRPORT**14. Distance from #13. to Structure:** 16.5 miles**15. Direction from #13. to Structure:** WEST**16. Site Elevation (AMSL):** 23 ft.**17. Total Structure Height (AGL):** 149 ft.**18. Overall height (#16. + #17.) (AMSL):** 172 ft.**19. Previous FAA Aeronautical Study Number (if applicable):**N/A - OE**20. Description of Location:** (Attach a USGS 7.5 minute
Quadrangle Map with the precise site marked and any certified survey.)The plant site lies approximately 4.8 miles west of Loxahatchee, Florida. It is
approximately 12.2 miles west of the intersection of State Road 80 and 91.
See attached Figure 1.**21. Complete Description of Proposal:**Construction of nine (9) new 149-foot (maximum potential height AGL) exhaust stacks for a combined-cycle combustion turbine
power plant. (Frame G Combustion Turbines)

Frequency/Power (kW)

Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice
requirements of part 77 are subject to a civil penalty of \$1,000 per day until the notice is received, pursuant to 49 U.S.C., section 46301 (a).I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark
and/or light the structure in accordance with established marking and lighting standards as necessary.

Date

April 14, 2005

Typed or Printed name and Title of Person Filing Notice

Barbara P. Linkiewicz, Environmental Licensing Manager

Signature

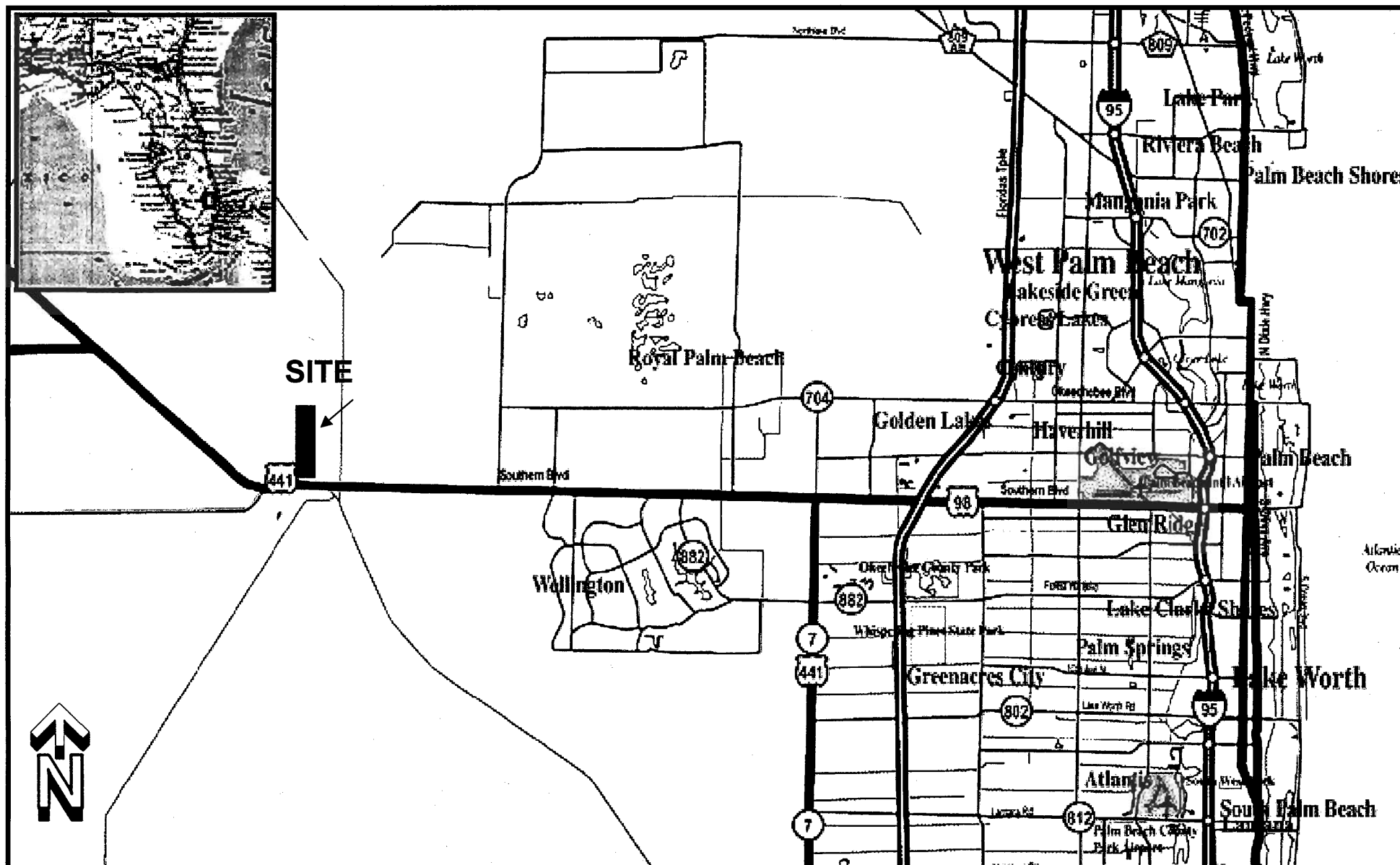
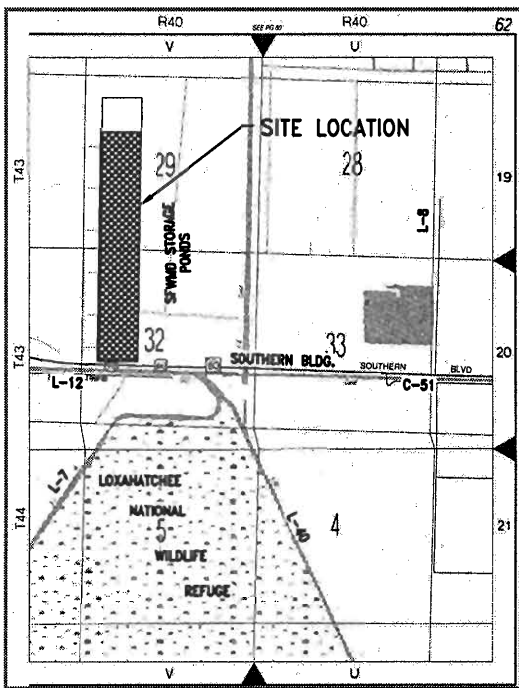
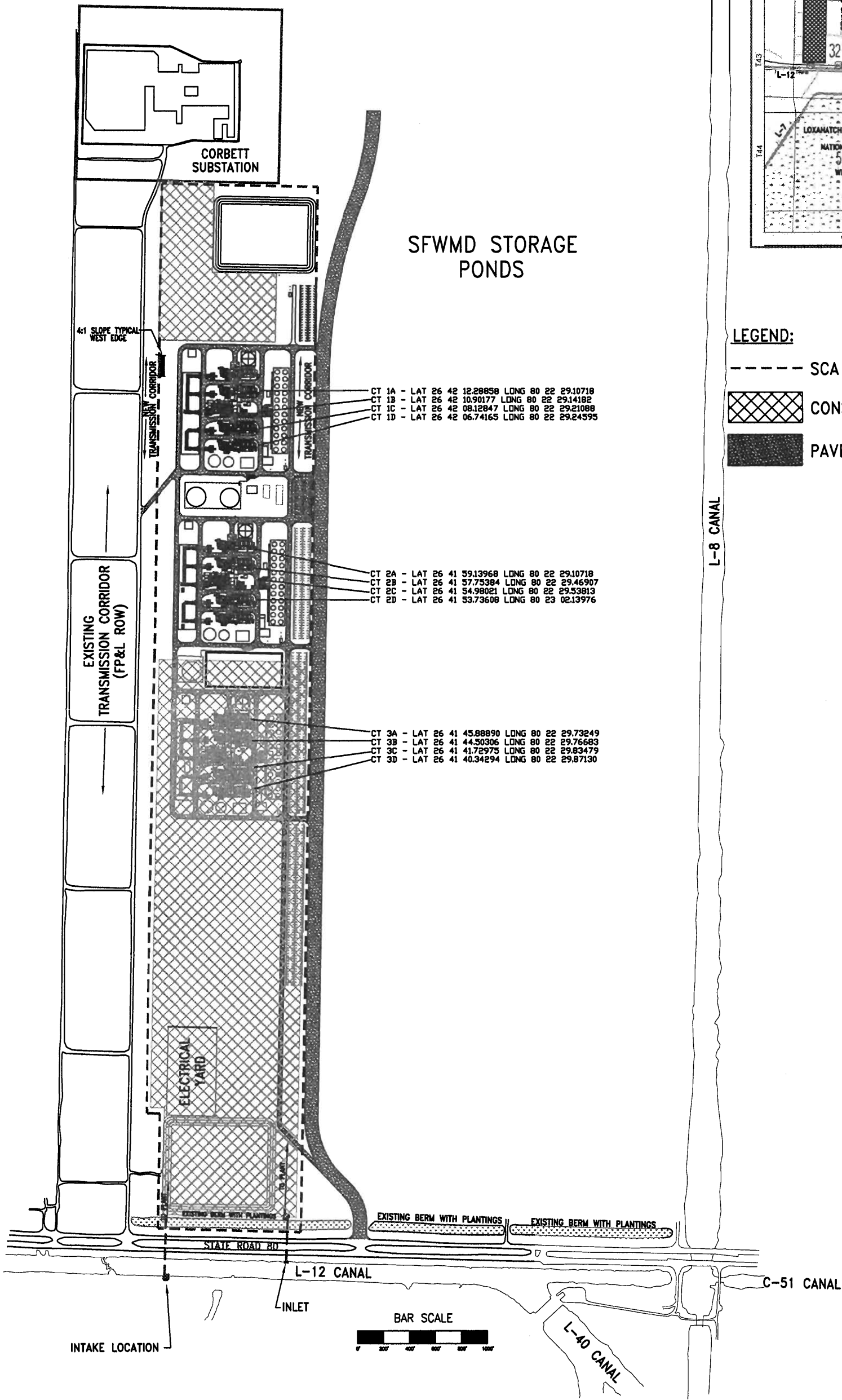
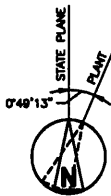


Figure 1.
Plant Site Location
FPL West County Energy Center, Palm Beach County, Florida

Not to Scale: 1" = ~3 miles.

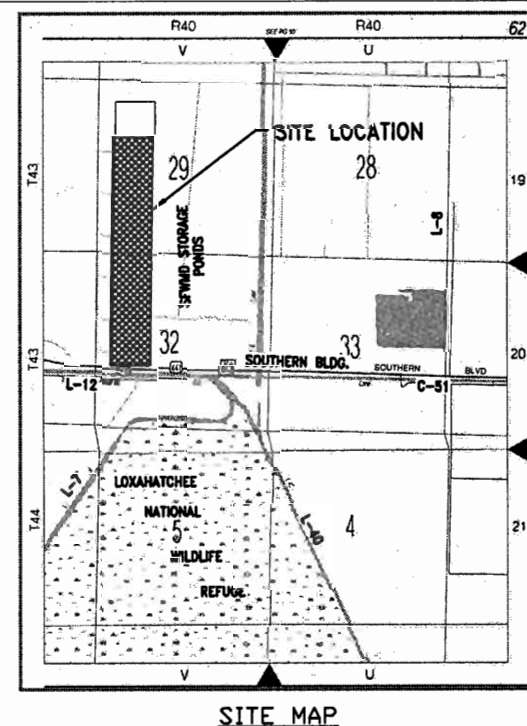
Source: SFWMD website; Golder, 2005.



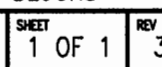


SITE MAP

- LEGEND:**
- SCA AREA (220 ACRES)
 - CONSTRUCTION AREA
 - PAVED AREAS



SITE MAP

PAVED AREAS

APPENDIX 10.1.7

COASTAL ZONE MANAGEMENT CERTIFICATIONS

[Note: The Coastal Management Act of 1978 (Section 380.21-380.25, Florida Statutes) requires that the Coastal Zone Management Section of FDEP be responsible for certification of consistency with the Florida Coastal Management Program (FCMP) for all federal licenses, permits, activities, and projects listed in Section 380.23(3)(c), Florida Statutes, when such activities are subject to federal consistency review and affect land or water use, are seaward of the jurisdiction of the state, or there is no state agency with sole jurisdiction for such consistency review. For the Project, there are no requirements related to Coastal Zone Management.]

APPENDIX 10.1.8

EXPLORATORY WELL CONSTRUCTION, TESTING, AND MONITOR WELL COMPLETION PERMIT APPLICATION

[Note: This Appendix is an Exploratory Well Permit Application that will be submitted to FDEP's UIC Program for the purpose of obtaining approval to drill an exploratory well. This review will be conducted separate from the Site Certification process. This Appendix is being included in the Site Certification Application for information purposes.]

**EXPLORATORY WELL CONSTRUCTION,
TESTING, AND MONITOR WELL
COMPLETION PERMIT APPLICATION
FLORIDA POWER & LIGHT
WEST COUNTY ENERGY CENTER
4000 205TH STREET NORTH
LOXAHATCHEE, FLORIDA**

Submitted to:

*Florida Department of Environmental Protection, Southeast District
Underground Injection Control Program
400 North Congress Avenue, Suite 200
West Palm Beach, Florida 33401*

Submitted by:

*Golder Associates Inc.
6420 Congress Avenue, Suite 2000
Boca Raton, Florida 33487*

DISTRIBUTION:

3 Copies	Florida Power & Light Company
3 Copies	Florida Department of Environmental Protection
2 Copies	Golder Associates Inc.
1 Copy	Technical Advisory Committee – Each Agency

March 2005

043-7649

Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL USA 32653
Telephone (352) 336-5600
Fax (352) 336-6603
www.golder.com



March 15, 2005

043-7649

Florida Department of Environmental Protection
Southeast District
Underground Injection Control Program
400 North Congress Avenue
Suite 200
West Palm Beach, Florida 33401

Attention: Mr. Joseph R. May, P.G.

**RE: EXPLORATORY WELL CONSTRUCTION
AND TESTING PERMIT APPLICATION
FOR CLASS I INJECTION WELL SYSTEM DESIGN
FLORIDA POWER & LIGHT
WEST COUNTY ENERGY CENTER
LOXAHATCHEE, FLORIDA**

Dear Mr. May,

Golder Associates Inc. (Golder) is submitting the following application to construct an Exploratory Well to evaluate the feasibility and design for a Class I Injection Well System on behalf of Florida Power & Light (FPL) for the proposed West County Energy Center, Loxahatchee, Florida. Associated with the permit application, is a Project for which a separate Site Certification Application is being submitted pursuant to the Power Plant Siting Act. Golder anticipates that upon completion of exploratory well drilling and testing, the borehole will be converted to a dual-zone monitor well. Information obtained from the exploratory well will be used to prepare a Class I Test/Injection Well permit application.

Copies of this permit application are being provided to the Technical Advisory Committee (TAC) and the individuals shown on the enclosed distribution list. A check totaling \$5,000 for the application fee to construct and test one exploratory well with subsequent conversion into a dual-zone monitor well, is enclosed with this submittal.

If you have comments or questions regarding this application, please do not hesitate to contact us.

Sincerely,

GOLDER ASSOCIATES INC.

Jonathan E. Shaw, P.G.
Senior Consultant/Associate

Gregory M. Powell, Ph.D., P.E.
Senior Consultant

Attachment



TABLE OF CONTENTS

Cover Letter

Table of Contents

i

<u>SECTION</u>	<u>PAGE</u>
1.0 EXECUTIVE SUMMARY	1
2.0 PROJECT BACKGROUND.....	4
3.0 CONCEPTUAL PLAN OF THE INJECTION WELL SYSTEM.....	5
3.1 Injection Well Design Considerations	5
3.2 Proposed Fluids, Volume and Injection Zone.....	6
3.3 Dual-Zone Monitor Well Regulatory Requirements.....	7
3.3.1 Dual-Zone Monitor Well Casing and Tubing Material.....	7
4.0 AREA OF REVIEW	8
4.1 Regulatory Requirements.....	8
4.2 Well Inventory	8
4.2.1 Surficial Features	8
4.2.2 Surficial Aquifer Wells.....	9
4.2.3 Floridan Aquifer Production/Abandoned Wells and/or Dry Holes.....	9
4.2.4 Oil and/or Gas Wells	9
5.0 FINANCIAL RESPONSIBILITY	10
6.0 HYDROGEOLOGY	11
6.1 Regional Physiography and Geology.....	11
6.2 Principal Aquifers	12
6.2.1 Surficial Aquifer System.....	12
6.2.2 Intermediate Confining Beds	12
6.2.3 Floridan Aquifer System.....	12
6.2.4 Boulder Zone	13
6.2.4.1 Floridan Aquifer System Water Quality	14
6.3 Anticipated Local Hydrogeology.....	14
6.3.1 Hydrogeologic Characteristics of the Lower Floridan Aquifer	15
7.0 EXPLORATORY WELL DRILLING AND TESTING PLAN.....	17
7.1 Exploratory Well – Drilling and Testing	17
7.2 Dual-Zone Monitor Well – Construction and Testing	18
7.2.1 Material Specifications	19
7.2.1.1 Well Casing.....	19
7.2.1.2 Cement.....	20
7.2.2 Geophysical Logging	20
7.2.3 Drilling Fluids Management.....	23

TABLE OF CONTENTS

(Continued)

<u>SECTION</u>	<u>PAGE</u>
7.2.4 Core Collection Schedule	24
7.2.5 Packer Pumping Tests	24
7.2.6 Dual-Zone Monitor Well Casing Pressure Tests	26
7.3 Surficial Aquifer Monitoring	26
8.0 CLASS I INJECTION WELL PERMIT REQUEST	27
REFERENCES	28

IN ORDER
FOLLOWING
PAGE 28

LIST OF FIGURES

Figure 1	Project Location Map
Figure 2	Facility Layout
Figure 3	Conceptual Injection Well Details
Figure 4	Exploratory Well and Proposed Construction Detail - Dual-Zone Monitor Well (DZMW-1)
Figure 5	Area of Review - Surface Features
Figure 6	Area of Review - Surficial Aquifer Well Inventory
Figure 7	Area of Review - Floridan Aquifer and Oil/Gas Well Inventory
Figure 8	Generalized Geological Cross-Section
Figure 9	Peninsular Florida showing Upper Floridan Aquifer Potentiometric Surface in May 1980
Figure 10	North-South Hydrogeological Cross-Section
Figure 11	East-West Hydrogeological Cross-Section
Figure 12	Regional Hydrogeologic Characteristics
Figure 13	Temporary Drilling Pad Construction Detail
Figure 14	Pad Monitoring Well Construction Well Design
Figure 15	Wellhead Construction Details - Dual-Zone Monitor Well #1
Figure 16	Proposed Coring and Packer Testing Diagram

LIST OF TABLES

Table 1	Surface Water Quality of the L-10/L-12 Canal
Table 2	Groundwater Quality of the Upper Floridan Aquifer
Table 3	Well Inventory within a One Mile Radius of the Proposed West County Energy Center, Loxahatchee, Florida

TABLE OF CONTENTS

(Continued)

LIST OF APPENDICES

Appendix A	Permit Application Form (DEP Form No. 62-528.900)
Appendix B	Well Material Specifications
Appendix C	Proposed Exploratory Well System Plugging and Abandonment Plan

1.0 EXECUTIVE SUMMARY

Florida Power & Light (FPL) proposes to develop up to 3,300-megawatts (MWs) of combined-cycle electric generating capacity, referred to as the West County Energy Center, on an approximately 220-acre parcel, adjacent to the FPL Corbett Substation in central Palm Beach County as shown on Figure 1. The West County Energy Center is being designed to utilize surface water from the L-10/L-12 Canal (with a Floridan aquifer backup water supply) for the generation of electric power. The L-10/L-12 canal is located directly south of the Site (across State Road 80). Industrial wastewater will be generated and disposal is proposed using a deep well injection system consisting of three Class I (tubing and packer) Deep Injection Wells (DIWs) and one backup DIW, at build out. Golder Associates Inc. (Golder) was retained by FPL to prepare this report to fulfill the requirements for permitting the construction and testing of an exploratory well. The purpose of the exploratory well is to evaluate the subsurface conditions of the Site in anticipation of use of a deep injection well system to manage industrial wastewater (primarily cooling tower blow-down) and on occasion stormwater at the West County Energy Center. Upon completion of the exploratory well, assuming the subsurface conditions are favorable, the exploratory well will be completed as a dual-zone monitor well, to meet the partial monitoring requirements for the overall project in accordance with Rule 62-528.425, Florida Administrative Code (F.A.C.).

The application and this Engineering Report provide supporting documentation for submittal to the Underground Injection Control (UIC) Section of the Southeast District of the Florida Department of Environmental Protection (FDEP) and to the UIC-Technical Advisory Committee (TAC) members for review and comment. A pre-application meeting was held on November 23, 2004, at the Southeast District office of FDEP between Ms. Barbara Linkiewicz, FPL, Mr. Joe May, P.G., FDEP UIC Program Manager, and Mr. Jonathan E. Shaw, P.G., of Golder, to discuss the project. A follow-up telephone conference call was held between Mr. Joe May, Ms. Barbara Linkiewicz, and Mr. Duane McCloud, FPL, on February 8, 2005. These discussions regarding the procedure for preparing and submitting the information listed under the applicable sections of Rule 62-528, F.A.C. have been considered in preparing the attached application, supporting information and engineering drawings and technical specifications.

The completed application Form 62-528.900(1), for the construction and testing of an exploratory well and conversion to a dual-zone monitor well (Rule 62-528.900(1)(F)(3) F.A.C.) is included in Appendix A. The supporting documentation portion of this submittal provides a conceptual plan of the deep injection well project, including the number of proposed injection wells, proposed injection zone, nature and volume of injection fluid, and the proposed monitoring program (Rule 62-528.900(1)(F)(1) F.A.C.). Since the exploratory well is proposed to be converted to a monitor well, the appropriate information is provided as required by Rule 62-528.900(1)(J) F.A.C., for a Monitor Well Permit.

A preliminary Area of Review (AOR) is provided, including the proposed radius and justification for the extent of the AOR. A map showing the location of the proposed injection wellfield area in relation to existing production wells, injection wells, abandoned wells, dry holes, water wells, surface water bodies, springs, public water systems, mines (surface and subsurface), quarries, and other pertinent surface features including residences and roads, is provided (Rule 62-528.900(1)(F)(2) F.A.C.).

A discussion of the monitor well construction procedures along with a specific drilling and testing plan, including proposed drilling program, sampling, coring, testing, and surficial aquifer monitoring procedures, is included in this report (Rule 62-528.900(1)(F)(4) F.A.C.).

A proposed plugging and well abandonment plan is provided (Rule 62-528.900(1)(F)(5) F.A.C.).

As specified under Rule 62-528.900(1)(J)(1) and (2) F.A.C., the Facility Layout map (Figure 2) shows the location of the proposed dual-zone monitor well in relation to the general vertical and lateral limits within the AOR of the Underground Sources of Drinking Water (USDW) and the monitor well location relative to the injection formation and the direction of water movement which may be affected by the proposed injection.

The generalized maps and cross sections of the regional geological setting depict the formations underlying the Site and approximate depth of the injection zone, monitoring zones, and confining intervals (Rule 62-528.900(1)(J)(3) and (4) F.A.C.). This report also includes the proposed hydrogeological testing program and chemical analysis of formation water to identify the chemical, physical and radiological characteristics of the groundwater in zones of concern (Rule 62-528.900 (1)(J)(5) and (6) F.A.C.).

Also included are engineering drawings of the surface and subsurface construction details of the monitoring system and construction procedures including cementing and casing program, logging procedures, deviation checks, proposed methods of isolating drilling fluids from surficial aquifers, proposed blowout protection, drilling and testing and coring program (Rule 62-528.900 (1)(J)(7)(8) and (9) F.A.C.).

A check totaling \$5,000 for the application fee to construct and test one exploratory well with subsequent conversion into a dual-zone monitor well, is enclosed with this submittal.

2.0 PROJECT BACKGROUND

The FPL West County Energy Center will consist of up to three nominal 1,100-MW combined-cycle power units, adjacent to the existing FPL Corbett Substation in central Palm Beach County, is designed to utilize surface water for cooling purposes from the L-10/L-12 Canal, located directly south of the Site. Upper Floridan aquifer wells are proposed for backup water supply during extreme drought conditions.

The West County Energy Center will require an industrial wastewater disposal capacity of up to 7 million gallons per day (mgd) per unit (worst case). Four proposed Class I DIWs (DIW-1, DIW-2, DIW-3, and DIW-4) and the necessary associated dual-zone monitor wells (DZMW-1, DZMW-2 and DZMW-3) are proposed to be located within Sections 20, 29, and 32, Township 43 South, Range 40 East at the West County Energy Center (Figure 2). FPL plans to use three primary DIWs and one backup DIW to inject primarily cooling tower blowdown, boiler blowdown water, and other low-volume wastewaters which are considered industrial wastewater as defined under Rule 62-620 F.A.C.

To support this effort, FPL retained Environmental Consulting & Technology, Inc. (ECT), to conduct a feasibility study of potential alternatives for water supply and wastewater discharge for the West County Energy Center. ECT prepared a report titled "Feasibility Study of Groundwater Supply and Deep Well Injection Discharge at Corbett Site," dated October 2004. Specifically, ECT's feasibility study evaluated the alternatives of using groundwater for water supply and deep well injection for wastewater discharge for all or a portion of FPL's requirements.

ECT (2004) concluded that "the use of deep well injection for wastewater discharge appears to be feasible" at the West County Energy Center. Additionally, the ECT report stated that "the site is located in an area with favorable hydrogeologic characteristics for deep well injection of wastewaters in the Boulder Zone" and "no significant technical issues or limiting factors associated with deep well injection."

3.0 CONCEPTUAL PLAN OF THE INJECTION WELL SYSTEM

The West County Energy Center will require an industrial wastewater disposal capacity of up to 21 mgd at full Site build-out. Four proposed Class I DIWs (DIW-1, DIW-2, DIW-3, and DIW-4) and three associated dual-zone monitor wells (DZMW-1, DZMW-2 and DZMW-3) will be located within the Sections 20, 29, and 32, Township 43 South, Range 40 East at the West County Energy Center (Figure 1). Initially, three of the deep injection wells and the necessary dual zone monitor wells will be completed to accommodate Units 1 and 2. Subsequently, FPL plans to use three primary DIWs and one backup DIW and an additional monitor well if necessary at full Site build-out, to inject primarily cooling tower blowdown, boiler blowdown, and other low-volume wastewaters, which is considered industrial wastewater as defined under Rule 62-620 F.A.C.

A general construction schematic for the Class I DIWs is presented in Figure 3. The proposed design is consistent with the requirements of a Class I “tubing and packer” injection well, as required for disposal of non-hazardous industrial wastewater (Rule 62-528.300(1)(a)(2) F.A.C.). This classification requires injection using a well equipped with tubing and packer assembly installed within a seamless mild steel outer final casing. The inner tubing material design consists of Fiberglass Reinforced Plastic (FRP).

3.1 Injection Well Design Considerations

In accordance with the well construction standards set fourth in Rule 62-528.410, F.A.C., design considerations for the proposed DIWs will include a “tubing and packer” system set immediately above the injection zone. Depth of setting, injection fluid characteristics (chemical content, corrosiveness and density), injection rate, temperature, and casing size will be evaluated for the design during the drilling, logging, and testing of the exploratory well.

The anticipated depths of formations (and aquifers) at the Site are estimated based on information documented in nearby wells and may change based on actual site conditions and geologic and geophysical logging results. Regional data in the literature are available and have been reviewed. The depth to the base of the lowermost regional USDW at the Site is estimated to be approximately 1,950 feet below land surface (bls). To confirm the location of the USDW, site-specific data collection will include analysis of packer-pumping test data, results from water

samples and geophysical logging of pilot holes (including plots of calculated sonic porosity and apparent formation-fluid resistivity), during exploratory well drilling and testing.

3.2 Proposed Fluids, Volume and Injection Zone

The primary fluid to be injected into the DIW system is cooling tower blowdown water and occasional stormwater. Other waste streams will include boiler blowdown and other low-volume wastewaters. The source of the water is primarily from the L-10/L-12 surface water canal. The water quality obtained from recent samples taken at the proposed intake on the L-10/L-12 canal is provided in Table 1. The water quality for the injectate would be the initial water quality concentration that is concentrated based on the amount of evaporation and referred to as cycles of concentration. Up to five cycles of concentration are proposed.

Upper Floridan Aquifer groundwater is proposed as a backup during times of extreme drought. Regional water quality for the upper Floridan aquifer is shown in Table 2. For the Upper Floridan Aquifer well water, up to five cycles of concentration will be used for short durations (e.g., 90 days) with a frequency of about once every 5 to 10 years. The quality of the injectate when using the Upper Floridan Aquifer as a source would be similar to the "native" concentrations found in the Boulder Zone.

The West County Energy Center requires an industrial wastewater disposal capacity of up to 7 mgd per unit (worst case). Four Class I DIWs (DIW-1, DIW-2, DIW-3, and DIW-4), each with a 7-mgd capacity at an injection rate of about 11 cubic feet per second, are proposed for the West County Energy Center.

Wastewater will be injected into the Boulder Zone at a depth of approximately 2,800 to 3,200 feet bls. The Boulder Zone is a deeply buried zone of cavernous permeability, developed in fractured dolomite in the Lower Floridan Aquifer and underlies most of southern Florida. The permeability of the Boulder Zone is extremely high because of its cavernous nature. This anomalous permeability, which prevents pressure buildup in injection wells, coupled with the fact that the Boulder Zone contains saltwater, makes it an ideal zone for receiving injected wastes. The Boulder Zone is overlain by between 500 to 1,000 feet of low-permeability limestone and dolomite, which retard the upward movement of injected fluids to shallower parts of the Floridan Aquifer System that contain fresher although still brackish water (Miller, 1986).

3.3 Dual-Zone Monitor Well Regulatory Requirements

In accordance with Rule 62-528.425(1)(g)(3) F.A.C., monitoring of Class I injection wells will be conducted in two monitor zones within the Floridan Aquifer System. The lower monitor zone will be positioned within the first transmissive interval encountered below the regional USDW, in accordance with Rule 62-528.425(1)(g)(4) F.A.C. The upper monitoring zone will be positioned in a transmissive zone at or near the base of the regional USDW or lower confining unit.

At project build-out (four Class I Injection Wells), at least three dual-zone monitor wells (total of six wells) are proposed to fulfill the spatial requirements between injection wells and monitor wells (Figure 2), in accordance with Rule 62-528.425(1)(g)(4) F.A.C.

3.3.1 Dual-Zone Monitor Well Casing and Tubing Material

The proposed construction details for a dual-zone deep monitor well are presented in Figure 4. FRP has been selected as the lower monitor zone casing material due to the durability and non-conductive/non-corrosive nature of the material. This system is intended to provide a long-term reliable groundwater sample collection capability. Details of the conversion of the exploratory well into a dual-zone monitor well are included in Section 7.2. Material specifications are provided in Section 7.2.1.

4.0 AREA OF REVIEW

To calculate an appropriate Area of Review (AOR) for subsequent injection well construction, testing, and permitting process, a worst-case injection rate of up to 21 mgd was applied to determine the radius of the “zone of endangering influence” in the vicinity of the proposed DIW system. The AOR represents an estimated lateral surface area which overlies and encompasses the extent of the affected area in which the buoyant forces/increased pressures in the injection zone could potentially cause upward migration of the injected or existing formation fluid into the USDW.

4.1 Regulatory Requirements

In determining the AOR, an equation found in 40 CFR Part 146.06(a) was evaluated, considering formation pressures and hydrogeologic characteristics of the injection zone in the area. It was determined that the “zone of endangering influence” was considerably less than one mile. Therefore, according to Rule 62-528.300(4), FAC, the minimum radius for the AOR was fixed at a width of one-mile for the circumscribing area, which is a conservative AOR for an exploratory well and dual-zone monitor well installation.

4.2 Well Inventory

The South Florida Water Management District, U.S. Geological Survey, FDEP, and Florida Geological Survey (oil and gas and geological investigation sections) were contacted for information on producing wells, injection wells, abandoned wells, dry holes and other pertinent features within the AOR as defined under Rule 62-528.900 (1)(J). Figure 5 shows the locations of surface water bodies, mine quarries, streets and other pertinent surficial features in the vicinity of the Site. The locations of permitted surficial aquifer wells are identified on Figure 6. No other wells including Floridan Aquifer System wells, producing wells, injection wells, abandoned wells, and dry holes, are located in the AOR as shown in the circumscribed area on Figure 7.

4.2.1 Surficial Features

The Site is located to the north of State Road 80 (Southern Boulevard) in western Palm Beach County, near the Twenty Mile Bend, which is approximately 20 miles west of downtown West Palm Beach (Figure 1). The pertinent surficial features identified in the vicinity of the Site

are shown on Figure 5. The L-10/L-12 and the L-13 merge near the southwest corner of the Site. The L-8 canal, flowing south near the eastern Site boundary joins the L-10/L-12 southeast of the Site. An unnamed drainage ditch runs along the utility corridor on the western side of the property. The L-7 and L-40 canals flow southwest and southeast, respectively, around Water Conservation Area 1 (WCA-1). Stormwater treatment areas (STA-1E and STA-1W) are located to the southeast and southwest of the Site, respectively. The S5A pump station is also located near the intersection of the L-8 and the L-10/L-12 canals. Monitoring stations (S5AW, S5AE, and S5AS) are located around the S5A structure. The L-10/L-12 canal forms the C-51 canal (West Palm Beach Canal) where it intersects the L-8 canal and flows east from the southern portion of the Site, along Southern Boulevard.

The Palm Beach Aggregates (PBA) quarries are located to the north and east of the Site, across the L-8 canal. Several of the mined quarries to the northeast of the Site are currently being used by the SFWMD for surface water storage, which is supplied by the L-8 canal. The area between the Site and the L-8 canal is currently being used for sod farming by PBA.

4.2.2 Surficial Aquifer Wells

Based on the information provided by respective regulatory agencies, a total of 12 surficial aquifer wells and three surficial monitor wells were found within the 1-mile AOR (Figure 6). Ownership and well construction/use information is provided in Table 3.

4.2.3 Floridan Aquifer Production/Abandoned Wells and/or Dry Holes

Based on the information provided by respective regulatory agencies, no Floridan Aquifer Production/Abandoned Wells and/or Dry Holes were found within the 1-mile AOR (Figure 7).

4.2.4 Oil and/or Gas Wells

The Oil and/or Gas and Geological Investigation Sections of the Florida Geological Survey (FGS) were contacted regarding oil and gas wells within the AOR. No wells were found as shown on Figure 7.

5.0 FINANCIAL RESPONSIBILITY

A Statement of Financial Responsibility is not required for exploratory well permit applications.

A Statement of Financial Responsibility will be provided in the Test/Injection well permit application.

6.0 HYDROGEOLOGY

6.1 Regional Physiography and Geology

An evaluation of the geologic and hydrogeologic setting for the Site is discussed in this section to demonstrate that the hydrogeological environment is suitable for waste injection without modifying the ambient water quality of other aquifers overlying the injection zone, as specified in Rule 62-528.440 (2) (c).

Based upon review of the U. S. Geological Survey Loxahatchee, Florida quadrangle map, dated 1971 and photo-revised 1984, the Site has a natural ground surface elevation of approximately 15 feet above mean sea level (MSL) with respect to the National Geodetic Vertical Datum of 1929 (NGVD). According to the Soil Survey of Palm Beach County Area, Florida, published by the U.S. Department of Agriculture, Soil Conservation Service (SCS) the site (prior to development) was overlain by Holopaw fine sand. This is nearly level, poorly drained sand that has loamy subsoil at a depth of 40 to 72 inches. Under natural conditions, the water table (i.e. absent drainage improvements) was near the ground surface.

Palm Beach County can be divided into three general parts based on physiography and soils: the coastal ridge in the eastern part; the sandy flatlands in the central part; and the broad Everglades marshlands in the western part. The central flatlands lie between the coastal ridge and the Everglades. Most of this area has an elevation of 10 to 20 feet above mean sea level, but a maximum elevation of about 25 feet exists near the north county line. The Site lies within the Everglades portion of the County, which makes up the western two-thirds of Palm Beach County Area.

The Everglades region has an elevation of only about 14 to 16 feet above sea level. The soils are organic and are underlain by limestone at a depth that ranges from 2 to 8 feet. Under natural conditions, water stands on the surface for months, and only during extremely dry seasons is the surface exposed. Regional hydrology is to the south within the Everglades.

Rock units ranging in age from Paleocene to Holocene (Recent) will be penetrated by the DIWs and monitor wells within the Site. A generalized depiction of the geologic and hydrogeologic units within Palm Beach County is shown on Figure 8. Formations and groups discussed in this report include (from oldest to youngest): the Cedar Keys Formation of Paleocene age; Oldsmar

Formation of early Eocene age; Avon Park Formation of middle Eocene Age; Ocala Limestone of late Eocene age; Suwannee Limestone of early Oligocene age; Hawthorn Group of Miocene and Late Oligocene age; and the Tamiami Formation of Pliocene (Reese and Memberg, 2000). The overlying sediments of the Site are primarily composed of unconsolidated sand and marl, with localized lenses of shell and limestone. Previous studies indicate that these sediments are part of the Fort Thompson Formation and Pamlico Sand deposited during the Pleistocene and Holocene Epochs (Miller, 1988).

6.2 Principal Aquifers

Three main hydrogeologic units underlying western Palm Beach County are, in descending order, the Surficial Aquifer System, Intermediate Confining Unit, and the Floridan Aquifer System. These three hydrogeological units are discussed below.

6.2.1 Surficial Aquifer System

The uppermost part of the Surficial Aquifer System is primarily composed of unconsolidated sand and marl, with localized lenses of shell and limestone. Previous studies indicate that these sediments are part of the Fort Thompson Formation and Pamlico Sand deposited during the Pleistocene and Holocene Epochs (Miller 1986). The Surficial Aquifer System is between 150 and 380 feet thick within Palm Beach County (Reese and Memberg, 2000) and is recharged primarily through rainfall.

6.2.2 Intermediate Confining Beds

The Intermediate Confining Beds are present throughout the county and consists of clay-rich, fine-grained deposits of the Hawthorn Group. The clay-rich sediments form a confining unit that separates the Surficial Aquifer System from the deeper artesian Floridan Aquifer System. The Intermediate Confining Unit is approximately 600 feet thick at the Site and likely extends to a depth of approximately 1,000 feet below land surface.

6.2.3 Floridan Aquifer System

In south Florida, the Floridan Aquifer System is subdivided into three general hydrogeologic units ranging in age from Oligocene to Paleocene. These units are: the Upper Floridan Aquifer,

which contains brackish groundwater, the middle confining unit, which also contains brackish groundwater but has a lower hydraulic conductivity than the overlying unit, and the Lower Floridan Aquifer, which contains groundwater with a chemical composition comparable to seawater. The top of the Upper Floridan Aquifer is found in the lowermost portion of the Hawthorn Group, generally referred to as the basal Hawthorn unit and has a potentiometric surface in Florida between 40 and 50 feet above msl, as shown on Figure 9. The thickness of the lower Hawthorn production zone within the basal unit is variable, ranging from about 10 to 180 feet; being thickest in areas where paleotopographic lows existed during deposition of the unit (Reese and Memberg, 2000). The uppermost permeable zones in the Upper Floridan Aquifer occur in close association with an unconformity at the base of the Hawthorn Group.

The middle confining unit within the Floridan Aquifer System consists of fine-grained, micritic to fossiliferous limestone and dolomite. These dense, low permeability dolomites act as a confining layer between the Upper and Lower Floridan Aquifer units.

A fractured and crystalline dolomite unit of early Eocene age generally marks the top of the Lower Floridan Aquifer. The top of this dolomite unit can vary in depth and may be found at altitudes ranging from about 1,200 to 2,300 feet below sea level.

6.2.4 Boulder Zone

The deeply buried zone of cavernous permeability, called the Boulder Zone, is developed in fractured dolomite in the Lower Floridan Aquifer and underlies most of southern Florida. The top of the Boulder Zone is irregular and has been identified as shallow to about 2,000 feet below sea level and as deep as about 3,400 feet below sea level. The permeability of the Boulder Zone is extremely high because of its cavernous nature. This anomalous permeability, which prevents pressure buildup in injection wells, coupled with the fact that the Boulder Zone contains saltwater, makes it an ideal zone for receiving injected wastes. The Boulder Zone is overlain by between 500 to 1,000 feet of low-permeability limestone and dolomite, which retard the upward movement of injected fluids to shallower parts of the Floridan Aquifer System that contain fresher although still brackish water (Miller, 1986).

6.2.4.1 Floridan Aquifer System Water Quality

An upper zone of brackish water and a lower zone of water with salinity similar to that of seawater (saline-water zone) are present in the Floridan Aquifer System. The brackish-water and saline-water zones are separated by a transition zone (typically 100 to 200 feet thick) in which salinity rapidly increases with depth. The transition zone has been defined by using a salinity of 10,000 mg/L (milligrams per liter) of dissolved-solids concentration (about 5,240 mg/L of chloride concentration) at its top and 35,000 mg/L of dissolved-solids concentration (about 18,900 mg/L of chloride concentration) at its base. The base of the brackish-water zone and the top of the saline-water zone can be determined by means of resistivity geophysical logs. The base of the brackish-water zone in the study area ranges from about 1,600 feet below sea level near the coast to almost 2,200 feet below sea level in extreme southwestern Palm Beach County (Reese and Memberg 2000).

In an upper interval of the brackish-water zone within the Upper Floridan Aquifer, chloride concentrations range from 490 to 8,000 mg/L. Elevated chloride concentrations correlate with the altitude of the basal contact of the Hawthorn Group, with concentration increasing as the altitude of this contact decreases. Several areas of anomalous salinity where chloride concentration in this upper interval was greater than 3,000 mg/L occurred near the coast. In most of these areas, salinity was found to decrease with depth from the upper interval to a lower interval within the brackish-water zone: a reversal of the normal salinity trend within the zone. These areas are also characterized by an anomalously low altitude of the base of the brackish-water zone, and a much greater thickness of the transition zone than normal. These anomalies could be the result of seawater preferentially invading zones of higher permeability in the Upper Floridan Aquifer during Pleistocene high stands of sea level and incomplete flushing of this high salinity water by the present-day flow system (Reese and Memberg 2000).

6.3 Anticipated Local Hydrogeology

Based upon the literature and other Class I injection well systems in Palm Beach County, the hydrology and geologic features in the vicinity of the Site have been summarized. Regional hydrogeological cross sections drawn in close proximity to the Site depict the approximate intervals at which the following formations may be encountered (Figures 10 and 11). In the immediate Project Area, the Surficial aquifer is composed mainly of unconsolidated sand and shell interbedded with limestone, silt and clay between land surface and approximately 200 feet

bls. These Pliocene and Pleistocene sediments correspond to descriptions of the Caloosahatchee, Fort Thompson and Tamiami Formations in Palm Beach County.

Between depths of approximately 200 and 800 feet, the sediments beneath the project site are expected to consist of clay and marl with varying amounts of sand and shell and may include some interbedded limestone and chert. These descriptions correspond to the Hawthorn Group of the Miocene age.

The interval between depths of approximately 800 and 1,000 feet consists of predominantly soft, phosphatic limestone. These sediments make up the Oligocene age Suwannee Formation and are typically very porous and transmissive. The middle to upper Eocene limestones, dolomitic limestones and dolomites of the Avon Park Formation are anticipated to be encountered between approximately 1,000 and 2,250 feet deep. These limestones and dolomites between approximately 1,000 and 1,550 feet bls comprise the upper Floridan Aquifer.

Between depths of 1,550 and 2,900 feet bls, sediments consisting of micritic limestone interbedded with dolomite are expected to be present. The formation below depths of approximately 2,250 feet is anticipated to be consistent with the lower Eocene Oldsmar Formation as described by Miller (1986). The upper portion of the Oldsmar Formation consists of interbedded limestone and dolomite while the lower portion of the formation is comprised primarily of dolomites that are pale to dark yellowish brown, crystalline to cryptocrystalline, dense and massive with some evidence of dissolution (cavities, vugs, caverns and fractures).

The lower part of the formation, at depths of approximately 2,800 feet bls and the total depth of the well at 3,200 feet bls, known as the "Boulder Zone" will serve as the injection zone of the injection well.

6.3.1 Hydrogeologic Characteristics of the Lower Floridan Aquifer

The base of the USDW (as defined by water with a TDS concentration of 10,000 mg/l) is estimated to be located at a depth of approximately 1,950 ft below msl, within the Lower Floridan Aquifer. The primary confining unit, which separates the USDW from the injection zone (also referred to as the Boulder Zone) is approximately 800 ft thick, and acts as the primary confining layer separating the Lower from the Upper Floridan Aquifer. The vertical hydraulic conductivity

of this unit is approximately 1.6×10^{-3} ft/day (i.e., leakance is approximately 2.0×10^{-6}) (Figure 12). The presence of this 800 foot thick, low permeability micritic limestone and dolomite unit, suggests that upward movement of fluid injected into the Boulder Zone is sufficiently retarded to prevent impacts to the USDW.

The Boulder Zone is approximately 300 ft thick, and the transmissivity is approximately 2.5×10^{-7} ft²/day (Meyer 1989). The TDS concentration in the Boulder Zone and in most of the Primary Confining Unit is approximately 35,000 mg/l (specific weight approximately 1.025). In the uppermost portion of the Primary Confining Unit, there is a salinity transition zone, where the TDS concentration increases from 10,000 mg/l to 35,000 mg/l. This transition zone is approximately 100 ft to 150 ft thick (Reese and Memberg, 2000).

Per Rule 62-528.425(1)(g)(4) F.A.C., the upper monitoring zone will be within, but near the base of the USDW, which is expected to be encountered at a depth of approximately 1,950 feet bls at the Site. The lower monitoring zone will be positioned at the top of the primary confining unit, which is anticipated to be between 2000 and 2200 feet. The proposed dual-zone monitor well will be designed to incorporate these intervals. The monitoring interval of each zone will be 20 feet or more, as determined by exploratory well testing.

7.0 EXPLORATORY WELL DRILLING AND TESTING PLAN

The drilling and testing of an exploratory well for the purpose of an injection well system design will be conducted under a step-by-step drilling program which includes sampling, coring, testing and geophysical logging. Upon completion of the drilling and testing program, a portion of the exploratory well will be abandoned and the well will be completed as a dual-zone monitor well (DZMW-1). The following section describes these activities.

7.1 Exploratory Well – Drilling and Testing

The following outline describes the steps for the drilling and testing of the proposed exploratory well. A geophysical logging schedule is provided in Section 7.1.1.

1. Clear area, as needed, and construct a temporary 20 by 25 foot concrete drilling pad with a 72-inch diameter sump (Figure 13). Four surficial aquifer monitor wells, located in each corner of the drilling pad, are constructed as shown on Figure 14.
2. Drill a nominal 40-inch diameter borehole by the mud-rotary method to approximately 40 feet bls.
3. Install and cement in place a 36-inch diameter steel pit casing from 0 to 40 feet bls.
4. Drill a nominal 12-inch diameter pilot hole by the mud-rotary method from approximately 40 feet bls to approximately 200 feet bls. Conduct inclination surveys at 90-foot intervals and perform geophysical logging.
5. Ream a nominal 36-inch diameter borehole by the mud-rotary method to approximately 200 feet bls. Conduct inclination surveys at 90-foot intervals and at the termination of the borehole and perform geophysical logging.
6. Install and cement in place 30-inch diameter, steel casing from 0-200 feet bls. Run temperature log after each lift.
7. Drill a nominal 12-inch diameter pilot hole by the mud-rotary method from approximately 200 feet bls to approximately 1,000 feet bls. Conduct inclination surveys at 90-foot intervals and perform geophysical logging.
8. Ream a nominal 30-inch diameter borehole by the mud-rotary method from approximately 200 feet bls to approximately 1,000 feet bls. Conduct inclination surveys at 90-foot intervals and perform geophysical logging upon completion.

9. Set and cement in place a 24-inch steel casing from 0 to approximately 1,000 feet bls. Conduct a temperature log after each lift.
10. Drill a nominal 12-inch diameter pilot hole by the reverse-air circulation method to approximately 2,000 feet bls. Conduct inclination surveys at 90-foot intervals. Conduct geophysical logging and perform at least 2 and up to 5 packer-pumping tests between 1,000 and 2,000 feet bls based upon field conditions.
11. Ream a nominal 24-inch diameter borehole by the reverse-air circulation method from the bottom of the 24-inch diameter casing to approximately 2,200 feet bls. Conduct inclination surveys at 90-foot intervals during reaming and perform geophysical logging upon completion.
12. Install and cement in place a 12-inch, steel Upper Monitoring Zone casing 12 to approximately 2,000 feet bls. Conduct a temperature log after each lift.
13. Drill a nominal 12-inch diameter pilot hole by the reverse-air circulation method from the bottom of the steel Upper Monitoring Zone casing to approximately 3,200 feet bls. Collect at least four and up to seven cores during pilot-hole drilling between the depths of 2,000 and 3,200 feet bls. Conduct inclination surveys at 90-foot intervals and perform geophysical logging upon completion.
14. Perform at least four and up to seven straddle-packer pumping tests between 2,000 and 3,200 feet bls as directed by the Engineer.

7.2 Dual-Zone Monitor Well – Construction and Testing

1. Abandon extent of borehole below the lowermost monitoring zone (2,200 feet) in general accordance with the abandonment plan as detailed in Appendix C.
2. Install 2,250 feet of 6 5/8-inch diameter, 0.33-inch wall thickness, fiberglass reinforced plastic (FRP) tubing with external casing packer to establish a bridge plug.
3. Place gravel pack and fine sand seal around the screen using a 2-inch tremie pipe. Cement FRP tubing in place from approximately 2,000 feet to 1,800 feet bls. Conduct temperature log after each stage of cementing. Perform hydrostatic pressure testing on the cemented monitor well tubing.
4. Develop lower and upper monitor zone and conduct final water sample collection from each monitor zone for analysis of primary and secondary drinking water standards. Collect a five-gallon water sample from each monitor zone. Store on site for pickup by the FDEP.

5. The dual-zone monitor well is completed using the wellhead construction details shown in Figure 15.

7.2.1 Material Specifications

7.2.1.1 Well Casing

The dual-zone monitoring well casings will consist of new, unused material meeting the minimum specifications specified herein. If the casing should fail or its integrity is not satisfactory and/or the grout emplacement is of poor quality, the casing will be removed and replaced. If the casing cannot be withdrawn, the driller will plug and abandon in a manner approved by the Engineer and regulatory agency. Another well shall then be brought to the same level of completion, at another location selected by the Engineer.

A protective pit casing will be installed of sufficient diameter to accommodate a 36 inch drill bit. The exact length, diameter, material, and installation shall be the driller's option subject to approval by the Engineer.

The conductor casing will consist of new, unused, seamless steel, random length, 30 NPS, a minimum wall thickness of 0.375 inches, STD Weight Class, 118.76 lb/ft. The casing shall conform to the minimum standards in ASTM A-139-00 for Grade B. The ends of each joint shall be machine beveled perpendicular to the casing axis to insure the straightness of each assembled section. Approximately 200 linear feet will be installed.

The surface casing will consist of new, unused, seamless steel, random length, 24 NPS, a minimum wall thickness of 0.375 inches, STD Weight Class, 94.91 lb/ft. The casing shall conform to the minimum standards in ASTM A 53/A 53M-02, Type S, Grade B. The ends of each joint shall be machine beveled perpendicular to the casing axis to insure the straightness of each assembled section. Approximately 1,000 linear feet will be installed.

The upper monitoring zone casing will consist of new, unused, seamless steel, random length, 16 NPS, a minimum wall thickness of 0.375 inches, STD Weight Class, 62.64 lb/ft. The casing shall conform to the minimum standards in ASTM A 53/A 53M -02, Type S Grade B. The ends of each joint shall be machine beveled perpendicular to the casing axis to insure the straightness of each assembled section. Approximately 2,000 linear feet will be installed.

The lower monitor zone tubing will consist of new, unused, 6 FRP, Red Box 1500, as manufactured by Tubular Fiberglass Corporation. The tubing shall conform to the minimum standards in ASTM D 2996-01. The tubing O.D. shall be 6.10 inches and the I.D. shall be 5.43 inches. The tubing shall have a wall thickness of 0.335 inches and a unit weight of 5.70 lb/ft. The tubing shall have a pressure rating of not less than 1,500 psig. The ends shall be threaded and coupled with integral pin design. Approximately 2,200 linear feet will be installed.

7.2.1.2 Cement

Cement used for well construction will consist of ASTM C150-04, Type 2. Neat cement shall contain no more than 5.2 gallons of water per 94 pound bag. Lost circulation materials (floccle and/or gilsonite) and additives may be used, but not in excess of 12 percent. Only 10 percent additives may be used with up to 4 percent accelerators. Cement placed within the bottom 100 feet of the casings shall be neat. Cement mixtures will be approved by the Engineer. Cement additives will only be approved in zones of high permeability.

The grout shall be placed in the well by a qualified cementing subcontractor approved by the Engineer. Prior to grouting, water or other fluids shall be circulated in the annular space sufficiently to clear obstructions. The cementing method used shall conform to those specified in Section A1-8.4 - "Grouting of Annular Space Surrounding Protective Casing", (AWWA Standard for Deep Wells: AWWA A100). When tremmies are used each lift shall be allowed to harden and be tagged before continuing with cementing. After the well casings are cemented they must remain undisturbed for 24 hours. The pit casing cement will have a minimum curing time of 24 hours before the driller continues.

Samples of each lift (one sample per lift) of cement shall be taken by the cementing subcontractor, labeled and forwarded to the Engineer. The cementing subcontractor shall submit chemical analysis of the dry cement mixture and cementing schedule to the Engineer at least 72 hours prior to cementing operations.

7.2.2 Geophysical Logging

Geophysical logging will be conducted by a geophysical surveying company specializing in the operation of down hole geophysical equipment in deep well environments. The logging company will perform temperature logs after each stage of cementing on all casings (and tubing) where

returns are not observed at pad level. Caliper logs will be performed on all reamed boreholes before the installation of all casings. Additionally, the following logs will be performed in the exploratory well and/or constructed monitor well at the stages listed.

Following completion of each stage of the open hole, reamed to each casing setting depth (below the pit casing), the following logs will be performed:

- X-Y Caliper; and
- Natural Gamma Ray.

Following completion of the 12-inch diameter pilot hole from land surface to a depth of approximately 200 feet, the following geophysical logs will be performed:

- X-Y Caliper; and
- Natural Gamma Ray.

Following completion of the 12-inch diameter pilot hole from land surface to a depth of approximately 1,000 feet, the following geophysical logs will be performed:

- X-Y Caliper;
- Gamma Ray; and
- Dual-induction.

Following completion of the 12-inch diameter pilot hole from the base of the 30-inch OD casing to a depth of approximately 2,000 feet, the following geophysical logs will be performed:

- X-Y Caliper;
- Dual-induction;
- Borehole-Compensated Sonic — VDL;
- Gamma Ray;
- Temperature (with differential plot);
- Fluid Resistivity; and
- Flowmeter.

The following logs also will be performed under pumping conditions:

- Temperature (with differential plot);
- Fluid Resistivity; and
- Flowmeter.

Following completion of the 12-inch diameter pilot hole from the base of the 24-inch outside-diameter intermediate casing to approximately 3,200 feet, the following geophysical logs will be performed:

- X-Y Caliper;
- Dual-induction;
- Borehole-Compensated Sonic — VDL;
- Gamma Ray;
- Temperature (with differential plot);
- Fluid Resistivity;
- Flowmeter; and
- Television Survey or Borehole Televiewer.

The following logs also will be performed under pumping conditions:

- Temperature (with differential plot);
- Fluid Resistivity; and
- Flowmeter.

Following completion of cementing the 12-inch diameter monitoring casing in place (anticipated to be set at 2,200 feet bls), the following geophysical logs will be performed:

- Cement Bond Log; and
- Television Survey.

Following the installation of the 6 5/8-inch FRP injection tubing within the 12-inch diameter final casing, the following geophysical logs will be performed:

- Television Survey; and
- Temperature.

The radial color television surveys will be conducted using a camera tool equipped with a side-view rotating lens. Only FDEP-approved water source(s) may be utilized to obtain a clear television image. The means and methods of obtaining a clear television image of the pilot-hole sections are at the discretion of the Contractor, subject to good construction practices and existing regulations.

7.2.3 Drilling Fluids Management

The conventional mud-rotary method will be employed for all drilling through the setting of the surface casings to approximately 1,000 feet bls. Drilling below this point will be done by the reverse-air circulation method, and there will be no discharge of drilling fluids and/or formation fluids. A closed-circulation system will be used for the drilling fluids, employing suitable devices such as screens, shale shakers, and settling tanks to remove cuttings.

Drilling will be accomplished using a closed-circulation system designed and constructed so that under no conditions will there be an overflow of brackish or salty water. All necessary steps will be taken to prevent accidental spillage from occurring. Tanks for the circulation system will be steel and leak-proof. The entire circulation system will be within the curbed reinforced concrete pad.

Flowing conditions in the exploratory well will be kept under control at all times. Drilling mud may be used as weight material to keep the drilling fluid at a density necessary to suppress the flow. During the dual-zone deep monitor well construction and testing, salt will not be used at any time.

As flowing conditions are anticipated during the drilling of the dual-zone monitor well, the Contractor will furnish and install suitable blow-out preventers. The blow-out preventers to be provided will be commercially-available, hydraulically-operated, single-annular preventers or an approved equivalent and will be used during drilling operations below the 30-inch OD conductor casing in the exploratory well to ensure the Contractor's capability to control potential flowing conditions prior to penetrating the Floridan Aquifer System. When no work is being done on a well, the preventer will remain in place. If requested, each crew also will test the operation of the blow-out preventers on the wells once per week during construction in the presence of the Engineer to demonstrate proficiency in its operation.

Drill cuttings and drilling fluid will be removed from the drilling site and disposed of at an approved location. The fluid displaced from the borehole during cementing operations will be considered excess drilling fluid and will be disposed of in an approved manner.

7.2.4 Core Collection Schedule

Rock cores will be collected during the drilling of the 12-inch diameter pilot hole for the injection well below the base of the intermediate casing (Figure 16). Up to seven, four-inch diameter cores, at least 10 feet long, will be collected at depths designated by the Engineer. Coring points will be determined from information derived during drilling operations and as directed by the Engineer. All cores will be stored in wooden boxes with lids, marked with the appropriate well designation, and the depth from which they are taken. Tops and bottoms of the cores will be marked accordingly. After collection, boxing, and labeling, each core will be furnished to the Engineer. The Engineer then will select a maximum of three representative sections of each core for analysis of vertical and horizontal hydraulic conductivity, porosity, specific gravity, Young's modulus/elastic modulus, and compressive strength.

Upon completion of analysis of cores and sample cuttings recovered during installation of the injection well, the permittee will contact the UIC Section of the FDEP in Tallahassee to arrange for their transfer to the Florida Geological Survey.

7.2.5 Packer Pumping Tests

During the drilling of the nominal 12-inch diameter pilot hole for the monitor well, at least four and up to seven, inflatable packer-pumping tests will be performed in the deep monitor well pilot hole (Figure 16). Tests will be performed in accordance with the methods described below.

The packer tests will be conducted such that the hydrologic properties of the formation can be determined and a representative water sample can be collected for analysis. The Engineer will select the depth intervals to be tested based on an analysis of the geophysical logs, the lithologic logs of the pilot hole, the core samples, and other available site-specific (historical) and regional data.

For all packer tests, the uppermost 270 feet will consist of 6-inch inside diameter drill pipe to facilitate the installation of a 4-inch diameter submersible electric pump, which will be set at an elevation of approximately 250 feet below pad level. The pump will have the capability of pumping at constant rates from 10 to 100 gallons per minute (gpm). For the constant-rate tests, the driller will furnish and install a flowmeter capable of recording instantaneous flow rates and

of totalizing flow. The flowmeter will have an accuracy of 5 percent at the tested rate. The flowmeter will be set at a distance to allow the meter to perform within specifications.

The internal surfaces of the drill pipe, casings and other fittings used for the packer tests will be free of rust, scale and other materials that could be dislodged and interfere with the results of a test.

If accidental shutdown or a variation in the pumping rate occurs prior to the specified end of the test and invalidates the data in the Engineer's opinion, the Contractor will make any necessary repairs and re-start the test from the beginning.

After successfully setting and inflating the packer device, and before conducting a constant-rate pumping test and recovery test for each pumping test interval, the Contractor will develop each zone so that the discharged water is free of any drilling mud/fluid (and produces stable water-quality results, as determined by the Engineer) and will allow water levels in the work pipe to return to static conditions, to the satisfaction of the Engineer. Pre-test development will be performed prior to each constant-rate packer-pumping test. The exact time period is to be determined in the field by the owner's representative (Engineer) and will include a volume equal to at least two times the work pipe volume.

The water produced during the pumping tests will be confined to the closed-circulation system until disposed by the Contractor at an approved location. Water levels will be monitored and recorded at land surface using an M-scope, tape, or electronic probe/transducer.

Immediately prior to the completion of each pumping test, a water sample will be collected from the pumped discharge and water-quality analysis for primary and secondary drinking water standards by a state-certified analytical laboratory will be performed.

A five-gallon water sample also will be collected at the end of each pumping test. These samples will be stored at the Site for pickup by the FDEP.

7.2.6 Dual-Zone Monitor Well Casing Pressure Tests

After the FRP casing is installed and cemented in place, a hydrostatic pressure test will be conducted under controlled conditions to demonstrate that the casing has mechanical integrity. Test procedures are as described below.

Internal hydrostatic pressure tests will be conducted on the FRP well casing according to the following procedure:

- An inflatable packer, capable of seating against the 6-inch diameter FRP casing, will be set approximately 10 feet above the base of the casing.
- The casing will be filled with potable water and placed under a pressure of at least 100 psi, but not more than 150 psi, for 60 minutes. If a significant pressure change (greater than 5 percent) occurs, the test will be repeated.
- The pressure on the FRP casing will be relieved and the volume of water discharged from the casing will be measured and recorded.
- Pressure testing will be witnessed and certified in writing by the Engineer.

7.3 Surficial Aquifer Monitoring

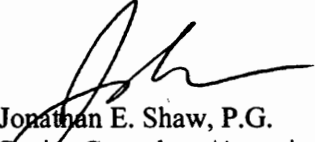
Four shallow "satellite" pad monitor wells will be installed in the vicinity of the corners of the work area/well pad as shown of Figure 13. Monitor well design details are shown on Figure 14. The wells will be constructed of 2-inch Schedule 40 PVC pipe with 10 feet of slotted, Schedule 40 PVC screen (0.01-inch slot) and end cap. The wells shall be installed to a depth of approximately 30 feet bls. The well casing shall be joined by threaded coupling. The wells will be sampled 48 hours prior to advancing the exploratory well, and weekly during drilling and dual-zone monitor well construction for analysis of pH, temperature, conductivity, chloride concentration. Water levels will be monitored during each sampling event.

If results of the groundwater samples indicate that the exploratory well program has impacted the shallow aquifer, remedial actions will be undertaken to the satisfaction of the owner and regulatory agency.

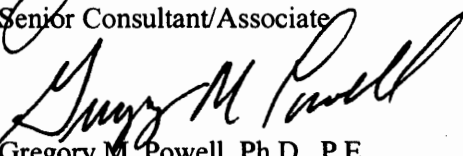
8.0 CLASS I INJECTION WELL PERMIT REQUEST

Upon completion, results of the exploratory well and monitor well construction and testing program will be submitted as supporting information for the Application to Construct and Test a Class I Injection Well System.

GOLDER ASSOCIATES INC.



Jonathan E. Shaw, P.G.
Senior Consultant/Associate



Gregory M. Powell, Ph.D., P.E.
Senior Consultant

FN: P:\2004\043-7649 FPL Corbett - GNV\Application\FINAL_Exploratory Well Engineering Report.doc

REFERENCES

- Driscoll, F.G., Groundwater and wells (Second edition), Johnson Filtration Systems Inc. St. Paul, Minnesota, 1986.
- Meyer, F.W., 1989a, Hydrogeology, ground-water movement, and subsurface storage in the Floridan aquifer system in southern Florida: U.S. Geological Survey Professional Paper 1403-G, 59 p.
- Miller, J.A., 1986, Hydrogeologic framework of the Floridan aquifer system in Florida and in parts of Georgia, Alabama, and South Carolina: U.S. Geological Survey Professional Paper 1403-B, 91 p.
- Reese, R.S., and Memberg, S.J., 2000, Hydrogeology and the distribution of salinity in the Floridan aquifer system, Palm Beach County, Florida: U.S. Geological Survey Water-Resources Investigations Report 99-4061, 52 p., 2 pls.

Table 1. Most Recent Water Quality of L10/L12 Canal

Constituent (units)	SFWMD Data ¹	1/4/2005	1/28/2005	2/10/2005
Alkalinity as CaCO ₃ (mg/l)	307		210	130
Alkalinity (Bicarbonate) (mg/L)			210	130
Aluminum (mg/L)		0.97	0.43	1.8
Ammonia as N (mg/L)	0.026		<1	<1
Antimony (ug/L)		<5.0	<5.0	<5.0
Arsenic (ug/L)	5.9		8.1	4.8
Barium (ug/L)		39	45	40
Beryllium (ug/L)		<1	<1	<1
BOD (5-day) (mg/L)		<2	4.3	<2
BOD - Soluble (mg/L)		<2	<2	<2
Cadmium (ug/L)	0.77		<5	<6
Calcium (mg/L)		101	63	45
Chloride (mg/L)	214		110	58
Chromium (ug/L)		<5	<5	<5
COD (mg/L)		54	97	24
Copper (ug/L)	9.6		<5	<5
Cyanide (mg/L)		<.005	<.005	<.005
Dissolved Oxygen (mg/L)	3.03			7.92
Fluoride (mg/L)		0.24	0.34	0.2
Hardness (mg/L as CaCO ₃)	200		250	170
Iron - Dissolved (ug/L)			410	2200
Iron Total (ug/L)	1080		530	2000
Lead (ug/L)	<.8		3.1	3.6
Lead - Dissolved (ug/L)		<3	<3	<3
Magnesium (mg/L)		13	19	15
Manganese (mg/L)			0.008	0.018
Mercury (ug/L)	<.02		<.13	<.13
Molybdenum (ug/L)		<5	<5	<5
Nickel (ug/L)		<2	<2	2.3
Nitrate as N (mg/L)	0.548		1.8	1
Nitrate + Nitrite as N (mg/L)			0.89	0.79
Nitrite as N (mg/L)		0.83	0.1	<.02
Nitrogen as N (total) (mg/L)		1.76	5.59	2.19
O-Phosphate as P (mg/L)	0.081		0.12	0.13
Oil & Grease (mg/L)		<1.7	<1.7	<1.7
pH (SU)	7.56		8.1	7.65
Phenols (mg/L)			<.01	<.01
Phosphate, Total as P (mg/l)	0.11		0.17	0.17
Potassium (mg/L)		7.2	8.1	6
Selenium (ug/L)		12	<5	<5
Silica (mg/L)	14.7		0.7	8
Silver (ug/L)	0.07		<2	
Sulfate (mg/L)	106		59	36
Sulfide (mg/L)			<1	<2
TDS (mg/l)	921		550	380
Temperature (F)	74.12			64.11
Thallium (ug/L)		<10	<10	<10
TKN as N (mg/L)		0.93	4.7	1.4
TSS (mg/L)	38		<3	11
Turbidity (NTU)	3.2		23	46
Vanadium (ug/L)		<5		6.9
Zinc (ug/L)	<4		7	5.8

Note:

¹ SFWMD data consists of the most recent results from SFWMD data collected from S5A sampling point between January 2000 and November 2003

Blanks indicate no data available.

TABLE 2
GROUNDWATER QUALITY OF THE UPPER FLORIDAN AQUIFER
WEST COUNTY ENERGY CENTER
LOXAHATCHEE, FLORIDA

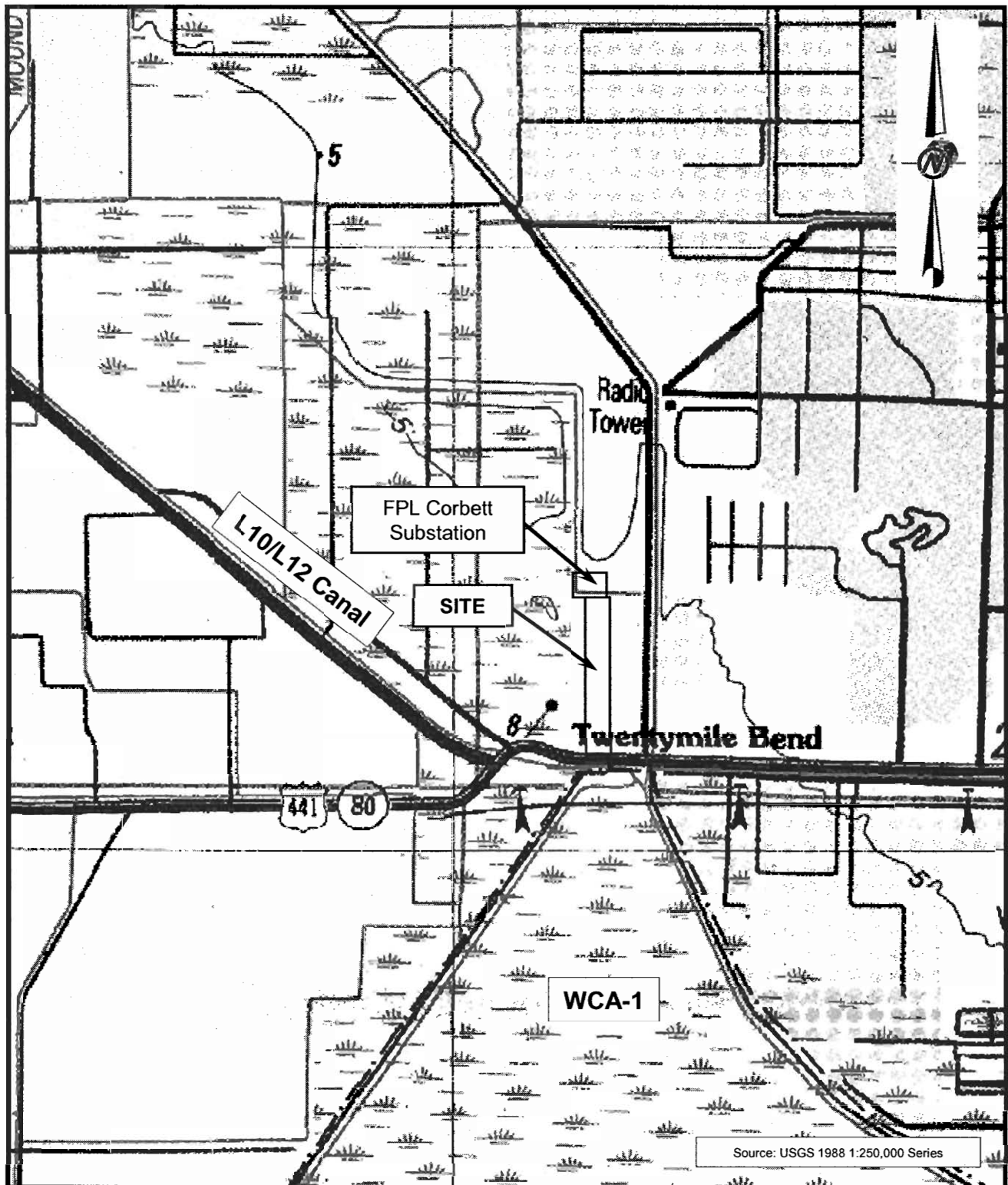
Well I.D.	Total Depth (feet)	Cased Depth (feet)	Date / Time	Temperature (°C)	pH	Specific Conductivity (uS/cm)	Dissolved Oxygen (mg/l)	Alkalinity (mg/l)	Chloride (mg/l)	Hardness (mg/l)	Sulphate (mg/l)	Calcium (mg/l)	Potassium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Total Dissolved Solids (mg/l)	Flouride (mg/l)	Dissolved Strontium (ug/l)	Dissolved Manganese (ug/l)	Dissolved Iron (ug/l)	Silica (mg/l)	Total Organic Carbon (mg/l)	Dissolved Barium (ug/l)
MF-37	1740	750	11/13/2001 11:10	27.03	7.54	3057	1.95	120.4	728.63	577.7	284.86	103.47	13.01	76.78	384.63	1807.5	0.64	13772.49	9.99	219.45	14.85	1.52	26.47
PBF-7	1447	1200	1/19/2000 13:08	25.98	7.72	4720		110.5	1235.75	763.72	472.04	124.85	22.19	109.98	672.61	2834	0.98	28000	24	50	14.13	1.94	29
			6/10/2004 16:46	25.9	7.95	9131	-1	105	1150	700	447	115	24.2	111	698						2.5		
			9/22/2004 15:00	26.2	7.85	4896	0.67	110	1190	800	457	121	23.8	113	708								
PBF-10R	1225	1015	8/9/2000 14:50	24.29	7.47	8108		129.3	2486.04	1187.11	878.02	159.64	51.17	191.57	1527.11	5746	1.44	9616.48	2.71	18.87	11.24	2.50	10.47
			9/3/2003 14:35	23.9	7.63	9881		129	2460	1000	813	166	56.7	208	1530	5830	1.27	8940	0.5		10.9	2.00	10
			3/17/2004 9:45		7.5			130	2800	1300	950	150	66	180	1900	6500	1.7	9400			4.6	2.10	11
			6/14/2004 12:00	24	7.4	17080	0.29	126	2290	1000	836	141	53.4	195	1490								
			9/23/2004 11:02	23.9	7.33	9157	0.68	123	2360	1000	862	161	56.2	198	1490								
PBF-3	1250	1050	1/4/1996 15:45	21.81	7.23	7140	2.90	148.6	2122.22	895	376.43	119.4	51.3	145.1	1144.8	4060	0.84				13.23		16.68
			2/6/1996 16:57	21.6	7.33	7050	3.20	144.1	2078.47	1020	369.91	143.55	43.57	160.44	1068.81	4040	0.96				15.17		17.13
			2/12/1996 12:37	22.09	7.57	7460	5.10	144.7	2164.54	1020	377.35	138.94	44.56	162.92	1100.67	4210	1.02				16.93		16.20
			9/23/2004 17:45	22.40	7.64	8350	1.03	151	2300	1000	461	129	48.2	170	1340								
PB-1173	1622	1538	9/18/1996						3000		440					4800							
PB-1179	1111	1020	3/5/1993			7900			2300							4500							
PB-1177	1018	930	5/13/1988						2000		398					4000							
PB-1185	1147	996	7/27/1989			7030			2400		563					5000							
			1/26/1991			6100			1710						3950								
PB-1186	1640	1610	2/10/1990			4070			1350		487					3030							
LMF-1	1051	851	1990		7.83			146.3	1250		250	130	18	100	600	2300							

TABLE 3
PERMITTED SURFICIAL AQUIFER WELL INVENTORY
AND SURFICIAL MONITORING WELL INVENTORY
WITHIN 1-MILE RADIUS OF THE SITE

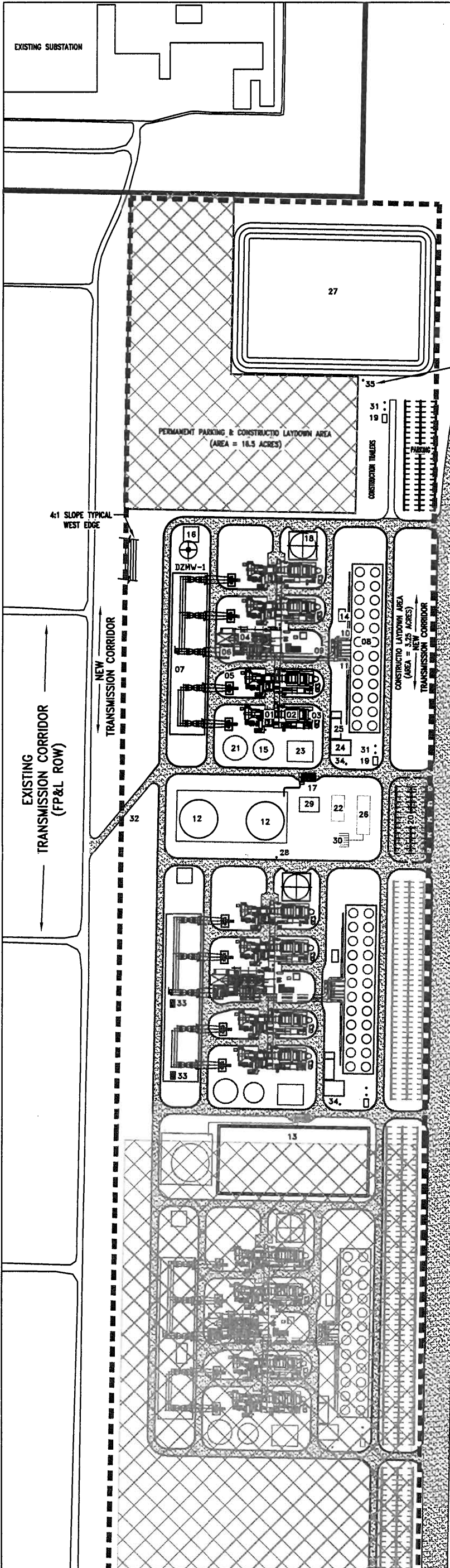
WEST COUNTY ENERGY CENTER
LOXAHATCHEE, FLORIDA

PERMITTED SURFICIAL AQUIFER WELLS																				
PERMIT NO.	APP NO.	PERMIT TYPE	PROJECT NAME	LAND USE CODE	ACRES SERVED	FACILITY ID	FACILITY NAME	PUMP TYPE	DIAMETER	PUMP DEPTH	PUMP CAPACITY	X COORD ¹	Y COORD ¹	WELL DEPTH	CASE DEPTH	SOURCE	WATER USE	SECTION	TOWNSHIP	RANGE
50-03276-W	940404-10	GP	PBSO LAW ENFORCEMENT TRAINING FACILITY	PWS	26.71	3936	1	CEN	2.00	0.00	55	858137	854662	78	75	Surficial Aquifer System	PWS	31	43.0	40.0
50-03458-W	010816-4	GP	WEST PALM BEACH FIELD STATION	LAN	5.00	111208	S-5A-1	CEN	1.50	0.00	20	862184	854824	40	0	Surficial Aquifer System	PWS	32	43.0	40.0
50-03458-W	010816-4	GP	WEST PALM BEACH FIELD STATION	LAN	5.00	111209	S-5A-2	CEN	1.50	0.00	20	860580	854973	40	0	Surficial Aquifer System	PWS	32	43.0	40.0
50-03458-W	010816-4	GP	WEST PALM BEACH FIELD STATION	LAN	5.00	111210	S-5A-3	CEN	1.50	0.00	0	861542	854952	40	0	Surficial Aquifer System	PWS	32	43.0	40.0
50-03458-W	010816-4	GP	WEST PALM BEACH FIELD STATION	LAN	5.00	111211	S-5A-4	CEN	1.50	0.00	0	861051	854931	40	0	Surficial Aquifer System	PWS	32	43.0	40.0
50-04360-W	990628-5	GP	RESEARCH AND EVALUATION FACILITY	LAN	17.59	30683	6	CEN	2.00	0.00	30	859437	864500	40	0	Surficial Aquifer System	IRR	19	43.0	40.0
50-04685-W	031021-8	GP	TEMPORARY CONCRETE BATCH PLANT	IND	1.00	101756	1	CEN	4.00	45.00	0	861700	856500	50	40	Surficial Aquifer System	IND	32	43.0	40.0
50-06150-W	040317-1	GP	PALM BEACH AGGREGATES	PWS	3200.00	139370	W-2	CEN	4.00	0.00	50	860851	856819	50	30	Surficial Aquifer System	PWS	32	43.0	40.0
50-06150-W	040317-1	GP	PALM BEACH AGGREGATES	PWS	3200.00	139377	W-3	CEN	4.00	0.00	50	861169	866155	50	30	Surficial Aquifer System	PWS	20	43.0	40.0
50-06150-W	040317-1	GP	PALM BEACH AGGREGATES	PWS	3200.00	148765	W-5	CEN	2.00	0.00	80	860426	856873	100	80	Surficial Aquifer System	PWS	32	43.0	40.0
50-06150-W	040317-1	GP	PALM BEACH AGGREGATES	PWS	3200.00	139369	W-1	CEN	4.00	0.00	50	861423	863932	50	30	Surficial Aquifer System	PWS	29	43.0	40.0
50-06583-W	040804-11	GP	ADONEL CONCRETE BATCH PLANT	IND	5.26	157332	Well 1	CEN	2.00	0.00	10	861978	856085	50	40	Surficial Aquifer System	PWS	32	43.0	40.0
SURFICIAL MONITORING WELLS																				
STATION	AGENCY	STRATA	LATITUDE	LONGITUDE	X COORD ¹	Y COORD ¹	BASIN	SECTION	TOWNSHIP	RANGE										
ENR001W1	WMD	-90	264100	802233	859960	854585	CA1	32	43	40										
ENR001W2	WMD	-53	264100	802233	859960	854585	CA1	32	43	40										
G-2235 G	USGS	-24	264101	802209	862137	854697	CA1	0	48	43										

¹ State Plane Coordinates (Florida East, 1983)

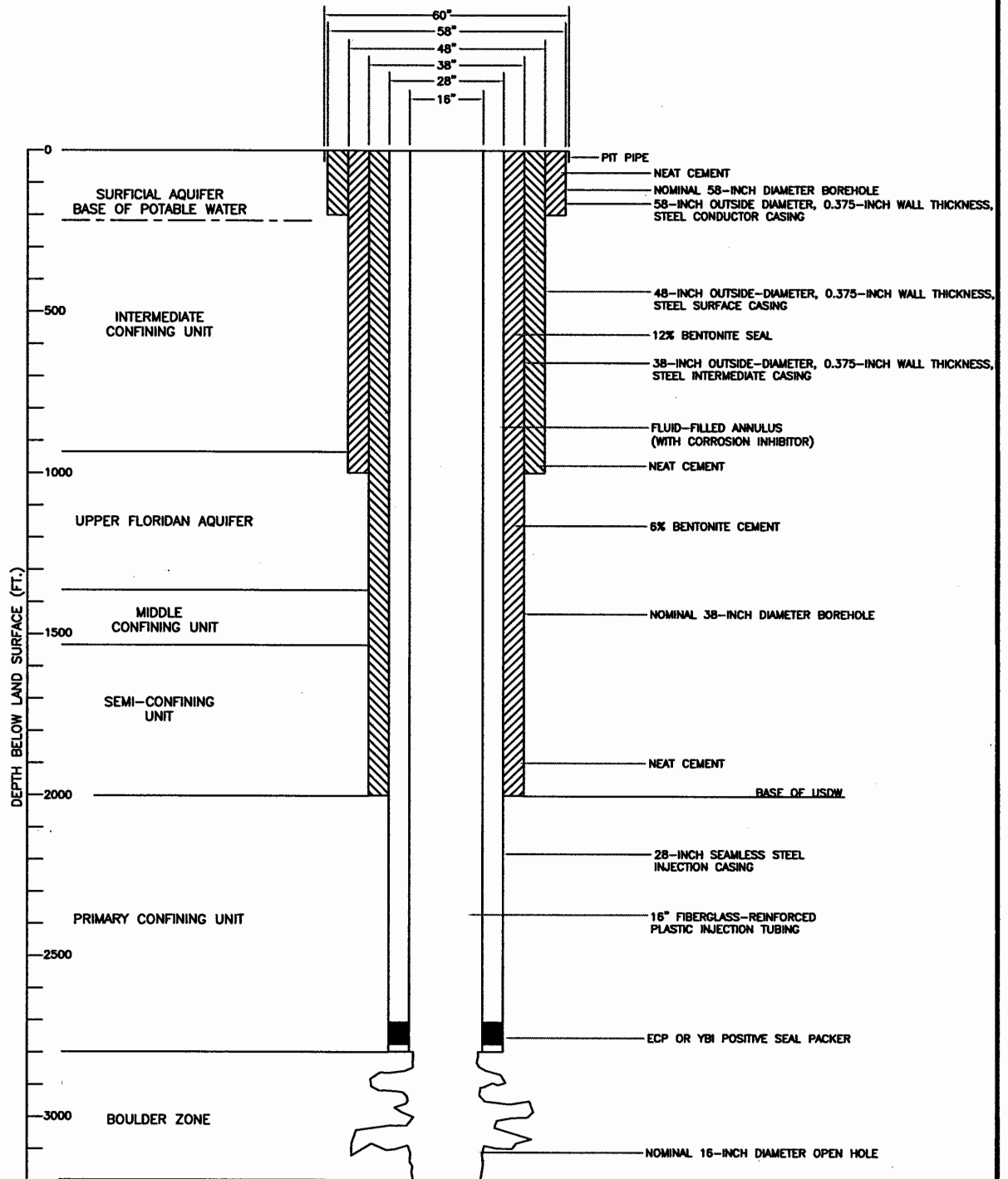


CLIENT/PROJECT Florida Power & Light West County Energy Center Loxahatchee, Florida				 Golder Associates			BOCA RATON, FLORIDA TITLE PROJECT LOCATION MAP			
DRAWN JWT	CHECKED	REVIEWED	DATE 3/3/05	SCALE 1:100,000	FILE NO.	JOB NO. 043-7649	DWG NO.	SUBTITLE	REV. NO.	FIGURE 1



FACILITIES LEGEND		
I.D	FACILITY	REMARKS
01	COMBUSTION TURBINE	-
02	HEAT RECOVERY STEAM GENERATOR (HRSG)	-
03	HRSG STACK (4-TOTAL)	-
04	STEAM TURBINE	-
05	CT GENERATOR STEP UP TRANSFORMER	-
06	ST GENERATOR STEP UP TRANSFORMER	-
07	COLLECTOR YARD	U1-230 KV U2-500 KV
08	COOLING TOWER	-
09	CIRCULATING WATER LINES	-
10	CIRCULATING WATER PUMPS	-
11	AUXILIARY WATER PUMPS	-
12	FUEL OIL TANK	100,000 BBL
13	GAS REGULATING STATION	WITH HEATERS
14	CIRC. WATER CHEMICAL FEED AREA	-
15	DEMIN. TANK	2 MIL. GAL.
16	STORMWATER SUMP	-
17	OIL TRUCK UNLOADING STATION	-
18	AMMONIA TANK & UNLOADING STATION	-
19	UNDERGROUND INJECTION WELLS	1-UNIT CAPACITY
20	PARKING	104 SPACES
21	RAW/FIREWATER WATER TANK	3 MIL. GAL.
22	MAINTENANCE BUILDING	7,500 SQ. FT.
23	WATER & FIRE PUMPS	-
24	DEMIN. TRAILER AREA	-
25	DEMIN. PUMP & PRE-TREATMENT AREA	-
26	CONTROL ADMIN. BUILDING	20,000 SQ. FT.
27	STORMWATER POND	-
28	POTABLE WELL	-
29	EMERGENCY STANDBY DIESEL GENERATOR	-
30	POTABLE WATER WASTE TREATMENT SYSTEM	-
31	GROUNDWATER WELLS	BACKUP PRODUCTION WELLS
32	EMERGENCY ACCESS ROAD	-
33	AUXILIARY TRANSFORMER	U2 ONLY
34	MONITORING WELL	-
35	EXPLORATORY/DUAL ZONE MONITORING WELL	-

ASPHALT PAVING	AGGREGATE SURFACING	CONCRETE SURFACING
EXISTING FENCING	NEW FENCING	



BOCA RATON, FLORIDA

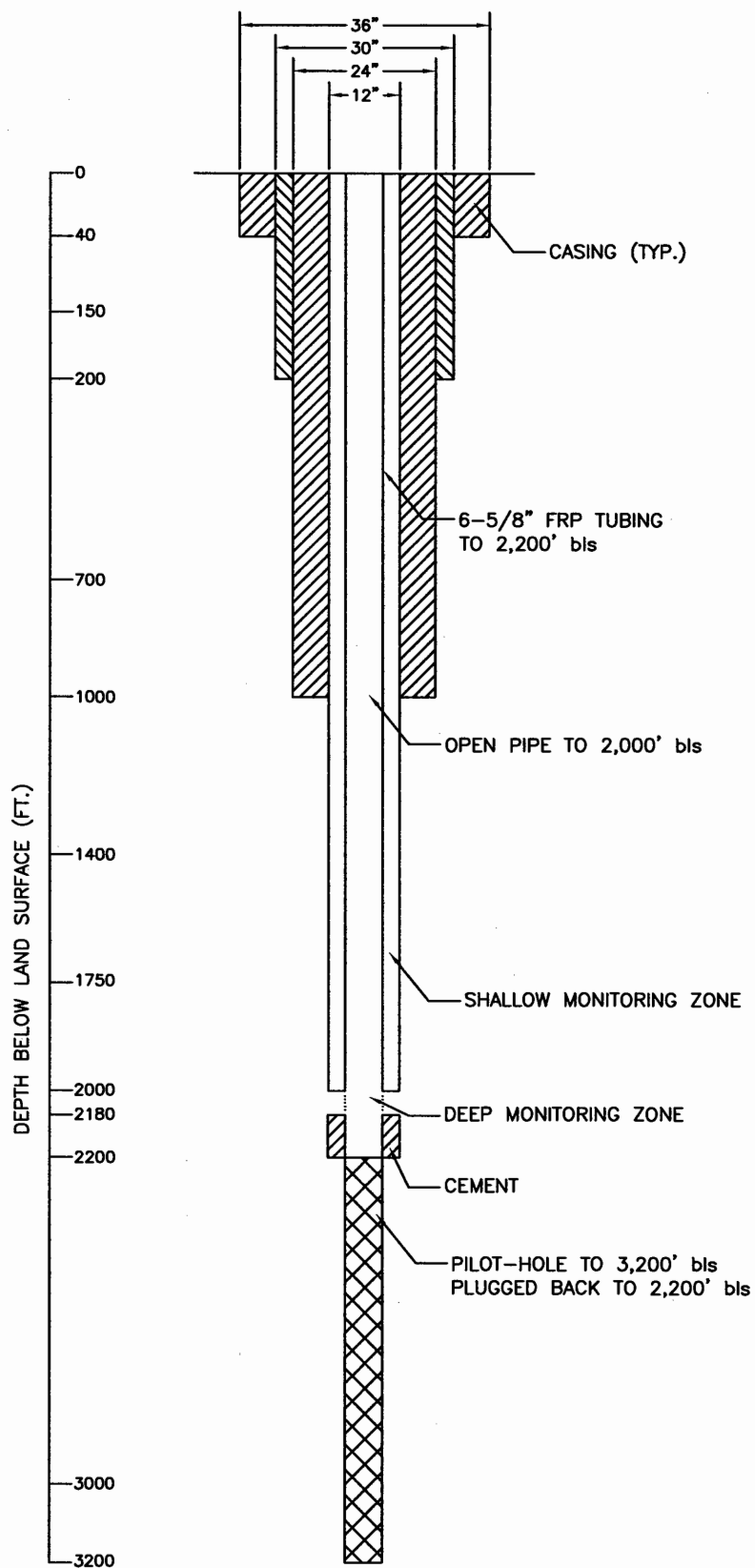
TITLE

CONCEPTUAL INJECTION WELL DETAILS

WEST COUNTY ENERGY CENTER LOXAHATCHEE, FLORIDA

DATE	MPM	DATE	02/15/05	JOB NO.	043-7649
CHECKED		SCALE	NTS	DWG NO.	
REVIEWED		FILE NO.		SUBTITLE	

Figure 3



BOCA RATON, FLORIDA



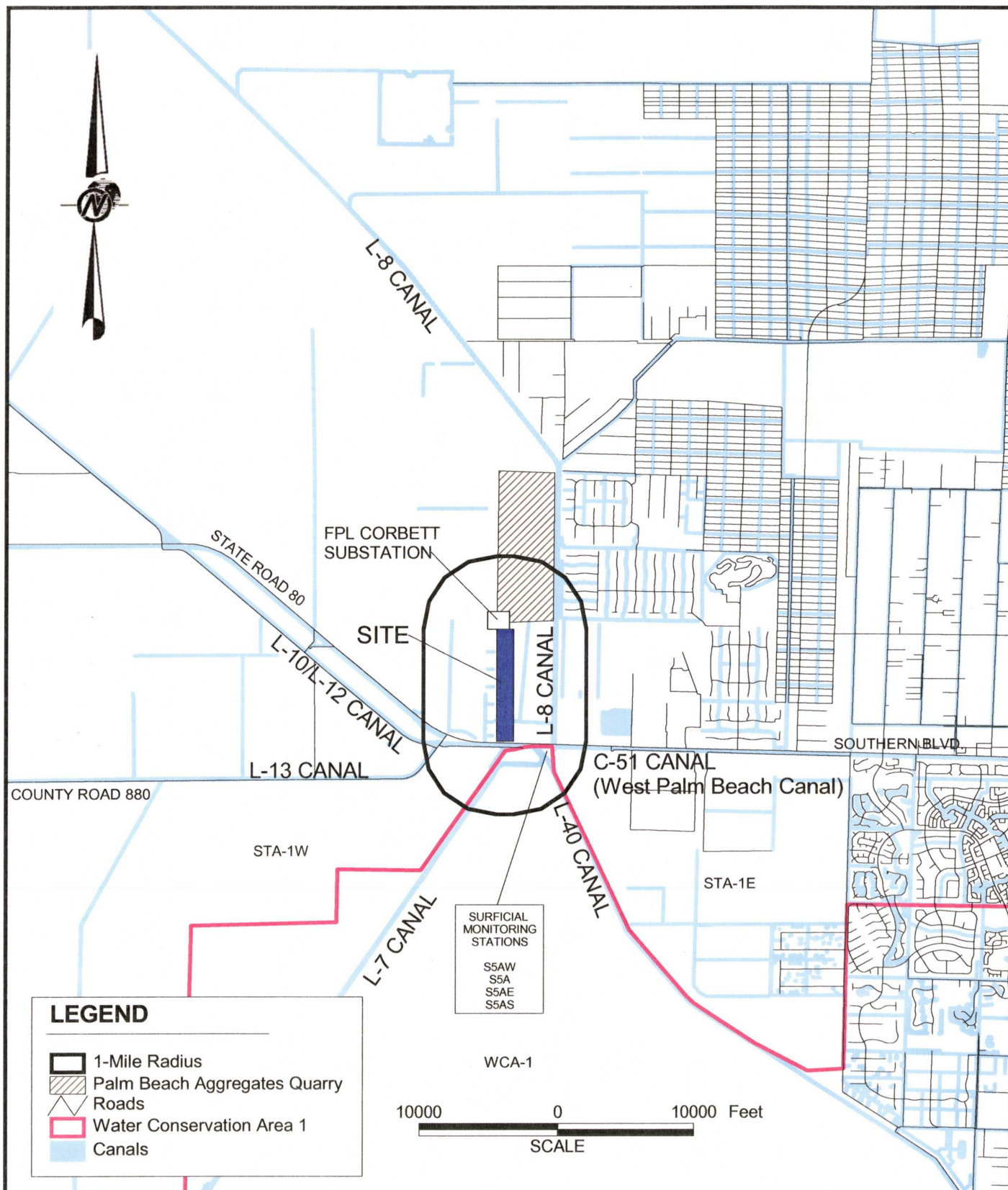
TITLE

EXPLORATORY BOREHOLE AND MONITORING WELL DESIGN

WEST COUNTY ENERGY CENTER
LOXAHATCHEE, FLORIDA

DRAWN	MPM	DATE	02/10/05	JOB NO.	043-7649
CHECKED		SCALE	NTS	DWG NO.	
REVIEWED		FILE NO.		SUBTITLE	

Figure 4



BOCA RATON, FLORIDA



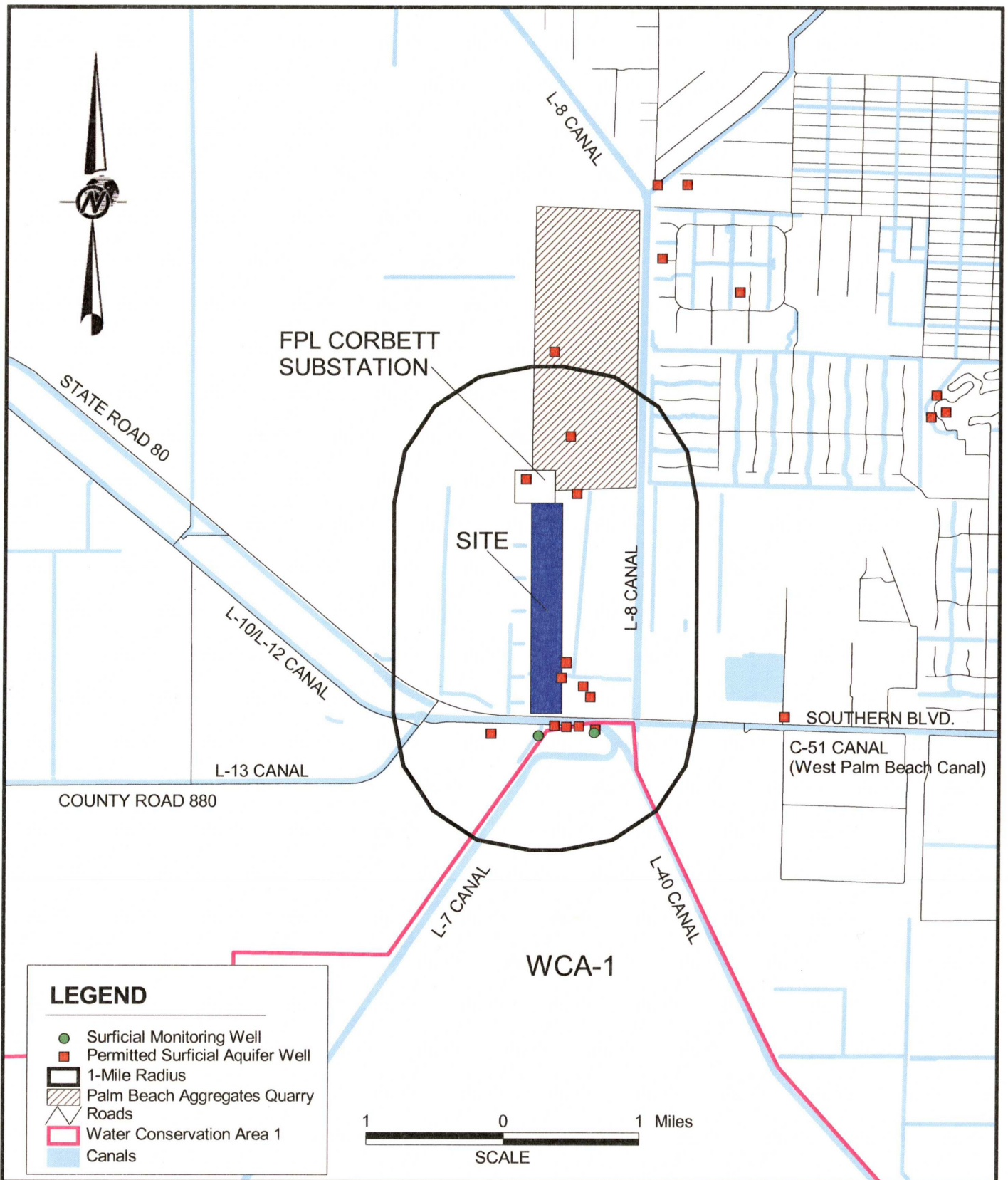
TITLE

AREA OF REVIEW SURFACE FEATURES

WEST COUNTY ENERGY CENTER LOXAHATCHEE, FLORIDA

DRAWN	JWT	DATE	02/16/05	JOB NO.	043-7649
CHECKED		SCALE	AS SHOWN	DWG. NO.	
REVIEWED		FILE NO.		SUBTITLE	

Figure 5



BOCA RATON, FLORIDA

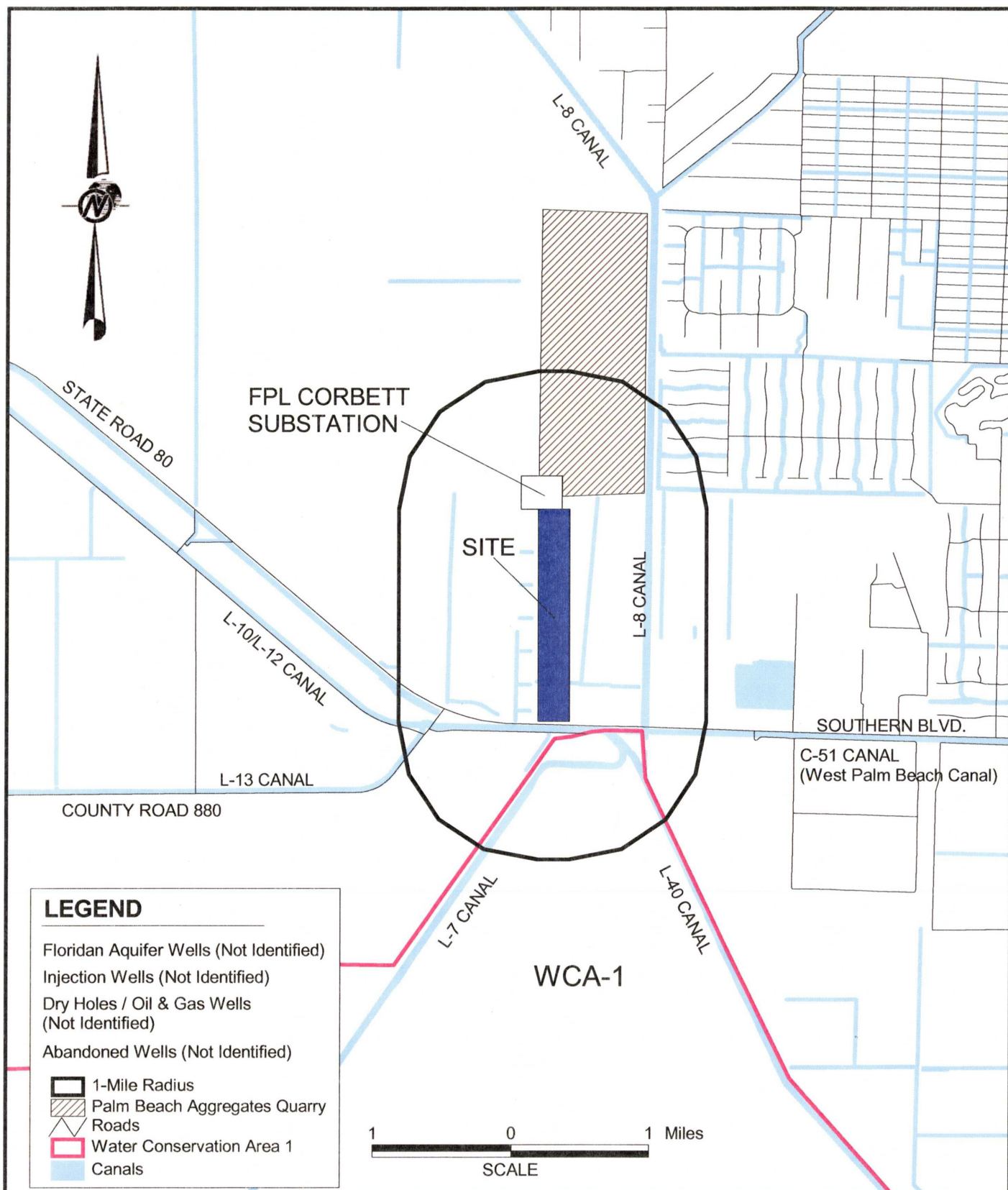


TITLE **AREA OF REVIEW SURFICIAL WELL INVENTORY**

WEST COUNTY ENERGY CENTER **LOXAHATCHEE, FLORIDA**

DRAWN	JWT	DATE	02/16/05	JOB NO.	043-7649
CHECKED		SCALE	AS SHOWN	DWG. NO.	
REVIEWED		FILE NO.		SUBTITLE	

Figure 6



BOCA RATON, FLORIDA



TITLE

AREA OF REVIEW OTHER WELL INVENTORY

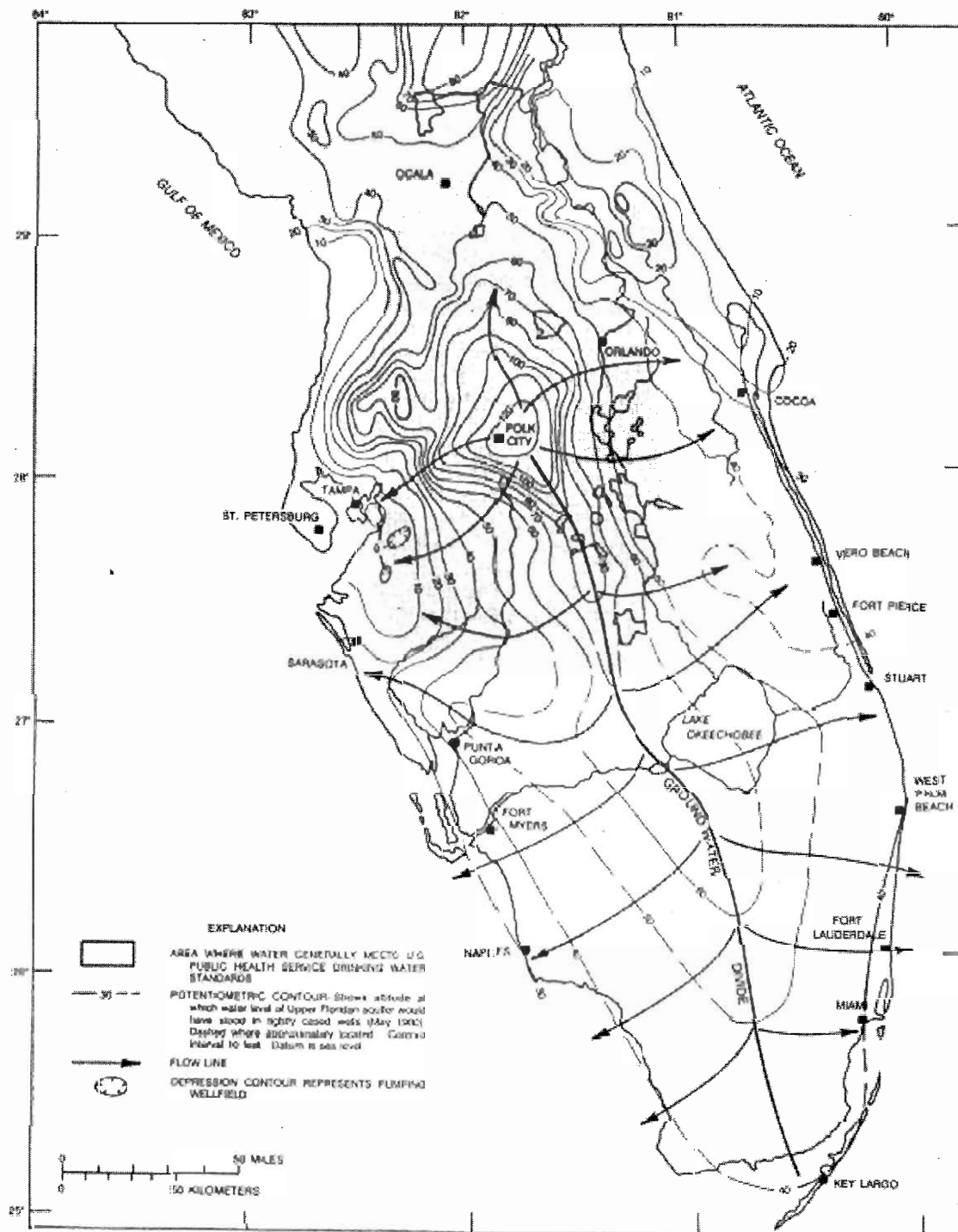
WEST COUNTY ENERGY CENTER LOXAHATCHEE, FLORIDA

DRAWN	JWT	DATE	02/16/05	JOB NO.	043-7649
CHECKED		SCALE	AS SHOWN	DWG. NO.	
REVIEWED		FILE NO.		SUBTITLE	

Figure 7

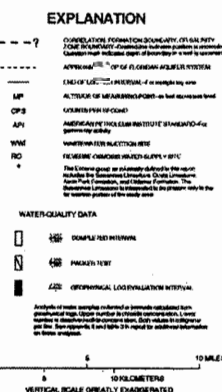
Source: Reese and Memberg, 2000

8



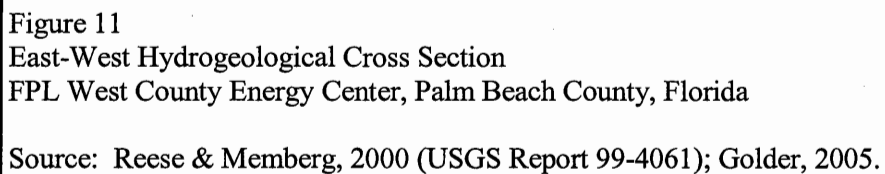
Source: U.S. Geological Survey Professional Paper 1403-G, Hydrology, Groundwater Movement, and Subsurface Storage in the Florid Aquifer System in Southern Florida, 1989

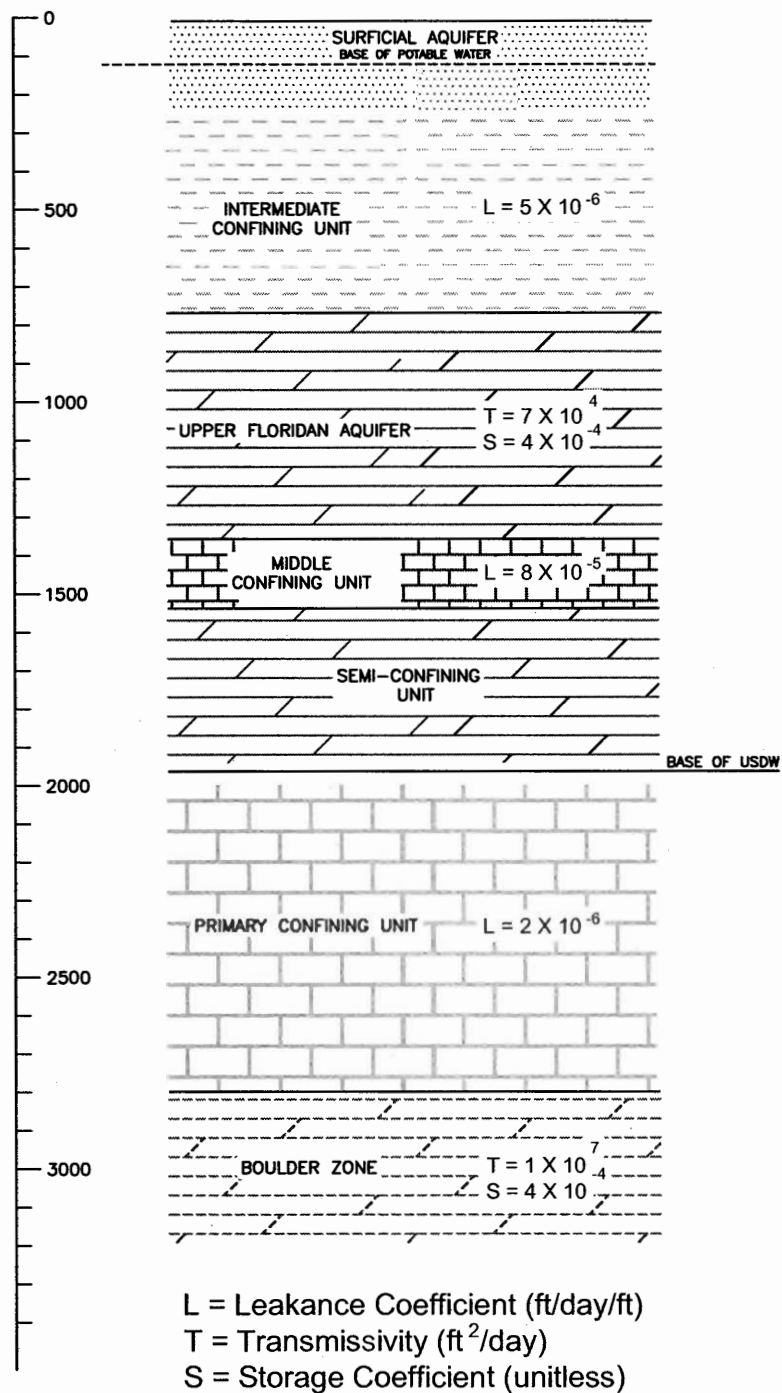
CLIENT/PROJECT Florida Power & Light Company West County Energy Center Loxahatchee, Florida				BOCA RATON, FLORIDA  Golder Associates			TITLE PENINSULAR FLORIDA SHOWING THE UPPER FLORIDAN AQUIFER POTENTIOMETRIC SURFACE IN MAY 1980			
DRAWN EWS	CHECKED	REVIEWED	DATE 2/8/05	SCALE 1" = 50 Km	FILE NO.	JOB NO. 043-7649	DWG NO.	SUBTITLE	REV. NO.	FIGURE 9



Source: Reese & Memberg, 2000 (USGS Report 99-4061); Golder, 2005.



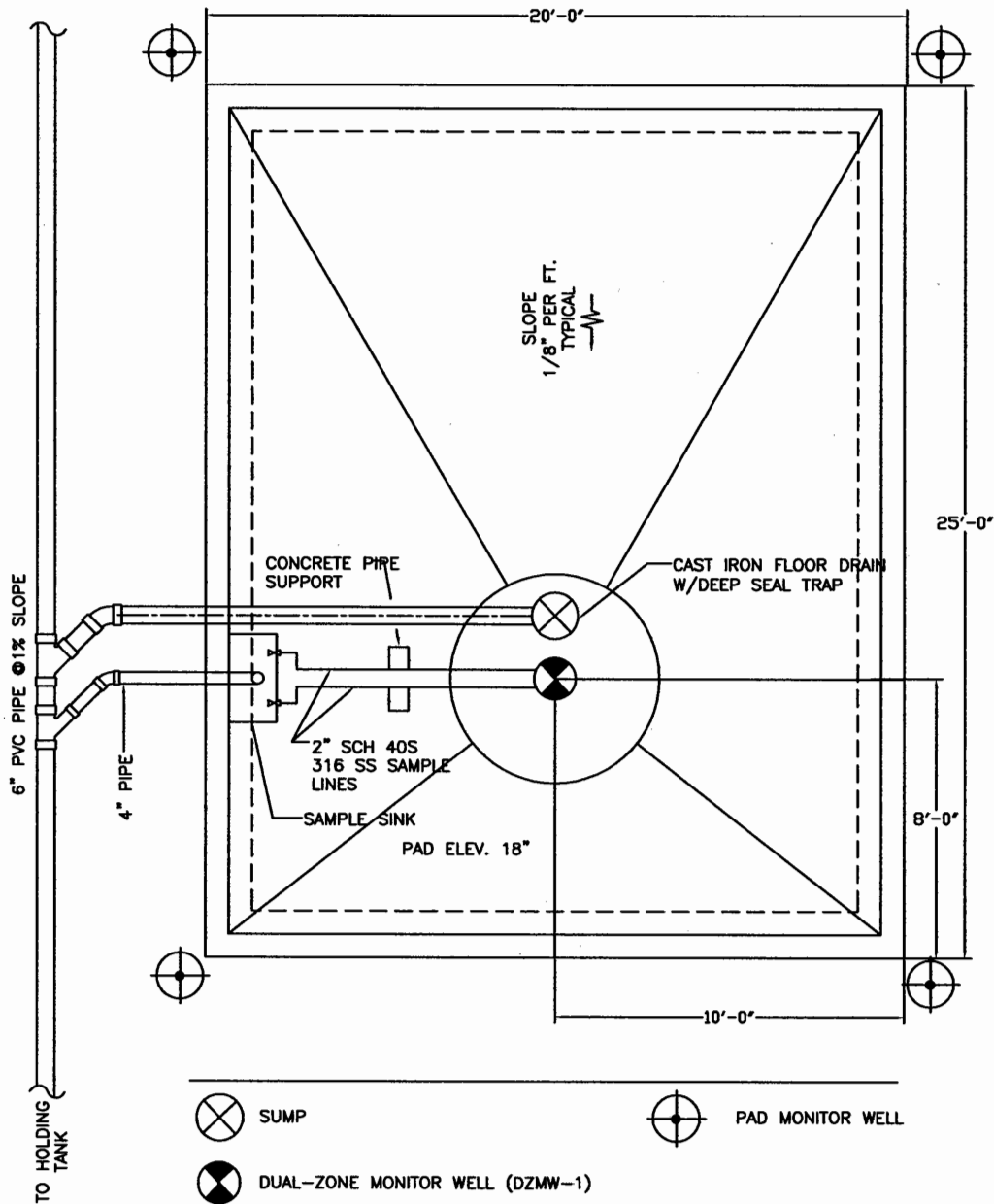
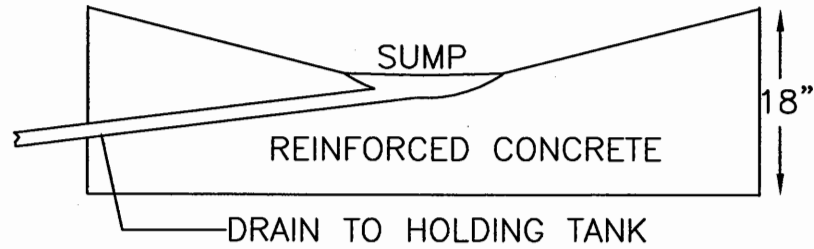




TITLE			
REGIONAL HYDROGEOLOGIC CHARACTERISTICS			
WEST COUNTY ENERGY CENTER			
LOXAHATCHEE, FLORIDA			
DRAWN	JWT	DATE	1/10/05
CHECKED		SCALE	AS SHOWN
REVIEWED		FILE NO.	
		JOB NO.	043-7649
		DWG NO.	
		SUBTITLE	

Figure 12

TEMPORARY PAD CROSS-SECTION

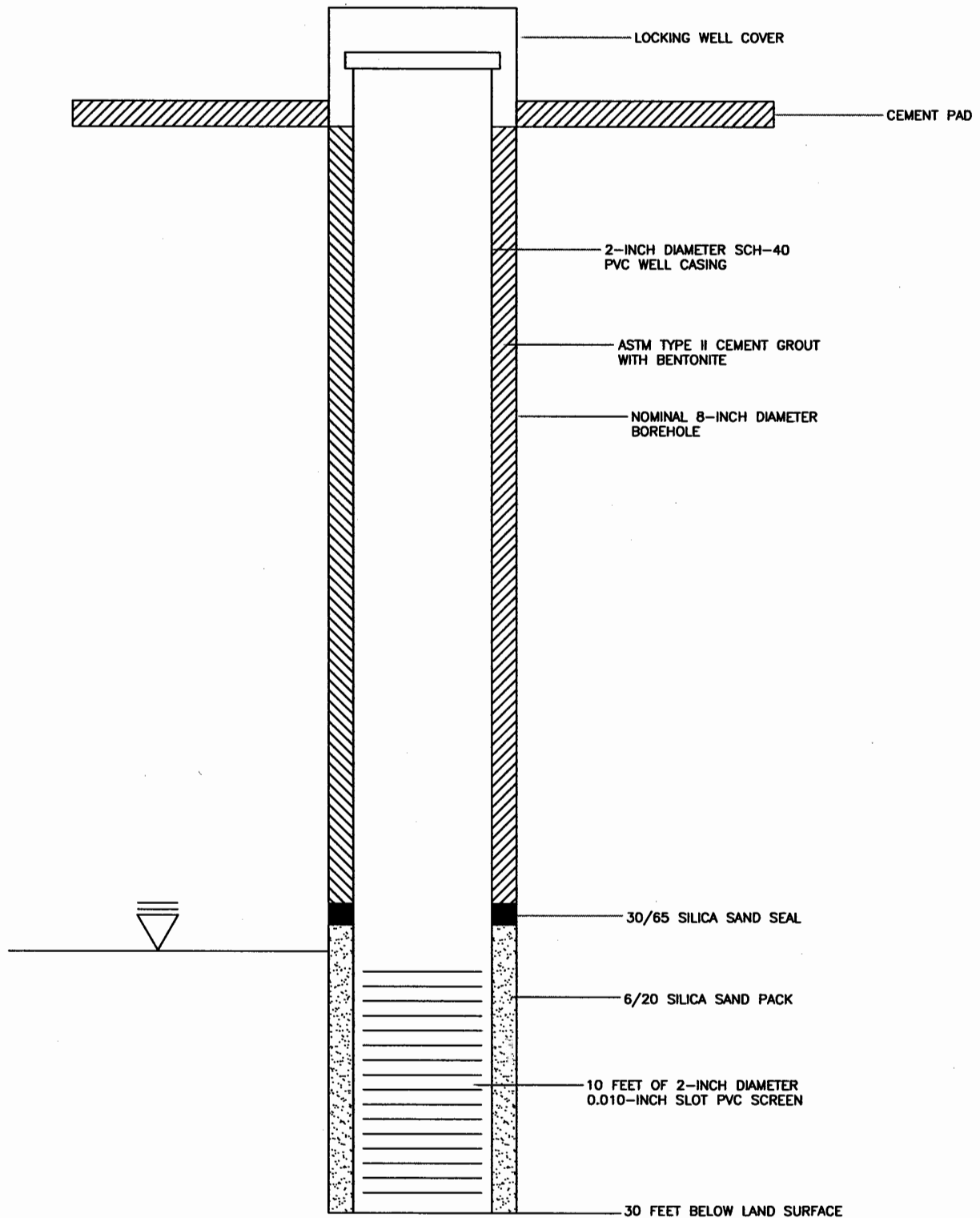


TEMPORARY DRILLING PAD CONSTRUCTION DETAIL

WEST COUNTY ENERGY CENTER
LOXAHATCHEE, FLORIDA

DRAWN	MPM	DATE	02/10/05	JOB NO.	043-7649
CHECKED		SCALE	NTS	FIG. NO.	
REVIEWED		FILE NO.		SUBTITLE	

Figure 13



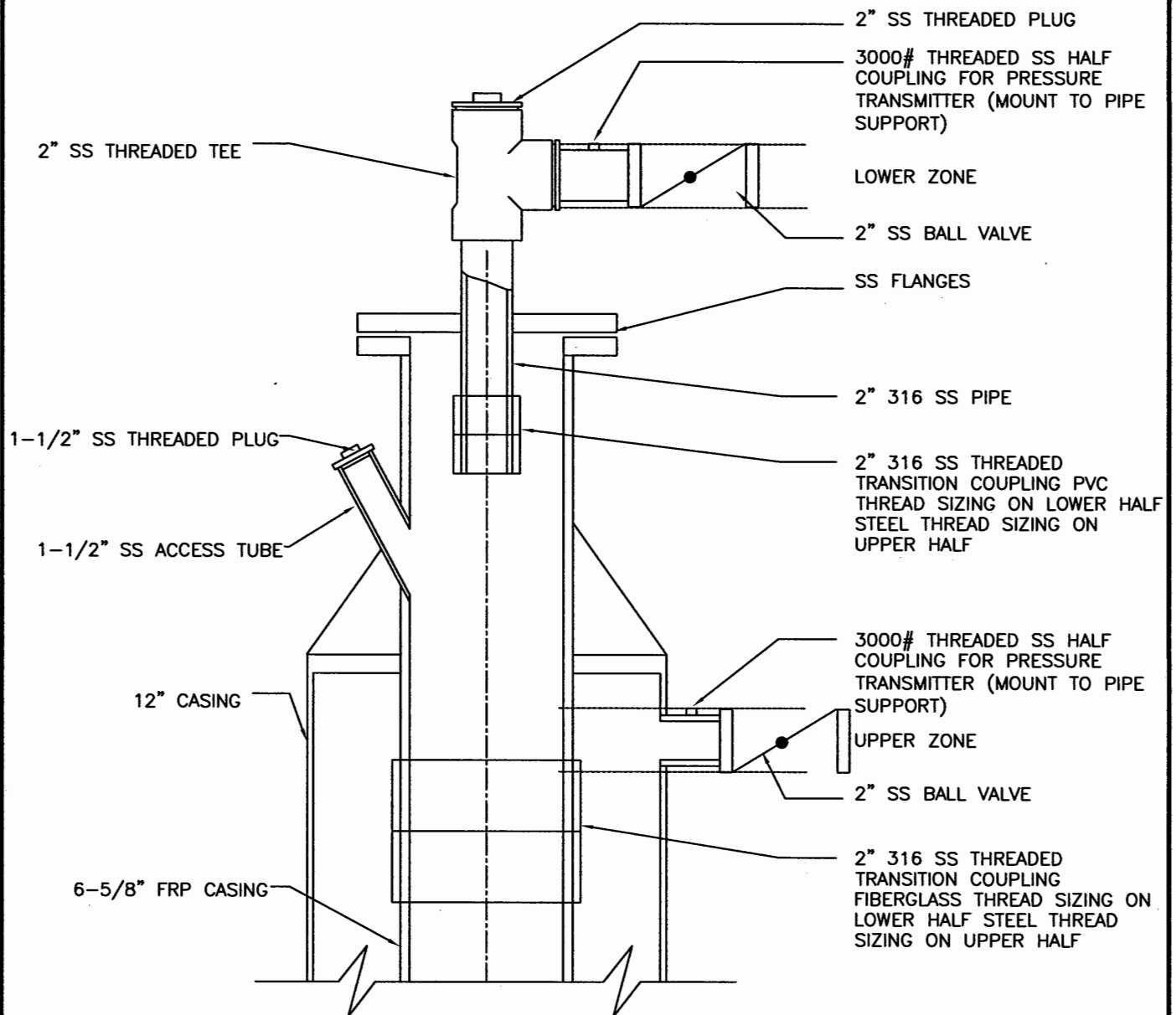
TITLE

PAD MONITOR WELL DESIGN

**WEST COUNTY ENERGY CENTER
LOXAHATCHEE, FLORIDA**

DRAWN	MPM	DATE	02/21/05	JOB NO.	043-7649
CHECKED		SCALE	NTS	DWG NO.	
REVIEWED		FILE NO.		SUBTITLE	

Figure 14

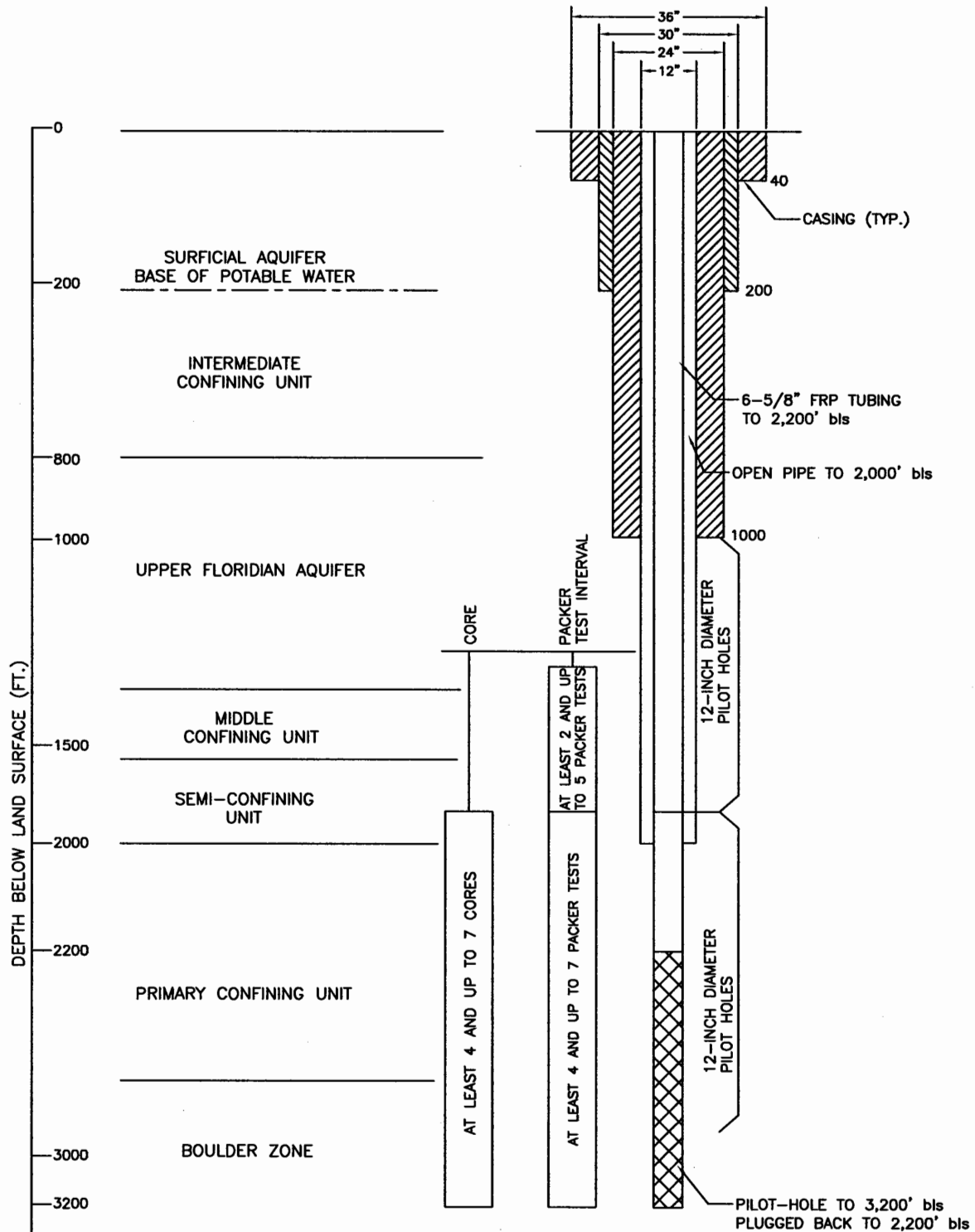


WELLHEAD CONSTRUCTION DETAILS DUAL-ZONE MONITOR WELLS #1

WEST COUNTY ENERGY CENTER
LOXAHATCHEE, FLORIDA

DRAWN	MPM	DATE	02/10/05	JOB NO.	043-7649
CHECKED		SCALE	NTS	SPEC NO.	
REVIEWED		FILE NO.		SUBTITLE	

Figure 15



BOCA RATON, FLORIDA

PROPOSED CORING AND PACKER TESTING DIAGRAM

WEST COUNTY ENERGY CENTER
LOXAHATCHEE, FLORIDA

DRAWN	MPM	DATE	02/10/05	JOB NO.	043-7649
CHECKED		SCALE	NTS	DWG NO.	
REVIEWED		FILE NO.		SUBTITLE	

Figure 16

APPENDIX A

Permit Application Form (DEP Form No. 62-528.900)



Florida Department of Environmental Protection

Twin Towers Office Bldg., 2600 Blair Stone Road,
Tallahassee, Florida 32399-2400

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

APPLICATION TO CONSTRUCT/OPERATE/ABANDON CLASS I, III, OR V INJECTION WELL SYSTEMS

Part I. Directions

- A. All applicable items must be completed in full in order to avoid delay in processing this application. Where attached sheets or other technical documentation are utilized in lieu of the blank space provided, indicate appropriate cross-reference in the space and provide copies to the Department in accordance with C. below. Where certain items do not appear applicable to the project, indicate N/A in the appropriate spaces.
- B. All information is to be typed or printed in ink.
- C. Four (4) copies of this application and four (4) copies of supporting information such as plans, reports, drawings and other documents shall be submitted to the appropriate District/Subdistrict office. An engineering report is also required to be submitted to support this application pursuant to the applicable sections of Rule 62-528, F.A.C. The attached list* shall be used to determine completeness of supporting data submitted or previously received. A check for the application fee in accordance with Rule 62-4.050, F.A.C., made payable to the Department shall accompany the application.
- D. For projects involving construction, this application is to be accompanied by four (4) sets of engineering drawings, specifications and design data as prepared by a Professional Engineer registered in Florida, where required by Chapter 471, Florida Statutes.
- E. Attach 8 1/2" x 11" USGS site location map indicating township, range and section and latitude/longitude for the project.

PART II. General Information

- A. Applicant Name Florida Power & Light Company Title Vice President
Randall R. LaBauve*
- Address 700 Universe Boulevard
- City Juno Beach State Florida Zip -334080000-
- Telephone Number (561) 691-7001
- B. Project Status: ☒ New ☐ Existing
- ☐ Modification (specify) _____

*"Engineering and Hydrogeologic Data Required for Support of Application to Construct, Operate and Abandon Class I, III, or V Injection Wells"

- C. Well Type: ☒ Exploratory Well ☐ Test/Injection Well

*Application Contact: Barbara Linkiewicz, Manager of New Capacity
Projects (561) 691-7518

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

D. Type of Permit Application

- ☐ Class I Test/Injection Well Construction and Testing Permit
- ☐ Class I Well Operation Permit
- ☐ Class I Well Operation Repermitting
- ☐ Class I Well Plugging and Abandonment Permit
- ☐ Class III Well Construction/Operation/Plugging and Abandonment Permit
- ☒ Class I Exploratory Well Construction and testing Permit
- ☐ Class V Well Construction Permit
- ☐ Class V Well Operation Permit
- ☐ Class V Well Plugging and Abandonment Permit
- ☐ Monitor Well Only

E. Facility Identification:

Name West County Energy Center

Facility Location: Street 4000 205th Street North

City Loxahatchee County Palm Beach

SIC Code(s) 4911 Electric Services

F. Proposed facility located on Indian Lands: Yes ☐ No ☒

G. Well Identification:

Well No. 1 of TBD Wells
(total #)

Purpose (Proposed Use) Exploratory/ Dual Zone Monitoring

Well Location: Latitude: 26° 42' 30" Longitude: 80° 22' 30"
(attach separate sheet(s), if necessary, for multiple wells)

Subpart B. General Project Description:

H. General Project Description: Describe the nature, extent and schedule of the injection well project. Refer to existing and/or future pollution control facilities, expected improvement in performance of the facilities and state whether the project will result in full compliance with the requirements of Chapter 403, F.S., and all rules of the Department. Attach additional sheet(s) if necessary or cross-reference the engineering report.

See Engineering Report

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

PART III. Statement by Applicant and Engineer

A. Applicant

I, the owner/authorized representative* of Florida Power and Light, certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I understand that this certification also applies to all subsequent reports submitted pursuant to this permit. Where construction is involved, I agree to retain the design engineer, or other professional engineer registered in Florida, to provide inspection of construction in accordance with Rule 62-528.455(1)(c), F.A.C.

Signed

Date

Randall R. LaBauve, Vice President
Name and Title (Please Type)

(561) 691-7001
Telephone Number

*Attach a Letter of Authorization.

B. Professional Engineer Registered in Florida

This is to certify that the engineering features of this EXPLORATORY/MONITOR injection well have been designed/examined by me and found to be in conformity with modern engineering principles, ~~applicable to the disposal of pollutants characterized in the permit application.~~ There is reasonable assurance, in my professional judgement, that the well, when properly maintained and operated, will ~~discharge the effluent~~ function in compliance with all applicable statutes of the State of Florida and the rules of the Department. It is also agreed that the undersigned will furnish the applicant a set of instructions for proper maintenance and operation of the well.

Signed

Gregory M. Powell, Ph.D., P.E.
Name (Please Type)

Golder Associates Inc.
Company Name (Please Type)

(Please Affix Seal)

8933 Western Way, Suite 12 Jacksonville, Florida 32256
Mailing Address (Please Type)

Florida Registration No. 31165

Date

3/29/05

Phone No. 904-363-3430

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

**ENGINEERING AND HYDROLOGIC DATA
REQUIRED FOR SUPPORT OF APPLICATION
TO CONSTRUCT, OPERATE, AND ABANDON
CLASS I, III, OR V INJECTION WELL SYSTEMS**

The following information shall be provided for each type of permit application.

A. CLASS I TEST/INJECTION WELL CONSTRUCTION AND TESTING PERMIT

1. A map showing the location of the proposed injection wells of well field area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, public water systems, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of public record and pertinent information known to the applicant is required to be included on this map.
2. A tabulation of data on all wells within the area of review which penetrate into the proposed injection zone, confining zone, or proposed monitoring zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Department may require.
3. Maps and cross sections indicating the general vertical and lateral limits within the area of review of all underground sources of drinking water, their position relative to the injection formation and the direction of water movement, where known, in each underground source of drinking water which may be affected by the proposed injection.
4. Maps and cross sections detailing the hydrology and geologic structures of the local area.
5. Generalized maps and cross sections illustrating the regional geologic setting.
6. Proposed operating data.
 - (a) Average and maximum daily rate and volume of the fluid to be injected;
 - (b) Average and maximum injection pressure; and,
 - (c) Source and an analysis of the chemical, physical, radiological and biological characteristics of injection fluids.
7. Proposed formation testing program to obtain an analysis of the chemical, physical and radiological characteristics of and other information on the injection zone.
8. Proposed stimulation program.
9. Proposed injection procedure.
10. Engineering drawings of the surface and subsurface construction details of the system.

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

11. Contingency plans to cope with all shut-ins or well failures, so as to protect the quality of the waters of the State as defined in Rule 62-3 and 62-520, F.A.C., including alternate or emergency discharge provisions.
12. Plans (including maps) and proposed monitoring data to be reported for meeting the monitoring requirements in Rule 62-528.425, F.A.C.
13. For wells within the area of review which penetrate the injection zone but are not properly completed or plugged, the corrective action proposed to be taken under Rule 62-528.300(5), F.A.C.
14. Construction procedures including a cementing and casing program, logging procedures, deviation checks, proposed methods for isolating drilling fluids from surficial aquifers, proposed blowout protection (if necessary), and a drilling, testing and coring program.
15. A certification that the applicant has ensured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well as required by Rule 62-528.435(9), F.A.C.

B. CLASS I INJECTION WELL OPERATION PERMIT

1. A report shall be submitted with each application for a Class I Well operating permit, which shall include, but not be limited to, the following information:
 - (a) Results of the information obtained under the construction permit described in A. CLASS I TEST/INJECTION WELL CONSTRUCTION AND TESTING PERMIT, including:
 - (1) All available logging and testing program data and construction data on the well or well field;
 - (2) A satisfactory demonstration of mechanical integrity for all new wells pursuant to Rule 62-528.300(6), F.A.C;
 - (3) The actual operating data, including injection pressures versus pumping rates where feasible, or the anticipated maximum pressure and flow rate at which the permittee will operate, if approved by the Department;
 - (4) The actual injection procedure;
 - (5) The compatibility of injected waste with fluids in the injection zone and minerals in both the injection zone and the confining zone; and,
 - (6) The status of corrective action on defective wells in the area of review.
 - (b) Record drawings, based upon inspections by the engineer or persons under his direct supervision, with all deviations noted;
 - (c) Certification of completion submitted by the engineer of record;
 - (d) If requested by the Department, operation manual including emergency procedures;

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

- (e) Proposed monitoring program and data to be submitted;
- (f) Proof that the existence of the well has been recorded on the surveyor's plan at the county courthouse; and,
- (g) Proposed plugging and abandonment plan pursuant to Rule 62-528.435(2), F.A.C.

C. CLASS I WELL OPERATION REPERMITTING

1. An updated map showing the location of the injection wells or well field area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, public water systems, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of public record and pertinent information known to the applicant is required to be included on this map.
2. A tabulation of data on all wells within the area of review which penetrate into the injection zone, confining zone, or monitoring zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Department may require.
3. Maps and cross sections indicating the general vertical and lateral limits within the area of review of all underground sources of drinking water, their position relative to the injection formation and the direction of water movement, where known, in each underground source of drinking water which may be affected by the injection.
4. Maps and cross sections detailing the hydrology and geologic structures of the local area.
5. Generalized maps and cross sections illustrating the regional geologic setting.
6. Contingency plans to cope with all shut-ins or well failures, so as to protect the quality of the waters of the State as defined in Rule 62-3 and 62-520, F.A.C., including alternate or emergency discharge provisions.
7. For wells within the area of review which penetrate the injection zone but are not properly completed or plugged, the corrective action proposed to be taken under Rule 62-528.300(5), F.A.C.
8. A certification that the applicant has ensured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well as required by Rule 62-528.435(9), F.A.C.
9. A report shall be submitted with each application for repermitting of Class I Well operation which shall include the following information:
 - (a) All available logging and testing program data and construction data on the well or well field;

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

- (b) A satisfactory demonstration of mechanical integrity for all wells pursuant to Rule 62-528.300(6), F.A.C.;
- (c) The actual operating data, including injection pressures versus pumping rates where feasible, or the anticipated maximum pressure and flow rate at which the permittee will operate, if approved by the Department;
- (d) The actual injection procedure;
- (e) The compatibility of injected waste with fluids in the injection zone and minerals in both the injection zone and the confining zone;
- (f) The status of corrective action on defective wells in the area of review;
- (g) Record drawings, based upon inspections by the engineer or persons under his direct supervision, with all deviations noted;
- (h) Certification of completion submitted by the engineer of record;
- (i) An updated operation manual including emergency procedures;
- (j) Proposed revisions to the monitoring program or data to be submitted; and,
- (k) Proposed plugging and abandonment plan pursuant to Rule 62-528.435(2), F.A.C.

D. CLASS I WELL PLUGGING AND ABANDONMENT PERMIT

- 1. The reasons for abandonment.
- 2. A proposed plan for plugging and abandonment describing the preferred and alternate methods, and justification for use.
 - (a) The type and number of plugs to be used;
 - (b) The placement of each plug including the elevation of the top and bottom;
 - (c) The type and grade and quantity of cement or any other approved plugging material to be used; and,
 - (d) The method for placement of the plugs.
- 3. The procedure to be used to meet the requirements of Rule 62-528.435, F.A.C.

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

E. CLASS III WELLS CONSTRUCTION/OPERATION/PLUGGING AND ABANDONMENT PERMIT

Construction Phase

1. A map showing the location of the proposed injection wells or well field area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, public water system, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of public record and pertinent information known to the applicant is required to be included on this map.
2. A tabulation of data on all wells within the area of review which penetrate into the proposed injection zone, confining zone, or proposed monitoring zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Department may require.
3. Maps and cross sections indicating the general vertical and lateral limits within the area of review of all underground sources of drinking water, their position relative to the injection formation and the direction of water movement, where known, in each underground source of drinking water which may be affected by the proposed injection.
4. Maps and cross sections detailing the hydrology and geologic structures of the local area.
5. Generalized maps and cross sections illustrating the regional geologic setting.
6. Proposed operating data:
 - (a) Average and maximum daily rate and volume of the fluid to be injected;
 - (b) Average and maximum injection pressure; and,
 - (c) Source and an analysis of the chemical, physical, radiological and biological characteristics of injection fluids, including any additives.
7. Proposed formation testing program to obtain an analysis of the chemical, physical and radiological characteristics of and other information on the injection zone.
8. Proposed stimulation program.
9. Proposed injection procedure.
10. Engineering drawings of the surface and subsurface construction details of the system.

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

11. Contingency plans to cope with all shut-ins or well failures or catastrophic collapse, so as to protect the quality of the waters of the State as defined in Rule 62-3 and 62-520, F.A.C., including alternate or emergency discharge provisions.
12. Plans (including maps) and proposed monitoring data to be reported for meeting the monitoring requirements in Rule 62-528.425, F.A.C.
13. For wells within the area of review which penetrate the injection zone but are not properly completed or plugged, the corrective action proposed to be taken under Rule 62-528.300(5), F.A.C.
14. Construction procedures including a cementing and casing program, logging procedures, deviation checks, proposed methods for isolating drilling fluids from surficial aquifers, and a drilling, testing and coring program.
15. A certificate that the applicant has ensured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well as required by Rule 62-528.435(9), F.A.C.
16. Expected changes in pressure, native fluid displacement, direction of movement of injection fluid.
17. A proposed monitoring plan, which includes a plan for detecting migration of fluids into underground sources of drinking water, a plan to detect water quality violation in the monitoring wells, and the proposed monitoring data to be submitted.

Operation Phase

1. The following information shall be provided to the Department prior to granting approval for the operation of the well or well field:
 - (a) All available logging and testing program data and construction data on the well or well field;
 - (b) A satisfactory demonstration of mechanical integrity for all new wells pursuant to Rule 62-528.300(6), F.A.C.;
 - (c) The actual operating data, including injection pressure versus pumping rate where feasible, or the anticipated maximum pressure and flow rate at which the permittee will operate, if approved by the Department;
 - (d) The results of the formation testing program;
 - (e) The actual injection procedure; and,
 - (f) The status of corrective action on defective wells in the area of review.

Plugging and abandonment Phase

1. The justification for abandonment.

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

2. A proposed plan for plugging and abandonment describing the preferred and alternate methods.
 - (a) The type and number of plugs to be used;
 - (b) The placement of each plug including the elevation of the top and bottom;
 - (c) The type and grade and quantity of cement or any other approved plugging material to be used; and,
 - (d) The method for placement of the plugs.
3. The procedure to be used to meet the requirements of Rule 62-528.435, F.A.C.

F. EXPLORATORY WELL CONSTRUCTION AND TESTING PERMIT

1. Conceptual plan of the injection project. Include number of injection wells, proposed injection zone, nature and volume of injection fluid, and proposed monitoring program.
2. Preliminary Area of Review Study. Include the proposed radius of the area of review with justification for that radius. Provide a map showing the location of the proposed injection well or well field area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, public water systems, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of public record and pertinent information known to the applicant is required to be included on this map.
3. Proposed other uses of the exploratory well.
4. Drilling and testing plan for the exploratory well. The drilling plan must specify the proposed drilling program, sampling, coring, and testing procedures.
5. Abandonment Plan.

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

G. CLASS V WELL CONSTRUCTION PERMIT

(This form should be used for Class V Wells instead of Form 62-528.900(3), F.A.C., when there is a need for a Technical Advisory Committee and an engineering report.)

1. Type and number of proposed Class V Wells:

- _____ Wells Receiving Domestic Waste
- _____ Desalination Process Concentrate Wells (Reverse Osmosis, etc.)
- _____ Aquifer Storage and Recovery Wells
- _____ Aquifer Remediation Wells
- _____ Salt-water Intrusion Barrier Wells
- _____ Cooling Water Return Flow Wells Open-looped System
- _____ Subsidence Control Wells
- _____ Sand Backfill Wells
- _____ Experimental Technology Wells
- _____ Wells used to inject spent brine after halogen recovery
- _____ Radioactive Waste Disposal Wells*
- _____ Borehole Slurry Mining Wells
- _____ Other non-hazardous Industrial or Commercial Disposal Wells
- _____ (explain) _____
- _____ Other (explain) _____

*Provided the concentrations of the waste do not exceed drinking water standards contained in Chapter 62-550, F.A.C.

2. Project Description:

- (a) Description and use of proposed injection system;
- (b) Nature and volume of injected fluid (the Department may require an analysis including bacteriological analysis) in accordance with Rule 62-528.635(2)(b), F.A.C.; and,
- (c) Proposed pretreatment.

3. Water well contractor's name, title, state license number, address, phone number and signature.

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

4. Well Design and Construction Details. (For multi-casing configurations or unusual construction provisions, an elevation drawing of the proposed well should be attached.)

(a) Proposed total depth;

(b) Proposed depth and type of casing(s);

(c) Diameter of well;

(d) Cement type, depth, thickness; and,

(e) Injection pumps (if applicable): _____ gpm @ _____ psi

Controls: _____

5. Water Supply Wells - When required by Rule 62-528.635(1), F.A.C., attach a map section showing the locations of all water supply wells within a one-half (1/2) mile radius of the proposed well. The well depths and casing depths should be included. When required by Rule 62-528.635(2), F.A.C., results of bacteriological examinations of water from all water supply wells within one-half (1/2) mile and drilled to approximate depth of proposed well should be attached.

6. Area of review (When required by Rule 62-528.300(4), F.A.C.)

Include the proposed radius of the area of review with justification for that radius. Provide a map showing the location of the proposed injection well or well field area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, public water systems, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of public record and pertinent information known to the applicant is required to be included on this map.

H. CLASS V WELL OPERATION PERMIT

(Final report of the construction that includes the following information may be submitted with the application to operate.)

1. Permit Number of Class V Construction Permit: _____

2. Owner's Name: _____

3. Type of Wells: _____

DEP Form No:	62-528.900(1)
Form Title:	Application to Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

4. Construction and Testing Summary:

(a) Actual Dimensions:

Diameter	Well Depth	Casing Depth
(inches)	(feet)	(feet)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

(b) Result of Initial Testing

5. Proposed Operating Data:

- (a) Injection Rate (GPM);
- (b) Description of injected waste; and,
- (c) Injection pressure and pump controls.

6. Proposed Monitoring Plan (if any):

- (a) Number of monitoring wells;
- (b) Depth(s);
- (c) Parameters;
- (d) Frequency of sampling; and,
- (e) Instrumentation (if applicable) Flow _____
Pressure _____

I. CLASS V WELLS PLUGGING AND ABANDONMENT PERMIT

- 1. Permit number of Class V construction or operating permit.
- 2. Type of well.
- 3. Proposed plugging procedures, plans and specifications.
- 4. Reasons for abandonment.

DEP Form No:	62-528.900(1)
Form Title:	Application To Construct/ Operate/Abandon Class I, III, or V Injection Well Systems
Effective Date:	
DEP Application No.:	(Filled in by DEP)

J. MONITOR WELL PERMIT

This section should be used only when application is made for a monitor well only. If a monitor well is to be constructed under a Class I, III, or V injection well construction permit, it is necessary to fill in this section.

1. A site map showing the location of the proposed monitor wells for which a permit is sought. The map must be to scale and show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, water wells and other pertinent surface features including structures and roads.
2. Maps and cross sections indicating the general vertical and lateral limits within the area of review of all underground sources of drinking water, their position relative to the injection formation and the direction of water movement, where known, in each underground source of drinking water which may be affected by the proposed injection.
3. Maps and cross sections detailing the hydrology and geologic structures of the local area.
4. Generalized maps and cross sections illustrating the regional geologic setting.
5. Proposed formation testing program to obtain an analysis of the chemical, physical and radiological characteristics of and other information on the monitor zone(s).
6. Proposed monitoring procedure.
7. Engineering drawings of the surface and subsurface construction details of the monitoring system.
8. Proposed monitoring data to be reported for meeting the monitoring requirements in Rule 62-528.425, F.A.C.
9. Construction procedures including a cementing and casing program, logging procedures, deviation checks, proposed methods for isolating drilling fluids from surficial aquifers, proposed blowout protection (if necessary), and a drilling, testing and coring program

10. Monitor Well Information:

☐ On-site ☒ Multizone ☐ Single-zone

☐ Regional ☐ Other (specify) _____

Proposed Monitoring Interval(s) 2250-2230 and 1980-2000

Distance and Direction From Associated Injection Well no more than 150 feet

APPENDIX B

Well Material Specifications

Schedule Number	Outside Diameter		Inside Diameter		Wall Thickness		Weight		Collapse Strength		
	in	mm	in	mm	in	mm	lbs/ft	kg/m	psi	kPa	ft of water
—	6.625	168.3	6.313	160.3	0.156	4.0	10.78	16.04	600	4,137	1,386
—	6.625	168.3	6.249	158.7	0.188	4.8	12.92	19.22	1,030	7,102	2,379
—	6.625	168.3	6.187	157.1	0.219	5.6	14.98	22.29	1,521	10,487	3,511
—	6.625	168.3	6.125	155.5	0.250	6.4	17.02	25.33	1,953	13,466	4,510
40 (STD)	6.625	168.3	6.065	154.1	0.280	7.1	18.97	28.23	2,286	15,762	5,279
—	8.625	219.1	8.250	209.5	0.188	4.8	16.94	25.21	477	3,289	1,101
—	8.625	219.1	8.187	207.9	0.219	5.6	19.66	29.25	750	5,171	1,731
20	8.625	219.1	8.125	206.3	0.250	6.4	22.36	33.27	1,092	7,529	2,522
30	8.625	219.1	8.071	205.1	0.277	7.0	24.70	36.75	1,422	9,805	3,284
40 (STD)	8.625	219.1	7.981	202.7	0.322	8.2	28.55	42.48	1,920	13,238	4,433
—	10.75	273.1	10.374	263.5	0.188	4.8	21.21	31.56	246	1,696	568
20	10.75	273.1	10.250	260.3	0.250	6.4	28.04	41.72	579	3,992	1,336
30	10.75	273.1	10.136	257.5	0.307	7.8	34.24	50.95	1,048	7,226	2,421
40 (STD)	10.75	273.1	10.020	254.5	0.365	9.3	40.48	60.23	1,611	11,108	3,721
—	12.75	323.9	12.374	314.3	0.188	4.8	25.22	37.53	147	1,014	339
20	12.75	323.9	12.250	311.1	0.250	6.4	33.38	49.67	347	2,393	801
—	12.75	323.9	12.126	308.1	0.312	7.9	41.45	61.68	673	4,640	1,553
30	12.75	323.9	12.090	307.1	0.330	8.4	43.77	65.13	793	5,468	1,830
— (STD)	12.75	323.9	12.000	304.9	0.375	9.5	49.56	73.75	1,136	7,833	2,624
—	14.0	355.6	13.624	346.0	0.188	4.8	27.73	41.26	111	765	255
10	14.0	355.6	13.500	342.8	0.250	6.4	36.71	54.62	262	1,806	604
20	14.0	355.6	13.376	339.8	0.312	7.9	45.61	67.87	510	3,516	1,177
30 (STD)	14.0	355.6	13.250	336.6	0.375	9.5	54.57	81.20	875	6,033	2,021
—	16.0	406.4	15.562	395.2	0.219	5.6	36.91	54.92	117	807	270
10	16.0	406.4	15.500	393.6	0.250	6.4	42.05	62.57	175	1,207	404
20	16.0	406.4	15.376	390.6	0.312	7.9	52.27	77.78	341	2,351	788
30 (STD)	16.0	406.4	15.250	387.4	0.375	9.5	62.58	93.12	592	4,082	1,367
40 (XS)	16.0	406.4	15.000	381.0	0.500	12.7	82.77	123.2	1,331	9,177	3,072
10	18.0	457.2	17.500	444.4	0.250	6.4	47.39	70.52	122	841	283
20	18.0	457.2	17.376	441.4	0.312	7.9	58.94	87.70	239	1,648	552
— (STD)	18.0	457.2	17.250	438.2	0.375	9.5	70.59	105.0	417	2,875	962
— (XS)	18.0	457.2	17.000	431.8	0.500	12.7	93.45	139.1	970	6,688	2,241
10	20.0	508.0	19.500	495.2	0.250	6.4	52.73	78.46	89	614	205
—	20.0	508.0	19.376	492.2	0.312	7.9	65.60	97.61	174	1,200	402
20 (STD)	20.0	508.0	19.250	489.0	0.375	9.5	78.60	117.0	303	2,089	700
30 (XS)	20.0	508.0	19.000	482.6	0.500	12.7	104.1	154.9	716	4,937	1,654
10	22.0	558.8	21.500	546.0	0.250	6.4	58.07	86.41	66	455	154
—	22.0	558.8	21.376	543.0	0.312	7.9	72.27	107.5	130	896	301
20 (STD)	22.0	558.8	21.250	539.8	0.375	9.5	86.61	128.9	227	1,565	525
30 (XS)	22.0	558.8	21.000	533.4	0.500	12.7	114.8	170.8	540	3,723	1,248
10	24.0	609.6	23.500	596.8	0.250	6.4	63.41	94.35	51	352	118
—	24.0	609.6	23.376	593.8	0.312	7.9	78.93	117.4	100	690	231
20 (STD)	24.0	609.6	23.250	590.6	0.375	9.5	94.62	140.8	175	1,207	404
— (XS)	24.0	609.6	23.000	584.2	0.500	12.7	125.5	186.7	417	2,875	962
—	26.0	660.4	25.500	647.6	0.250	6.4	68.75	102.3	40	276	93
10	26.0	660.4	25.376	644.6	0.312	7.9	85.60	127.4	79	545	181
— (STD)	26.0	660.4	25.250	641.4	0.375	9.5	102.6	152.7	137	945	317
20 (XS)	26.0	660.4	25.000	635.0	0.500	12.7	136.2	202.7	327	2,255	756
—	28.0	711.2	27.500	698.4	0.250	6.4	74.09	110.2	32	221	74
10	28.0	711.2	27.376	695.4	0.312	7.9	92.26	137.3	63	434	145
— (STD)	28.0	711.2	27.250	692.2	0.375	9.5	110.6	164.6	110	758	253
20 (XS)	28.0	711.2	27.000	685.8	0.500	12.7	146.9	218.6	262	1,806	604
—	30.0	762.0	29.500	749.2	0.250	6.4	79.43	118.2	26	179	60
10	30.0	762.0	29.376	746.2	0.312	7.9	98.93	147.2	51	352	118
— (STD)	30.0	762.0	29.250	743.0	0.375	9.5	118.7	176.6	89	614	205
20 (XS)	30.0	762.0	29.000	736.6	0.500	12.7	157.5	234.4	213	1,469	491

Driscoll, Groundwater and Wells, Second Edition, 1986

CLIENT/PROJECT

Florida Power & Light Company
West County Energy Center
Loxahatchee, Florida

BOCA RATON, FLORIDA



TITLE

Physical Dimensions of Common
Steel Pipe Sizes

Appendix B



ISO 9001
CERTIFIED FIRM

FUTURE PIPE INDUSTRIES, INC.
(TUBULAR FIBERGLASS CORPORATION)
11811 Proctor Road • Houston, Texas 77038
Phone: (281) 847-2987 • Fax: (281) 847-1931



September 2003

RED BOX 1500

FIBERGLASS TUBING, CASING, AND LINERS
AROMATIC AMINE CURED EPOXY RESIN

DIMENSIONAL SPECIFICATIONS

Nominal Size (inches)	Nominal I.D. (inches)	Minimum Drift Dia (inches)	Nominal O.D. (inches)	Nominal Wall (inches)	Pin Upset O.D. (inches)	Max Box OD* (inches)	Nominal Weight		Connection Type API 5B, Table 14*, 7**, 6*** Fourteenth Edition August 96
							(lbs/ft)	(lbs/jt)	
2-3/8	2.00	1.91	2.26	0.13	2.69	3.47	0.8	25	2-3/8" 8Rd EUE Long*IJ
2-7/8	2.47	2.37	2.77	0.15	3.19	3.97	1.2	35	2-7/8" 8Rd EUE Long*IJ
3-1/2	3.00	2.90	3.37	0.19	3.85	4.51	1.7	52	3-1/2" 8Rd EUE Long*IJ
4	3.33	3.24	3.75	0.21	4.35	5.24	2.3	70	4" 8Rd EUE Long TC
4-1/2	3.98	3.89	4.48	0.25	4.85	5.45	3.0	89	4-1/2" 8Rd EUE Long*IJ
5-1/2	4.42	4.33	4.96	0.27	5.60	6.74	3.8	115	5-1/2" 8Rd Csg Long**IJ
6-5/8	5.43	5.33	6.10	0.34	6.73	8.02	5.7	171	6-5/8" 8Rd Csg Long**IJ
7	6.21	6.11	6.97	0.38	7.10	8.40	6.9	208	7" 8Rd Csg Long**IJ
7-5/8	6.21	6.11	6.97	0.38	7.73	9.40	7.6	227	7-5/8" 8Rd Csg Long**IJ
9-5/8	7.84	7.75	8.80	0.48	9.73	11.87	12.0	361	9-5/8" 8Rd Csg***IJ
10-3/4	8.85	8.76	9.94	0.54	10.85	13.17	15.3	459	10-3/4" 8Rd Csg***IJ
11-3/4	10.72	10.62	11.90	0.59	13.48	16.45	23.1	694	13-3/8" 8/6Rd Csg***TC
13-3/8	11.97	11.87	13.29	0.66	13.48	15.50	23.7	712	13-3/8" 8/6Rd Csg***TC
16	14.48	14.39	16.08	0.80	16.20	18.95	35.0	1,050	16" 6Rd Csg TC

*Depending on the application, smaller maximum box diameters are available.

Thread lengths on larger sizes exceed API L4

PERFORMANCE AND RATINGS (-60 deg F to +210 deg F)

30 ft Standard Joint Length

Nominal Size	Internal Pressure Rating (psi)	Mill Test Pressure (psi)	Collapse Rating (psi)	Axial Tension Rating (lbs)	Stretch vs Tension-Over-Pipe-Wt Stretch (ft) = Coeff. x P x L
2-3/8	1,500	1,850	1,200	13,000	0.363
2-7/8	1,500	1,850	1,000	19,000	0.266
3-1/2	1,500	1,850	1,100	28,000	0.178
4	1,500	1,850	1,100	35,000	0.138
4-1/2	1,500	1,850	1,100	48,000	0.098
5-1/2	1,500	1,850	1,000	57,500	0.084
6-5/8	1,500	1,850	1,100	75,000	0.054
7	1,500	1,850	1,000	79,500	0.042
7-5/8	1,500	1,850	1,000	90,000	0.042
9-5/8	1,500	1,850	1,000	146,500	0.027
10-3/4	1,500	1,850	1,000	169,000	0.021
11-3/4	1,500	1,850	750	183,000	0.024
13-3/8	1,500	1,850	750	183,000	0.019
16	1,500	1,850	750	248,000	0.013

Where: P = Tensile Load (1,000 lbs)

L = String Length (1,000 ft)

MECHANICAL AND PHYSICAL PROPERTIES

TUBING/CASING BODY PROPERTIES	UNIT	VALUE	VALUE	TEST METHOD
		2-3/8 - 10-3/4	11-3/4 - 16	
Tensile Strength, Hoop	psi	31,300	31,300	ASTM D1599
Tensile Strength, Axial	psi	30,000	20,000	ASTM D2105
Modulus of Elasticity, Axial	10E+06 psi	3.0	2.0	ASTM D2105
Long Term Hydrostatic Strength at 20 Years	psi	16,875	19,109	ASTM D2992 (B)
Specific Gravity	---	1.9	1.9	ASTM D792
Density	lbs/in ³	0.07	0.07	ASTM D792
Thermal Conductivity	Btu/hr/ft ² /in/degF	2.4	2.4	ASTM C177
Thermal Expansion Coefficient (Linear)	10E-05in/in/degF	1.1	1.2	ASTM D696
Flow Factor	---	150	150	Hazen Williams



RED BOX® CASING AND TUBING SYSTEM



YELLOW BOX® LINE PIPE SYSTEM

Email: tubularfiberglass@houston.rr.com • website: www.tubularfiberglass.com

APPENDIX C

Proposed Exploratory Well System Plugging and Abandonment Plan

**PROPOSED PLUGGING AND ABANDONMENT PLAN
FLORIDA POWER & LIGHT COMPANY
WEST COUNTY ENERGY CENTER
LOXAHATCHEE, FLORIDA**

Chapter 62-528 Florida Administrative Code (F.A.C.) states that “an applicant for an Underground Injection Control exploratory well permit shall be required to submit a plan for plugging and abandonment which may include post-closure monitoring of the injection operation.” The following Plugging and Abandonment Plan (P&A) fulfills the requirement to effectively plug or seal the borehole and well casings, thereby preventing the upward migration of injected fluids or the circulation of groundwaters of different qualities in the event that the exploratory borehole becomes unstable, or subsurface conditions indicate that conversion to a monitoring well is not needed.

The P&A program will require the services of a qualified contractor and equipment capable of installing drill pipe to a depth of approximately 3,500 feet, mixing and pumping drilling fluid to suppress flow and providing some form of blow-out prevention equipment, emplacing crushed rock and pumping neat cement. A P&A permit application will be filed with the FDEP for the exploratory well to be plugged and abandoned that specifies the appropriate procedures to fulfill Section 62-528.270, FAC.

Proposed Exploratory Well P&A Plan

The well will be abandoned by filling the casing with 9.0 pounds per gallon (ppg) drilling mud or salt slurry. The rig will be equipped with a calibrated weight indicator, certified as calibrated within the previous 3-month period, to be used to monitor the pulling weight on the tubing. A copy of the calibration certificate will be provided to the Engineer prior to initiation of the work and copies shall be available at the job site at all times during the procedures. The rig support equipment will be capable of handling the maximum load anticipated for the work.

The open-hole portion of the exploratory well will be filled with crushed limestone gravel (#57 or equivalent) from the bottom to approximately 30 feet below the base of the outer intermediate casing (installed to approximately 1,750 feet). A fine-grained sand “plug” will then be poured into the well, filling approximately 20 linear feet up to about 10 feet below the bottom of the well casing. The length of this fill will be confirmed by “tagging” the top of the sand with a wire line.

A mixture of neat cement will be pumped through 2-inch diameter, threaded steel cementing pipe in a small "stage" of no more than 100 feet (linear-theoretical fill) to cement the uppermost 10 feet of open hole and the base of the 18-inch outer casing. This stage and each successive stage of cement will be allowed to set for 24 hours. The remainder of the 12-inch inside diameter injection casing then will be cemented to pad level.

APPENDIX 10.2

LAND USE AND ZONING

**APPLICABLE PORTIONS OF
PALM BEACH COUNTY
DEVELOPMENT CODE**

ARTICLE 3

OVERLAYS & ZONING DISTRICTS

CHAPTER A GENERAL

Section 1 Districts

A. Intent

In order to ensure that all development in unincorporated PBC is consistent with the Plan, it is necessary to establish a series of districts and overlays to ensure that each use is compatible with surrounding uses, served by adequate public facilities, and sensitive to natural resources. Each district has its own purpose and permitted uses, conditional uses, special uses and other regulations that control the use of land. All development within each district shall be consistent with the purposes stated in this Article.

B. Overlays and Zoning Districts

In order to carry out and implement the Plan, the following 14 overlays, 18 standard zoning districts, six Planned Development Districts (PDDs), and three Traditional Development Districts (TDDs) are hereby established.

1. Overlays

AZO, Airport Zone Overlay
COZ, Conditional Overlay Zone
GAO, Glades Area Overlay
IOZ, Indiantown Road Overlay
LOSTO, Lake Okeechobee Scenic Trail Overlay
LWRCCO, Lake Worth Road Commercial Corridor Overlay
NBOZ, Northlake Boulevard Overlay Zoning
NEO, Native Ecosystem Overlay
PBAIO, Palm Beach International Airport Overlay
RTO, Research and Technology Overlay
SCO, Sugar Cane Overlay
SR80 Non-residential Overlay
TAPO, Turnpike Aquifer Protection Overlay
WCRAO, Westgate Community Redevelopment Agency Overlay

2. Standard Districts

AP, Agricultural Production
AGR, Agricultural Reserve
PC, Preservation Conservation
AR, Agriculture Residential
RE, Residential Estate
RT, Residential Transitional
RS, Residential Single family
RM, Residential Multifamily
CLO, Commercial Low Office
CHO, Commercial High Office
CN, Neighborhood Commercial
CC, Commercial Community
CG, Commercial General
CRE, Commercial Recreation
IL, Industrial Light
IG, General Industrial
PO, Public Ownership
IPF, Institutional and Public Facilities

3. Planned Development Districts (PDD)

PUD, Planned Unit Development
MXPD, Mixed-Use Planned Development
MUPD, Multiple Use Planned Development

PIPD, Planned Industrial Park Development
MHPD, Mobile Home Planned Development
RVPD, Recreational Vehicle Planned Development

4. Traditional Development Districts (TDD)

TND, Traditional Neighborhood Development
TMD, Traditional Marketplace Development
TTD, Traditional Town Development

Section 2 Zoning Map and District Boundaries

A. Establishment of Official Zoning Map

The location and boundaries of the districts established in this Article shall be set forth on the Official Zoning Map which is hereby incorporated by reference. A copy of the Official Zoning Map shall be located for inspection at all times by the general public during regular business hours in the office of PZB.

B. Amendment to the Official Zoning Map

If amendments are made to the boundaries of the Official Zoning Map, the Zoning Director shall update the Official Zoning Map within 30 days after the amendment.

C. Replacement of the Official Zoning Map

1. Damage or Destruction

In the event that the Official Zoning Map becomes damaged, destroyed, lost or difficult to interpret due to changes and additions, the BCC shall adopt a new Official Zoning Map that shall supersede the prior Official Zoning Map.

2. Map Errors

The new Official Zoning Map may correct drafting and clerical errors or omissions in the prior Official Zoning Map, but no such corrections shall have the effect of amending the original Official Zoning Map, or subsequent amendments thereto, without a duly noticed public hearing pursuant to the procedures and standards of this Code.

CHAPTER B OVERLAYS

Section 1 General

A. Boundaries

The boundaries of each overlay shall be depicted on the Official Zoning Map.

B. Applicability

The provisions of each overlay shall apply to all proposed development and expansion of existing uses within the overlay unless otherwise noted below.

C. Relationship to Other Regulations in this Code

The provisions of an overlay are intended to supplement the other regulations in this Code.

D. Conflict with Other Applicable Regulations

If a conflict exists between provisions of an overlay and other Articles in this Code, the provisions of the overlay shall prevail except where superseded by state or federal laws.

Section 2 AZO, Airport Zoning Overlay

A. The purpose and intent of the Airport zoning regulations is to promote the maximum safety of aircraft using publicly-owned airports, the safety of residents and property in areas surrounding the airports, and the full utility of the airports. The provisions of Airport zoning regulations create zones, based on the approach and departure pattern of aircraft, and regulate the height of structures and the use of land within these zones. The Airport zoning regulations are contained in Art. 16, Airport Regulations.

Section 3 COZ, Conditional Overlay Zone

A. Purpose and Intent

A COZ district is to modify or restrict the use and site development standards authorized in the underlying standard zoning district to prevent, minimize or mitigate adverse impacts upon the surrounding land uses. Conditions shall be included if the applicable standards are inadequate to protect the surrounding land uses. Requirements of the COZ district are in addition to and supplement other applicable requirements of this Code.

CHAPTER C STANDARD DISTRICTS

Section 1 Districts

A. Future Land Use (FLU) and Corresponding Districts

Existing development having a zoning district corresponding to the FLU designation indicated in Table 3.C.1.A-4, Future Land Use (FLU) Designation and Corresponding Standard Zoning Districts, shall be considered consistent with the Plan.

Table 3.C.1.A-4 Future Land Use (FLU) Designation and Corresponding Standard Zoning Districts

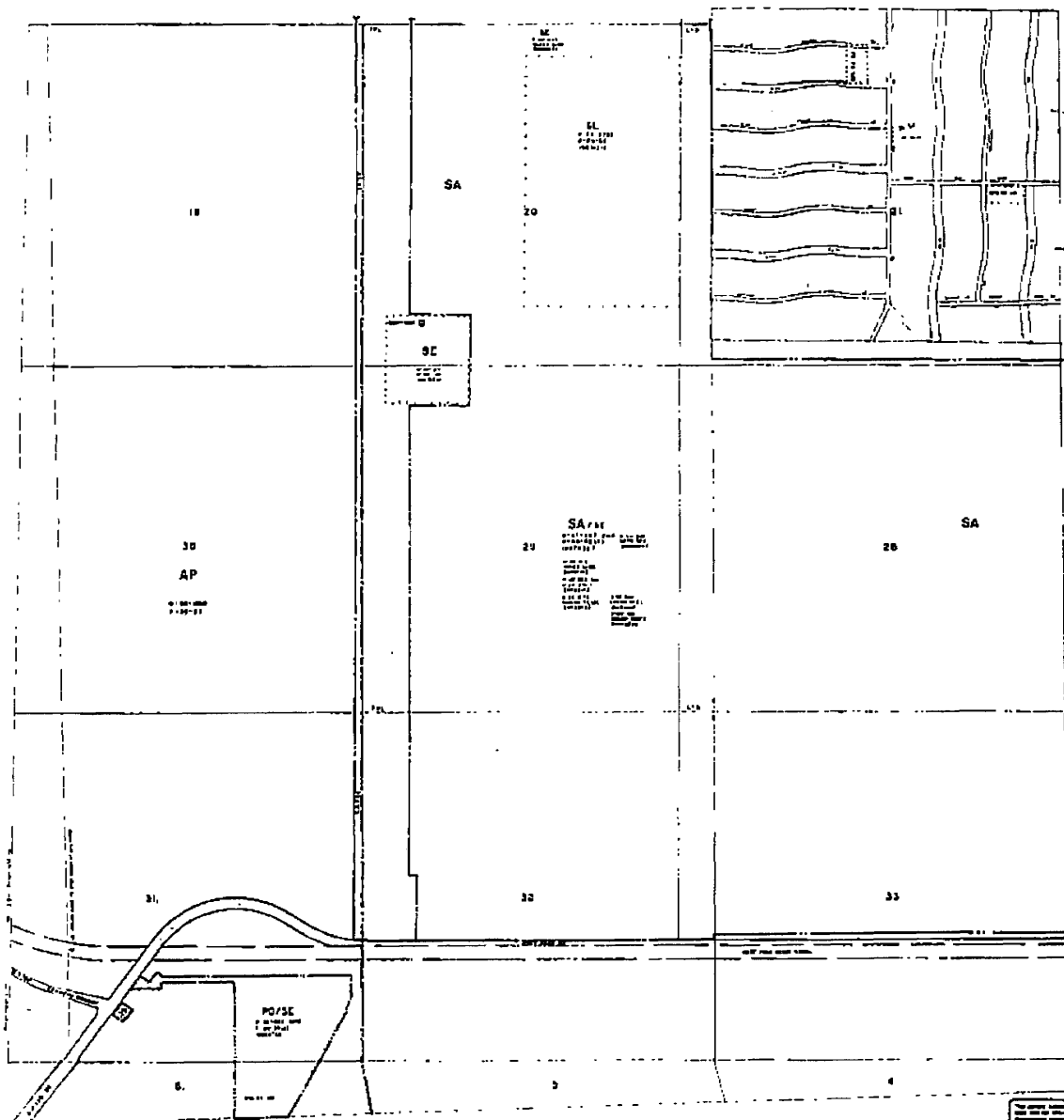
FLU Designation						
Agriculture/Conservation						
AP	AP					
AGR	AGR					
CON	PC					
SA	AR ²	AGR ³				
Residential						
RR-20	AR					
RR-10	AR	CRE ⁴				
RR-5	AR					
RR-2.5	AR	RE				
LR-1	AR	RE	RT	AP ⁵		
LR-2	AR	RE	RT			
LR-3	AR	RE	RT			
MR-5	AR	RE	RT	RS	RM ⁶	
HR-8	AR	RE	RT	RS	RM	
HR-12	AR	RE	RT	RS	RM	
HR-18	AR	RE	RT	RS	RM	
Commercial						
CL-O	CLO					
CL	CN	CC	CLO			
CH-O	CLO	CHO				
CH	CN	CC	CLO	CHO	CG	
CR	CRE					
Industrial						
IND	IL	IG	CRE ⁷			
Institutional/Civic						
INST	AR	RE	RT	RS	RM	IPF
PARK	IPF	PO				
U/T	PO					

Key: Any application for a conditional use and/or subdivision of property shall require the subject site be rezoned to a highlighted district.

1. The PO District is consistent with all FLU designations.
2. The AR District is consistent with the SA FLU designation in the Rural and Exurban Tiers only.
3. The AGR District is consistent with the SA FLU designation in AGR Tier only.
4. The CRE District is consistent with the RR-10 designation only for those uses identified in Policy 2.2.3-a in the Plan
5. The AP District is consistent with the LR-1 designation in the Glades Tier only.
6. The RM District is consistent with the MR-5 designation only for those areas already zoned RM.
7. Certain use in the CRE District over three acres require rezoning to IL. See Supplementary Use Standards.

B. Previous Zoning Districts

1. The following previously established zoning districts correspond to the current districts:
 - a. The Specialized Agriculture (SA) District shall correspond to the AP District in the Glades Tier, the AGR District in the AGR Tier, and the AR District in the Rural Tier.
 - b. Rural Services (RSER) District shall correspond to the AR District.
 - c. Residential Transitional Suburban (RTS) District shall correspond to the RT District.
 - d. Residential Transitional Urban (RTU) District shall correspond to the RS District.
 - e. Multifamily Residential High Density (RH) District shall correspond to the RM District.



RESOLUTIONS	

———— DISTRICT BOUNDARIES
 - - - - - COUNTY BOUNDARIES

THIS MAP IS A REPRODUCTION OF THE OFFICIAL FLORIDA DISTRICT MAP OF PALM BEACH COUNTY, FLORIDA, WHICH IS A PUBLIC RECORD. IT IS NOT TO BE USED FOR ANY OTHER PURPOSE. THE ORIGINAL MAP IS KEPT IN THE OFFICE OF THE COUNTY CLERK, PALM BEACH COUNTY, FLORIDA. ANY CHANGES TO THE MAP WILL BE NOTICED BY THE COUNTY CLERK.

Palm Beach County, Florida
Official Florida District Map

Scale: 1" = 100' approx. Date: 4-4-75
 Edition: 41-408 Sheet No: 107

**PALM BEACH COUNTY
DEVELOPMENT ORDER PACKAGE**



**BOARD OF COUNTY COMMISSIONERS
ZONING MEETING**

AMENDMENTS TO THE AGENDA

FEBRUARY 26, 2004

**AGENDA
ITEM #**

PETITION/CHANGE

AMENDMENTS TO THE AGENDA

29

DOA1989-052F PALM BEACH AGGREGATE HYDRO-STORAGE

Modify Condition A.2 to read as follows:

- A.2. The power plant parcel is limited to a nominal 3,300 megawatt facility fueled by natural gas as the primary sources of fuel, except that low sulfur distillate may be used as a secondary fuel source for up to 500 hundred hours per year if approved by the Public Service Commission (PSC) and or Florida Department of Environmental Protection (FDEP).

Delete Conditions N.1 and N.2 and renumber accordingly.

Modify Condition T.3 to read as follows:

- T.3 The Palm Beach County Water Utilities Department shall provide potable water, reclaimed water and wastewater service to all portions of the subject property except those unincorporated areas where the Palm Beach County Water Utilities Department has granted or assigned utility service area rights to a public or privately owned portable water, reclaimed water and/or wastewater utility or in the areas where the Palm Beach County Water Utilities Department is specifically excluded from providing utility service by Florida Statute. (ONGOING: UTILITIES – Utilities) [This condition is applicable to Palm Beach Aggregates, SFWMD and the power plant.]

Modify Engineering Conditions E.6.b, E.6.c, E.6.f and E.6.g. to read as follows:

- E.6.b. The necessary permit(s) for this landscaping and irrigation shall be applied for prior to ~~July 4,~~ October 1, 2004. (DATE: MONITORING – Eng) [This condition is applicable to Palm Beach Aggregates only.]
- E.6.c. All installation of the landscaping and irrigation shall be completed prior to ~~October 1, 2004.~~ March 1, 2005 (DATE: MONITORING – Eng) [This condition is applicable to Palm Beach Aggregates only.]

- E.6.f. The petitioner may elect to design, install and perpetually maintain an alternative to this median landscaping condition acceptable to the County Engineer and approved by the Board of County Commissioners. This alternate design to the Median landscaping installed by petitioner shall be perpetually maintained by the petitioner, his successors and assigns, without recourse to Palm Beach County. Any necessary permit(s) for this landscaping and irrigation alternative plan shall be applied for prior to ~~July 1~~ October 1, 2004. [This condition is applicable to Palm Beach Aggregate only.]
- E.6.g. Installation of any landscaping and irrigation option outlined in a, d, or e above shall be completed prior to ~~October 1~~ March 1, 2004. (DATE: MONITORING – Eng) [This condition is applicable to Palm Beach Aggregates only.]

**PALM BEACH COUNTY
PLANNING, ZONING AND BUILDING DEPARTMENT
ZONING DIVISION**



Petition No.: DOA1989-052F
Petitioner: Palm Beach Aggregates, Inc.
Owner: Palm Beach Aggregates, Inc.
Agent: Carlton Fields: Gary Brandenberg and Joe Verdone
Telephone No.: (561) 659-7070
Project Manager: William Cross, Senior Planner/
Maryann Kwok, Principal Planner (Assigned 2/6/04)

Location: Approx. 3 miles west of Seminole Pratt Whitney Road on the north side of Southern Blvd. (**Palm Beach Aggregate Hydro-Storage**).

Title: Development Order Amendment. **Request:** To modify conditions of approval.

PETITION SUMMARY: The 4,048 acre subject site was originally owned by Palm Beach Aggregates (PBA), and was approved by the Board of County Commissioners to allow for commercial excavation (Type IIIB), water storage, and a power plant. The South Florida Water Management District (SFWMD) has acquired parts of the subject property for the purpose of creating a surface water storage reservoir. PBA will continue the mining operation, and simultaneously complete reclamation of the residual land for reservoir use by SFWMD. It is anticipated that portions of the site will be completed by PBA, and released to SFWMD in stages.

The purpose of this Development Order Amendment is to assign the responsibility for compliance of a particular condition between the owners of the uses; mining, water reservoirs and power production facilities. The 3 entities are SFWMD, the power plant and Palm Beach Aggregates. Responsibility for each condition has been summarized in a table shown in Condition V.3.

In addition, the petitioner is also requesting to modify conditions of approval for the power plant to allow an increase of the power output from 3,000 to 3,300 megawatts and to allow low sulfur distillate to be used as a back up fuel source. The petitioner also requests several changes to the power plant conditions of approval, which are required to allow for the development of the power plant facility regulated by the Public Service Commission (PSC). The petitioner has also requested changes to the conditions of approval necessary to make the conditions consistent with SFWMD's plans for the water reservoirs. The following summarizes previous conditions, proposed revised language, and justification for modifications of each condition:

Previous A.1 condition (Previous Petitions and Power Plant Limitations) which currently states:

All previous conditions of approval applicable to the subject property, as contained in Resolutions R-2002-0496 (Petition SR1989-052A), R-2002-0009 (Petition 89-052(C)) and R-2002-1472, Petition DOA89-052(D) have been consolidated as contained herein. The petitioner shall comply with all previous conditions of approval and deadlines previously established by Section 5.8 of the ULDC and the Board of County Commissioners, unless expressly modified.

The "C" petition was evaluated upon the representations and analysis the maximum 3,000 megawatt facility will be fueled by natural gas both as the primary and all secondary sources of fuel. No other sources of fuel have been reviewed or evaluated. This approval is therefore limited to the use of natural gas only. In the event that any other source of the fuel is proposed or required by the owner, any governmental agency or any other source, this petition shall be brought back to the BCC for further review and evaluation at which time the BCC may take any and all actions available to it under the ULDC as if this were a new petition being reviewed for the first time.

Proposed amended condition states:

All previous conditions of approval applicable to the subject property, as contained in Resolution R-2003-0324 (Petition 1989-052E) have been consolidated as contained herein. The petitioner shall comply with all previous conditions of approval and deadlines previously established by Section 5.8 of the ULDC and the Board of County Commissioners, unless expressly modified.

The nominal 3,300 megawatt facility will be fueled by natural gas as the primary sources of fuel, except that low sulfur distillate may be used as a secondary fuel source for up to 500 hundred hours per year if approved by the Public Service Commission (PSC). In the event that any other source of fuel is proposed or required by the owner, any governmental agency or any other source, this petition shall be brought back to the BCC for further review and evaluation at which time the BCC may take any and all actions available to it under the ULDC as if this were a new petition being reviewed for the first time.

Petitioner's Justification - The petitioner requested that the power capacity be allowed to increase from the 3,000 to 3,300 megawatt so as to align with available technology. The current proposed technology has power capacity set as 1100MW increments. See Exhibit E for technology statement. This previous condition also limited the electric power facility to natural gas as the only fuel source. The petitioner is requesting that low sulfur distillate be permitted as a secondary fuel source for up to 500 hundred hours per year. The petitioner indicates that the power facilities regulated by the PSC must have a backup fuel source; in the event of failure of the natural gas line, the facility can continue to operate.

Staff response - Staff is not objecting to the request, however, proposed to split A.1 to two conditions (i.e. A.1 and A.2) for easier administration, and revised the proposed condition to only allow the secondary fuel source if approved by the PSC and Department of Environmental Protection (DEP) as proposed by the petitioner. See Exhibit C.

Previous A.2 condition (Limitation on Use) which currently states:

Development of the subject property is limited to the uses, site design, landscape buffers, setbacks, separations, reclaimed areas and details presented to the Board of County Commissioners, as indicated on the plans dated June 14, 2002. All modifications must be approved by the Board of County Commissioners unless the changes are required to meet conditions of approval or the ULDC.

Proposed amended condition states:

Development of the subject property is limited to the uses presented to the Board of County Commissioners, as indicated on the site plans dated November 7, 2003 and February 18, 2004. All modifications must be approved by the Board of County Commissioners, unless the changes are required to meet conditions of approval or the ULDC. Changes resulting from the SFWMD reservoir project on

lands owned by the SFWMD shall not require modifications to these conditions of approval. Conditions F.2, F.3, F.5, I.2, I.3, I.4, J.1 and J.2 will be modified pursuant to an agreement to be entered between Palm Beach County (PBC), South Florida Water Management District (SFWMD) and Palm Beach Aggregates (PBA) by September 30, 2004 regarding the Wildlife Corridor, landscaping, and littoral shelves for consistency with SFWMD plans for its reservoir projects.

Petitioner's Justification - SFWMD water reservoirs are exempt from review pursuant to Article 7.6.E.2.i and .o of the ULDC, Supplement No.9. (projects in which SFWMD issues their own permits are exempt from littoral zone requirements for reclamation). This reservoir system is currently in design stage. The modification of this condition will clarify that SFWMD will not have to go through any additional zoning process when the design is completed. PBC and SFWMD are also discussing the final design to the Wildlife Corridor. All these issues will be addressed in a written three-party agreement between PBC, SFWMD and PBA.

Staff response - Staff is not objecting to the revision, however, would require the agreement to be entered between PBC, SFWMD, and PBA by September 30, 2004. At the Zoning Commission hearing, the petitioner has agreed to this date.

Previous A.3 condition (Future Modifications to Plans) which currently states:

All plans submitted dated October 25, 2001 (Power Plant) and June 14, 2002 shall receive certification by the Development Review Committee (DRC). All modifications must be approved by the Board of County Commissioners unless the changes are required to meet conditions of approval or are permitted by the ULDC.

Proposed amended condition states:

All plans submitted dated November 7, 2003 (Power Plant) and February 18, 2004 (Excavation and phasing reclamation) shall receive final approval by the Development Review Officer (DRO). All modifications must be approved by the Board of County Commissioners unless the changes are required to meet conditions of approval or are permitted by the ULDC, or are changes resulting from the SFWMD project on lands owned by SFWMD.

Petitioner's Justification - The petitioner indicated the plans needs to be updated, however, indicates that future changes to the SFWMD water reservoirs will not be subject to any BCC approval process.

Staff Response - Staff has no objection to the proposed condition since the date of the plans which have been reviewed under this request have been changed. ERM also has no objection since SFWMD reservoir project are exempt from the ULDC requirements.

Previous A.6 condition (Power Plant Facility requiring approval of Governor) which currently states:

This Class A Conditional Use approval is only for a power generating facility requiring approval of the Governor and Cabinet sitting as the Power Plant Siting Board. Construction of any power generating facility not requiring approval of the Siting Board shall require modification of this condition.

Proposed amended condition states:

The electric power facility shall be limited to a power generating facility requiring approval of the Governor and Cabinet sitting as the Power Plant Siting Board, or a power generating facility regulated as a public utility.

Petitioner's Justification - Previous condition limited the electric power facility to power plants regulated by the Governor and Cabinet sitting as the Power Plant Siting Board. The petitioner is proposing to allow the addition of any electric plant facilities which are regulated as a public utility.

Staff Response - Staff has no objection to the request, however, reworded the condition to state the following:

The electric power facility plant shall be limited to an electrical power generating facility requiring approval of the Governor and Cabinet sitting as the Power Plant Siting Board, or a power generating facility regulated as a public utility.

Previous A.7 condition (Commencement Date of Power Plant) which currently states:

The petitioner shall have three (3) years from adoption of the resolution approving Petition DOA1989-052D to commence development of the Power Plant on the site. Only one (1) administrative time extension for a maximum of twelve (12) months may be granted.

Proposed amended condition states:

The petitioner shall have three (3) years from adoption of the resolution approving Petition DOA 1989-052F to commence development of the electric power facility. Only one (1) administrative time extension for a maximum of twelve (12) months may be granted.

Petitioner's Justification - The petitioner has submitted a revised traffic study for the proposed Development Order Amendment, and is requesting a restart of the clock allowing up to 3 years to commence development of the electric power facility.

Staff Response - No objection to the proposed revised language.

Previous D.1 condition (DRI Subphase limits) which currently states:

No subphase shall exceed eighty (80) acres of removal or disturbance of solid minerals or overburden per year.

Proposed amended condition states:

No subphase shall exceed one-hundred (100) acres of removal or disturbance of solid minerals or overburden per year. Removal or disturbance of solid materials or overburden required to implement the SFWMD reservoir system shall be exempt from this requirement.

Petitioner's Justification - The request allows increase in the amount of land area that can be disturbed each year to correspond to changes in State law for mining DRI thresholds. Excavation of reservoirs by SFWMD is exempt from the ULDC requirements.

Staff Response - Staff has no objection to this revised condition after reviewing Florida Statutes.

Previous E.1.b condition (Okeechobee R.O.W.) which currently states:

West of the L-8 Canal, the property owner shall convey to Palm Beach County 200 feet of road right of way for Okeechobee Boulevard. The alignment, which crosses the FP&L easement, shall be approved by the County Engineer. This right of way shall be conveyed to Palm Beach County within 90 days notice by the County Engineer that this additional right of way is required for Okeechobee Boulevard or prior to the cessation of the mining activity, whichever shall first occur.

Proposed amended condition which states:

Prior to certification of the master plan/site plan by the DRC, the plans shall be amended to reflect the Okeechobee Road right-of-way east of the L-8 Canal. This right-of-way corridor shall be through an alignment acceptable to the County Engineer.

Petitioner's justification – The County Engineer's office has not established the final alignment of Okeechobee Boulevard. Therefore, the current proposal is to provide an alignment so as not to hold up the SWFMD reservoir projects.

Staff response – The alignment for Okeechobee Boulevard is shown on Palm Beach County's Thoroughfare Identification Map. The final alignment for this section of road has not, however, been approved by the Board of County Commissioners. The proposed alignment presented to the Engineering Department is acceptable to the Office of the County Engineer. The alignment as shown should therefore not restrict the SFWMD reservoir project from moving forward. The following revised conditions are recommended by the Engineering Department:

- E.1 Prior to final approval of the master plan/site plan by the Development Review Officer (DRO), the plans shall be amended to reflect the Okeechobee Road right-of-way. This right-of-way corridor shall be through an alignment acceptable to the County Engineer. (DRO: ENG-Eng)
- E.1.b The property owner shall convey to Palm Beach County 200 feet of road right of way for Okeechobee Boulevard from the northeast corner of Section 29, Range 40, Township 43, westerly crossing the Florida Power and Light transmission line and passing north of the FPL Corbett Substation. All right of way shall be conveyed within ninety (90) days of a determination that the right of way is required. Right of way conveyance shall be free of all encumbrances and encroachments. The Developer shall provide Palm Beach County with sufficient documentation acceptable to the Right of Way Acquisition Section to ensure that the property is free of all encumbrances and encroachments, except for the existing Florida Power and Light easements through the site. The Grantor also agrees to provide Palm Beach County an environmental report, subject to the approval of County Engineer, demonstrating that this property meets all appropriate and applicable environmental agency requirements. In the event the report makes a determination of contamination which requires remediation or clean up on the property now owned by the Grantor, the Grantor agrees to hold the Grantee harmless and shall be responsible for all costs of such clean up, including but not limited to, all applicable permit fees, Engineering or other expert witness fees including Attorney's fees as well as the actual cost of the clean up prior to dedication. Thoroughfare Plan Road right-of-way conveyances shall be consistent with Palm Beach County's Thoroughfare Right of Way Identification Map and shall include where appropriate as determined by the County Engineer provisions for Expanded Intersection Details and "Corner Clips." ~~The property owner shall be responsible for the relocation of any Florida Power and Light transmission facilities.~~ The property owner and Florida Power and Light shall also be responsible for coordinating with the Roadway Production Division concerning any transmission facilities relocations within the proposed alignment and there shall be no mining activity within this new alignment. Final alignment of Okeechobee Boulevard shall be approved by the County Engineer.

E.6 (Median Landscape) - The petitioner requested for cash-out option. Engineering staff has no objection, and has modified this condition. See Exhibit C for revised condition.

Previous E.9 condition (Compliance to Mandatory TPS) which currently states:

In order to comply with the mandatory Traffic Performance Standards, the Developer shall be restricted to the following phasing schedule:

- a. **No Building Permits for the proposed power plant shall be issued until construction commences for intersection improvements of an add/drop lane required to meet FDOT guidelines for the addition of a half lane under the ART-PLAN on Southern Boulevard at Forest Hill Boulevard plus the appropriate paved tapers. Construction commences is defined as awarding the contract for the construction, the acquisition of all right of way and construction easements and the acquisition of all required permits.**

Petitioner's justification - The petitioner requested to delete this condition because they have already paid \$185,000 to Land Development to fund these improvements per Previous Condition E.8.a.

Staff response - Engineering staff objected to the deletion of this Condition. This Condition of approval is required for the project to meet Traffic Performance Standards (TPS). The Engineering Department and the petitioner, however, have now agreed to revise Condition E. 9 as it relates to the phasing of the project. E 9 will be revised as follows:

In order to comply with the mandatory Traffic Performance Standards, the Developer shall be restricted to the following phasing schedule:

- a. **No Building Permits for the proposed power plant shall be issued until the contract has been awarded for intersection improvements of an add/drop lane required to meet FDOT guidelines for the addition of a half lane under the ART-PLAN on Southern Boulevard at Forest Hill Boulevard plus the appropriate paved tapers. Phasing for this site may be adjusted by the County Engineer based upon an approved Traffic Study which complies with Mandatory Traffic Performance Standards in place at the time of the request.**

Previous F.1 condition (Ground Water Monitoring) which currently states:

A Chloride and Mercury Monitoring Plan addressing the time between site plan certification and the time at which chlorides are to be channeled around the property (Plan 1) and the time after which chlorides are no longer channeled around the property and placed into open pits (Plan 2) shall be submitted to the Department of Environmental Resources Management for review and approval prior to DRC Site Plan certification.

Proposed amended condition states:

A Chloride and Mercury Monitoring Plan addressing the time between site plan certification and the time at which chlorides are to be channeled around the property (Plan 1) and the time after which chlorides are no longer channeled around the property and placed into open pits (Plan 2) shall be submitted to the Department of Environmental Resources Management (ERM) for review and approval prior to Development Review Officer (DRO) Site Plan certification. This condition will expire for reservoir areas which are completed and accepted for possession by SFWMD.

Petitioner's justification - The condition has been revised to indicate that SFWMD will undertake its own water quality monitoring process.

Staff response – ERM Staff has no objection to the proposed revision.

Previous F.6 condition (Restrictive Covenant) which currently states:

An application for modification to the existing Restrictive Covenant Agreement shall be submitted by final site plan addressing any variations from the original approved agreement.

Petitioner's justification - The petitioner is proposing the deletion of this condition since there is never a restrictive covenant agreement being entered or recorded.

Staff response – ERM staff indicated that the entire project is not exempt from a restrictive covenant agreement (which addresses littoral zones). All lakes west of the L-8 canal are in the EAA (Everglades Agricultural area) and are exempt from littoral zones. The one cell east of the L-8 which is not part of the proposed water storage pits is still required to have a littoral zone when completed and a restrictive covenant agreement. At this time there is no agreement being recorded.

Previous H.4 condition (Hours of Operation) which currently states:

Hours of operation shall not apply to the accessory asphalt or concrete batch plant.

Proposed amended condition states:

Hours of operation shall not apply to the accessory asphalt or concrete batch plant or any activities, excluding blasting, west of the Florida Power and Light (FP&L) transmission line right-of-way, which includes portions of Section 13, Township 43S, Range 39E, and portions of Sections 19, 20 and 30, Township 43S, Range 40E.

Petitioner's justification - The petitioner indicated that the land to the west of the transmission line is sufficiently distant from any residential property to cause any annoyance.

Staff response – Staff has concerns regarding the proposed language and recommended to revise this condition to add the power plant, and as follows:

Hours of operation shall not apply to the accessory asphalt or concrete batch plant or power plant or any activities, excluding blasting, west of the Florida Power and Light (FP&L) transmission line right-of-way, which includes portions of Section 13, Township 43S, Range 39E, and portions of Sections 19, 20 and 30, Township 43S, Range 40E.

Previous L.1 condition (Parks) which currently states:

The petitioner shall coordinate with the County Park & Recreation Department in providing an end use plan that allows for public boating access to on site lakes and other public recreational uses within the projects boundaries.

Petitioner's Justification - The petitioner requested the deletion of this condition because SFWMD will determine the suitability for public access and recreational use of the site based upon District Policy.

Staff Response –Parks and Recreation staff has no objection to the request.

Previous M.2 condition (Phasing) which currently states:

A maximum of 3 subphases (maximum 240 acres) shall be in active excavation at any time.

Proposed Condition states:

A maximum of three (3) sub-phases (a maximum of 300 acres) shall be in active excavation at any time. This condition does not apply to lands owned by the SFWMD.

Petitioner's Justification - The petitioner indicated that an increased amount of land area that can be disturbed each year correspond to changes in State law for mining DRI thresholds. SFWMD is also exempt from PBC land development regulations for excavation of reservoirs.

Staff response – Staff has no objection to this revision. See Exhibit E for technology statement.

Previous N.1 condition (Phasing) which currently states:

A minimum of 300 acres of reclaimed area shall be provided, consistent with the graphic depiction on the overall excavation plan submitted by the applicant dated November 22, 1996.

Proposed amended condition states:

The reclaimed area to be provided shall be consistent with SFWMD plans for its reservoir project, and as depicted on the plans submitted by Palm Beach Aggregates for the non-SFWMD excavation.

Petitioner's justification - The petitioner indicated that SFWMD will own the reservoirs to enhance water resources for the Region. At this stage, the final plan for the reservoir has not been completed.

Staff response – ERM staff has concerns regarding the proposed revised condition, and recommends the following for N.1 and add a new condition:

1. The upland reclaimed area to be provided shall be consistent with SFWMD plans for its reservoir project, and as depicted on the plans submitted by Palm Beach Aggregates for the non-SFWMD excavation. As Built plans for each phase shall be submitted to Palm Beach County prior to the commencement of the next phase in accordance with the approved phasing plan.
2. A modified Phasing Plan and modified Notice of Intent to Construct application shall be submitted to the Department of Environmental Resources Management prior to DRO site plan approval.

Previous N.2. condition (Phasing) which currently states:

A minimum of 1 subphase shall be reclaimed annually, until completion of the project.

Proposed amended condition states:

All reclamation shall be consistent with the South Florida Water Management District Reservoir Plan or by agreement with SFWMD, Palm Beach County and Palm Beach Aggregates.

Petitioner's justification - Same reason as N.1 (This condition has been renumbered to N.3).

Staff response – ERM staff has no objection to the request. See justification under D.1.

Previous P.1 condition (Setback) which currently states:

The petitioner shall comply with the following minimum setbacks, measured from the property line to the top of bank:

SETBACKS

Property Line	Required Setback
North - Sections 13, 17, 18	50 feet
North - Sections 28 & 27	568 feet
South	108 feet
East - Section 17	308 feet
East - Section 27 & 34	108 feet
West - Section 32	795 feet
West - Sections 13, 19, 30	108 feet
Internal R-O-W	50 feet
Processing Equipment	2,500 feet from residential uses/800 feet from all property lines and 200 feet from Southern Boulevard right of way in Section 32 only
Stockpiles	Same as above
Accessory buildings	100 feet

Proposed amended condition states:

The petitioner shall comply with the following minimum setbacks, measured from the property line to the top of bank for all excavation related activity PBA, electric power facility, and SFWMD excavation related activities:

SETBACKS

Property Line	Required Setback
North - Sections 13, 17, 18	50 feet
North - Sections 28 & 27	568 feet
South	108 feet
East - Section 17	308 feet
East - Section 27 & 34	108 feet
West - Section 32	795 feet
West - Sections 13, 19, 30	108 feet
Internal R-O-W	50 feet
Processing Equipment	2,500 feet from residential uses/800 feet from all property lines and 200 feet from Southern Boulevard right of way in Section 32 only.
Stockpiles	300 feet
Accessory buildings	100 feet

Petitioner's justification - The petitioner is requesting to modify the condition to allow setbacks measured from the property line to the top of the bank for all excavation related activities.

Staff response - Staff has no objection to the request, however, reworded the setback for stockpiles to 2,500 feet from residential uses/800 feet from all property lines and 200 feet from Southern Boulevard right of way in Section 32 only, and 300 feet for the south, east and west property lines. The petitioner has no objection to this change.

Previous R.1 condition (Towers) which currently states:

The heat dispensing towers height shall be a maximum of one hundred and twenty (120) feet high unless additional height is required to comply with Department of Environmental Protection guidelines.

Proposed Condition states:

The heat dispensing towers height shall be a maximum of one hundred and twenty (120) feet high unless additional height is approved to comply with Florida Department of Environmental Protection guidelines and approved by the Governor and Cabinet sitting as the Power Plant Siting Board.

Petitioner's justification - The petitioner is requesting that the height be permitted to be increased in height if approved by the Department of Environmental Protection and the Governor and the Cabinet sitting as the Power Plant Siting Board.

Staff response - Staff recommended the condition to be modified as follows:

The heat dispensing towers height shall be a maximum of one hundred and twenty (120) feet high unless additional height is approved to comply with Florida Department of Environmental Protection guidelines and approved by the Governor and Cabinet sitting as the Power Plant Siting Board. Additional height to accommodate safety clearance, emission air monitoring and noise attenuation equipments shall not exceed an overall height of one hundred and fifty (150) feet of each tower.

The buffers provided will be able to screen the towers from the residential uses if there is an increase of height of these towers.

Previous S.1 condition (Use Limitations) which currently states:

All pumps shall be limited to electric only.

Proposed amended condition states:

All pumps shall be limited to electric only. Not applicable to the SFWMD.

Petitioner's justification - The petitioner indicated that SFWMD would design the project to maximize the public's best interest, and accomplish its water resource goals.

Staff response - Staff has no objection to this proposal.

V.3 (Responsibility for Compliance) – The petitioner requested a table to be inserted as a condition of approval. The table summarized the responsibility of the owners for compliance with a specific condition.

V.4 (Compliance of Conditions) – The petitioner proposed to add a new condition clarifying that a violation of one property owner should not have the consequence of affecting the other district operations on site. Staff has no objection to the following proposed condition:

The electric power facility site, the SFWMD reservoir site, and the Palm Beach Aggregates excavation site shall be treated as separate approvals for enforcement purposes. A violation of a condition on one site shall not affect the compliance status of the other sites.

ISSUES SUMMARY:

- o Consistency with Comprehensive Plan

The Planning Division has determined that the request is consistent with the site's Rural Residential 10 (RR-10) and Agricultural Production (AP) Future Land Use (FLU) designations.

In August 2002, the BCC adopted an amendment to the Comprehensive Plan to prohibit power plants in residential land use categories. However, the Comprehensive Plan previously allowed power plants to be located on land with a Residential FLU designation subject to any siting criteria established by other regulatory agencies. Therefore, since the uses on this site and the project's configuration was approved by the BCC prior to the incorporation of revised policy, this new policy should not affect this request.

o Compatibility with Surrounding Land Uses

To the north and west of the site are sugar cane farms. South across SR80 is the South Florida Water Management District pumping station, and east of the station is the Loxahatchee Wildlife Refuge. To the east is a 500 foot levee right of way for the L-8 Canal. The canal right-of-way separates the mining site from the Deer Run and White Fences subdivisions.

The original Type IIIB excavation, and the electrical power facility are subject to previous blasting regulations and hours of operation conditions to address noise impact issues.

o Traffic

There is no additional traffic associated with this request. Condition E.1 and E.1.b have been amended regarding the right-of-way for Okeechobee Boulevard, and E.6 has been amended to address the median landscaping along SR80.

o Zoning District

The subject property has an Agricultural Production (AP) Zoning District and a Special Agriculture (SA) Zoning District. The SA Zoning District has been eliminated in the current ULDC (Ordinance 2003-067). Pursuant to Article 3.C.B, SA district will correspond to the AP District in the Glades Tier and will correspond to the Agricultural Residential (AR) District in the Rural Tier. Portion of the site has a SA Zoning designation east of the L-8 canal (Rural Tier), and the remaining of the site which is west of the L-8 Canal has both SA and AP zoning designations, and is located in the Glades Tier. For future reference, the subject property will have AP and AR zoning districts.

o Development Order Amendment – Changed Circumstances

The petitioner indicates since the SFWMD will be acquiring the PBA property to be used as a surface water storage reservoir for water management purposes, that conditions of approval for excavation, water conservation and electric power facility uses will need to be designated as applicable between the SFWMD, PBA and/or the electric power facility. Also requested are revisions of previous conditions to address administration issues.

o ZONING COMMISSION (ZC) HEARING

At the February 5, 2004 ZC hearing, the petitioner indicated concerns regarding several conditions:

Staff has agreed to the revision of Condition A.1 to show as follows:

The nominal 3,300 megawatt facility will be fueled by natural gas as the primary sources of fuel, except that low sulfur distillate may be used as a secondary fuel source for up to 500 hundred hours per year if required approved by the Public Service Commission (PSC). In the event that any other source of fuel is

proposed or required by the owner, any governmental agency or any other source, this petition shall be brought back to the BCC for further review and evaluation at which time the BCC may take any and all actions available to it under the ULDC as if this were a new petition being reviewed for the first time.

Condition A.2 – The petitioner indicated that SFWMD is currently working on the design of the subject property. In addition, PBA, SFWMD and the County will enter into an agreement with regards to the design, construction and costs of the wildlife corridor. Eventually the ownership of this wildlife corridor will be transferred to the County and be part of the County Wildlife Corridor system. County staff agreed to the conditions, however, inserted a date to ensure the agreement has to be completed by September 30, 2004. The petitioner has no objection to the date.

Development of the subject property is limited to the uses presented to the Board of County Commissioners, as indicated on the site plans dated November 7, 2003. All modifications must be approved by the Board of County Commissioners, unless the changes are required to meet conditions of approval or the ULDC. Changes resulting from the SFWMD reservoir project on lands owned by the SFWMD shall not require modifications to these conditions of approval. Conditions F.2, F.3, F.5, I.2, I.3, I.4, J.1 and J.2 will be modified pursuant to an agreement to be entered between Palm Beach County (PBC), South Florida Water Management District (SFWMD) and Palm Beach Aggregates (PBA) by September 30, 2004 regarding the Wildlife Corridor, landscaping, and littoral shelves for consistency with SFWMD plans for its reservoir projects.

The petitioner also requested several Engineering conditions be revised to address the alignment of Okeechobee Boulevard extension, and the landscape median conditions. Engineering staff has revised Condition E.1, E.1b (Okeechobee Blvd.), E.6 (Landscape Median on SR80), E.9 (Traffic Performance Standards). Engineering staff, however, recommends E.7 (Phasing schedule – TPS) to remain as is.

Health Condition G.5 – The petitioner has concerns regarding the last sentence of the condition. Health Department would have to review the condition prior to the BCC hearing to determine whether any changes would be required for this condition. Prior to the publication of the staff report, Health Department and the petitioner have agreed to the revised condition G.5 as shown in Exhibit C.

V.3 Compliance Table – The petitioner indicated this table should be inserted as part of the conditions of approval. Zoning staff would have to check with Code Enforcement and Monitoring Staff to determine whether the format of this table can be reviewed, applied and monitored by staff.

The ZC voted for the approval of the project subject to all the amended conditions, and also voted the compliance table to be inserted as part of the conditions of approval provided it is supported by Monitoring and Code Enforcement staff.

TABULAR DATA

	EXISTING	PROPOSED
Property Control Number(s):	00-39-43-13-00-000-5010; 00-40-43-17-00-000-1000; 00-40-43-18-00-000-5010/7030; 00-40-43-19-00-000-1020; 00-40-43-20-00-000-1010/1020; 00-40-43-21-00-000-5000; 00-40-43-22-00-000-7000; 00-40-43-27-00-000-3000; 00-40-	Same

	43-28-00-000-9000; 00-40-43-29-00-000-1010/3000; 00-40-43-30-00-000-1010; 00-40-43-31-00-000-1000; 00-40-43-32-00-000-1000/1020/5000; 00-40-4333-00-000-1000; and, 00-40-43-34-00-000-3000	
Land Use Designation:	Rural Residential 10 (RR-10) and Agricultural Production (AP)	Same
Zoning District:	Agricultural Production (AP) and Special Agriculture (SA)	Same
Use:	Type III Excavation, water storage and Power Plant	Same
Acreage:	4,048 acres	Same
Access:	Southern Blvd (1)	Same

PUBLIC COMMENT SUMMARY: At time of publication, staff had received 2 letters in support of the request and 1 letter of opposition. The comments from the letter of opposition generally indicate concerns with the increase of the megawatt for the power plant; the increase of height for the heat dispensing towers. One letter of support indicated that the type of lighting for the heat dispensing towers must meet the requirements of the FAA.

RECOMMENDATION: Staff recommends approval of the request subject to 84 conditions as indicated in Exhibit C.

ACTION BY THE ZONING COMMISSION: Motion to recommend approval as amended, (6-0).

MOTION: To adopt a resolution approving the request for a Development Order Amendment to modify conditions of approval.

STAFF REVIEW AND ANALYSIS

PLANNING DIVISION COMMENTS:

FUTURE LAND USE (FLU) PLAN DESIGNATIONS: Rural Residential
10 (RR-10) and Agricultural Production (AP)

Underlying Land Use: None

CONSISTENCY WITH FUTURE LAND USE (FLU) PLAN DESIGNATION:
The 1,218 acre easternmost portion of the site was previously the subject of a Large Scale Land Use Amendment, Palm Beach Aggregates, 2003-0029 LGA, with a proposed amendment from RR-10 to Economic Development Center (EDC) and inclusion of this portion of the site in the Glades Tier on 467.65 acres and RR-10 to RR-10 with conditions on 751.23 acres. Planning Staff recommended approval of the proposed amendment with conditions. The Land Use Advisory Board (LUAB) recommended approval with a modification in a 6-2 vote (with Mr. Hall and Ms. Murray dissenting). The Board of County Commissioners (BCC), at the July 21, 2003 Public Hearing, voted 6-0 (with Commissioner Newell absent) to transmit the proposed amendment with Staff's recommendation and a condition recommended by the LUAB. However, prior to the BCC adoption hearing, the applicant withdrew the amendment application.

The water storage areas in this project involve previously approved expanded excavation areas that are designated AP. These water storage areas are consistent with the portion of the property's AP FLU designation since they are being developed as water reservoirs to be incorporated into the existing regional water conservation facility already approved by SFWMD for the site. FLUE Policy 2.3-e.3. states, Mining and excavation activities, as applicable, shall be restricted as follows:...3. Within the Agricultural Production Future Land Use designation, mining may be permitted only to support public roadway projects or agricultural activities, or water management projects associated with ecosystem restoration, regional water supply or flood protection, on sites identified by the South Florida Water Management District (SFWMD) or the U. S. Army Corps of Engineers where such uses provide viable alternative technologies for water management...(61-FLUE)."

The existing mining and excavation operation and electrical power facility was previously approved by the Board of County Commissioners (BCC). FLUE Policy 2.2.1-d in the Comprehensive Plan states, "In areas with a Residential future land use designation, the County may allow non-residential uses allowed in the...Utilities and Transportation future land

use designations, as further described in the Implementation Section (45-FLUE)." Prior to August 2002, FLUE Policy 2.2.9.d further previously stated, "Transportation and Utilities uses shall be permitted in all future land use designations subject to special siting criteria set forth in the Unified Land Development Code. The placement of utility uses in residentially designated areas shall be controlled through the ULDC to ensure the protection of existing and anticipated residential areas from adverse impacts of the facility (54-FLUE)." Prior to August 2002, the Implementation Section of the FLUE also previously stated, "Uses Discouraged in Residential Areas...Utilities and Transportation uses designed to serve regional needs, including... power plants...are discouraged in residentially designated areas and may be permitted only subject to the siting criteria of the appropriate regulatory authority(ies) as well as any special review and siting criteria adopted by the Board of County Commissioners (BCC) (86-FLUE)." At the BCC public hearing for zoning petition 89-52(C), pursuant to the above Comprehensive Plan policies, the BCC determined the uses on the site met the siting criteria in the ULDC by finding that:

1. The residential neighborhood [in which the facility was located] was protected from undesirable impacts of adjacent and surrounding development;
2. The [facility] was consistent with the Goals, Objectives, and Policies of the Comprehensive Plan;
3. The [facility] satisfied any special siting criteria adopted by the Board of County Commissioners; and,
4. The density or intensity [of the facility] was comparable to and compatible with the density of the residential development . . . (86-FLUE)."

It should be noted that in August 2002, the BCC adopted an amendment to FLUE Policy 2.2.9-d and to language on page 86 of the Implementation Section of the Comprehensive Plan to prohibit power plants in residential land use categories. However, since the uses on this site and the project's configuration was approved by the BCC prior to the incorporation of revised policies into the Comprehensive Plan that do not allow power plants to be located in residential land use categories, this new policy and Implementation language does not apply to this proposed request. In addition, this proposed zoning request does not involve an increase in the intensity of the power plant facility, but rather it allows for an increase in power plant capacity from 3,000 megawatts to 3,300 megawatts and a potential increase in the height of the power plant stack, in order to ensure adequate monitoring of emissions for emission standards.

Based on the above analysis, no inconsistencies have been identified with the parcels' RR-10 and AP FLU designations.

The site is also located within the Greenways and Linked Open Space Map in a Study Area of Potential Water Managed Area/Water Preserve Area. Conservation Element (C) Policy 3.1-a states, "the County shall continue to coordinate with the South Florida Water Management District (SFWMD) and/or an advisory committee created by the District to assist with implementation of the provisions of the regional water plan...(10-C)." In addition, Conservation Element (C) Policy 3.1-d states, "the County, in close coordination with the South Florida Water Management District and other environmental regulatory and planning agencies, shall encourage that wetland mitigation, environmental protection and water management efforts support and optimize the functions of the East Coast Buffer and the Water Preserve Areas (11-C)." Consistent with these policies, the Planning Division contacted the SFWMD of the current request as indicated above. In verbal conversations with a representative of the SFWMD, the SFWMD indicated that it had no comments on the proposed request.

It should also be noted that, since the site is located within the Greenways Linked Open Space Map, it is also the subject to the following policies and objectives of the Comprehensive Plan: FLUE Policy 1.4-j, Objective 2.5, FLUE Policy 2.5-a, FLUE Policy 2.5-b, and FLUE Policy 2.5-e. Per the conditions of approval from the previous zoning petitions, the applicant set aside approximately 167 acres of the subject site for a linked open space/greenways corridor and instituted monitoring mechanisms to ensure that the corridor is preserved. Although these conditions are being revised to determine who shall ensure maintenance of the Corridor, they will still be retained.

TIER: Approximately 1/4 of the subject site is in the Rural Tier and approximately 3/4 of the site is in the Glades Tier. Although a smaller portion of the site is in the Rural Tier, the proposed request is subject to the following policy in the FLU that addresses the protection of rural communities in the Rural Tier. There are no policies of the Glades Tier that relate to this proposed request.

FLUE Policy 1.4-m states, "...Maintain specific regulations to restrict the types of non-residential and non-agricultural uses allowed and promote the rural character through design, and provide for locational criteria which will prohibit the scattering of such uses throughout the Rural Tier; (27-FLUE)."

To ensure that the intent of this policy is maintained, staff previously worked with the Zoning Division on acceptable conditions that would continue to ensure the protection of the rural residential communities surrounding the power plant and the entire excavation site. Therefore, the proposed request, as previously conditioned, is consistent with policies in the Comprehensive Plan for the Rural Tier.

FUTURE ANNEXATION AREA: The subject site is located within the future annexation area of the Village of Royal Palm Beach. As part of the public hearing notice process, Zoning Staff has notified the Village of the request.

INTERGOVERNMENTAL COORDINATION: The site is located within the Greenways and Linked Open Space Map in a Study Area of Potential Water Managed Area/Water Preserve Area. Consistent with these policies, the Planning Division contacted the South Florida Water Management District (SFWMD) of the current request as indicated above. As of the writing of this staff report, SFWMD verbally indicated that they had no comments on the proposed request.

SPECIAL OVERLAY DISTRICT/NEIGHBORHOOD PLAN/PLANNING STUDY AREA: A portion of the subject property is also located within the boundaries of the Central Western Communities Sector Planning Area (CWCSP). With regards to the CWCSP, the BCC directed staff in July 2000 to initiate a comprehensive regional planning effort in the central western portion of the County to address impacts associated with existing rural residential development and to develop a plan that will guide land use decision-making in the future. The Sector Planning effort is ongoing and the effort has not yet resulted in the adoption of a conceptual plan overlay for the area. The project's status can be followed on the Department's website.

In addition, although the subject property is not located in the Acreage Neighborhood Plan (ANP), the establishment of responsible entities for compliance with conditions may affect goals and objectives of the Acreage Landowners Association regarding flood control for the Acreage communities. As such, Planning Staff also notified the Acreage Landowners Association of the proposed request. As of the printing of this staff report, no comments have been received from the Acreage Landowners Association.

FINDINGS: It should be noted that in August 2002, the BCC adopted an amendment to FLUE Policy 2.2.9-d and to language on page 86 of the Implementation Section of the Comprehensive Plan to prohibit power plants in residential land use categories. However, the Comprehensive

Plan previously allowed power plants to be located on land with a Residential FLU designation subject to any siting criteria established by other regulatory agencies and the BCC through the ULDC. Therefore, since the uses on this site and the project's configuration was approved by the BCC prior to the incorporation of revised policies into the Comprehensive Plan that do not allow power plants to be located in residential land use categories, this new policy and Implementation language does not apply to this proposed request. In addition, this proposed zoning request does not involve an increase in the intensity of the power plant facility, but rather it allows for a potential increase in the height of the power plant stack, in order to ensure adequate monitoring of emissions for emission standards. Thus, in conclusion, no inconsistencies have been identified with the parcels' RR-10 and AP land use designations of the Palm Beach County Comprehensive Plan. The proposed request, as conditioned herein, is consistent with the Policies and Objectives of the Rural Tier of the Comprehensive Plan. Given the intent and direction of FLUE Policy 2.3-e.3 and Conservation Element Policy 3.1-b, and since this site will provide a valuable water storage option for future environmental restoration, water supply, and flood control in the surrounding

area, the proposed request is also consistent with these policies and the plans of the SFWMD for the area in which this site is located.

ENGINEERING COMMENTS:

Engineering Condition E.1.b has been amended regarding the right-of-way for Okeechobee Boulevard. Also Engineering Condition E.6 has been amended regarding the median landscaping along SR 80.

PALM BEACH COUNTY HEALTH DEPARTMENT:

WATER/SEWER: No comments.

ENVIRONMENTAL RESOURCE MANAGEMENT COMMENTS:

VEGETATION PROTECTION: The site currently partially active agriculture and active mining operation and contains no significant native vegetation.

WELLFIELD PROTECTION ZONE: The property is not located within a Wellfield Protection Zone.

IRRIGATION CONSERVATION CONCERNS AND SURFACE WATER: All new installations of automatic irrigation systems shall be equipped with a water sensing device that will automatically discontinue irrigation during periods of rainfall pursuant to the Water and Irrigation Conservation Ordinance No. 93-3. Any non-stormwater discharge or the maintenance or use of a connection that results in a non-stormwater discharge to the stormwater system is prohibited pursuant to Palm Beach County Stormwater Pollution Prevention Ordinance No. 93-15.

ENVIRONMENTAL IMPACTS: There are no significant environmental issues associated with this petition beyond compliance with ULDC requirements.

FINDINGS: The request is consistent with the environmental criteria pursuant to ULDC Sections 7.6 (Excavation) and 9 (Environmental Standards).

OTHER:

FIRE PROTECTION: The Palm Beach County Department of Fire/Rescue will provide fire protection.

SCHOOL IMPACTS: No comments.

PARKS AND RECREATION: The extensive lake system and miles of upland buffers resulting from the mining and excavation of this 4,048 acre site have potential to support passive recreational use by the public. The SFWMD is in the process of developing a District Policy for public access and recreational use of District lands. This policy will facilitate review of the District owned lands within this site including consideration for public access and recreational use where appropriate in the future.

CONCURRENCY: A Concurrency Reservation exists for a Type III Excavation, water conservation and an electric power facility.

FINDING: The request is in compliance with Article 11 (Adequate Public Facilities) of the ULDC.

DEVELOPMENT REVIEW EVALUATION:

BCC
Petition DOA1989-052F
Page
Project No. 5000-358

February 26, 2004
BCC District 6

SITE FACTORS: A 4047.96 acre site, approximately 6,064 feet in width with an average depth of 4 miles accessed by Southern Blvd (1). The site currently supports Type IIIB excavation activities, with approvals for water storage and a electric power facility.

ADJACENT LAND USE AND ZONING:

NORTH:	Comprehensive Plan:	Rural Residential 10 (RR-10)
	Zoning District:	Agricultural Residential (AR)
	Supporting:	Agricultural production (sugar cane)
SOUTH:	Comprehensive Plan:	Rural Residential 10 (RR-10)
	Zoning District:	Agricultural Residential (AR) and Public Ownership (PO)
	Supporting:	Southern Boulevard and SFWMD Pump Station No. 5
EAST:	Comprehensive Plan:	Rural Residential 10 (RR-10)
	Zoning District:	Agricultural Residential (AR)
	Supporting:	Residential/equestrian
WEST:	Comprehensive Plan:	Agricultural Production (AP)
	Zoning District:	Agricultural Production (AP)
	Supporting:	Agricultural production (sugar cane)

ZONING REQUIREMENTS: A final site plan shall be approved by the Development Review Officer (DRO) in accordance with the Unified Land Development Code (ULDC). The DRO review will ensure compliance with Board of County Commission conditions of approval, and applicable sections of the ULDC.

o **Project History**

Petition 1989-52 - Approval from the Board of County Commissioners for excavation.

Petition 1989-52(A) - Rezoning of a 3,044-acre site from Agriculture Residential to the Special Agriculture Zoning District, and a Class A Conditional use to allow a Type IIIB excavation. The excavation activities were proposed in 3 phases over a period of 30- 35 years. The excavation will result in 3 lakes totaling 2,616 acres of surface area. The BCC approved this project on January 30, 1997 under Resolution R-1997-0248.

Petition 1989-52(B) – Development Order Amendment to modify conditions on hours of operation. The BCC, during the original March 2002 hearing for this petition, approved the amended conditions for hours of operation, lighting, and noise level, and a condition for a continuance to the July 27, 2000 BCC. The continuance was to determine if the increase in hours of operation caused a negative impact on the surrounding community. The BCC approved this project on March 23, 2000 via Resolution R-2000-0419.

Petition 1989-52(C) – A Development Order Amendment to add a gas operated 3000 megawatt electrical power facility on the western 220 acres south of the existing FP&L Corbett substation. The proposed electrical power facility will use the adjacent water storage area from the Palm Beach Aggregates mining operation for cooling purposes. Also proposed is eleven heat dispenser towers approximately 180 feet in height to be located adjacent to each of the gas powered steam turbines. The petitioner also requested to add another access point on Southern Boulevard, modified previous conditions of approval to relocate median landscaping, increase excavation depth, modify phasing, reduce setback from Southern Boulevard and allow an additional sign on Southern Boulevard. The BCC approved this project on January 3, 2002 via Resolution R-2002-0009.

Petition 1989-52(D) – A Development Order Amendment to add 1,006.85 acres of land area to the existing Palm Beach Aggregate Mining property. The 3,044-acre subject property has previous approvals from the Board of County Commissioners for a Type IIIB excavation, and an electric power facility with water reservoirs and cooling ponds. The added land area to the site will allow for the expansion of the excavation operation, and eventually will be developed as reservoirs and be incorporated into the existing regional water conservation use on the subject property. The BCC approved this project on August 22, 2002 via Resolution R-2002-1472.

Petition 1989-052(E) – A Development Order Amendment to modify Engineering Condition E.10, which required the petitioner to reserve at least one billion gallons of storage for the Indian Trail Improvement District (ITID) to use for flood control purposes. Since the SFWMD will be purchasing the Palm Beach Aggregates property and acquire significantly more than the one billion gallon storage required in Condition E.10, this condition was no longer needed. The BCC approved this request on February 27, 2003 via Resolution R-2003-0324.

FINDINGS:

1. **Consistent with Comprehensive Plan.** The Planning Division indicates that the proposed Development Order Amendment (DOA) is consistent with the purposes, goals, objectives and policies of the Comprehensive Plan, including standards for building and structural intensities and densities, and intensities of use;
2. **Complies with supplementary use standards.** The proposed DOA complies with all relevant and appropriate portions of Sec. 6.6, Supplementary Regulations of the Code;
3. **Compatibility.** The proposed DOA is compatible as defined in the Code. Any incompatibility issues have been addressed by conditions of approval;
4. **Design minimizes adverse impact.** Any adverse effects, including visual impact and intensity of the proposed uses have been addressed by conditions of approval. Any increase of the height of the electric power facility heat exchangers may create an adverse visual impact; however, stack height will be regulated by State and/or local regulatory agencies;
5. **Adequate public facilities.** The proposed DOA complies with Art. 11, Adequate Public Facility Standards;
6. **Design minimizes environmental impact.** The proposed DOA retains conditions of approval minimizing environmental impacts, including but not limited to water, air, stormwater management, wildlife, vegetation, wetlands and the natural functioning of the environment. Those portions of the site acquired by SFWMD will be subject to separate regulatory review to ensure minimal environmental impact;
7. **Development patterns.** The proposed development will result in logical, timely and orderly development patterns;
8. **Other relevant standards of the Code.** The proposed DOA complies with all standards imposed on it by all other applicable provisions of the Code for use, layout, function, and general development characteristics;
9. **Consistency with neighborhood plans.** A portion of the subject property is located within the boundaries of the Central Western Communities Sector Planning Area (CWCSA). However, the

Sector Planning effort is ongoing and the effort has not yet resulted in the adoption of a conceptual plan overlay for the area; and

10. **Changed circumstances.** Conditions in the area of the subject property have changed to the extent to warrant the request. The petitioner indicates that since the SFWMD will be acquiring the PBA property to be used as a surface water storage reservoir for water management purposes, that conditions of approval for excavation, water conservation and electric power facility uses need to be designated as applicable to PBA and/or SFWMD. In addition, the petitioner indicates that several changes to the electric power facility conditions of approval are required to allow for the potential development of a power plant facility regulated by the Public Service Commission (PSC). The current approval applies to facilities operated by a private utility service provider.

EXHIBITS

- Exhibit A: Legal Description (NA - attached to resolution)
- Exhibit B: Vicinity Sketch
- Exhibit C: Conditions of Approval
- Exhibit D: Accident History Report (Not available at time of printing)
- Exhibit E: Technology Statement (FPL)
- Exhibit F: Letter from Public Service Commission

EXHIBIT C

CONDITIONS OF APPROVAL

NOTE: All previous conditions of approval are shown in **BOLD** and will be carried forward with this petition unless expressly modified. Compliance of conditions by the appropriate entity has been indicated in each condition.

A. ALL PETITIONS

1. Condition A.1 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

All previous conditions of approval applicable to the subject property, as contained in Resolutions R-2002-0496 (Petition SR1989-052A), R-2002-0009 (Petition 89-052(C)) and R-2002-1472, Petition DOA89-052(D) have been consolidated as contained herein. The petitioner shall comply with all previous conditions of approval and deadlines previously established by Section 5.8 of the ULDC and the Board of County Commissioners, unless expressly modified.

The "C" petition was evaluated upon the representations and analysis the maximum 3,000 megawatt facility will be fueled by natural gas both as the primary and all secondary sources of fuel. No other sources of fuel have been reviewed or evaluated. This approval is therefore limited to the use of natural gas only. In the event that any other source of the fuel is proposed or required by the owner, any governmental agency or any other source, this petition shall be brought back to the BCC for further review and evaluation at which time the BCC may take any and all actions available to it under the ULDC as if this were a new petition being reviewed for the first time.

Is hereby amended to read:

All previous conditions of approval applicable to the subject property, as contained in Resolution R-2003-0324 (Petition 1989-052E) have been consolidated as contained herein. The petitioner property owner(s) shall comply with all previous conditions of approval and deadlines previously established by ~~Section 5.8~~ Article 2.E of the ULDC and the Board of County Commissioners, unless expressly modified. (ONGOING: MONITORING - Zoning) [This condition is applicable to the overall site.]

2. The power plant parcel is limited to a nominal 3,300 megawatt facility will be fueled by natural gas as the primary sources of fuel, except that low sulfur distillate may be used as a secondary fuel source for up to 500 hundred hours per year if required approved by the Public Service Commission (PSC) and Florida Department of Environmental Protection (FDEP).

- a. In the event that any other source of fuel is proposed or required by the owner, any governmental agency or any other source, this petition shall be brought back to the BCC for further review and evaluation at which time the BCC may take any and all actions available to it under the ULDC as if ~~this the request~~ were a new petition being reviewed for the first time. (ONGOING: ~~MONITORING~~ HEALTH/DEP - Zoning) [This condition is applicable to the power plant only.]

3. Condition A.2 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

Development of the subject property is limited to the uses, site design, landscape buffers, setbacks, separations, reclaimed areas and details presented to the Board of County Commissioners, as indicated on the plans dated June 14, 2002. All modifications must

be approved by the Board of County Commissioners unless the changes are required to meet conditions of approval or the ULDC.

Is hereby amended to read:

Development of the subject property is limited to the uses presented to the Board of County Commissioners as indicated on the site plans dated November 7, 2003 and February 18, 2004. All modifications must be approved by the Board of County Commissioners, unless the changes are required to meet conditions of approval or the ULDC.

- a. Changes resulting from the SFWMD reservoir project on lands owned by the SFWMD shall not require a Development Order Amendment to modify ~~modifications to these conditions of approval.~~ These conditions F.2, F.3, F.5, I.2, I.3, I.4, J.1 and J.2 will be modified pursuant to an agreement to be entered into between Palm Beach County (PBC), South Florida Water Management District (SFWMD) and Palm Beach Aggregates (PBA) by September 30, 2004 regarding the wildlife corridor, landscaping, and littoral shelves for consistency with SFWMD plans for its reservoir projects. (ONGOING: ZONING – Zoning) [This condition is applicable to Palm Beach Aggregates, SFWMD and the power plant.]

4. Condition A.3 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

All plans submitted dated October 25, 2001 (Power Plant) and June 14, 2002 shall receive certification by the Development Review Committee (DRC). All modifications must be approved by the Board of County Commissioners unless the changes are required to meet conditions of approval or are permitted by the ULDC.

Is hereby amended to read: ~~deleted.~~ [REASON: Code requirement.]

All plans submitted dated ~~October 25, 2001~~ November 7, 2003 (Power Plant) and February 18, 2004 (Excavation, phasing and reclamation) and June 14, 2002 shall receive final approval ~~certification~~ by the Development Review Committee ~~(DRC).~~ Officer (DRO). All modifications must be approved by the Board of County Commissioners unless the changes are required to meet conditions of approval or are permitted by the ULDC. (DRO:ZONING-Zoning) [This condition is applicable to Palm Beach Aggregates and the power plant.]

5. Condition A.4 of Resolution R-2003-0324, Petition EAC1989-052(E)) which currently states:

Prior to DRC certification of the Final Excavation Plan, the petitioner shall amend all pertinent plans to ensure compliance with the ULDC and the conditions in this resolution. The plans shall also be amended to clarify setback, separation, reclamation and buffering requirements by further graphic delineation and plan notes. (DRC: ZONING – Zoning ~~(Previous Condition A.4 of Resolution R-2003-0324, Petition DOA/EAC1989-052(E))~~)

Is hereby ~~deleted.~~ [REASON: Code requirement.] amended to read:

Prior to approval of the Final Excavation Plan by the Development Review Officer (DRO), the petitioner shall amend all plans to ensure compliance with the ULDC and applicable conditions of approval. The plans shall clarify setback, separation, reclamation and buffering requirements by further graphic delineation and plan notes. (DRO: ZONING – Zoning) [This condition is applicable to Palm Beach Aggregates only.]

6. **Resolution R-89-2225 is hereby repealed.** (Previous Condition A.5 of Resolution R-2003-0324, Petition EAC1989-052(E)).
7. Condition A.6 of Resolution R-2002-1472, Petition DOA89-052(D), which currently states:

This Class A Conditional Use approval is only for a power generating facility requiring approval of the Governor and Cabinet sitting as the Power Plant Siting Board. Construction of any power generating facility not requiring approval of the Siting Board shall require modification of this condition.

Is hereby amended to read:

The electric power facility plant shall be limited to an electrical power generating facility requiring approval of the Governor and Cabinet sitting as the Power Plant Siting Board, or a power generating facility regulated as a public utility. (ONGOING: CODE ENF – Zoning) [This condition is applicable to the power plant only.]

8. Condition A.7 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

The petitioner shall have three (3) years from adoption of the resolution approving Petition DOA1989-052D to commence development of the Power Plant on the site. Only one (1) administrative time extension for a maximum of twelve (12) months may be granted.

Is hereby amended to read:

The petitioner property owner(s) shall have three (3) years from adoption of the resolution approving Petition DOA1989-052F to commence development of the electric power plant facility. Only A maximum of one (1) administrative time extension for a maximum of twelve (12) months may be granted. (DATE: MONITORING – Zoning) [This condition is applicable to the power plant only.]

B. ACCESS AND INTERNAL CIRCULATION

1. **Access for all hauling activity associated with excavation activity on the site shall be limited to one (1) point at any time to SR 80.** (ONGOING: CODE ENF – Zoning) (Previous Condition B.1 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]
2. **Internal traffic and vehicular circulation shall be in a forward motion with warning signals on all vehicles reduced to the minimum sound level allowed by OSHA standards.** (ONGOING: ~~ENGC~~CODE ENF – Zoning) (Previous Condition B.2 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]

C. BLASTING

1. **The petitioner shall abide by and implement the best management practice, techniques and methods for blasting to reduce noise and vibration and all recommendations in the report by D. E. Siskind & Associates dated December 13, 1996 and June 27, 2000, as may be amended. In cases of conflict with the ULDC or conditions of approval, the more strict requirement shall apply.** (ONGOING: CODE ENF – Zoning) (Previous Condition C.1 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]

2. The petitioner shall comply with the following blasting regulations:

BLASTING REGULATIONS

PARAMETER	INSTRUMENT REQUIREMENTS	PERFORMANCE REQUIREMENTS
Ground vibrations	Seismographs: peak values of particle velocity for all three components of motion	Maximum of 0.20 in/sec peak at all frequencies for all components of motion (R,V,T)
Ground vibrations Non-monitoring alternative	Scaled distance	Minimum square root scaled distance of 200 ft/lb ² , or 1320 feet to closest residence, whichever is greater
Airblast	Monitor with low frequency roll off of 2 Hz	133 dBL linear peak (equates to approximately 90 - 110 dBA)
Airblast	Monitor with low frequency roll off of 5 or 6 Hz	129 dBL linear peak
Airblast	Non-monitoring alternative	Minimum cube root scaled distance of 500 ft/lb ^{1/3}
Flyrock	Visual observations	Not more than half the distance from the blast site to the property line
Preblast inspections	Documented inspection reports for operator and requestor	Upon request by any property owner within 2 mile of property line or a government official.
Record keeping/ monitoring	Blast and seismograph records	Copies maintained by operator for at least three years, available for agency and public inspection on request

(ONGOING: CODE ENF – Zoning) (Previous Condition C.2 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]

3. The petitioner shall comply with the following blasting standards:

BLASTING STANDARDS

Schedule	Max. one (1) blast per day, M-F only
Time	Between 10:00 am - 4:30 p.m. only
Charges	Max. 200 timed delayed charges/blast
Explosives	Max. 160 lbs/8 millisecond delay
Holes	Max. 200 holes/blast

(ONGOING: CODE ENF – Zoning) (Previous Condition C.3 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]

4. No blast shall be detonated within the required separation areas set forth in Condition N.1. (ONGOING: CODE ENF – Zoning) (Previous Condition C.4 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]

5. **All use of explosives for blasting rock shall adhere to the following criteria:**
 - a. **Blasting shall be done with the existing overburden (e.g. fill) in place;**
 - b. **Blasting charges shall be set to minimize multiple charge detonations;**
 - c. **Blasting in areas where the overburden has been previously removed, or is insufficient to control air blast, shall be subject to best management practices for blasting and shall make all effort to control air blast. (ONGOING: CODE ENF – Zoning) (Previous Condition C.5 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only].**
6. **The petitioner shall install a temporary fence indicating the required separation (see Condition N.1) for all blasting activity prior to commencement of excavation in any subphase. The location of the fence shall be verified by a registered surveyor and submitted to the DRC. (ONGOING: CODE ENF/DRO – Zoning) (Previous Condition C.6 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only].**
7. **All seismographs shall measure all ground vibration in excess of 0.10 in/sec. and all air blast in excess of 125 dBLinear peak. (ONGOING: CODE ENF/DRO – Zoning) (Previous Condition C.7 of Resolution R-2002-1472, Petition DOA89-052(D)) [This condition is applicable to Palm Beach Aggregates only.]**
8. **A minimum of two (2) seismographs shall be located on the subject site. One seismograph shall have a permanent location, as indicated on the approved site plan which may be amended as needed. The second seismograph may be permanent or mobile and located at the closest abutting residential property line that faces the blasting activity. (ONGOING: CODE ENF – Zoning) (Previous Condition C.8 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]**
9. **The petitioner shall ensure that the seismograph instruments are recalibrated in accordance with standard industry practices at least once per year. (ONGOING: CODE ENF – Zoning) (Previous Condition C.9 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]**

D. DRI

1. **Condition D.1 of Resolution R-2003-0324, Petition EAC1989-052(E) which currently states:**

No subphase shall exceed eighty (80) acres of removal or disturbance of solid minerals or overburden per year.

Is hereby amended to read:

No subphase shall exceed one-hundred (100) acres of removal or disturbance of solid minerals or overburden per year. Removal or disturbance of solid materials or overburden required to implement the SFWMD reservoir system shall be exempt from this requirement. (ONGOING: CODE ENF – Zoning) [This condition is applicable to Palm Beach Aggregates only.]

2. **Daily water consumption for the mine shall not exceed 1.5 million gallons per day (mgd). (ONGOING: SFWMD-Zoning) (Previous Condition D.2 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]**

3. **Prior to commencement of excavation activity within the next subphase, or January 30, 1998, whichever occurs first, the petitioner shall obtain a development of regional impact (DRI) clearance letter from the Florida Department of Community Affairs (DCA). (DATE: MONITORING - Zoning) (Previous Condition D.3 of Resolution R-2003-0324, Petition EAC1989-052(E)). [Note: Completed.] [This condition is applicable to Palm Beach Aggregates only.]**

E. ENGINEERING

1. Condition E.1. of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

Prior to certification of the master plan/site plan by the DRC, the plans shall be amended to reflect the Okeechobee Road right-of-way. This right-of-way corridor shall be through an alignment acceptable to the County Engineer. (DRC: ENG-Eng) ~~(Previous Condition E.1 of Resolution R-2003-0324, Petition DOA/EAC1989-052(E)).~~

Is hereby amended to read:

Prior to final approval of the master plan/site plan by the Development Review Officer (DRO), the plans shall be amended to reflect the Okeechobee Road right-of-way. This right-of-way corridor shall be through an alignment acceptable to the County Engineer. (DRO: ENG-Eng)

- a. **The property owner shall convey to Palm Beach County 200 feet of road right of way for Okeechobee Boulevard from the east property line to the L-8 Canal within 90 days of a determination that the right of way is required. (ONGOING: ENG-Eng) (Previous Condition E.1.a of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]**

Condition E.1.b of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

- b. **West of the L-8 Canal, the property owner shall convey to Palm Beach County 200 feet of road right of way for Okeechobee Boulevard. The alignment, which crosses the FP&L easement, shall be approved by the County Engineer. This right of way shall be conveyed to Palm Beach County within 90 days notice by the County Engineer that this additional right of way is**

required for Okeechobee Boulevard or prior to the cessation of the mining activity, whichever shall first occur.

Is hereby amended to read:

- b. **The property owner shall convey to Palm Beach County 200 feet of road right of way for Okeechobee Boulevard from the northeast corner of Section 29, Range 40, Township 43, westerly crossing the Florida Power and Light transmission line and passing north of the FPL Corbett Substation. All right of way shall be conveyed within ninety (90) days of a determination that the right of way is required. Right of way conveyance shall be free of all encumbrances and encroachments. The Developer shall provide Palm Beach County with sufficient documentation acceptable to the Right of Way Acquisition Section to ensure that the property is free of all encumbrances and encroachments, except for the existing Florida Power and Light easements through the site. The Grantor also agrees to provide Palm Beach County an environmental report, subject to the approval of County Engineer, demonstrating that this property meets all appropriate and applicable environmental agency requirements. In the event the report makes a determination of contamination which requires remediation or clean**

up on the property now owned by the Grantor, the Grantor agrees to hold the Grantee harmless and shall be responsible for all costs of such clean up, including but not limited to, all applicable permit fees, Engineering or other expert witness fees including Attorney's fees as well as the actual cost of the clean up prior to dedication. Thoroughfare Plan Road right-of-way conveyances shall be consistent with Palm Beach County's Thoroughfare Right of Way Identification Map and shall include where appropriate as determined by the County Engineer provisions for Expanded Intersection Details and "Corner Clips." ~~The property owner shall be responsible for the relocation of any Florida Power and Light transmission facilities. The property owner and Florida Power and Light shall also be responsible for coordinating with the Roadway Production Division concerning any transmission facilities relocations within the proposed alignment and there shall be no mining activity within this new alignment. Final alignment of Okeechobee Boulevard shall be approved by the County Engineer. (ONGOING: ENG - Eng) [This condition is applicable to Palm Beach Aggregates only.]~~

2. **The property owner shall construct a left turn lane west approach and a separate right turn lane east approach at the project entrance and SR80.**
 - a. **This construction shall be concurrent with the paving and drainage improvements for the site. Any and all costs associated with the construction shall be paid by the property owner. These costs shall include, but are not limited to, utility relocations and acquisition of any additional required right-of-way. (DRAINAGE REVIEW: ENG - Eng) (Previous Condition E.2.a of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]**
 - b. **Permits required by Palm Beach County for this construction shall be obtained prior to May 1, 1997. (DATE: MONITORING - Eng) (Previous Condition E.2.b of Resolution R-2003-0324, Petition EAC1989-052(E)). [NOTE: Completed.] [This condition is applicable to Palm Beach Aggregates only.]**
 - c. **Construction shall be completed prior to July 1, 1997. (DATE: MONITORING - Eng) (Previous Condition E.2.c of Resolution R-2003-0324, Petition EAC1989-052(E)). [NOTE: Completed.] [This condition is applicable to Palm Beach Aggregates only.]**
3. **The property owner shall be responsible for maintaining all turnouts, acceleration lanes, and median openings within the SR 80 road right of way for the duration of the mining operation. Within 60 days of notice from the FDOT, the property owner shall perform the required maintenance to correct any and all defects. This property owner will be responsible for obtaining all permits from FDOT for this maintenance or repair work. (ONGOING: ENG - Eng) (Previous Condition E.3 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]**
4. **The property owner shall convey to Palm Beach County sufficient road drainage easement(s) through the project's internal drainage system, as required by and approved by the County Engineer, to provide legal positive outfall for runoff from those segments of Okeechobee Boulevard along the property frontage; and a maximum 800 feet of these adjacent roadway(s). Conveyance of these drainage easements shall be concurrent with the right of way dedication of Okeechobee Boulevard as provided for in E2 above. The limits of this additional 800 feet of drainage shall be determined by the County Engineer. Said easements shall be no less than 20**

feet in width. Portions of such system not included within roadways or waterways dedicated for drainage purposes will be specifically encumbered by said minimum 20 foot drainage easement from the point of origin, to the point of legal positive outfall.

The drainage system within the project shall have sufficient retention/detention and conveyance capacity to meet the storm water discharge and treatment requirements of Palm Beach County and the applicable Drainage District, as well as the South Florida Water Management District, for the combined runoff from the project to accommodate the ultimate Thoroughfare Plan Road Section(s) of the included segment. If required and approved by the County Engineer the property owner shall construct within the proposed drainage easements a minimum of 24 inch closed piping system and appropriate wingwall or other structures as required by and approved by the County Engineer. Elevation and location of the entire drainage system shall be approved by the County Engineer. Any and all excess fill material from excavation by Palm Beach County within said easements shall become the property of Palm Beach County which at its discretion may use this fill material. (DATE: MONITORING - Eng) (Previous Condition E.4 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]

5. Condition E.5 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states

The property owner shall pay a Fair Share Fee in the amount and manner required by the "Fair Share Contribution for Road Improvements Ordinance" as it presently exists or as it may from time to time be amended. The Fair Share Fee for this project, to be paid at time of issuance of the next building permit, presently is \$77,110 (1402 trips X \$55.00 per trip).

Is hereby deleted. [REASON: Impact fees are now a code requirement.]
[This condition/requirement should be applicable to Palm Beach Aggregates and the power plant.]

6. Condition E.6 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

LANDSCAPE WITHIN MEDIAN OF SOUTHERN BOULEVARD

- a. Prior to December 1, 2002 the property owner shall apply to the Palm Beach County Engineering and Public Works Department for a permit to landscape the adjacent median of Southern Boulevard Right-of-Way. This permit, to be completed by the property owner, shall name Palm Beach County as the applicant. As part of this permit process, the property owner shall enter into a Right of Way, Landscape Maintenance, Removal, and Indemnification Agreement. When landscaping is permitted by the Florida Department of Transportation, landscaping shall, at a minimum, consist of the "Low Cost Planting Concept" outlined in the Palm Beach County Engineering and Public Works Department March 1994 Streetscape Standards.

The property owner shall also be responsible for supplementing any existing landscape material previously planted in this median and all new landscape material shall be consistent with the landscaping theme adopted for this roadway. All landscape material, installation, and maintenance requirements shall be subject to the standards set forth by the Streetscape Standards. If all xeriscape material

is utilized, the watering of the plant material during the initial heal-in period shall be the responsibility of the property owner. Alternative species other than those listed in the County standards may be allowed subject to approval by the County Engineer. (DATE: MONITORING – Eng) (Previous Condition E.6.a of Resolution R-2003-0324, Petition EAC1989-052(E)).

- b. All required median landscaping, including an irrigation system if required, shall be installed at the property owners expense. All landscaping, paver block or similar materials shall be the perpetual maintenance obligation of the petitioner and its successors, or assigns or duly established Property Owner's Association or maintenance may be assumed by the County upon payment equal to the long term maintenance cost, in accordance with the adopted policy approved by the Board of County Commissioners.

All existing landscape material shall also be the perpetual maintenance obligation of the petitioner and its successors, heirs or assignees or duly established Property Owner's Association and/or Homeowners's Association. Perpetual maintenance includes, but is not limited to, pruning, fertilizing, irrigation, and alternate watering of Xeriscape material during periods of drought in order to maintain healthy plant material. All landscape material shall be installed on or before June 30, 2003. (DATE: MONITORING – Eng) (Previous Condition E.6.b of Resolution R-2003-0324, Petition EAC1989-052(E)).

- c. If the County does not assume maintenance responsibility, the property owners documents or other restrictive covenant documents, evidencing the maintenance obligation shall be established or amended as required and shall be approved and recorded prior to June 30, 2003. (DATE: MONITORING – Eng) (Previous Condition E.6.c of Resolution R-2003-0324, Petition EAC1989-052(E)).

Is hereby amended to state:

LANDSCAPE WITHIN THE MEDIAN OF SR 80

- a. The petitioner shall design, install and perpetually maintain the median landscaping within the median of all abutting right of way of SR 80. This landscaping and irrigation shall strictly conform with the specifications and standards for the County's Only Trees, Irrigation, and Sod (OTIS) program. Additional landscaping beyond OTIS requires Board of County Commissioners approval. Median landscaping installed by petitioner shall be perpetually maintained by the petitioner, his successors and assigns, without recourse to Palm Beach County, unless petitioner provides payment for maintenance as set forth in Paragraph d below. [This condition is applicable to Palm Beach Aggregate only.]
- b. The necessary permit(s) for this landscaping and irrigation shall be applied for prior to July 1, 2004. (DATE: MONITORING – Eng) [This condition is applicable to Palm Beach Aggregates only.]
- c. All installation of the landscaping and irrigation shall be completed prior to October 1, 2004. (DATE: MONITORING – Eng) [This condition is applicable to Palm Beach Aggregates only.]
- d. At the petitioner's option, when and if the County is ready to install OTIS on the surrounding medians of this roadway adjacent to the petitioner installed landscaping, payment for the maintenance may be provided to the County. The payment shall be in the amount and manner that complies with the schedule for such payments that exists on the date payment is made. Once payment has been

provided, Palm Beach County shall assume the maintenance responsibility for the OTIS landscaping and irrigation that has been installed by the petitioner. The petitioner shall first be required to correct any deficiencies in the landscaping and irrigation. This option is not available to medians with additional landscaping beyond OTIS standards, unless those medians are first brought into conformance with OTIS standards by the Petitioner. (ONGOING: ENG - Eng) [This condition is applicable to Palm Beach Aggregates only.]

- e. At the option of the petitioner, the petitioner may make a contribution to the County's Only Trees Irrigation and Sod, OTIS program, unincorporated thoroughfare beautification program. This payment, for the County's installation of landscaping and irrigation on qualifying thoroughfares shall be based on the project's front footage along SR 80. This payment shall be in the amount and manner that complies with the schedule for such payments as it currently exists or as it may from time to time be amended. (ONGOING: ENG - Eng) [This condition is applicable to Palm Beach Aggregates only.]
- f. The petitioner may elect to design, install and perpetually maintain an alternative to this median landscaping condition acceptable to the County Engineer and approved by the Board of County Commissioners. This alternate design to the Median landscaping installed by petitioner shall be perpetually maintained by the petitioner, his successors and assigns, without recourse to Palm Beach County. Any necessary permit(s) for this landscaping and irrigation alternative plan shall be applied for prior to July 1, 2004. [This condition is applicable to Palm Beach Aggregate only.]
- g. Installation of any landscaping and irrigation option outlined in a, d, or e above shall be completed prior to October 1, 2004. (DATE: MONITORING - Eng) [This condition is applicable to Palm Beach Aggregates only.]
- 7. In order to comply with the mandatory Traffic Performance Standards, excavation shall be limited to seventy-six (76) acres per year or an equivalent acreage based upon a revised traffic study. This revised traffic study will be required to be submitted and approved by the Palm Beach County Traffic Division. An approved phasing plan shall be submitted to the DRC and shall be updated as required. (ONGOING: ENG - Eng) (Previous Condition E.7 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates and the power plant.]
- 8.
 - a. The Property Owner shall fund the construction of an eastbound turn lane, plus appropriate tapers, on Southern Boulevard at it's Intersection with Forest Hill Boulevard (an add/drop lane of a half lane under the ART-PLAN). Funding in the amount of \$185,000 shall be provided to the Land Development Division prior to December 1, 2003. (DATE: MONITORING/ENG - Eng) [This condition is applicable to Palm Beach Aggregates only.]
 - b. Funding of the thru lane shall include but not be limited to the design, construction, utility relocation, review fees, permit fees, construction administration, testing, and surveying and shall be based on a certified cost estimate provided by the Developers Engineer and approved by the County Engineer. (DATE: MONITORING/ENG - Eng) (Previous Condition E.8.A of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]
- 9. Condition E.9 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

In order to comply with the mandatory Traffic Performance Standards, the Developer shall be restricted to the following phasing schedule:

- a. No Building Permits for the proposed power plant shall be issued until construction commences for intersection improvements of an add/drop lane required to meet FDOT guidelines for the addition of a half lane under the ART-PLAN on Southern Boulevard at Forest Hill Boulevard plus the appropriate paved tapers. Construction commences is defined as awarding the contract for the construction, the acquisition of all right of way and construction easements and the acquisition of all required permits. (BLDG PRMT: MONITORING - Eng) (Previous Condition E.9.a of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to both Palm Beach Aggregates and the power plant.]

Is hereby amended to state:

In order to comply with the mandatory Traffic Performance Standards, the Developer shall be restricted to the following phasing schedule:

- a. No Building Permits for the proposed power plant shall be issued until the contract has been awarded for intersection improvements of an add/drop lane required to meet FDOT guidelines for the addition of a half lane under the ART-PLAN on Southern Boulevard at Forest Hill Boulevard plus the appropriate paved tapers. Phasing for this site may be adjusted by the County Engineer based upon an approved Traffic Study which complies with Mandatory Traffic Performance Standards in place at the time of the request. (DATE:MONITORING:Eng) (BLDG PRMT: MONITORING - Eng) (Previous Condition E.9.a of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to both Palm Beach Aggregates and the power plant.]

F. ERM

1. Condition F.1 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

A Chloride and Mercury Monitoring Plan addressing the time between site plan certification and the time at which chlorides are to be channeled around the property (Plan 1) and the time after which chlorides are no longer channeled around the property and placed into open pits (Plan 2) shall be submitted to the Department of Environmental Resources Management for review and approval prior to DRC Site Plan certification.

Is hereby amended to read:

A Chloride and Mercury Monitoring Plan addressing the time between site plan certification and the time at which chlorides are to be channeled around the property (Plan 1) and the time after which chlorides are no longer channeled around the property and placed into open pits (Plan 2) shall be submitted to the Department of Environmental Resources Management for review and approval prior to Development Review Officer (DRO) Site Plan certification. This condition will expire for reservoir areas which are completed and accepted for possession by SFWMD. (DRO: ERM - ERM) [This condition is applicable to Palm Beach Aggregates only.]

2. Condition F.2 of Resolution R-2003-0324, Petition EAC1989-052(E) which currently states:

A minimum 400 foot wide wildlife corridor, except adjacent to the south one half of the east border of Section 20 which may be reduced to 200 feet, shall be established along the western border of the L-8 canal for the entire length of the property. A maximum 92 foot wide littoral shelf may encroach the 400 foot corridor. No littoral shelf shall be permitted to encroach the 200 foot wide segment. The wildlife corridor shall be shown with the proposed Okeechobee Road right-of-way on the Final Excavation Plan and all applicable site plans prior to DRC certification. (DRC: ERM - ERM) (~~Previous Condition F.2 of Resolution R-2003-0324, Petition DOA/EAC1989-052(E).~~)

Is hereby amended to read:

A minimum 400 foot wide wildlife corridor, except adjacent to the south one half of the east border of Section 20 which may be reduced to 200 feet, shall be established along the western border of the L-8 canal for the entire length of the property. A maximum 92 foot wide littoral shelf may encroach the 400 foot corridor. No littoral shelf shall be permitted to encroach the 200 foot wide segment. The wildlife corridor shall be shown with the proposed Okeechobee Road right-of-way on the Final Excavation Plan and all applicable site plans prior to final approval by the Development Review Officer (DRO). (DRO: ERM - ERM) [This condition is applicable to Palm Beach Aggregates and SFWMD.]

3. Condition F.3 of Resolution R-2003-0324, Petition EAC1989-052(E) which currently states:

Landscape Plan which details the planting of the wildlife corridor, dedication of the corridor to Palm Beach County, and the long-term maintenance of the corridor vegetation shall be submitted to the Department of Environmental Resources Management for review and approval prior to DRC site plan certification. (DRC: ERM - ERM)

Is hereby amended to read:

Landscape Plan which details the planting of the wildlife corridor, dedication of the corridor to Palm Beach County, and the long-term maintenance of the corridor vegetation shall be submitted to the Department of Environmental Resources Management for review and approval prior to final site plan approval by the Development Review Officer (DRO). (DRO: ERM - ERM) [This condition is applicable to Palm Beach Aggregates and SFWMD.]

4. Maximum depth of all excavation shall be -50 feet from OWL. (ONGOING: ERM - ERM) (Previous Condition F.4 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates and SFWMD.]
5. Prior to final site plan approval an agreement shall be signed and executed determining the timing of conveyance of the wildlife corridor, reconstruction of the encroached areas of the corridor, timing of planting, maintenance of planting and grading of corridor. (DRO: ERM-ERM) (Previous Condition F.5 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates and SFWMD.]
6. Condition F.6 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

An application for modification to the existing Restrictive Covenant Agreement shall be submitted by final site plan addressing any variations from the original approved agreement.

Is hereby deleted. [REASON: No prior agreement has been entered.]

G. HEALTH

1. Condition G.1 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

Application and engineering plans to construct a non-transient non-community well in accordance with Rule 62-555 FAC and Palm Beach County ECR-II must be submitted to the Palm Beach County Health Department prior to final site plan approval.

Is hereby amended to read:

Prior to final site plan approval by the Development Review Officer (DRO), an application and engineering plan to construct an onsite sewage treatment and disposal system (OSTDS) in accordance with Rule 64E-6 FAC and Palm Beach County ECR-I shall be submitted to the Palm Beach County Health Department. (DRO: HEALTH – Health) [This condition is applicable to Palm Beach Aggregates and the power plant.]

2. Condition G.2 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

Application and engineering plans to construct an onsite sewage treatment and disposal system (OSTDS) in accordance with Rule 64E-6 FAC and Palm Beach County ECR-I must be submitted to the Palm Beach County Health Department prior to final site plan approval. (DRC: HEALTH)

Is hereby amended to read:

Prior to final site plan approval by the Development Review Officer (DRO), an application and engineering plans to construct a non-transient, non-community water systems in accordance with Rule 62-555 FAC and Palm Beach County ECR-II shall be submitted to the Palm Beach County Health Department. (DRO: HEALTH – Health) [This condition is applicable to Palm Beach Aggregates and the power plant.]

3. In accordance with Chapters 62-4, 62-17, 62-210, 62-212, and 62-213, of the Florida Administrative Code, the applicant shall apply for and obtain all federal/state air pollution construction permits and/or certifications prior to commencement of construction. Copies of each application shall be submitted to the Palm Beach County Health Department's Air Pollution Control Section at 901 Severna Street, West Palm Beach, Florida 33401 at time such applications are submitted to the permitting authority. (ONGOING: HEALTH – Health) (Previous Condition G.3 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates and the power plant.]
4. ~~As referenced in Pursuant to Condition A.2, the applicant property owner(s)~~ shall use ultra low sulfur distillate with sulfur content no greater than 0.05 % 0.0015% by weight as secondary fuel. If this level distillate fuel is not available then the fuel sulfur level shall not be more than 0.05% sulfur by weight. The low sulfur distillate fuel shall be used for no more than 500 hours, per 12-month rolling total. (ONGOING: HEALTH/CODE ENF – Health) [This condition is applicable to the power plant only.]
5. Upon submittal of an air permit application to the Florida Department of Environmental Protection (FDEP); the applicant property owner(s) shall submit to Palm Beach County Health Department (PBCHD) a multi-source NAAQS and Class II PSD Increment analyses for criteria pollutant, for the entire project at build out. The increment analyses shall include all the contributions from other sources significantly impacting the site if the predicted increase in impacts for these pollutants is above the significant impact level for a Class II established by EPA. Approval for this project is contingent upon predicted impacts from the multi-source Class II increment analysis demonstrating consumption of no more than 50 % of the available

increment (total aggregate from all sources). This condition shall be included in the air permit application to Florida Department of Environmental Protection (FDEP). The applicant shall seek further approval from the ULDC and the Board of County Commissioners if a higher percent of the increment is consumed. (ONGOING: HEALTH/CODE ENF – Health) [This condition is applicable to the power plant only.]

H. HOURS OF OPERATION

1. **Excavation, loading and hauling activity shall occur only between the hours of 6:00 a.m. to 10:00 p.m. Monday through Friday, and 7:00 a.m. to 5:00 p.m. on Saturday. No excavation shall be permitted after 10:00 p.m. (ONGOING: CODE ENF – Zoning) (Previous Condition H.1 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]**
2. **Loading and hauling only may occur between the hours of 10:00 p.m. and 6:00 a.m. Monday through Friday provided all of the following conditions are satisfied:**
 - a. **The work is required by a written government contract, a copy of the government contract and the property owner's contract to do the work, will be provided to the County within ten (10) days of execution;**
 - b. **The property owner provides the County and the neighboring Property Owner's Associations of the dates and times that such work will occur in order to provide sufficient time to set up a program to monitor the work;**
 - c. **The noise associated with the activity shall not exceed 45 dBA as measured in the performance standards of the ULDC Section 7.8;**
 - d. **No loading or hauling activity is done within 2,500 feet of a residential property line; and,**
 - e. **No rock crushing, grinding or processing of any nature shall be permitted after 10:00 p.m. (ONGOING: CODE ENF – Zoning) (Previous Condition H.2 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]**
3. **All uses shall not exceed 45 dBA as measured in the Performance standards of Section 7.8 of the ULDC. Noise shall be measured from the residential property line closest to the area under excavation. (ONGOING: CODE ENF – Zoning) (Previous Condition H.3 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]**
4. **Condition H.4 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:**

Hours of operation shall not apply to the accessory asphalt or concrete batch plant.

Is hereby amended to read:

Hours of operation shall not apply to the accessory asphalt /or concrete batch plant or power plant or any activities, excluding blasting, west of the Florida Power and Light (FP&L) transmission line right-of-way, which includes portions of Section 13, Township 43S, Range 39E, and portions of Sections 19, 20 and 30, Township 43S, Range 40E. (ONGOING: CODE ENF-Zoning) [This condition is applicable to Palm Beach Aggregates only.]

5. **The rock processing plant, accessory asphalt plant and concrete batch plant shall be located a minimum of 2,500 feet from the property lines of the developments currently known as Deer Run, White Fences and Equestrian Estates. (ONGOING: CODE ENF -**

Zoning) (Previous Condition H.5 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]

I. LANDSCAPE/BUFFERING

1. The petitioner shall provide a minimum twenty-five (25) foot wide Alternative No. 4 landscape buffer along the north boundary of Sections 28 & 27. (DRC: ZONING – Zoning) (Previous Condition I.1 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to the Palm Beach Aggregates.]
2.
 - a. The petitioner shall provide a minimum fifteen (15) feet high berm graded at a 5:1 slope with native landscape plantings within the western side of the 400 feet wide wildlife corridor.
 - b. The petitioner shall provide a minimum fifteen (15) feet high berm graded at a 3:1 slope along the Southern Boulevard frontage (Section 32 west of L-8 Canal) and an alternative slope ratio/overall height for the landscaped berm along the west property line north to the existing Corbett Substation subject to FP&L guidelines.
 - c. The plateau of the berms shall include a double row of canopy trees planted fifteen (15) feet on center with fifty (50) percent of the trees a minimum fourteen (14) feet high.
 - d. All berm slopes shall be planted with native grasses and ground cover. (DRC: ZONING/LANDSCAPE – Zoning) (Previous Condition I.2.d of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]
3. The petitioner shall further enhance the wildlife corridor by providing one (1) native tree sapling, a minimum of eighteen inches (18") in height for every 2500 square feet of land area in the corridor. (DRC: ZONING – Zoning) (Previous Condition I.3 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]
4. All landscaping required in the wildlife corridor shall be installed prior to commencement of any excavation activity within Phase 3 (aka Lake #3), unless the wildlife corridor is dedicated to the County, including the associated funds to plant the landscaping as specified in Conditions H.1 - H.3 above. (DRO: ZONING – Zoning) (Previous Condition I.4 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]
5. All outdoor lighting used to illuminate the subject property shall be shielded and directed down and away from adjacent residential properties and streets. (CO/ONGOING: BLDG/CODE ENF – Zoning) (Previous Condition I.5 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to both Palm Beach Aggregates and the power plant.]
6. Rock plant lighting shall not exceed fifty (50) feet in height, measured from finished grade to highest point, provided the lighting is shielded and directed away from residential areas. All other outdoor lighting fixtures shall not exceed twenty five (25) feet in height, measured from finished grade to highest point. (CO: BLDG – Zoning) (Previous Condition I.6 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]
7. The required perimeter landscape buffer shall be installed adjacent to the asphalt batch/concrete plant if the plant is not located within

the existing rock processing area. (DRC: ZONING – Landscape) (Previous Condition I.7 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]

J. LITTORAL SHELVES

1. All littoral shelves along the following sections lines shall be constructed at a minimum 20:1 slope and be a minimum of 92 feet wide, measured from top of bank to edge of pit: east sides of Sections 17, 20, 29, 32, 27 and 34, south sides of Sections 32, 33 and 34, north side of Sections 28 & 27. This criteria may be deleted or modified with a modification of the existing excavation Restrictive Covenant Agreement. (ONGOING: ERM-ERM) (Previous Condition J.1 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]
2. All littoral shelves as may be required by the ERM agreement shall be created by grading only. Littoral shelves shall not created by excavation. (ONGOING: ERM – ERM) (Previous Condition J.2 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]

K. MONITORING

1. Condition K.1 of Resolution R-2003-0324, Petition EAC1989-052(E) which currently states:

The Excavation Activity Monitoring Report required by Section 7.6.H.5.a. of the ULDC shall be submitted on or before March 15 annually. This excavation activity report shall include certification and documentation that all seismograph instruments have been re-calibrated within the calendar year. (DATE: MONITORING – Zoning)

Is hereby amended to read:

The Excavation Activity Monitoring Report required by Section 7.6.H.5.a. of the ULDC shall be submitted to the Zoning Division and Environmental Resources Management Department on or before March 15 annually. This excavation activity report shall include certification and documentation that all seismograph instruments have been re-calibrated within the calendar year. (DATE: ZONING/ERM– Zoning)[This condition is applicable to Palm Beach Aggregates only.]

2. Condition K.2 of Resolution R-2003-0324, Petition EAC1989-052(E) which currently states:

The annual Excavation Activity Monitoring Report shall contain a current aerial photograph of the site clearly outlining the areas of current and completed excavation. The acreage of each area shall be provided. Additional information may be required by the Development Review Committee (DRC). (ONGOING: ZONING – Zoning)

Is hereby amended to read:

The annual Excavation Activity Monitoring Report pursuant to Condition K.1 shall contain a current aerial photograph of the site clearly outlining the areas of current and completed excavation. The acreage of each area shall be provided. Additional information may be required by the

Development Review Officer. (DATE: ZONING/ERM – Zoning) [This condition is applicable to Palm Beach Aggregates only.]

3. Condition K.3 of Resolution R-2003-0324, Petition EAC1989-052(E) which currently states:

The Maintenance and Monitoring Report of Reclaimed Areas required by Section 7.6.H.5.b. of the ULDC shall be submitted on or before March 15 annually. (DATE: MONITORING - Zoning)

Is hereby amended to read:

The Maintenance and Monitoring Report of Reclaimed Areas required by Section 7.6.H.5.b. of the ULDC shall be submitted on or before March 15 annually including a map identifying ownerships of land as shown on plan dated February 18, 2004. (DATE: MONITORING - Zoning) [This condition is applicable to Palm Beach Aggregates only.]

4. In accordance with good record keeping practices, the petitioner shall maintain a daily blasting log with the following minimum information:
 - a. Name of operator or responsible person;
 - b. Date and time of blast;
 - c. Blast location (face and bench);
 - d. Monitoring location;
 - e. Distance to monitoring site;
 - f. Distance to nearest residential structure;
 - g. Lbs. of explosive, total;
 - h. Lbs of explosive/8 millisecond delay;
 - i. Peak ground vibrations for all 3 components of motion;
 - j. Peak airblast and frequency roll-off of the airblast channel;
 - k. Trigger settings for vibration and airblast;
 - l. Frequencies of peak ground vibrations; and
 - m. Other information required by the ULDC or as deemed necessary by the DRC. (ONGOING: DRC - Zoning) (Previous Condition K.4 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]
5. The blasting log shall be made available to the public or any government official on request. (ONGOING: CODE ENF - Zoning) (Previous Condition K.5 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]
6. The petitioner shall keep time histories (wave traces) for all events which exceed 0.10 in/sec. The petitioner shall provide written notification, with the seismograph reading, to the Zoning Director within 24 hours of any blasting event which exceed a ground vibration of 0.20 in/sec. (ONGOING: CODE ENF - Zoning) (Previous Condition K.6 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]
7. The petitioner shall maintain all blasting activity logs for a minimum of three (3) years. (ONGOING: CODE ENF - Zoning) (Previous Condition K.7 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]

PARKS

1. Condition L.1 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

The petitioner shall coordinate with the County Park & Recreation Department in providing an end use plan that allows for public boating access to on site lakes and other public recreational uses within the projects boundaries. (ONGOING: PARKS-Parks)

Is hereby deleted. [REASON: SFWMD will determine the suitability for public access and recreational use of the site based upon District Policy.]

PHASING

1. **Prior to certification of the Phasing Plan by the DRC, the Plan shall be revised to indicate completion of the subphases adjacent to the Wildlife Corridor along the L-8 canal first within Lake 1. (DRC: ZONING – Zoning) (Previous Condition M.1 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]**
2. **Condition M.2 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:**

A maximum of 3 subphases (maximum 240 acres) shall be in active excavation at any time.

Is hereby amended to read:

A maximum of three (3) sub-phases (a maximum of 300 acres) shall be in active excavation at any time. This condition does shall not apply to lands owned by the SFWMD. (ONGOING: CODE ENF – Zoning) [This condition is applicable to Palm Beach Aggregates only.]

N. RECLAMATION

1. **Condition N.1 of Resolution R-2003-0324, Petition EAC1989-052(E)), which currently states:**

A minimum of 300 acres of reclaimed area shall be provided, consistent with the graphic depiction on the overall excavation plan submitted by the applicant dated November 22, 1996.

Is hereby amended to read:

The upland reclaimed area to be provided shall be consistent with SFWMD plans for its reservoir project, and as depicted on the plans submitted by Palm Beach Aggregates for the non-SFWMD excavation. As Built plans for each phase shall be submitted to Palm Beach County prior to the commencement of the next phase in accordance with the approved phasing plan. (DRO: ERM/ZONING – Zoning) [This condition is applicable to Palm Beach Aggregates only.]

2. **A modified Phasing Plan and modified Notice of Intent to Construct application shall be submitted to the Department of Environmental Resources Management prior to DRO site plan approval. (DRO:ERM-ERM)[This condition is applicable to Palm Beach Aggregates only.]**

- ~~2-3.~~ **Condition N.2 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:**

A minimum of 1 subphase shall be reclaimed annually, until completion of the project.

Is hereby amended to read:

All reclamation shall be consistent with the South Florida Water Management District Plan or by agreement with SFWMD, Palm Beach County and Palm Beach Aggregates. (ONGOING: ZONING – Zoning) [This condition is applicable to Palm Beach Aggregates only.]

- ~~3-4.~~ **Prior to December 31, 1999, the petitioner shall complete reclamation of all previously excavated areas within Lake 1. (DATE: MONITORING – Zoning) (Previous Condition N.3 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]**

O. SEPARATION

1. The petitioner shall meet the following separation requirements, measured as a radius from the closest residence to the edge of pit being excavated:

SEPARATION

Property Line	Separation
North - Section 17	900 feet
North - Section 28 & 27	1120 feet
South - Section 32	900 feet
South - Section 33	900 feet
East - Sections 17 & 20	900 feet
East - Sections 27 & 34	1320 feet
West	900 feet

(DRO: Zoning - Zoning) (Previous Condition O.1 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates only.]

P. SETBACK

1. Condition P.1 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

The petitioner shall comply with the following minimum setbacks, measured from the property line to the top of bank:

SETBACKS

Property Line	Required Setback
North - Sections 13, 17, 18	50 feet
North - Sections 28 & 27	568 feet
South	108 feet
East - Section 17	308 feet
East - Section 27 & 34	108 feet
West - Section 32	795 feet
West - Sections 13, 19, 30	108 feet
Internal R-O-W	50 feet
Processing Equipment	2,500 feet from residential uses/800 feet from all property lines and 200 feet from Southern Boulevard right of way in Section 32 only
Stockpiles	Same as above
Accessory buildings	100 feet

Is hereby amended to read:

The property owner(s) ~~petitioner~~ shall comply with the following minimum setbacks, measured from the property line to the top of bank for all excavation related activity ~~PBA, electric power facility, and SFWMD excavation-related activities~~:

SETBACKS

Property Line	Required Setback
North - Sections 13, 17, 18	50 feet
North - Sections 28 & 27	568 feet
South	108 feet

East - Section 17	308 feet
East - Section 27 & 34	108 feet
West - Section 32	795 feet
West - Sections 13,19,30	108 feet
Internal R-O-W	50 feet
Processing Equipment	2,500 feet from residential uses/800 feet from all property lines and 200 feet from Southern Boulevard right of way in Section 32 only.
Stockpiles	Same as above, except 300 feet for S, E and W property lines
Accessory buildings	100 feet

(DRO: Zoning - Zoning) [This condition is applicable to Palm Beach Aggregates only.]

Q. SIGNS

1. Freestanding point of purchase signs fronting on Southern Boulevard shall be limited as follows:
 - a. Maximum sign height, measured from finished grade to highest point - ten (10) feet;
 - b. Maximum sign face area per side - 100 square feet;
 - c. Maximum number of signs - two (2); and
 - d. Style - monument style only. (CO: BLDG - Zoning) ((Previous Condition Q.1 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates and the power plant.]

R. TOWERS

1. Previous Condition R.1 of Resolution R-2003-0324, Petition EAC1989-052(E), which currently states:

The heat dispensing towers height shall be a maximum of one hundred and twenty (120) feet high unless additional height is required to comply with Department of Environmental Protection guidelines.

Is hereby amended to read:

The heat dispensing towers height shall be a maximum of one hundred and twenty (120) feet high unless additional height is approved to comply with Florida Department of Environmental Protection guidelines and approved by the Governor and Cabinet sitting as the Power Plant Siting Board. Additional height to accommodate safety clearance, emission air monitoring and noise attenuation equipments shall not exceed an overall height of one hundred and fifty (150) feet of each tower. (DRO/BLDG PRMT: HEALTH/BLDG - Health) [This condition applies to Palm Beach Aggregates and the power plant.]

2. Condition R.2 of Resolution R-2003-0324, Petition EAC1989-052(E) which currently states:

Aircraft obstruction lighting for the heat dispensing towers shall be subject to FAA/FAR guidelines Part 77 and if required, shall be limited to red steady burning type lighting. (DRC: AIRPORTS/ZONING)

Is hereby amended to read:

Aircraft obstruction lighting for the heat dispensing towers shall be subject to FAA/FAR guidelines Part 77, and shall be limited to red steady burning type lighting, unless otherwise required by FAA. (DRO:

AIRPORTS/ZONING) [This condition applies to Palm Beach Aggregates and the power plant.]

S. USE LIMITATION(S)

1. Condition S.1 of Resolution R-2003-0324, Petition EAC1989-052(E) which currently states:

All pumps shall be limited to electric only.

Is hereby amended to read:

All pumps shall be limited to electric only. This condition shall not be applicable to the SFWMD. (CODE ENF: ONGOING - Zoning) [This condition is applicable to Palm Beach Aggregates only.]

T. WATER SUPPLY

1. Condition T.2 of Resolution R-2003-0324, Petition EAC1989-052(E) which currently states:

Applicant agrees to create equivalent water storage to replace water storage used by the power plant within eight (8) years of the use of water storage by power plant facilities by dredging existing mined areas or other alternatives acceptable to the County. (ONGOING: MONITORING -Utilities) (Previous Condition T.2 of Resolution R-2003-0324, Petition EAC1989-052(E)) [This condition is applicable to Palm Beach Aggregates only.]

Is hereby deleted. [REASON: PBCWUD no longer required these conditions since SFWMD has now a contract with PBA on the use of pits for this exact use.]

2. **Applicant shall not negatively affect water quality or temperature in a manner that will prohibit discharge of water from the mined area to the surrounding canal system as determined by agencies with jurisdiction over the subject area. (ONGOING: MONITORING - Utilities) [This condition is applicable to both Palm Beach Aggregates and the power plant.] (Previous Condition T.2 of Resolution R-2003-0324, Petition DOA/EAC1989-052(E))**

3. The Palm Beach County Water Utilities Department shall provide potable water, reclaimed water and wastewater to all portions of the subject property except those unincorporated areas where the Palm Beach County Water Utilities Department has granted or assigned utility service area rights to a public or privately owned portable water, reclaimed water and/or wastewater utility or in areas where the Palm Beach County Water Utilities Department is specially excluded from providing utility service by Florida Statute. (ONGOING: UTILITIES - Utilities) [This condition is applicable to Palm Beach Aggregates, SFWMD and the power plant.]

U. PLANNING

1. Condition U.1 of Resolution R-2003-0324, Petition EAC1989-052(E) which currently states:

Should any archeological materials be uncovered, the Planning Director shall be contacted immediately, and all work on the pit shall cease until such time as "the find" has been examined, catalogued, and recorded and preservation status determined, as required by ULDC Section 7.13 Archeological Resource Protection. (ONGOING: CODE ENF/PLANNING - Planning) (Previous Condition U.1 of Resolution R-2003-0324, Petition DOA/EAC1989-052(E)).

Is hereby amended to read:

Should any archeological materials be uncovered, the Planning Director shall be contacted immediately, and all work on the pit shall cease until such time as "the find" has been examined, catalogued, and recorded and preservation status determined, as required by the ULDC. (ONGOING: CODE ENF/PLANNING – Planning). [This condition is applicable to Palm Beach Aggregates and the power plant.]

V. COMPLIANCE

1. In granting this approval, the Board of County Commissioners relied upon the oral and written representations of the petitioner both on the record and as part of the application process. Deviations from or violation of these representations shall cause the approval to be presented to the Board of County Commissioners for review under the compliance condition of this approval. (ONGOING: MONITORING – Zoning) (Previous Condition V.1 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates, SFWMD and the power plant.]
2. Failure to comply with any of the conditions of approval for the subject property at any time may result in:
 - a. The issuance of a stop work order; the issuance of a cease and desist order; the denial or revocation of a building permit; the denial or revocation of a Certificate of Occupancy; the denial of any other permit, license or approval to any developer, owner, lessee, or user of the subject property; the revocation of any other permit, license or approval from any developer, owner, lessee, or user of the subject property; revocation of any concurrency; and/or
 - b. The revocation of the Official Map Amendment, Conditional Use, Requested Use, Development Order Amendment, and/or any other zoning approval; and/or
 - c. A requirement of the development to conform with the standards of the ULDC at the time of the finding of non-compliance, or the addition or modification of conditions reasonably related to the failure to comply with existing conditions; and/or
 - d. Referral to code enforcement; and/or
 - e. Imposition of entitlement density or intensity.

Staff may be directed by the Executive Director of PZ&B or a Code Enforcement Special Master to schedule a Status Report before the body which approved the Official Zoning Map Amendment, Conditional Use, Requested Use, Development Order Amendment, and/or other zoning approval, in accordance with the provisions of Section 5.8 of the ULDC, in response to any flagrant violation and/or continued violation of any condition of approval.

Appeals of any departmental administrative actions hereunder may be taken to the Palm Beach County Board of Adjustment or as otherwise provided in the Unified Land Development Code (ULDC), as amended. Appeals of any revocation of an Official Zoning Map Amendment, Conditional Use, Requested Use, Development Order Amendment or other actions based on a Board of County Commission decision shall be by petition for writ of certiorari to the Fifteenth Judicial Circuit. (ONGOING: MONITORING – Zoning) (Previous Condition V.2 of Resolution R-2003-0324, Petition EAC1989-052(E)). [This condition is applicable to Palm Beach Aggregates, SFWMD and the power plant.]

3. Responsibility of the owners for compliance with a particular condition shall be as set forth on the following chart.

CONDITION NUMBER AND DESCRIPTION	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY PALM BEACH AGGREGATES, INC.	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY SOUTH FLORIDA WATER MANAGEMENT DISTRICT	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY POWER PLANT OPERATOR OWNER
A.1 PREVIOUS CONDITIONS	YES	YES	YES
A.2 POWER PLANT LIMITATIONS	NO	NO	YES
A.3 LIMITATION ON USE	YES	YES	YES
A.4 FUTURE MODIFICATION TO PLANS	YES	NO	YES
A.5. DRG-Q CERTIFICATION APPROVAL	YES	NO	NO
A.6 RESO REPEALED	N/A	N/A	N/A
A.7 CLASS A CONDITONAL USE FOR POWER FACILITY REQUIRING APPROVAL OF GOVERNOR	NO	NO	YES
A.8 COMMENCEMENT DATE FOR POWER PLANT SITE	NO	NO	YES
B.1 ACCESS LIMITATION	YES	NO	NO
B.2 INTERNAL CIRCULATION PATTERN	YES	NO	NO
C.1 BLASTING BEST MANAGEMENT STANDARDS	YES	NO	NO
C.2 BLASTING REGULATIONS	YES	NO	NO
C.3 BLASTING STANDARDS	YES	NO	NO
C.4 BLAST SEPARATION	YES	NO	NO
C.5 BLASTING CRITERIA	YES	NO	NO
C.6 FENCE REQUIRED	YES	NO	NO
C.7 SEISMOGRAPH CALIBRATION	YES	NO	NO
C.8 SEISMOGRAPH LOCATION	YES	NO	NO
C.9 SEISMOGRAPH CALIBRATION	YES	NO	NO
D.1 DRI SUB PHASE LIMITS	YES (ONLY FOR AREAS NOT OWNED BY SFWMD)	NO	NO

CONDITION NUMBER AND DESCRIPTION	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY PALM BEACH AGGREGATES, INC.	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY SOUTH FLORIDA WATER MANAGEMENT DISTRICT	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY POWER PLANT OPERATOR <u>OWNER</u>
D.2 DRI WATER CONSUMPTION LIMIT	YES	NO	NO
D.3 DRI BINDING LETTER	YES	NO	NO
E.1 A & B OKEECHOBEE ROW	YES	NO	NO
E.2 A & B CONSTRUCT TURN LANES	YES	NO	NO
E.3 TURN LANE MAINTENANCE	YES	NO	NO
E.4 ROW DRAINAGE	YES	NO	NO
E.5 FAIR SHARE FEE	YES	NO	YES
E.6 MEDIAN LANDSCAPE	YES	NO	NO
E.7 COMPLIANCE TO MANDATORY TRAFFIC PERFORMANCE STANDARDS	YES	NO	YES
E.8 CONSTRUCT EASTBOUND TURN LANE SR 80 FOREST HILL BLVD	YES	NO	NO
E.9 NO PERMITS FOR POWER FACILITY UNTIL CONSTRUCT EASTBOUND TURN LANE SR 80 FOREST HILL BLVD	YES	NO	YES
F.1 GROUND WATER MONITORING	YES - REQUIREMENT EXPIRES WHEN SFWMD ACCEPTS POSSESSION OF COMPLETED RESERVOIRS	NO	NO
F.2 WILDLIFE CORRIDOR	YES	YES	NO
F.3 WILDLIFE CORRIDOR PLAN	YES	YES	NO
F.4 MAXIMUM DEPTH	YES	YES	NO
F.5 TIMING OF CONVEYANCE FOR WILDLIFE CORRIDOR	YES	YES	NO
F.6 MODIFY EXISTING RESTRICTIVE COVENANT IF REQUIRED FOR VARIATION IN APPROVED PLAN	NO	NO	NO

CONDITION NUMBER AND DESCRIPTION	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY PALM BEACH AGGREGATES, INC.	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY SOUTH FLORIDA WATER MANAGEMENT DISTRICT	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY POWER PLANT OPERATOR <u>OWNER</u>
G.1 HEALTH WELL PERMITS.	YES	NO	YES
G.2 HEALTH SEPTIC PERMITS	YES	NO	YES
G.3 HEALTH AIR PERMITS	YES	NO	YES
G.4 HEALTH AIR PERMITS	NO	NO	YES
G.5 HEALTH AIR PERMITS	NO	NO	YES
H.1 HOURS OF OPERATION	YES	NO	NO
H.2 HOURS OF OPERATION	YES	NO	NO
H.3 HOURS OF OPERATION	YES	NO	NO
H.4 HOURS OF OPERATION	YES	NO	NO
H.5 HOURS OF OPERATION	YES	NO	NO
I.1 LANDSCAPE BUFFERS	YES	NO	YES NO
I.2 ALTERNATIVE LANDSCAPE BETTERMENT PLAN (ALBP)	YES	NO	NO
I.3 WILDLIFE CORRIDOR ENHANCEMENT	YES	NO	NO
I.4 LANDSCAPE TIMING	YES	NO	NO
I.5 OUTDOOR LIGHTING	YES	NO	YES
I.6 OUTDOOR LIGHTING HEIGHT LIMITATION	YES	NO	NO
I.7 LANDSCAPE REQUIRED FOR ASPHALT/CONCRETE PLANT	YES	NO	NO
J.1 LITTORAL SHELVES	YES	NO	NO
J.2 LITTORAL SHELVES	YES	NO	NO
K.1 MONITORING	YES	NO	NO
K.2 AERIAL PHOTOS REQUIRED	YES	NO	NO
K.3 MAINTENANCE MONITORING	YES	NO	NO
K.4 BLASTING RECORD	YES	NO	NO
K.5 BLASTING LOG	YES	NO	NO

CONDITION NUMBER AND DESCRIPTION	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY PALM BEACH AGGREGATES, INC.	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY SOUTH FLORIDA WATER MANAGEMENT DISTRICT	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY POWER PLANT OPERATOR <u>OWNER</u>
AVAILABILITY			
K.6 TIME HISTORY	YES	NO	NO
K.7 LOG MAINTENANCE	YES	NO	NO
L.1 PARKS COORDINATION	NO	NO	NO
M.1 PHASING	YES	NO	NO
M.2 SUB PHASE ACTIVITY LIMITS	YES	NO	NO
N.1 RECLAMATION MINIMUM	YES	NO	NO
<u>N.2 PHASING PLAN</u>	<u>YES</u>	<u>NO</u>	<u>NO</u>
N.2 3ANNUAL RECLAMATION	YES	NO	NO
N.34 RECLAIM EXISTING EXCAVATED AREA	YES	NO	NO
O.1 SEPARATIONS	YES	NO	NO
P.1 SETBACKS	YES	NO	NO
Q.1 SIGNS	YES	NO	YES
R.1 HEAT DISPENSING TOWERS HEIGHT LIMITATION	YES	NO	YES
R.2 HEAT DISPENSING TOWERS FAA LIGHTING	YES	NO	YES
S.1 USE LIMITATION ON PUMPS	YES	NO	NO
T.1 WATER SUPPLY - CREATE ADDITIONAL STORAGE	YES	NO	NO
T.2 WATER SUPPLY - APPLICANT SHALL NOT NEGATIVELY EFFECT WATER QUALITY	YES	NO	YES
<u>T.3 WATER SUPPLY - UTILITY SERVICE AREA RIGHTS</u>	<u>YES</u>	<u>YES</u>	<u>YES</u>
U.1 PLANNING / ARCHEOLOGICAL PRESERVATION	YES	NO	YES
V.1 COMPLIANCE	YES, for those conditions to be maintained in compliance by Palm Beach Aggregates, Inc.	YES, for those conditions to be maintained in compliance by South Florida Water Management District	YES, for those conditions to be maintained in compliance by Power Plant Operator
V.2 COMPLIANCE	YES, for those conditions to be	YES, for those conditions to be	YES, for those conditions to be

CONDITION NUMBER AND DESCRIPTION	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY PALM BEACH AGGREGATES, INC.	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY SOUTH FLORIDA WATER MANAGEMENT DISTRICT	CONDITIONS TO BE MAINTAINED IN COMPLIANCE BY POWER PLANT OPERATOR <u>OWNER</u>
	maintained in compliance by Palm Beach Aggregates, Inc.	maintained in compliance by South Florida Water Management District	maintained in compliance by Power Plant Operator

4. The electric power facility site, the SFWMD reservoir site, and the Palm Beach Aggregates excavation site shall be treated as separate approvals for enforcement purposes. A violation of a condition on one site shall not affect the compliance status of the other sites. (ONGOING: MONITORING – Zoning)
5. The petitioner contained in all the above conditions of approval shall mean property owner(s). (ONGOING: MONITORING – Zoning)

EXHIBIT E

**Site Suitability**

- The site is located in the center of Palm Beach County, which is and will continue to be a major growth area within Southeast Florida.
- The site is located adjacent to an existing major 500 kv substation and transmission lines serving the region. No new right of ways or transmission lines is anticipated for this project.
- Close proximity to both an existing and recently permitted gas pipeline systems able to serve the site with clean, safe and efficient fuel.
- The existing approved lake system would provide the site with makeup water for a closed cooling system.
- The site is located at the edge of rural residential development tier and it's location provides a substantial spatial buffer from all existing and future residential development anticipated in Palm Beach County

Technology

The following items describe the technological aspects of the power plant:

- The project would consist of multiple phases, able to meet the growing energy needs for the region for both short term power (simple cycle configuration) and/or long term power (combined cycle configuration).
- The power plant would be composed of various combinations of combustion turbines (simple cycle or combined cycle) and steam turbines with the use of heat recovery steam generator systems (HRSG) for a combined cycle configuration.
- A typical four-on-one combined cycle plant would nominally provide 1100 megawatts of electricity. The four combustion turbines, each nominally providing 150 megawatts (600 megawatts total), would be coupled with four duct fired HRSG's which would generate steam to drive a steam turbine, rated for 500 megawatts.
- The facility would use clean natural gas as a primary fuel with distillate for emergency backup and state-of-the-art technology to generate electricity in an extremely efficient and environmentally friendly manner.
- In this technology fuel and air is mixed and ignited in the combustion turbines.

- In a combined cycle configuration, the combustion turbines are used to produce about two-thirds of the plant's electrical output and the byproduct of this process is hot gas that is recovered
- These recovered hot gases produced by the combustion turbines would be used to produce steam in a heat recovery steam generator system (HRSG)
- This high-energy steam from the HRSG would be piped into steam turbines to generate the remainder of the plant's electrical output.

Site Environment

- Two hundred and twenty acres that are presently approved for excavation and are used for sod farming.
- No naturally occurring jurisdictional surface water bodies, wetlands or wildlife habitat threatened or endangered species, historic or archaeological resources exist on site.
- Construction and operation of the facility would not adversely affect any natural or biological resources on or near the Site.
- Access to the Site would be by a roadway to Route 80 to the south.

The Project's Air Emissions

- Clean-burning natural gas, as a primary fuel, and advanced combustion turbines ensure an environmentally safe and efficient project.
- Best Available Control Technology would be used with regard to airborne emissions (dry low-NOx technology and a selective catalytic reduction (SCR) system).

Wastewater Discharges

- All industrial wastewater would be treated on-site prior to release.
- Domestic wastes would be processed with an approved On Site Sewer Disposal System.

Stormwater Management

- Stormwater management plan would comply with all of the applicable requirements of the SFWMD, Florida Department of Environmental Protection, and Palm Beach County.
- Discharges of treated stormwater would enter the existing stormwater system
- Stormwater drainage patterns and discharges from the site (post-development) would be consistent with the current conditions.

Hazardous Material

- A licensed hazardous waste contractor in accordance with all-applicable law and regulations would manage all hazardous wastes.
- Spent SCR catalysts would be recycled or disposed of by a qualified contractor at a licensed waste management facility in accordance with all-applicable law and regulations.

Electric Transmission and Gas Line Corridors

- Florida Power & Light's Corbett Substation is adjacent to the Site.
- Natural gas would be transported to the Site via underground pipelines designed, permitted, owned and operated by suppliers such as Gulfstream Natural Gas Transmission Company, LLC or Florida Gas Transmission.

Economic Benefits

The Project's direct economic benefits could include:

- Substantial additional ad valorem tax revenue to Palm Beach County.
- Substantial additional ad valorem tax revenue to Palm Beach County School District.
- When fully built out, approximately 60 new permanent jobs with above average salaries and job benefits.
- Several hundred construction jobs (full time equivalent) over a two-year construction period.

COMMISSIONERS:
BRADDO L. BAEZ, CHAIRMAN
J. TERRY DEASON
LILA S. JASSER
RUDOLPH "RUDY" BRADLEY
CHARLES M. DAVIDSON

STATE OF FLORIDA



GENERAL COUNSEL
RICHARD D. NELSON
(850) 413-6248

Public Service Commission

January 30, 2004

Commissioner Tony Masilotti
Vice Chairman,
Board of County Commissioners, Palm Beach County
301 North Olive Avenue
West Palm Beach, FL 33401

Dear Commissioner Masilotti:

It is my understanding that Florida Power & Light Company ("FPL") is considering development of a site on State Road 80 in western Palm Beach County, currently approved for power plant construction. There is a pending amendment to the site Development Order requesting a change to include a provision for the use of fuel oil as a backup fuel. Without attempting to address any site-specific issues, I thought it would be useful to provide some general comments regarding backup fuel concerns related to gas fired units.

Since it is the responsibility of all electric utilities in the State of Florida to ensure that they provide safe, reliable and cost-effective electric supplies to their customers, electric utilities must ensure there are adequate fuel supplies to each generation facility to protect the reliability of the system. In the case of plants that use either a solid (coal) or liquid fuel (fuel oil), the utility generally provides adequate on-site storage of that fuel in order to protect the facility from a temporary interruption in supply. In the instance of a natural gas fueled power plant, the fuel supply is delivered via pipeline, and on-site natural gas storage typically is not economically or practically feasible. Should the gas supply be interrupted due to a physical problem with the pipeline system or due to gas supply constraints, without an alternate fuel supply the plant would no longer be able to operate.

Given that gas storage generally is not possible at the plant site, a provision for backup fuel is necessary for the facility to continue to operate in the event of a gas supply interruption. Because the majority of new power plants and those under construction in Florida rely on natural gas as the primary fuel source, on-site backup fuel is increasingly important to the reliability of the overall electric system.

In exercising its jurisdiction under Section 403.519, Florida Statutes, to determine the need for a proposed natural gas plant and whether a particular proposal is the best alternative the Commission

EXCERPTS FROM COMMISSION ORDERS ADDRESSING THE IMPORTANCE OF AN
ADEQUATE AND RELIABLE FUEL SUPPLY

In Order No. PSC-01-0029-FOF-EG, the Order granting a determination of need for the Hines 2 Unit, the Commission has the following to say regarding the importance of the gas fired unit having backup fuel oil capability: "FPC's reliability will be enhanced by the presence of backup fuel supply in the event of natural gas interruptions or gas price spikes."

In Order No. PSC-99-0991-FOF-EM, the Order granting a determination of need to the City of Lakeland for a gas fired combined cycle unit, the Commission stated, "[w]e note that the use of No. 2 fuel oil as the unit's backup fuel will reduce the risk associated with potential natural gas shortages or price spikes."

In Order No. PSC-98-1391-FOF-EI, the Order granting a determination of need to the Kissimmee Utility Authority and the FMCA for Cane Island Unit 3, a gas fired combined cycle unit with fuel oil backup, the Commission had the following to say: "[w]e find that the utilities have provided adequate assurances regarding the availability of primary and secondary fuel to serve Cane Island Unit 3 on a long-term and short-term basis at reasonable cost."

In Order No. PSC-97-0659-FOF-EM, the Order granting a determination of need to the City of Tallahassee for its gas fired Pundom 3 combined cycle unit with fuel oil backup, the Commission observed, "we find that the City has provided adequate assurances regarding available primary and secondary fuel to serve the proposed facility on a long term and short term basis at a reasonable cost."

In Order No. PSC-94-0761-FOF-EC, the Order granting an affirmative determination of need to Seminole Electric Cooperative, Inc. for the Hardee Power Station Unit #3, a gas fired combined cycle unit with fuel oil backup, the Commission observed: "We find that adequate assurances have been provided regarding available primary and secondary fuel to serve the proposed combined cycle unit on a long and short term basis at a reasonable cost." It also observed, "We believe that there are adequate and sufficient distillate oil supplies to serve the projected requirements based on the expected life of the proposed unit."

In Order No. 22708, the Order reporting the results of a Commission investigation of power outages during the Christmas Freeze of 1989 observed: "Utilities should pursue alternate fuel capabilities at generating plants which currently burn only natural gas which is subject to curtailments during cold weather."

APPENDIX 10.3

LAND USE PLAN DESCRIPTIONS

as open space or public greenspace. Any portion of the preserve area not located within the development area:

- a) may be contiguous with the developed area; or it may be noncontiguous with the developed area, in which case it shall have a common boundary with other lands that aggregate to a total of 150 acres and 1) have a future land use designation of Conservation; or 2) that are designated as an Agricultural Reserve Preserve; or 3) that have had the development rights removed and remain in some type of open space.
- b) shall be utilized for crop production; pasture; equestrian purposes; if designated by the South Florida Water Management District as a Water Preserve Area, or to serve regional water management purposes as certified by either Lake Worth Drainage District or South Florida Water Management District, or for water management purposes not directly related to the AgR-TMD; or, if approved by the Department of Environmental Resources Management, managed for environmental resource values or, if located east of State Road 7, for civic purposes such as schools, libraries, or fire stations.

Policy 1.5.1-n: If the preserve area of a 60/40 AgR-TMD is contiguous to the development area, it shall be shown on the AgR-TMD Master Plan and Plat and designated appropriately. Further, a restrictive covenant limiting it to such use, made in favor of Palm Beach County, shall be recorded concurrent with the plat. As an alternative, the protected area may be subjected to an agricultural conservation easement to Palm Beach County, or may be deeded to the County.

If the preserve area is not contiguous to the development area, it shall be platted with a boundary plat as part of the AgR-TMD, with its use restricted by a restrictive covenant limiting it to preservation uses, made in favor of Palm Beach County. As an alternative, the protected area may be subjected to an agricultural conservation easement in favor of Palm Beach County, or it may be deeded to the County, (or such other governmental entity) which may be willing to assume responsibility for the property given the restrictions placed upon its use.

OBJECTIVE 1.6 Glades Tier

Palm Beach County shall work with the communities in the western areas to preserve and enhance the unique characteristics of the Glades and protect the economically viable agricultural base in this area.

Policy 1.6-a: The following general future land use designations shall be allowed in the Glades Tier:

1. Rural Residential, limited to Rural Residential 20 and Rural Residential 10;
2. Agricultural, limited to the Agricultural Production (AP) category;
3. Conservation categories;
4. Parks and Recreation;
5. Commercial Recreation;
6. Spoil;
7. Transportation and Utilities; and,

6. Protect areas subject to seasonal or periodic flooding, as provided in the Utility and Conservation Elements;
7. Regulate stormwater management and drainage;
8. Protect potable water wellfields and aquifer recharge areas;
9. Protect open spaces and natural resources;
10. Protect historically significant properties, as provided in the Historic Preservation Element;
11. Provide efficient service delivery systems;
12. Regulate landscaping;
13. Regulate lighting; and,
14. Incorporate the Principles of Livable Communities listed in the County Directions.

Policy 2.2-e: The County shall encourage the elimination or reduction of existing or previously approved land uses, and activities, which were lawful before the adoption of the Plan but are prohibited, regulated or restricted under the terms of this Plan. This shall be accomplished by prohibiting enlargement, expansion, or extension of non-conforming future land use activity unless the action decreases the nonconformity. A non-conforming use shall be permitted to enlarge, expand or be rebuilt on one occasion through an administrative variance process provided that the value of the improvement would not exceed ten percent of the original value of the structure and the expansion does not create a non-conforming structure.

Policy 2.2-f: The County shall not approve site specific Future Land Use Atlas amendments, which encourage piecemeal development or create residual parcels. The County shall also not approve rezoning petitions under the same or related ownership that result in the creation of residual parcels.

2.2.1 Residential

Policy 2.2.1-a: The County shall establish and maintain maximum densities, as specified in Table 2.1-1, in the residential future land use categories. To obtain the maximum density for a property of Low Residential 2 or greater, the development must receive a development order for a Planned Development District, Traditional Development District, or be granted an exemption pursuant to provisions of this element.

Policy 2.2.1-b: Areas designated for Residential use shall be protected from encroachment of incompatible future land uses and regulations shall be maintain to protect residential areas from adverse impacts of adjacent land uses. Non-residential future land uses shall be permitted only when compatible with residential areas, and when the use furthers the Goals, Objectives, and Policies of the Plan.

Policy 2.2.1-c: *left blank intentionally, deleted in Amendment Round 00-1*

Policy 2.2.1-d: In areas with a Residential future land use designation, the County may allow non-residential uses allowed in the Parks and Recreation, Institutional and Public Facilities, or Utilities and Transportation future land use designations, as further described in the Implementation Section.

Policy 2.2.1-e: The County shall apply the following criteria to determine if a parcel may be developed for residential purposes:

2.2.8 Institutional and Public Facilities

Policy 2.2.8-a: The Future Land Use Atlas may depict underlying/alternative residential future land uses for properties designated as Institutional and Public Facilities. If an underlying/alternative designation is not depicted on the Atlas, the Planning Director may assign an underlying density based on the densities of adjacent residential parcels without a land use amendment. The County may initiate a future land use amendment to remove the non-utilized future land use designation after the property is developed.

Policy 2.2.8-b: Institutional and Public Facility uses may be allowed in all future land use designations, provided the uses are consistent with the provisions of the Comprehensive Plan and ULDC.

Policy 2.2.8-c: The County shall seek to co-locate public facilities, such as parks, libraries, and community centers, with schools to the extent possible as sites for these facilities and for schools are chosen and development plans prepared.

2.2.9 Transportation and Utilities

Policy 2.2.9-a: No future land use or activity may be permitted within any roadway right-of-way designated on the County's Thoroughfare Right-of-Way Identification Map that would impede the future construction of the roadway, unless such prohibition is contrary to law or constitutes a taking.

Policy 2.2.9-b: The Transportation and Utilities future land use designation may be applied as a designation or as an underlying designation to property owned or operated by the Department of Airports. Related facilities, designated either to serve the needs of airport users and airport employees or to provide enterprise activities to support the operation of the County's airports, may be permitted within areas designated Transportation and Utilities.

Policy 2.2.9-c: Parks and Recreation activities may be permitted in the Transportation and Utilities land use designation, provided they are part of the overall program to support the utility uses.

Policy 2.2.9-d: Transportation and Utilities uses, with the exception of power plants, shall be permitted in all future land use designations subject to special siting criteria set forth in the Unified Land Development Code. The placement of utility uses in residentially designated areas shall be controlled through the ULDC to ensure the protection of existing and anticipated residential areas from adverse impacts of the facility.

2.2.10 Traditional Town Development

Policy 2.2.10-a: The County shall apply the "Traditional Town Development" (TTD) future land use designation to provide for innovative and alternative development patterns that are residentially based, provide for employment centers, and require the integration of residential uses with:

1. Community serving commercial and office uses;

Residential Uses

Permitted Uses The following land uses may be permitted within areas designated Residential on the Future Land Use Atlas (FLUA), but are further restricted by the Tier in which they are located and the terms of the Unified Land Development Code (ULDC). Permitted uses include: dwelling units and accessory uses and structures; congregate living facilities; Park and Recreation uses designed to serve the residential area; Institutional uses designed to serve the residential area such as schools, child care facilities and adult day care facilities, houses of worship, governmental administration, law enforcement substations, fire protection facilities, libraries, civic centers, community service centers and similar uses. Some uses may be appropriate in residential areas if limited, such as: nursing homes subject to special criteria; utilities designed to serve the residential area; communication facilities subject to special criteria; limited commercial uses within a Planned Development District designed for the convenience of the residents; streets and other transportation corridors; agricultural uses compatible with the residential area; and, limited excavation operations.

In the Rural land use categories, limited agricultural uses are expected to co-exist with residential uses, while in the Urban land use categories, agricultural uses are expected to convert to other uses consistent with the Plan when those agricultural uses are no longer economically viable. Agricultural uses permitted by the Residential land use category must be compatible with the protection of the lifestyle and quality of life of the residents.

Non-Residential Uses. Non-residential uses permitted in residential areas shall only be allowed if they meet the criteria below. The ULDC adopted pursuant to this Comprehensive Plan shall ensure that non-residential uses allowed by residential zoning districts shall satisfy the Goals, Objectives and Policies of the Comprehensive Plan. All decisions of the Board of County Commissioners that implement the provisions of the ULDC which allow a non-residential use in a residential area must be based on a determination that:

1. The residential neighborhood is protected from the undesirable impacts of adjacent and surrounding development;
2. The non-residential use is consistent with the Goals, Objectives, and Policies of the Comprehensive Plan;
3. The non-residential use satisfies any special siting criteria adopted by the Board of County Commissioners; and,
4. The density or intensity is comparable to and compatible with the density of the residential development within areas designated Residential on the FLUA.

Non-residential land uses that have an underlying residential land use, shall be governed by the density provisions in Land Use Objective 2.2.1, unless specifically noted.

Uses Discouraged in Residential Future Land Use Categories. Large-scale Park and Recreation uses, Institutional and Public Facility uses, and Utilities and Transportation uses designed to serve regional needs, including regional parks, regional water and wastewater treatment plants, power transmission facilities, solid waste transfer stations and disposal sites are discouraged in residentially designated areas and may be permitted only subject to the siting criteria of the appropriate regulatory authority(ies) as well as any special review and siting criteria adopted by the Board of County Commissioners. Power plants and correctional facilities shall be prohibited in residential land use categories.

7. Institutional and Public Facilities

Institutional and Public Facilities shall be permitted in all Future Land Use Atlas designations provided such uses are consistent with the Comprehensive Plan and the Unified Land Development Code.

Permitted Uses. Uses permitted in the Institutional and Public Facilities future land use designation include a full range of regional and community uses such as educational; child care facilities and adult day care facilities; congregate living facilities; medical and accessory offices; hospitals, public health clinics, emergency shelters; governmental, religious, cemetery, civic, cultural, judicial and correctional facilities; caretakers' quarters; and, accessory affordable housing.

The Institutional and Public Facilities category may provide for accessory affordable housing when residential development is under the direct and constant supervision of a sponsoring, non-profit organization or community-based group. Such housing shall only be below market rentals, and not for-sale property. This housing shall also be used to fulfill specific housing needs within the community. Such a development shall only be requested by a non-profit organization or community-based group, and may receive a recommendation by the Commission on Affordable Housing. Residential uses, other than those indicated above, are not permitted in areas designated on the Future Land Use Atlas under the Institutional and Public Facilities future land use designation.

Designation of underlying uses and density/intensity. Parcels designated as Institutional prior to the adoption of the 1989 Comprehensive Plan, may have an underlying residential use assigned on the basis of land use compatibility with adjacent properties. The Planning Director may assign an underlying density based on the densities of the adjacent residential land uses without a land use amendment.

8. Transportation and Utilities Facilities (U/T)

Transportation Uses. Transportation uses include streets and other transportation corridors, expressways, interchanges, public and private airports and landing strips, ports, and railroad facilities. Airports and related facilities include, but are not limited to, airport and aircraft operations and maintenance facilities, cargo distribution terminals, car rental operations, warehouses, hotels, and offices.

Utility Uses. Utility Facilities include a full range of utility uses such as water and sewage treatment plants, solid waste transfer stations and facilities, and electrical transmission facilities, towers, sub-stations and power plants.

Communication Facilities include such facilities as television and radio station, towers and relay structures and telephone facilities.

9. Traditional Town Development

It is the purpose of the Traditional Town Development (TTD) future land use designation to encourage mixed-use, compact development which is sensitive to environmental characteristics of the land, and which facilitates efficient use of services within the County. The TTD provides an opportunity for diversification and integration of land uses including residential, retail, office,

CHAPTER C STANDARD DISTRICTS

Section 1 Districts

A. Future Land Use (FLU) and Corresponding Districts

Existing development having a zoning district corresponding to the FLU designation indicated in Table 3.C.1.A-4, Future Land Use (FLU) Designation and Corresponding Standard Zoning Districts, shall be considered consistent with the Plan.

Table 3.C.1.A-4 Future Land Use (FLU) Designation and Corresponding Standard Zoning Districts

FLU Designation						
Agriculture/Conservation						
AP	AP					
AGR	AGR					
CON	PC					
SA	AR ²	AGR ³				
Residential						
RR-20	AR					
RR-10	AR	CRE ⁴				
RR-5	AR					
RR-2.5	AR	RE				
LR-1	AR	RE	RT	AP ⁵		
LR-2	AR	RE	RT			
LR-3	AR	RE	RT			
MR-5	AR	RE	RT	RS	RM ⁶	
HR-8	AR	RE	RT	RS	RM	
HR-12	AR	RE	RT	RS	RM	
HR-18	AR	RE	RT	RS	RM	
Commercial						
CL-O	CLO					
CL	CN	CC	CLO			
CH-O	CLO	CHO				
CH	CN	CC	CLO	CHO	CG	
CR	CRE					
Industrial						
IND	IL	IG	CRE ⁷			
Institutional/Civic						
INST	AR	RE	RT	RS	RM	IPF
PARK	IPF	PO				
U/T	PO					

Key: Any application for a conditional use and/or subdivision of property shall require the subject site be rezoned to a highlighted district.

- The PO District is consistent with all FLU designations.
- The AR District is consistent with the SA FLU designation in the Rural and Exurban Tiers only.
- The AGR District is consistent with the SA FLU designation in AGR Tier only.
- The CRE District is consistent with the RR-10 designation only for those uses identified in Policy 2.2.3-a in the Plan
- The AP District is consistent with the LR-1 designation in the Glades Tier only.
- The RM District is consistent with the MR-5 designation only for those areas already zoned RM.
- Certain use in the CRE District over three acres require rezoning to IL. See Supplementary Use Standards.

B. Previous Zoning Districts

- The following previously established zoning districts correspond to the current districts:
 - The Specialized Agriculture (SA) District shall correspond to the AP District in the Glades Tier, the AGR District in the AGR Tier, and the AR District in the Rural Tier.
 - Rural Services (RSER) District shall correspond to the AR District.
 - Residential Transitional Suburban (RTS) District shall correspond to the RT District.
 - Residential Transitional Urban (RTU) District shall correspond to the RS District.
 - Multifamily Residential High Density (RH) District shall correspond to the RM District.

APPENDIX 10.4

EXISTING PERMITS

[There are no existing permits applicable to this Project.]

APPENDIX 10.5

MONITORING PROGRAMS

APPENDIX 10.5.1

SITE PHOTOGRAPHS



Photo 1. Project Site – open land (FLUCFCS 190) cleared of vegetation, filled, and graded.



Photo 2. View of filled Project Site berm from substation access road facing east.



Photo 3. Improved pasture (FLUCFCS 211), located to the west of the Corbett substation access road.



Photo 4. SFWMD L10/12 Canal (FLUCFCS 510), located south across State Road 80.



Photo 5. Drainage ditch (FLUCFCS 511) adjacent to filled Project site.



Photo 6. Drainage ditch located within improved pasture to west of Project site.



Photo 7. Brazilian pepper (FLUCFCS 422) located upon disturbed land immediately west of filled Project site.



Photo 8. Disturbed herbaceous wetland (FLUCFCS 641) dominated by common reed, located west of filled Project site.

APPENDIX 10.5.2

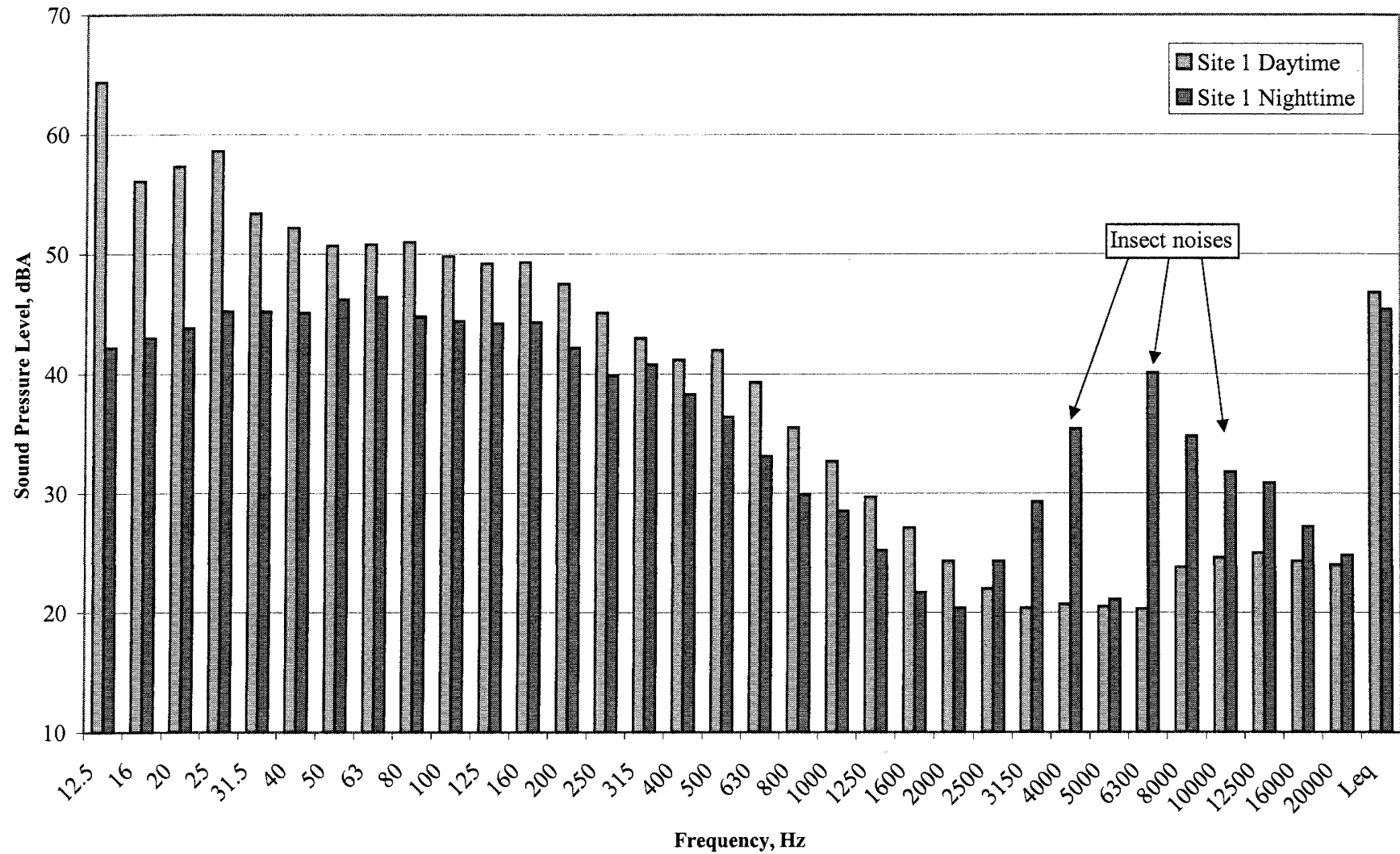
NOISE INFORMATION



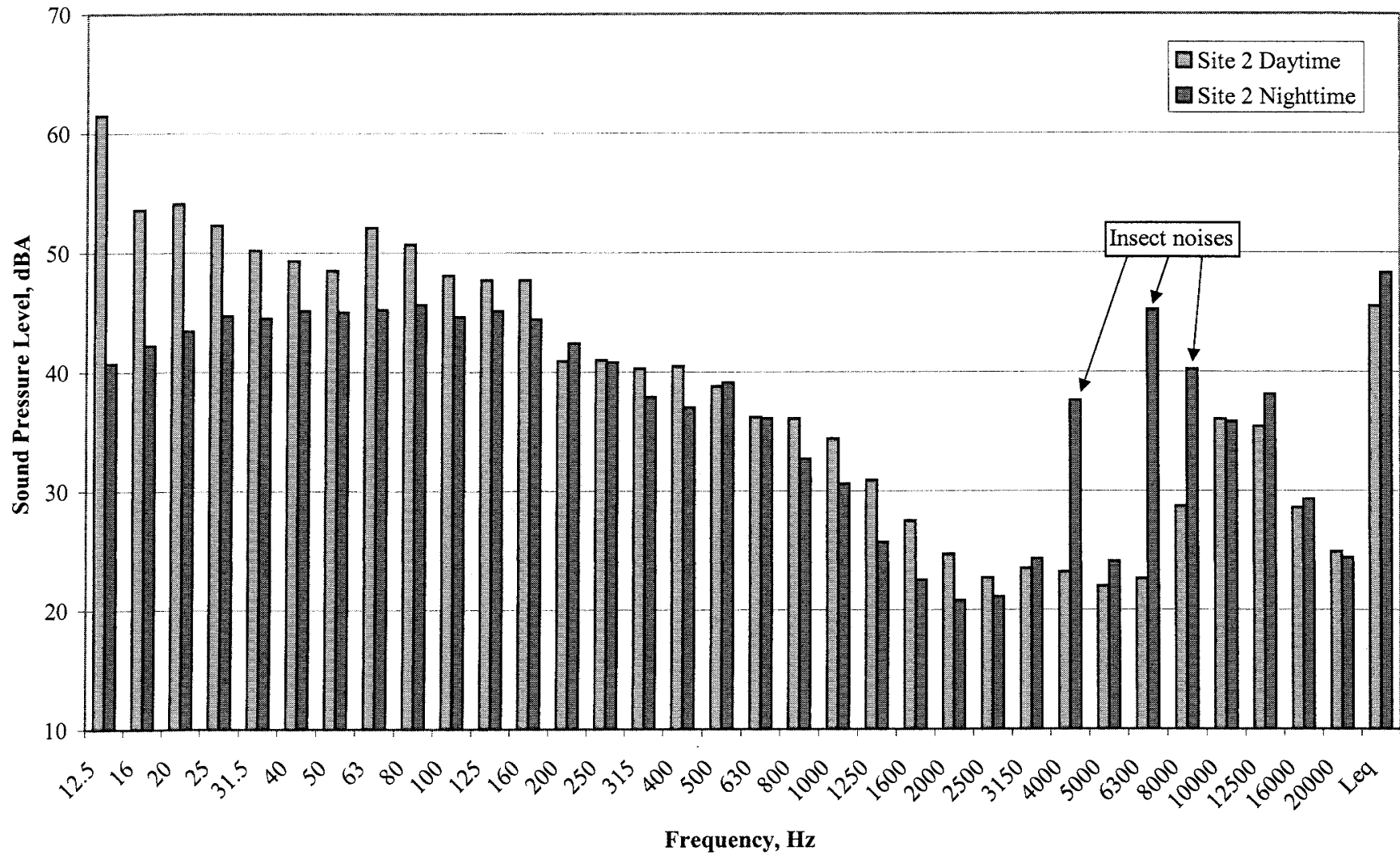
OCTAVE BAND SPECTRA

**[Refer to Table 2.3.8-1 and Figure 2.3.8-1
for data summary and monitoring locations.]**

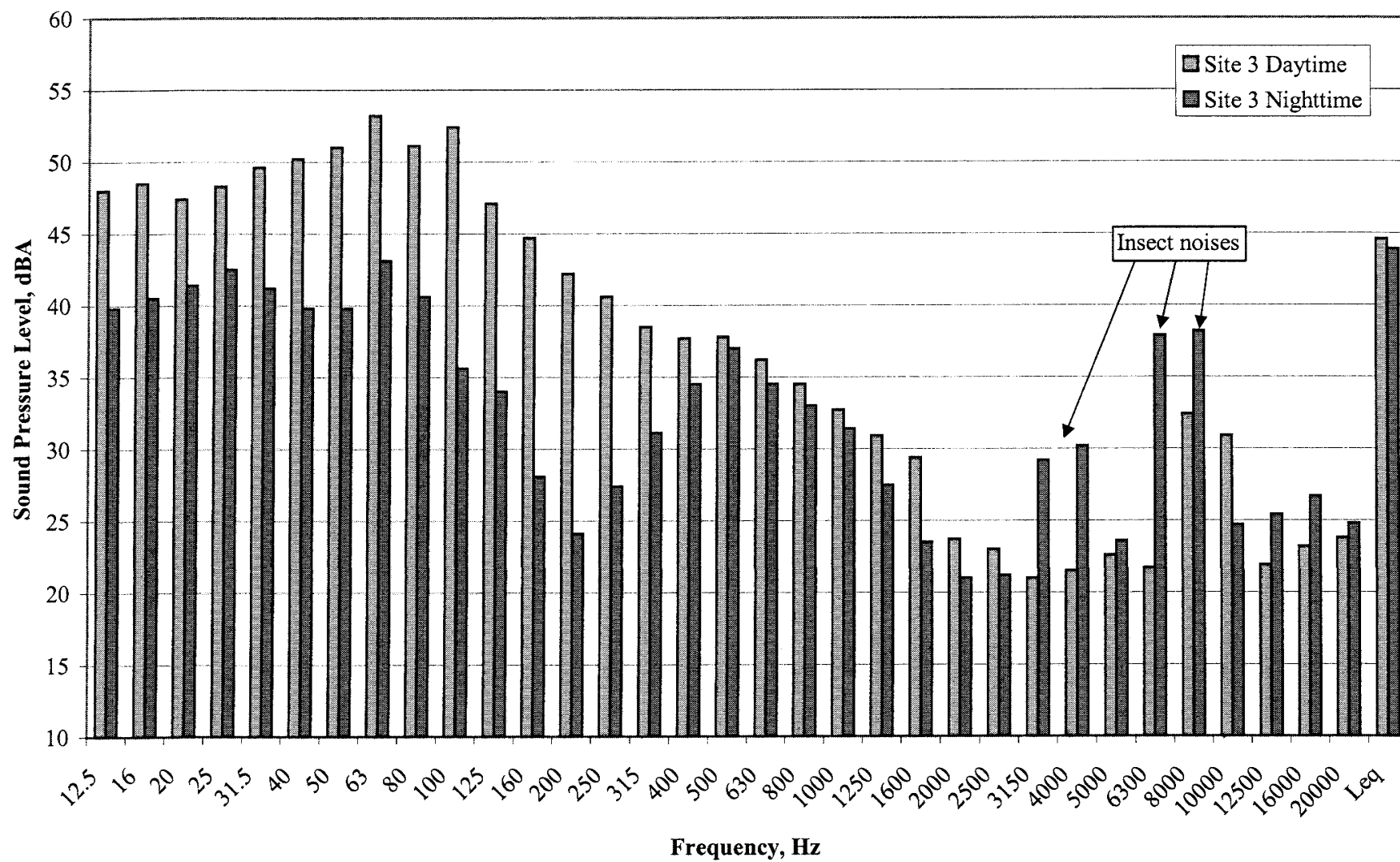
West County Energy Center Day/Night Octave Band Spectra



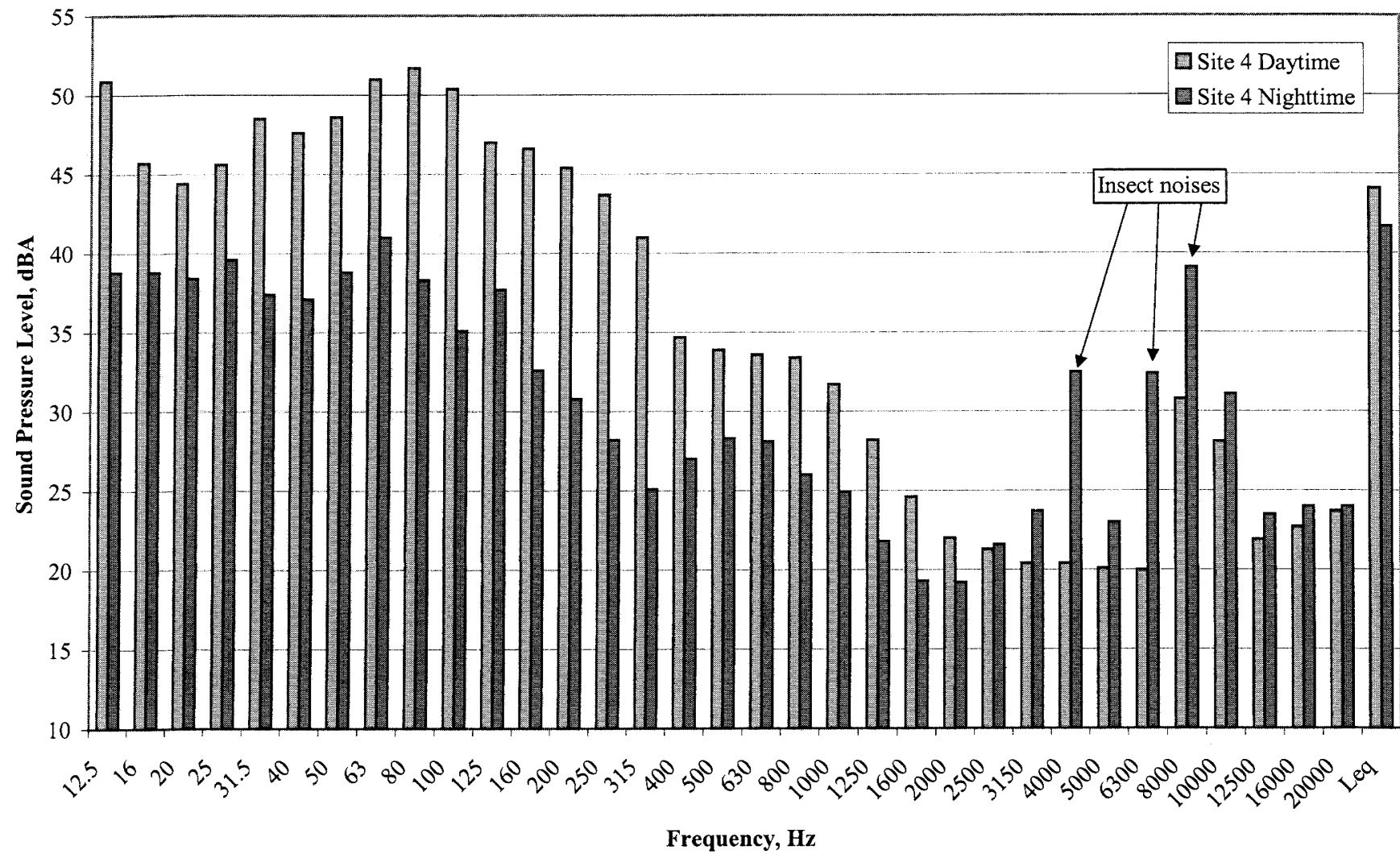
West County Energy Center Day/Night Octave Band Spectra



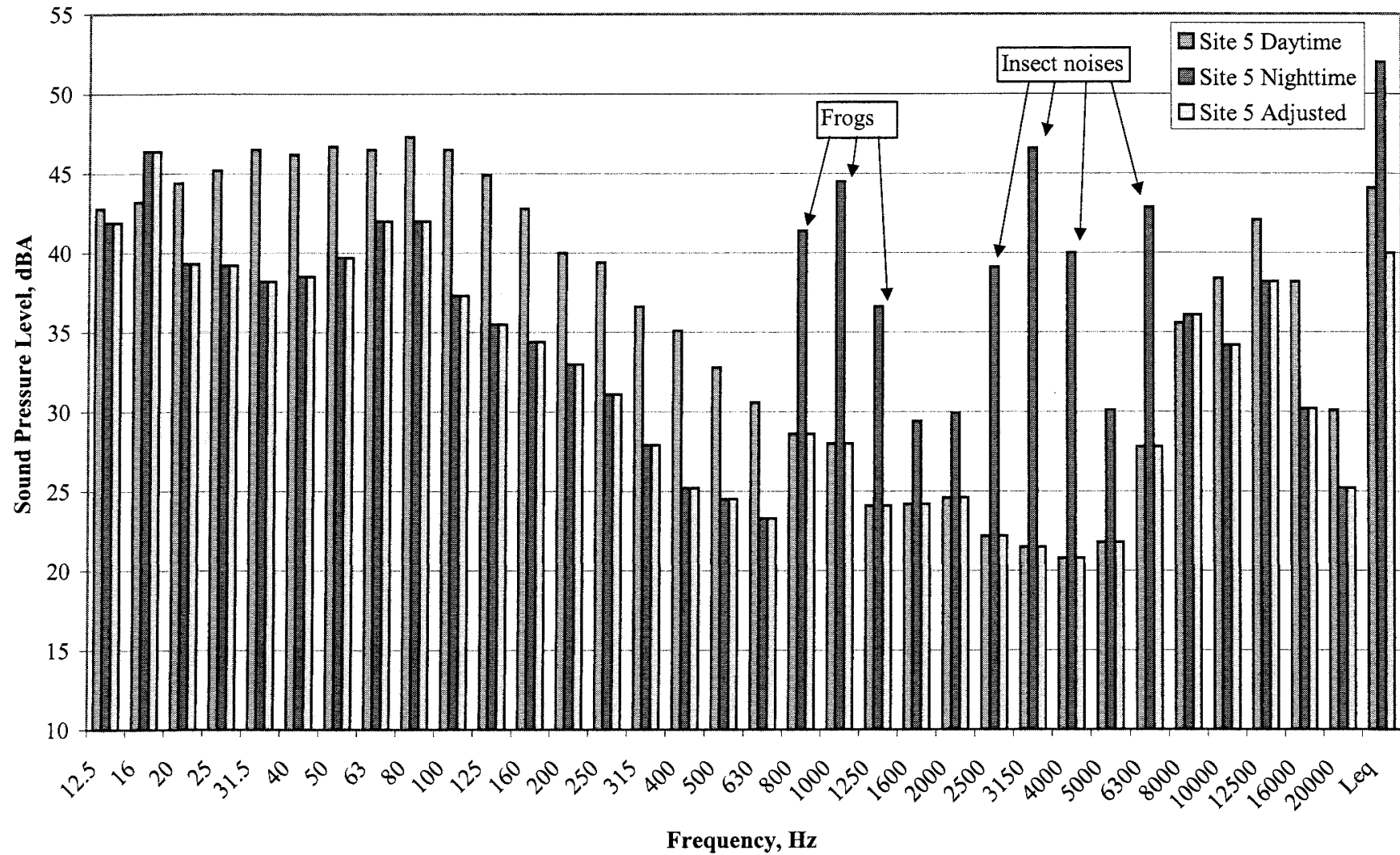
West County Energy Center Day/Night Octave Band Spectra



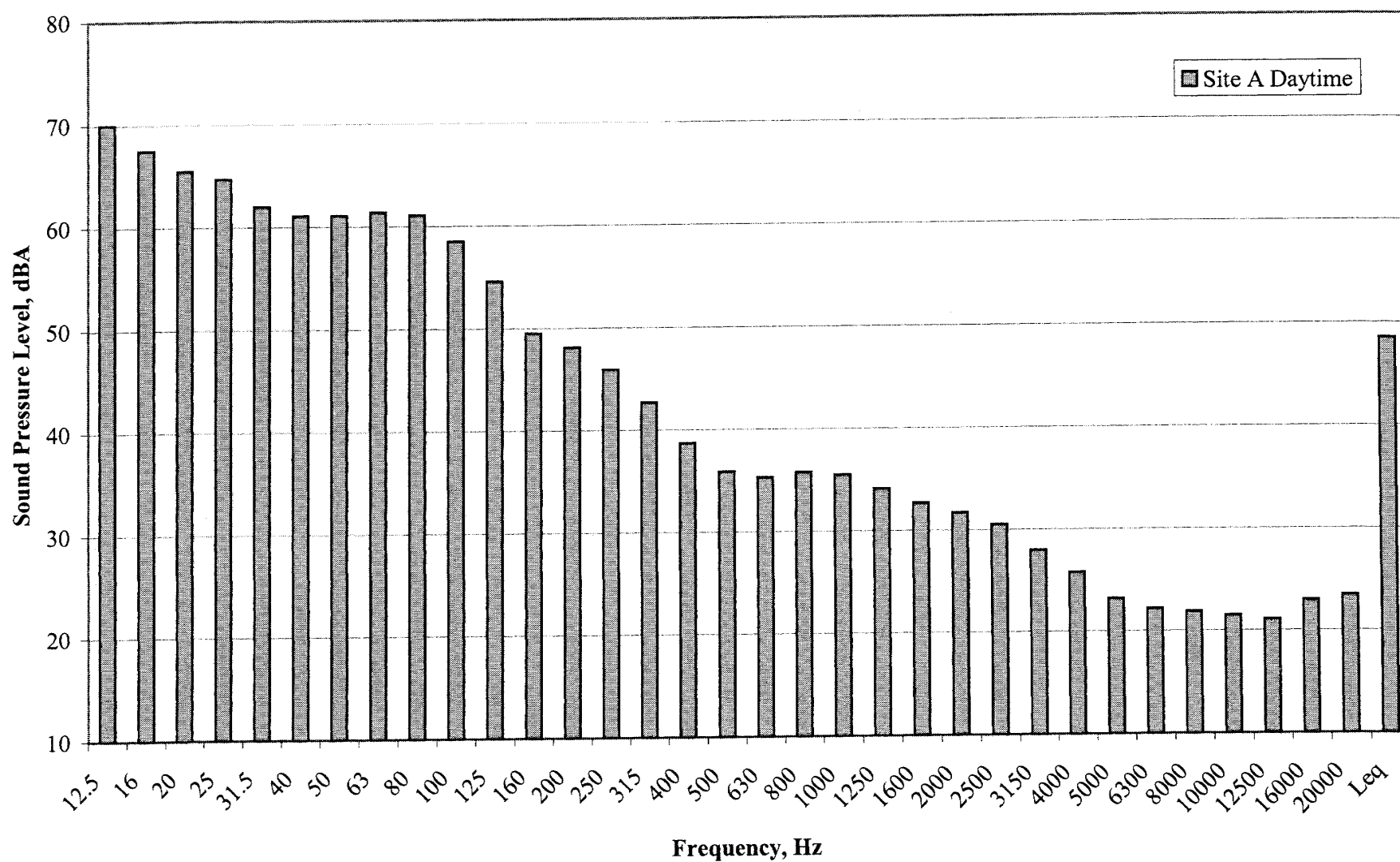
West County Energy Center Day/Night Octave Band Spectra



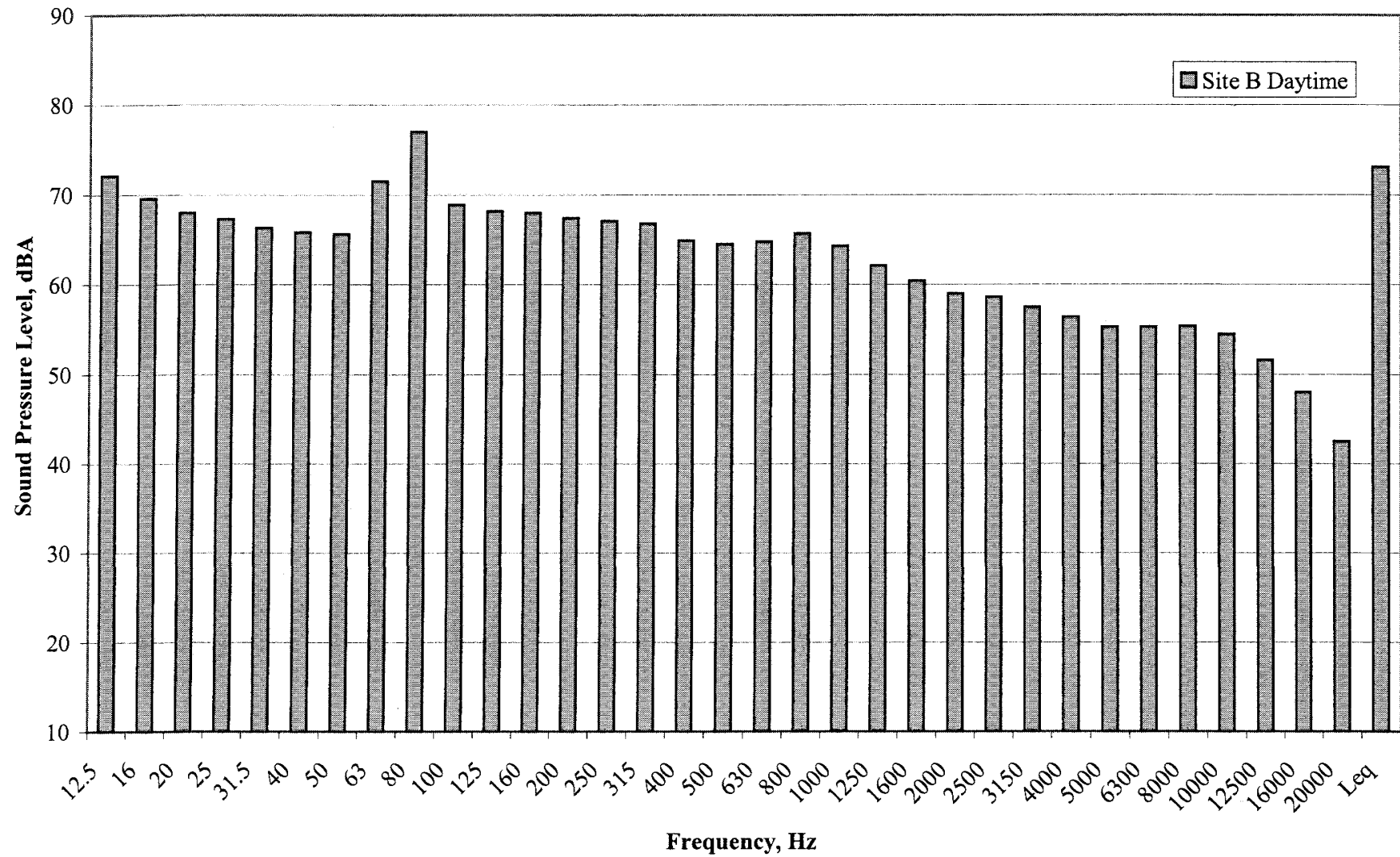
West County Energy Center Day/Night Octave Band Spectra



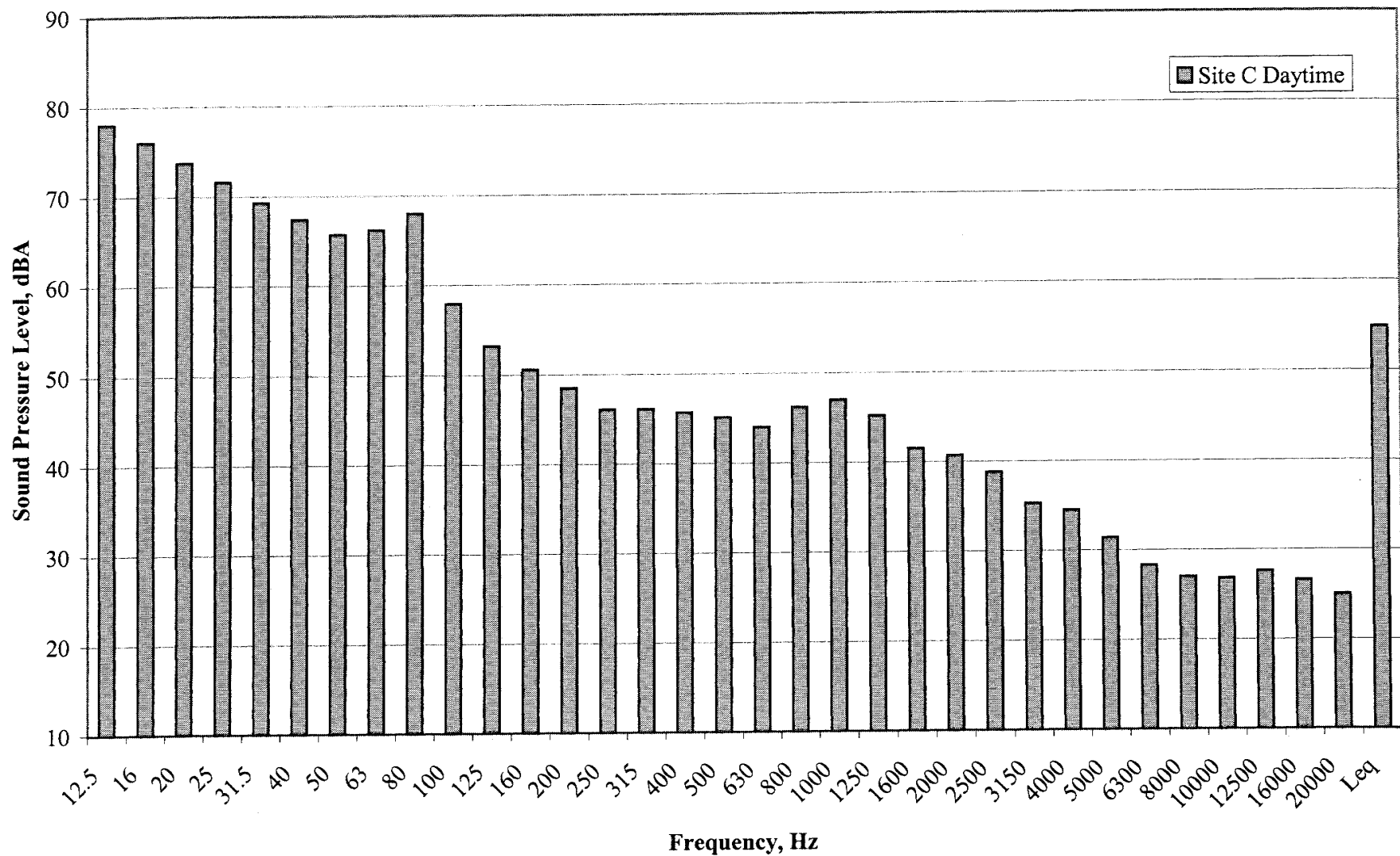
West County Energy Center Daytime Octave Band Spectra - Dec. 2004



West County Energy Center Daytime Octave Band Spectra - Dec. 2004



West County Energy Center Daytime Octave Band Spectra - Dec. 2004



NOISE MODEL INPUT DATA

[Modeling Input Files from CADNA A Noise Model]

Point Sources

Name	Result. PWL		Lw / Li		Direct.	Height		Coordinates		
	Day	Night	Type	Value				X	Y	Z
	(dBA)	(dBA)				(m)		(m)	(m)	(m)
1A HRSG Stack	118.5	118.5	Lw	L009	Chimney	41.10	r	262229.01	262744.65	41.10
1B HRSG Stack	118.5	118.5	Lw	L009	Chimney	41.00	r	262229.20	262701.52	41.00
1C HRSG Stack	118.5	118.5	Lw	L009	Chimney	41.00	r	262227.70	262616.01	41.00
1D HRSG Stack	118.5	118.5	Lw	L009	Chimney	41.00	r	262226.91	262573.34	41.00
2A HRSG Stack	118.5	118.5	Lw	L009	Chimney	41.00	r	262223.20	262337.26	41.00
2B HRSG Stack	118.5	118.5	Lw	L009	Chimney	41.00	r	262222.24	262296.84	41.00
2C HRSG Stack	118.5	118.5	Lw	L009	Chimney	41.00	r	262220.57	262211.41	41.00
2D HRSG Stack	118.5	118.5	Lw	L009	Chimney	41.00	r	262219.99	262168.69	41.00
1A CT Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262127.72	262734.47	2.00
1B CT Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262126.46	262690.50	2.00
1C CT Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262125.07	262605.07	2.00
1D CT Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262124.19	262562.52	2.00
2A CT Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262120.31	262326.41	2.00
2B CT Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262119.34	262286.04	2.00
2C CT Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262117.84	262200.65	2.00
2D CT Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262117.11	262158.00	2.00
1A Boiler Feed Pump	107.7	107.7	Lw	BFP	(none)	2.00	r	262189.89	262754.49	2.00
1B Boiler Feed Pump	107.7	107.7	Lw	BFP	(none)	2.00	r	262190.20	262711.02	2.00
1C Boiler Feed Pump	107.7	107.7	Lw	BFP	(none)	2.00	r	262188.73	262625.65	2.00
1D Boiler Feed Pump	107.7	107.7	Lw	BFP	(none)	2.00	r	262187.98	262583.03	2.00
2A Boiler Feed Pump	107.7	107.7	Lw	BFP	(none)	2.00	r	262184.07	262346.89	2.00
2B Boiler Feed Pump	107.7	107.7	Lw	BFP	(none)	2.00	r	262183.12	262306.46	2.00
2C Boiler Feed Pump	107.7	107.7	Lw	BFP	(none)	2.00	r	262181.63	262221.15	2.00
2D Boiler Feed Pump	107.7	107.7	Lw	BFP	(none)	2.00	r	262180.91	262178.49	2.00
Unit 1 STG Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262120.68	262648.16	2.00
Unit 2 STG Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262113.54	262243.71	2.00
Turbine Vent Fan 1A1	117.2	117.2	Lw	TVF	(none)	8.50	r	262174.54	262745.54	8.50
Turbine Vent Fan 1A2	117.2	117.2	Lw	TVF	(none)	8.50	r	262169.08	262745.72	8.50
Turbine Vent Fan 1B1	117.2	117.2	Lw	TVF	(none)	8.50	r	262174.73	262702.13	8.50
Turbine Vent Fan 1B2	117.2	117.2	Lw	TVF	(none)	8.50	r	262169.48	262702.18	8.50
Turbine Vent Fan 1C1	117.2	117.2	Lw	TVF	(none)	8.50	r	262173.32	262616.81	8.50
Turbine Vent Fan 1C2	117.2	117.2	Lw	TVF	(none)	8.50	r	262168.07	262616.90	8.50
Turbine Vent Fan 1D1	117.2	117.2	Lw	TVF	(none)	8.50	r	262172.51	262574.19	8.50
Turbine Vent Fan 1D2	117.2	117.2	Lw	TVF	(none)	8.50	r	262167.21	262574.45	8.50
Turbine Vent Fan 2A1	117.2	117.2	Lw	TVF	(none)	8.50	r	262168.74	262337.94	8.50
Turbine Vent Fan 2A2	117.2	117.2	Lw	TVF	(none)	8.50	r	262163.30	262338.10	8.50
Turbine Vent Fan 2B1	117.2	117.2	Lw	TVF	(none)	8.50	r	262167.79	262297.59	8.50
Turbine Vent Fan 2B2	117.2	117.2	Lw	TVF	(none)	8.50	r	262162.37	262297.78	8.50
Turbine Vent Fan 2C1	117.2	117.2	Lw	TVF	(none)	8.50	r	262166.34	262212.25	8.50
Turbine Vent Fan 2C2	117.2	117.2	Lw	TVF	(none)	8.50	r	262160.95	262212.43	8.50
Turbine Vent Fan 2D1	117.2	117.2	Lw	TVF	(none)	8.50	r	262165.41	262169.59	8.50
Turbine Vent Fan 2D2	117.2	117.2	Lw	TVF	(none)	8.50	r	262160.16	262169.75	8.50
Load Comp Vent Fan 1A	106.2	106.2	Lw	LCVF	(none)	6.50	r	262162.04	262745.81	6.50
Load Comp Vent Fan 1B	106.2	106.2	Lw	LCVF	(none)	6.50	r	262162.37	262702.35	6.50
Load Comp Vent Fan 1C	106.2	106.2	Lw	LCVF	(none)	6.50	r	262160.90	262617.10	6.50
Load Comp Vent Fan 1D	106.2	106.2	Lw	LCVF	(none)	6.50	r	262160.21	262574.40	6.50
Load Comp Vent Fan 2A	106.2	106.2	Lw	LCVF	(none)	6.50	r	262156.27	262338.12	6.50
Load Comp Vent Fan 2B	106.2	106.2	Lw	LCVF	(none)	6.50	r	262155.31	262297.80	6.50
Load Comp Vent Fan 2C	106.2	106.2	Lw	LCVF	(none)	6.50	r	262153.81	262212.43	6.50
Load Comp Vent Fan 2D	106.2	106.2	Lw	LCVF	(none)	6.50	r	262153.07	262169.92	6.50

Name	Result. PWL		Lw / Li		Direct.	Height		Coordinates		
	Day	Night	Type	Value				X	Y	Z
	(dBA)	(dBA)				(m)		(m)	(m)	(m)
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262297.54	262743.75	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262279.03	262744.04	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262297.54	262725.24	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262278.74	262725.53	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262297.25	262707.02	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262278.44	262707.02	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262296.66	262688.16	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262277.86	262688.45	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262296.37	262669.65	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262278.15	262670.24	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262296.37	262651.73	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262277.86	262652.02	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262295.78	262633.33	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262277.56	262633.63	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262295.48	262615.12	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262276.97	262615.41	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262294.90	262596.90	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262276.39	262597.49	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262294.60	262578.69	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262276.39	262578.98	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262294.60	262560.76	17.00
Cooling Tower 1 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262276.68	262560.76	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262290.20	262338.93	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262272.57	262338.93	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262290.78	262320.13	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262272.27	262320.42	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262290.20	262301.91	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262271.98	262302.21	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262289.90	262283.40	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262271.68	262283.70	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262289.31	262265.19	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262271.68	262265.48	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262289.02	262246.97	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262270.51	262247.26	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262289.02	262228.75	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262270.80	262228.75	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262288.43	262210.30	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262270.51	262210.60	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262288.43	262192.09	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262269.92	262192.38	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262287.84	262173.58	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262269.92	262174.16	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262287.55	262155.65	17.00
Cooling Tower 2 Fan	111.2	111.2	Lw	P005	(none)	17.00	r	262269.63	262155.95	17.00
3A HRSG Stack	118.5	118.5	Lw	L009	Chimney	41.00	r	262216.34	261930.47	41.00
3B HRSG Stack	118.5	118.5	Lw	L009	Chimney	41.00	r	262215.70	261888.90	41.00
3C HRSG Stack	118.5	118.5	Lw	L009	Chimney	41.00	r	262214.48	261803.56	41.00
3D HRSG Stack	118.5	118.5	Lw	L009	Chimney	41.00	r	262213.10	261761.03	41.00
3A CT Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262113.77	261919.37	2.00
3B CT Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262113.11	261878.36	2.00
3C CT Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262111.62	261793.06	2.00

Name	Result. PWL		Lw / Li		Direct.	Height		Coordinates		
	Day	Night	Type	Value				X	Y	Z
	(dBA)	(dBA)				(m)		(m)	(m)	(m)
3D CT Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262110.91	261750.40	2.00
3A Boiler Feed Pump	107.7	107.7	Lw	BFP	(none)	2.00	r	262177.61	261939.77	2.00
3B Boiler Feed Pump	107.7	107.7	Lw	BFP	(none)	2.00	r	262176.98	261898.81	2.00
3C Boiler Feed Pump	107.7	107.7	Lw	BFP	(none)	2.00	r	262175.48	261813.52	2.00
3D Boiler Feed Pump	107.7	107.7	Lw	BFP	(none)	2.00	r	262174.72	261770.84	2.00
Unit 3 STG Transformer	106.1	106.1	Lw	L004	(none)	2.00	r	262107.75	261835.54	2.00
Turbine Vent Fan 3A1	117.2	117.2	Lw	TVF	(none)	8.50	r	262162.49	261930.94	8.50
Turbine Vent Fan 3A2	117.2	117.2	Lw	TVF	(none)	8.50	r	262156.32	261931.01	8.50
Turbine Vent Fan 3B1	117.2	117.2	Lw	TVF	(none)	8.50	r	262161.76	261889.96	8.50
Turbine Vent Fan 3B2	117.2	117.2	Lw	TVF	(none)	8.50	r	262155.90	261890.17	8.50
Turbine Vent Fan 3C1	117.2	117.2	Lw	TVF	(none)	8.50	r	262160.41	261804.62	8.50
Turbine Vent Fan 3C2	117.2	117.2	Lw	TVF	(none)	8.50	r	262154.24	261804.82	8.50
Turbine Vent Fan 3D1	117.2	117.2	Lw	TVF	(none)	8.50	r	262159.61	261761.75	8.50
Turbine Vent Fan 3D2	117.2	117.2	Lw	TVF	(none)	8.50	r	262153.58	261761.89	8.50
Load Comp Vent Fan 3A	106.2	106.2	Lw	LCVF	(none)	6.50	r	262149.76	261931.12	6.50
Load Comp Vent Fan 3B	106.2	106.2	Lw	LCVF	(none)	6.50	r	262149.04	261890.17	6.50
Load Comp Vent Fan 3C	106.2	106.2	Lw	LCVF	(none)	6.50	r	262147.61	261804.88	6.50
Load Comp Vent Fan 3D	106.2	106.2	Lw	LCVF	(none)	6.50	r	262146.80	261762.16	6.50
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262284.53	261931.05	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262265.92	261931.23	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262284.17	261912.45	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262265.39	261912.98	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262283.64	261894.37	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262265.21	261894.55	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262283.28	261875.58	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262264.68	261876.11	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262282.93	261857.86	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262264.50	261858.04	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262282.58	261839.57	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262264.32	261839.93	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262282.04	261821.50	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262264.14	261821.50	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262282.04	261802.89	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262263.61	261803.24	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262281.69	261784.63	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262263.08	261784.81	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262281.16	261766.63	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262263.08	261766.63	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262281.16	261748.20	17.00
Cooling Tower Fan 3	111.2	111.2	Lw	P005	(none)	17.00	r	262262.55	261748.73	17.00

Line Sources

Name	Result. PWL		Result. PWL'		Lw / Li		Direct.
	Day	Night	Day	Night	Type	Value	
	(dBA)	(dBA)	(dBA)	(dBA)			
Unit 2A Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 2A Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 2B Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 2B Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 2C Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 2C Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 2D Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 2D Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 1A Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 1A Ex	110.0	110.0	95.0	95.0	Lw	L005	(none)
Unit 1B Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 1B Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 1C Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 1C Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 1D Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 1D Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 3A Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 3A Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 3B Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 3B Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 3C Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 3C Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 3D Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 3D Ex	110.0	110.0	95.1	95.1	Lw	L005	(none)
Unit 1 Con	114.1	114.1	102.2	102.2	Lw	CONDENSER	(none)
Unit 2 Con	114.1	114.1	102.2	102.2	Lw	CONDENSER	(none)
Unit 3 Con	114.1	114.1	102.2	102.2	Lw	CONDENSER	(none)

Vertical Area Sources

Name	Result. PWL		Result. PWL"		Lw / Li		Direct.
	Day	Night	Day	Night	Type	Value	
	(dBA)	(dBA)	(dBA)	(dBA)			
Cooling Tower 1 East	102.9	102.9	69.1	69.1	Lw	L003	(none)
Cooling Tower 1 West	102.9	102.9	69.1	69.1	Lw	L003	(none)
Cooling Tower 2 East	102.9	102.9	69.1	69.1	Lw	L003	(none)
Cooling Tower 2 West	102.9	102.9	69.1	69.1	Lw	L003	(none)
Unit 1A Air Inlet	90.7	90.7	70.0	70.0	Lw	New	(none)
Unit 1B Air Inlet	90.7	90.7	70.0	70.0	Lw	New	(none)
Unit 1C Air Inlet	90.7	90.7	70.0	70.0	Lw	New	(none)
Unit 1D Air Inlet	90.7	90.7	70.0	70.0	Lw	New	(none)
Unit 2A Air Inlet	90.7	90.7	70.0	70.0	Lw	New	(none)
Unit 2B Air Inlet	90.7	90.7	70.0	70.0	Lw	New	(none)
Unit 2C Air Inlet	90.7	90.7	70.0	70.0	Lw	New	(none)
Unit 2D Air Inlet	90.7	90.7	70.0	70.0	Lw	New	(none)
Unit 1 Steam Turbine Generator	106.3	106.3	85.3	85.3	Lw	STG_Mar	(none)
Unit 1 Steam Turbine Generator	106.3	106.3	85.3	85.3	Lw	STG_Mar	(none)
Unit 1 Steam Turbine Generator	106.3	106.3	86.9	86.9	Lw	STG_Mar	(none)
Unit 1 Steam Turbine LP	118.0	118.0	100.1	100.1	Lw	STLP_Mar	(none)
Unit 1 Steam Turbine LP	118.0	118.0	100.1	100.1	Lw	STLP_Mar	(none)
Unit 1 Steam Turbine HP	116.0	116.0	98.1	98.1	Lw	STHP_Mar	(none)
Unit 1 Steam Turbine HP	116.0	116.0	96.5	96.5	Lw	STHP_Mar	(none)
Unit 1 Steam Turbine HP	116.0	116.0	98.1	98.1	Lw	STHP_Mar	(none)
Unit 2 Steam Turbine Generator	106.3	106.3	85.3	85.3	Lw	STG_Mar	(none)
Unit 2 Steam Turbine Generator	106.3	106.3	85.3	85.3	Lw	STG_Mar	(none)
Unit 2 Steam Turbine Generator	106.3	106.3	86.9	86.9	Lw	STG_Mar	(none)
Unit 2 Steam Turbine LP	118.0	118.0	100.1	100.1	Lw	STLP_Mar	(none)
Unit 2 Steam Turbine LP	118.0	118.0	100.1	100.1	Lw	STLP_Mar	(none)
Unit 2 Steam Turbine HP	116.0	116.0	96.5	96.5	Lw	STHP_Mar	(none)
Unit 2 Steam Turbine HP	116.0	116.0	98.0	98.0	Lw	STHP_Mar	(none)
Unit 2 Steam Turbine HP	116.0	116.0	98.1	98.1	Lw	STHP_Mar	(none)
Unit 1A HRSG North	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 1A HRSG South	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 1B HRSG North	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 1B HRSG South	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 1C HRSG North	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 1C HRSG South	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 1D HRSG North	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 1D HRSG South	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 2A HRSG North	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 2A HRSG South	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 2B HRSG North	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 2B HRSG South	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 2C HRSG North	106.7	106.7	77.6	77.6	Lw	V001	(none)
Unit 2C HRSG South	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 2D HRSG North	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 2D HRSG South	106.7	106.7	77.7	77.7	Lw	V001	(none)
Cooling Tower 3 West	102.9	102.9	69.1	69.1	Lw	L003	(none)
Cooling Tower 3 East	102.9	102.9	69.1	69.1	Lw	L003	(none)
Unit 3A Air Inlet	90.7	90.7	70.0	70.0	Lw	New	(none)
Unit 3B Air Inlet	90.7	90.7	70.0	70.0	Lw	New	(none)

Name	Result. PWL		Result. PWL"		Lw / Li		Direct.
	Day	Night	Day	Night	Type	Value	
	(dBA)	(dBA)	(dBA)	(dBA)			
Unit 3C Air Inlet	90.7	90.7	70.0	70.0	Lw	New	(none)
Unit 3D Air Inlet	90.7	90.7	70.0	70.0	Lw	New	(none)
Unit 3 Steam Turbine Generator	106.3	106.3	85.3	85.3	Lw	STG_Mar	(none)
Unit 3 Steam Turbine Generator	106.3	106.3	85.3	85.3	Lw	STG_Mar	(none)
Unit 3 Steam Turbine Generator	106.3	106.3	86.9	86.9	Lw	STG_Mar	(none)
Unit 3 Steam Turbine LP	118.0	118.0	100.1	100.1	Lw	STLP_Mar	(none)
Unit 3 Steam Turbine LP	118.0	118.0	100.1	100.1	Lw	STLP_Mar	(none)
Unit 3 Steam Turbine HP	116.0	116.0	96.6	96.6	Lw	STHP_Mar	(none)
Unit 3 Steam Turbine HP	116.0	116.0	98.0	98.0	Lw	STHP_Mar	(none)
Unit 3 Steam Turbine HP	116.0	116.0	98.1	98.1	Lw	STHP_Mar	(none)
Unit 3A HRSG North	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 3A HRSG South	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 3B HRSG North	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 3B HRSG South	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 3C HRSG North	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 3C HRSG South	106.7	106.7	77.7	77.7	Lw	V001	(none)
Unit 3D HRSG North	106.7	106.7	77.6	77.6	Lw	V001	(none)
Unit 3D HRSG South	106.7	106.7	77.7	77.7	Lw	V001	(none)

Area Sources

Name	Result. PWL		Result. PWL"		Lw / Li		Direct.
	Day	Night	Day	Night	Type	Value	
	(dBA)	(dBA)	(dBA)	(dBA)			
Unit 1 Steam Turbine Roof HP	116.0	116.0	96.7	96.7	Lw	STHP_Mar	(none)
Unit 2 Steam Turbine Roof HP	116.0	116.0	96.7	96.7	Lw	STHP_Mar	(none)
Unit 3 Steam Turbine Roof HP	116.0	116.0	96.7	96.7	Lw	STHP_Mar	(none)
Unit 1 Steam Turbine Roof LP	118.0	118.0	98.7	98.7	Lw	STLP_Mar	(none)
Unit 2 Steam Turbine Roof LP	118.0	118.0	98.7	98.7	Lw	STLP_Mar	(none)
Unit 3 Steam Turbine Roof LP	118.0	118.0	98.7	98.7	Lw	STLP_Mar	(none)
Unit 1 Steam Turbine Generator Roof	106.3	106.3	83.9	83.9	Lw	STG_Mar	(none)
Unit 2 Steam Turbine Generator Roof	106.3	106.3	83.9	83.9	Lw	STG_Mar	(none)
Unit 2 Steam Turbine Generator Roof	106.3	106.3	83.9	83.9	Lw	STG_Mar	(none)

Noise Library

Name	ID	Type	Oktave Spectrum (dB)											Source	
			31.5	63	125	250	500	1000	2000	4000	8000	A	lin		
Boiler Feed Pump	BFP	Lw	109	106	103	102	103	102	103	95	83	107.7	113.3	FPL (Tom Joseph)	
Cooling Tower Data	L003	Lw	80	80	82	85	92	96	96	97	96	102.9	102.8	BV data	
GSUT	L004	Lw	102	108	110	109	105	99	94	89	82	106.1	114.8	BV	
Exhaust Duct/Diffuser	L005	Lw	119	116	114	107	106	104	102	101	98	110.0	122.0	BV	
HRSG Stack BV	L009	Lw	116	124	126	123	114	113	100	75	56	118.5	129.7	BV	
Load Compartment Vent Fan	LCVF	Lw	107	109	109	105	100	98	101	97	90	106.2	114.4	BV	
Air Inlet	New	Lw	102	106	99	94	86	78	74	82	77	90.7	108.2	GE Data 27 Jul 01 Letter (with 8' silencing)	
Cooling Tower Fan	P005	Lw	112	115	115	112	109	105	102	99	91	111.2	120.4	BV	
STG Xformer (FPL)	STGX1	Lw	101	107	109	104	104	98	93	86	79	104.3	113.0	FPL Data (Tom Joseph)	
Turbine Vent Fan	TVF	Lw	110	110	115	108	105	99	110	112	113	117.2	120.3	BV	
HRSG outlet Casing	V001	Lw	117	122	118	110	100	99	87	67	37	106.7	124.5	BV	
Steam Turbine HP/IP Mar	STHP_Mar	Lw	122	122	118	117	115	110	104	101	100	116.0	126.8	BV Martin	
Steam Turbine LP Mar	STLP_Mar	Lw	124	124	120	119	117	112	106	103	102	118.0	128.8	BV	
Steam Turbine Generator Mar	STG_Mar	Lw	114	113	110	105	105	101	97	89	78	106.3	118.0	BV	
Condenser	CONDENSER	Lw	115	116	115	113	114	108	103	98	94	114.1	122.0	BV	

Project Only - Two 4-on-1

Name	M.	ID	Level Lr		Limit. Value		Land Use		Height		Coordinates		
			Day	Night	Day	Night	Type	Auto	Noise Type		X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(m)	(m)	(m)	(m)
Nearest Residence		R001	46.2	46.2	0.0	0.0		x	Total	-3.36	263458.84	263562.42	-3.36

Quelle			Partial Level																			
Name	M.	ID	Nearest Residence																			
			Day	31.5	63	125	250	500	1000	2000	4000	8000	Night	31.5	63	125	250	500	1000	2000	4000	8000
1A HRSG Stack			36.3	-0.6	20.5	31.7	32.2	21.9	29.3	10.7	-35.1	-135.6	36.3	-0.6	20.5	31.7	32.2	21.9	29.3	10.7	-35.1	-135.6
1B HRSG Stack			36.1	-0.7	20.4	31.5	32.1	21.7	29.0	10.4	-35.7	-137.5	36.1	-0.7	20.4	31.5	32.1	21.7	29.0	10.4	-35.7	-137.5
1C HRSG Stack			35.7	-1.0	20.1	31.2	31.7	21.2	28.4	9.6	-37.2	-141.7	35.7	-1.0	20.1	31.2	31.7	21.2	28.4	9.6	-37.2	-141.7
1D HRSG Stack			35.5	-1.2	19.9	31.0	31.5	21.0	28.2	9.2	-38.0	-144.0	35.5	-1.2	19.9	31.0	31.5	21.0	28.2	9.2	-38.0	-144.0
2A HRSG Stack			34.5	-2.0	19.1	30.1	30.5	19.7	26.5	6.9	-42.5	-157.1	34.5	-2.0	19.1	30.1	30.5	19.7	26.5	6.9	-42.5	-157.1
2B HRSG Stack			34.3	-2.2	18.9	30.0	30.3	19.5	26.2	6.5	-43.3	-159.4	34.3	-2.2	18.9	30.0	30.3	19.5	26.2	6.5	-43.3	-159.4
2C HRSG Stack			33.9	-2.5	18.6	29.7	30.0	19.0	25.6	5.6	-45.0	-164.6	33.9	-2.5	18.6	29.7	30.0	19.0	25.6	5.6	-45.0	-164.6
2D HRSG Stack			33.7	-2.6	18.4	29.5	29.8	18.8	25.3	5.2	-45.9	-167.2	33.7	-2.6	18.4	29.5	29.8	18.8	25.3	5.2	-45.9	-167.2
1A CT Transformer			15.5	-17.1	2.0	7.6	9.1	7.5	11.2	1.4	-25.6	-118.9	15.5	-17.1	2.0	7.6	9.1	7.5	11.2	1.4	-25.6	-118.9
1B CT Transformer			6.7	-24.6	-8.1	0.9	3.2	0.2	-9.0	-19.2	-46.5	-141.1	6.7	-24.6	-8.1	0.9	3.2	0.2	-9.0	-19.2	-46.5	-141.1
1C CT Transformer			14.0	-17.6	1.3	7.2	8.6	6.9	7.9	-4.2	-34.4	-134.2	14.0	-17.6	1.3	7.2	8.6	6.9	7.9	-4.2	-34.4	-134.2
1D CT Transformer			6.8	-24.5	-7.9	1.0	3.3	0.2	-9.7	-20.3	-48.7	-147.3	6.8	-24.5	-7.9	1.0	3.3	0.2	-9.7	-20.3	-48.7	-147.3
2A CT Transformer			13.5	-18.4	0.7	6.2	7.5	5.5	8.6	-2.2	-32.7	-139.7	13.5	-18.4	0.7	6.2	7.5	5.5	8.6	-2.2	-32.7	-139.7
2B CT Transformer			13.3	-18.6	0.5	6.1	7.4	5.3	8.3	-2.6	-33.5	-142.0	13.3	-18.6	0.5	6.1	7.4	5.3	8.3	-2.6	-33.5	-142.0
2C CT Transformer			8.2	-23.4	-6.5	2.7	4.9	1.5	-9.7	-23.7	-55.4	-167.2	8.2	-23.4	-6.5	2.7	4.9	1.5	-9.7	-23.7	-55.4	-167.2
2D CT Transformer			12.5	-19.0	0.0	5.6	6.8	4.6	7.1	-5.2	-38.3	-153.3	12.5	-19.0	0.0	5.6	6.8	4.6	7.1	-5.2	-38.3	-153.3
1A Boiler Feed Pump			17.2	-9.8	0.3	1.0	2.5	6.0	14.8	11.3	-17.8	-112.7	17.2	-9.8	0.3	1.0	2.5	6.0	14.8	11.3	-17.8	-112.7
1B Boiler Feed Pump			16.9	-9.9	0.2	0.9	2.4	5.8	14.6	11.0	-18.5	-114.6	16.9	-9.9	0.2	0.9	2.4	5.8	14.6	11.0	-18.5	-114.6
1C Boiler Feed Pump			10.6	-11.0	-1.6	0.6	2.0	5.4	5.6	-1.3	-34.3	-136.0	10.6	-11.0	-1.6	0.6	2.0	5.4	5.6	-1.3	-34.3	-136.0
1D Boiler Feed Pump			0.1	-22.8	-15.6	-11.8	-8.5	-3.6	-6.1	-10.4	-40.9	-141.1	0.1	-22.8	-15.6	-11.8	-8.5	-3.6	-6.1	-10.4	-40.9	-141.1
2A Boiler Feed Pump			14.4	-11.1	-1.0	-0.5	0.9	4.0	12.2	7.6	-25.0	-133.7	14.4	-11.1	-1.0	-0.5	0.9	4.0	12.2	7.6	-25.0	-133.7
2B Boiler Feed Pump			-1.4	-22.8	-15.6	-11.8	-9.7	-5.0	-8.0	-13.0	-46.1	-156.3	-1.4	-22.8	-15.6	-11.8	-9.7	-5.0	-8.0	-13.0	-46.1	-156.3
2C Boiler Feed Pump			9.9	-11.9	-2.1	-0.9	0.3	3.3	6.3	-1.3	-37.9	-154.3	9.9	-11.9	-2.1	-0.9	0.3	3.3	6.3	-1.3	-37.9	-154.3
2D Boiler Feed Pump			-2.0	-23.0	-15.8	-12.0	-10.0	-5.7	-8.9	-14.3	-48.7	-163.9	-2.0	-23.0	-15.8	-12.0	-10.0	-5.7	-8.9	-14.3	-48.7	-163.9
Unit 1 STG Transformer			2.7	-29.7	-13.5	-4.7	-1.6	-1.7	-9.3	-19.6	-47.3	-143.5	2.7	-29.7	-13.5	-4.7	-1.6	-1.7	-9.3	-19.6	-47.3	-143.5
Unit 2 STG Transformer			1.0	-31.0	-14.8	-6.1	-3.2	-3.7	-11.9	-23.3	-54.7	-164.9	1.0	-31.0	-14.8	-6.1	-3.2	-3.7	-11.9	-23.3	-54.7	-164.9
Turbine Vent Fan 1A1			22.3	-8.9	4.2	17.2	14.4	8.9	11.8	18.1	-1.3	-84.1	22.3	-8.9	4.2	17.2	14.4	8.9	11.8	18.1	-1.3	-84.1
Turbine Vent Fan 1A2			22.3	-8.9	4.2	17.2	14.4	8.9	11.7	18.0	-1.4	-84.5	22.3	-8.9	4.2	17.2	14.4	8.9	11.7	18.0	-1.4	-84.5
Turbine Vent Fan 1B1			22.1	-9.0	4.1	17.1	14.3	8.7	11.5	17.7	-2.0	-86.1	22.1	-9.0	4.1	17.1	14.3	8.7	11.5	17.7	-2.0	-86.1
Turbine Vent Fan 1B2			7.0	-18.3	-7.9	4.0	0.3	-2.3	-8.5	-2.6	-22.3	-106.7	7.0	-18.3	-7.9	4.0	0.3	-2.3	-8.5	-2.6	-22.3	-106.7
Turbine Vent Fan 1C1			21.0	-9.3	3.8	16.8	13.9	8.3	10.4	15.4	-6.1	-94.6	21.0	-9.3	3.8	16.8	13.9	8.3	10.4	15.4	-6.1	-94.6
Turbine Vent Fan 1C2			21.1	-9.3	3.8	16.7	13.9	8.2	10.5	15.6	-5.8	-94.3	21.1	-9.3	3.8	16.7	13.9	8.2	10.5	15.6	-5.8	-94.3
Turbine Vent Fan 1D1			6.3	-18.9	-8.5	3.3	-0.4	-2.9	-9.3	-3.6	-24.4	-112.6	6.3	-18.9	-8.5	3.3	-0.4	-2.9	-9.3	-3.6	-24.4	-112.6
Turbine Vent Fan 1D2			8.3	-16.8	-6.3	5.6	1.9	-1.3	-9.3	-3.7	-24.5	-112.9	8.3	-16.8	-6.3	5.6	1.9	-1.3	-9.3	-3.7	-24.5	-112.9
Turbine Vent Fan 2A1			20.0	-10.2	2.9	15.7	12.8	6.8	9.1	14.4	-8.5	-105.2	20.0	-10.2	2.9	15.7	12.8	6.8	9.1	14.4	-8.5	-105.2
Turbine Vent Fan 2A2			19.9	-10.2	2.8	15.7	12.7	6.8	9.1	14.3	-8.6	-105.5	19.9	-10.2	2.8	15.7	12.7	6.8	9.1	14.3	-8.6	-105.5
Turbine Vent Fan 2B1			6.4	-18.5	-8.0	3.8	0.0	-3.6	-11.1	-6.2	-29.6	-127.7	6.4	-18.5	-8.0	3.8	0.0	-3.6	-11.1	-6.2	-29.6	-127.7

Quelle			Partial Level																			
Name	M.	ID	Nearest Residence																			
			Day	31.5	63	125	250	500	1000	2000	4000	8000	Night	31.5	63	125	250	500	1000	2000	4000	8000
Turbine Vent Fan 2B2			6.3	-18.5	-8.1	3.8	-0.1	-3.6	-11.2	-6.3	-29.7	-128.0	6.3	-18.5	-8.1	3.8	-0.1	-3.6	-11.2	-6.3	-29.7	-128.0
Turbine Vent Fan 2C1			19.2	-10.7	2.4	15.3	12.2	6.1	8.3	12.8	-11.6	-113.6	19.2	-10.7	2.4	15.3	12.2	6.1	8.3	12.8	-11.6	-113.6
Turbine Vent Fan 2C2			19.2	-10.7	2.4	15.3	12.2	6.1	8.2	12.9	-11.6	-113.6	19.2	-10.7	2.4	15.3	12.2	6.1	8.2	12.9	-11.6	-113.6
Turbine Vent Fan 2D1			6.1	-18.6	-8.2	3.6	-0.3	-4.0	-12.0	-7.5	-32.1	-135.3	6.1	-18.6	-8.2	3.6	-0.3	-4.0	-12.0	-7.5	-32.1	-135.3
Turbine Vent Fan 2D2			6.0	-18.7	-8.2	3.6	-0.3	-4.0	-12.1	-7.6	-32.2	-135.6	6.0	-18.7	-8.2	3.6	-0.3	-4.0	-12.1	-7.6	-32.2	-135.6
Load Comp Vent Fan 1A			16.6	-11.9	3.2	9.4	11.2	3.8	10.7	8.9	-16.6	-108.0	16.6	-11.9	3.2	9.4	11.2	3.8	10.7	8.9	-16.6	-108.0
Load Comp Vent Fan 1B			2.0	-21.4	-9.1	-2.3	-2.9	-7.4	-9.6	-11.7	-37.5	-130.1	2.0	-21.4	-9.1	-2.3	-2.9	-7.4	-9.6	-11.7	-37.5	-130.1
Load Comp Vent Fan 1C			15.3	-12.4	2.7	9.0	10.7	3.2	8.6	5.1	-23.0	-120.5	15.3	-12.4	2.7	9.0	10.7	3.2	8.6	5.1	-23.0	-120.5
Load Comp Vent Fan 1D			2.8	-20.5	-8.1	-1.2	-1.9	-7.2	-10.4	-12.8	-39.6	-136.4	2.8	-20.5	-8.1	-1.2	-1.9	-7.2	-10.4	-12.8	-39.6	-136.4
Load Comp Vent Fan 2A			14.5	-13.3	1.8	8.0	9.5	1.8	8.1	5.3	-23.8	-128.9	14.5	-13.3	1.8	8.0	9.5	1.8	8.1	5.3	-23.8	-128.9
Load Comp Vent Fan 2B			1.1	-21.9	-9.6	-2.7	-3.6	-9.2	-12.2	-15.4	-44.8	-151.4	1.1	-21.9	-9.6	-2.7	-3.6	-9.2	-12.2	-15.4	-44.8	-151.4
Load Comp Vent Fan 2C			13.7	-13.7	1.4	7.5	9.0	1.1	7.1	3.4	-27.5	-138.4	13.7	-13.7	1.4	7.5	9.0	1.1	7.1	3.4	-27.5	-138.4
Load Comp Vent Fan 2D			1.3	-21.7	-9.3	-2.4	-3.3	-9.1	-13.1	-16.6	-47.4	-159.0	1.3	-21.7	-9.3	-2.4	-3.3	-9.1	-13.1	-16.6	-47.4	-159.0
Cooling Tower 1 Fan			24.5	-6.3	9.8	18.5	19.1	13.8	18.9	11.6	-11.4	-97.8	24.5	-6.3	9.8	18.5	19.1	13.8	18.9	11.6	-11.4	-97.8
Cooling Tower 1 Fan			24.3	-6.3	9.8	18.4	19.0	13.6	18.7	11.3	-11.8	-99.0	24.3	-6.3	9.8	18.4	19.0	13.6	18.7	11.3	-11.8	-99.0
Cooling Tower 1 Fan			24.4	-6.3	9.8	18.5	19.1	13.7	18.8	11.4	-11.7	-98.7	24.4	-6.3	9.8	18.5	19.1	13.7	18.8	11.4	-11.7	-98.7
Cooling Tower 1 Fan			24.2	-6.4	9.7	18.4	19.0	13.5	18.6	11.2	-12.1	-99.9	24.2	-6.4	9.7	18.4	19.0	13.5	18.6	11.2	-12.1	-99.9
Cooling Tower 1 Fan			24.3	-6.4	9.7	18.4	19.0	13.6	18.6	11.2	-12.0	-99.6	24.3	-6.4	9.7	18.4	19.0	13.6	18.6	11.2	-12.0	-99.6
Cooling Tower 1 Fan			24.1	-6.5	9.6	18.3	18.9	13.4	18.5	11.0	-12.4	-100.9	24.1	-6.5	9.6	18.3	18.9	13.4	18.5	11.0	-12.4	-100.9
Cooling Tower 1 Fan			24.2	-6.5	9.6	18.3	18.9	13.5	18.5	11.1	-12.3	-100.6	24.2	-6.5	9.6	18.3	18.9	13.5	18.5	11.1	-12.3	-100.6
Cooling Tower 1 Fan			24.0	-6.5	9.6	18.2	18.8	13.3	18.3	10.8	-12.8	-101.8	24.0	-6.5	9.6	18.2	18.8	13.3	18.3	10.8	-12.8	-101.8
Cooling Tower 1 Fan			24.1	-6.5	9.6	18.2	18.8	13.4	18.4	10.9	-12.7	-101.5	24.1	-6.5	9.6	18.2	18.8	13.4	18.4	10.9	-12.7	-101.5
Cooling Tower 1 Fan			24.0	-6.6	9.5	18.2	18.7	13.3	18.2	10.7	-13.1	-102.7	24.0	-6.6	9.5	18.2	18.7	13.3	18.2	10.7	-13.1	-102.7
Cooling Tower 1 Fan			24.0	-6.6	9.5	18.2	18.7	13.3	18.3	10.7	-13.0	-102.4	24.0	-6.6	9.5	18.2	18.7	13.3	18.3	10.7	-13.0	-102.4
Cooling Tower 1 Fan			23.9	-6.7	9.4	18.1	18.6	13.2	18.1	10.5	-13.4	-103.6	23.9	-6.7	9.4	18.1	18.6	13.2	18.1	10.5	-13.4	-103.6
Cooling Tower 1 Fan			23.9	-6.7	9.4	18.1	18.7	13.2	18.1	10.5	-13.3	-103.4	23.9	-6.7	9.4	18.1	18.7	13.2	18.1	10.5	-13.3	-103.4
Cooling Tower 1 Fan			23.8	-6.7	9.4	18.0	18.6	13.1	18.0	10.3	-13.7	-104.6	23.8	-6.7	9.4	18.0	18.6	13.1	18.0	10.3	-13.7	-104.6
Cooling Tower 1 Fan			23.8	-6.7	9.4	18.0	18.6	13.1	18.0	10.4	-13.7	-104.4	23.8	-6.7	9.4	18.0	18.6	13.1	18.0	10.4	-13.7	-104.4
Cooling Tower 1 Fan			23.7	-6.8	9.3	17.9	18.5	13.0	17.9	10.2	-14.1	-105.5	23.7	-6.8	9.3	17.9	18.5	13.0	17.9	10.2	-14.1	-105.5
Cooling Tower 1 Fan			23.7	-6.8	9.3	18.0	18.5	13.0	17.9	10.2	-14.0	-105.3	23.7	-6.8	9.3	18.0	18.5	13.0	17.9	10.2	-14.0	-105.3
Cooling Tower 1 Fan			23.6	-6.9	9.2	17.9	18.4	12.9	17.7	10.0	-14.4	-106.5	23.6	-6.9	9.2	17.9	18.4	12.9	17.7	10.0	-14.4	-106.5
Cooling Tower 1 Fan			23.6	-6.9	9.2	17.9	18.4	12.9	17.8	10.0	-14.4	-106.3	23.6	-6.9	9.2	17.9	18.4	12.9	17.8	10.0	-14.4	-106.3
Cooling Tower 1 Fan			23.5	-6.9	9.2	17.8	18.3	12.8	17.6	9.8	-14.8	-107.5	23.5	-6.9	9.2	17.8	18.3	12.8	17.6	9.8	-14.8	-107.5
Cooling Tower 1 Fan			23.5	-6.9	9.2	17.8	18.3	12.8	17.6	9.9	-14.7	-107.3	23.5	-6.9	9.2	17.8	18.3	12.8	17.6	9.9	-14.7	-107.3
Cooling Tower 1 Fan			23.4	-7.0	9.1	17.7	18.2	12.7	17.5	9.7	-15.1	-108.4	23.4	-7.0	9.1	17.7	18.2	12.7	17.5	9.7	-15.1	-108.4
Cooling Tower 2 Fan			22.3	-7.8	8.3	16.9	17.3	11.5	16.0	7.6	-19.1	-120.1	22.3	-7.8	8.3	16.9	17.3	11.5	16.0	7.6	-19.1	-120.1
Cooling Tower 2 Fan			22.2	-7.8	8.2	16.8	17.2	11.4	15.9	7.4	-19.4	-121.1	22.2	-7.8	8.2	16.8	17.2	11.4	15.9	7.4	-19.4	-121.1
Cooling Tower 2 Fan			22.2	-7.8	8.2	16.8	17.2	11.4	15.9	7.4	-19.5	-121.2	22.2	-7.8	8.2	16.8	17.2	11.4	15.9	7.4	-19.5	-121.2
Cooling Tower 2 Fan			22.1	-7.9	8.2	16.8	17.2	11.3	15.7	7.2	-19.8	-122.2	22.1	-7.9	8.2	16.8	17.2	11.3	15.7	7.2	-19.8	-122.2
Cooling Tower 2 Fan			22.1	-7.9	8.2	16.8	17.1	11.3	15.7	7.2	-19.9	-122.3	22.1	-7.9	8.2	16.8	17.1	11.3	15.7	7.2	-19.9	-122.3
Cooling Tower 2 Fan			22.0	-8.0	8.1	16.7	17.1	11.2	15.6	7.1	-20.2	-123.3	22.0	-8.0	8.1	16.7	17.1	11.2	15.6	7.1	-20.2	-123.3
Cooling Tower 2 Fan			22.0	-8.0	8.1	16.7	17.1	11.2	15.6	7.0	-20.2	-123.4	22.0	-8.0	8.1	16.7	17.1	11.2	15.6	7.0	-20.2	-123.4
Cooling Tower 2 Fan			21.9	-8.0	8.0	16.6	17.0	11.1	15.5	6.9	-20.6	-124.4	21.9	-8.0	8.0	16.6	17.0	11.1	15.5	6.9	-20.6	-124.4
Cooling Tower 2 Fan			21.9	-8.1	8.0	16.6	17.0	11.1	15.5	6.8	-20.6	-124.6	21.9	-8.1	8.0	16.6	17.0	11.1	15.5	6.8	-20.6	-124.6
Cooling Tower 2 Fan			21.8	-8.1	8.0	16.6	16.9	11.0	15.3	6.7	-21.0	-125.5	21.8	-8.1	8.0	16.6	16.9	11.0	15.3	6.7	-21.0	-125.5

Quelle			Partial Level																			
Name	M.	ID	Nearest Residence																			
			Day	31.5	63	125	250	500	1000	2000	4000	8000	Night	31.5	63	125	250	500	1000	2000	4000	8000
Cooling Tower 2 Fan			21.8	-8.1	8.0	16.5	16.9	11.0	15.3	6.6	-21.0	-125.7	21.8	-8.1	8.0	16.5	16.9	11.0	15.3	6.6	-21.0	-125.7
Cooling Tower 2 Fan			21.7	-8.2	7.9	16.5	16.8	10.9	15.2	6.5	-21.4	-126.7	21.7	-8.2	7.9	16.5	16.8	10.9	15.2	6.5	-21.4	-126.7
Cooling Tower 2 Fan			21.7	-8.2	7.9	16.5	16.8	10.9	15.2	6.5	-21.4	-126.8	21.7	-8.2	7.9	16.5	16.8	10.9	15.2	6.5	-21.4	-126.8
Cooling Tower 2 Fan			21.6	-8.3	7.8	16.4	16.7	10.8	15.1	6.3	-21.7	-127.8	21.6	-8.3	7.8	16.4	16.7	10.8	15.1	6.3	-21.7	-127.8
Cooling Tower 2 Fan			21.6	-8.3	7.8	16.4	16.7	10.7	15.0	6.3	-21.8	-128.0	21.6	-8.3	7.8	16.4	16.7	10.7	15.0	6.3	-21.8	-128.0
Cooling Tower 2 Fan			21.5	-8.3	7.8	16.3	16.7	10.7	14.9	6.1	-22.1	-128.9	21.5	-8.3	7.8	16.3	16.7	10.7	14.9	6.1	-22.1	-128.9
Cooling Tower 2 Fan			24.9	-8.3	7.8	17.4	20.5	19.9	15.1	6.1	-22.2	-129.1	24.9	-8.3	7.8	17.4	20.5	19.9	15.1	6.1	-22.2	-129.1
Cooling Tower 2 Fan			21.4	-8.4	7.7	16.3	16.6	10.6	14.8	5.9	-22.5	-130.0	21.4	-8.4	7.7	16.3	16.6	10.6	14.8	5.9	-22.5	-130.0
Cooling Tower 2 Fan			24.8	-8.4	7.7	17.3	20.4	19.8	15.0	5.9	-22.6	-130.3	24.8	-8.4	7.7	17.3	20.4	19.8	15.0	5.9	-22.6	-130.3
Cooling Tower 2 Fan			21.3	-8.5	7.6	16.2	16.5	10.4	14.7	5.7	-22.9	-131.2	21.3	-8.5	7.6	16.2	16.5	10.4	14.7	5.7	-22.9	-131.2
Cooling Tower 2 Fan			24.7	-8.5	7.6	17.3	20.3	19.7	14.9	5.7	-23.0	-131.4	24.7	-8.5	7.6	17.3	20.3	19.7	14.9	5.7	-23.0	-131.4
Unit 2A Exhaust Duct North			19.9	-1.1	8.9	15.5	11.9	7.9	14.3	6.6	-19.1	-118.9	19.9	-1.1	8.9	15.5	11.9	7.9	14.3	6.6	-19.1	-118.9
Unit 2A Exhaust Duct South			3.4	-13.2	-6.0	-1.2	-4.6	-3.1	-5.8	-13.7	-39.5	-139.6	3.4	-13.2	-6.0	-1.2	-4.6	-3.1	-5.8	-13.7	-39.5	-139.6
Unit 2B Exhaust Duct North			8.5	-7.8	0.0	5.1	1.4	-0.1	-4.7	-14.0	-40.1	-141.5	8.5	-7.8	0.0	5.1	1.4	-0.1	-4.7	-14.0	-40.1	-141.5
Unit 2B Exhaust Duct South			4.1	-12.1	-4.9	-0.1	-3.4	-3.3	-6.0	-14.1	-40.3	-142.0	4.1	-12.1	-4.9	-0.1	-3.4	-3.3	-6.0	-14.1	-40.3	-142.0
Unit 2C Exhaust Duct North			19.2	-1.6	8.5	15.0	11.3	7.2	13.4	5.2	-21.8	-126.7	19.2	-1.6	8.5	15.0	11.3	7.2	13.4	5.2	-21.8	-126.7
Unit 2C Exhaust Duct South			4.0	-12.0	-4.7	0.0	-3.5	-3.8	-6.7	-15.0	-42.0	-147.0	4.0	-12.0	-4.7	0.0	-3.5	-3.8	-6.7	-15.0	-42.0	-147.0
Unit 2D Exhaust Duct North			8.7	-7.7	0.1	5.3	1.6	0.0	-5.2	-14.9	-42.7	-149.2	8.7	-7.7	0.1	5.3	1.6	0.0	-5.2	-14.9	-42.7	-149.2
Unit 2D Exhaust Duct South			3.8	-12.3	-5.0	-0.2	-3.6	-4.0	-7.0	-15.4	-42.9	-149.6	3.8	-12.3	-5.0	-0.2	-3.6	-4.0	-7.0	-15.4	-42.9	-149.6
Unit 1A Exhaust Duct North			21.9	0.2	10.3	16.9	13.5	10.0	17.0	10.3	-11.8	-97.8	21.9	0.2	10.3	16.9	13.5	10.0	17.0	10.3	-11.8	-97.8
Unit 1A Exhaust Duct South			5.4	-11.4	-4.2	0.6	-2.9	-1.0	-3.1	-10.0	-32.2	-118.4	5.4	-11.4	-4.2	0.6	-2.9	-1.0	-3.1	-10.0	-32.2	-118.4
Unit 1B Exhaust Duct North			21.7	0.1	10.2	16.8	13.3	9.8	16.7	9.9	-12.5	-99.7	21.7	0.1	10.2	16.8	13.3	9.8	16.7	9.9	-12.5	-99.7
Unit 1B Exhaust Duct South			6.1	-10.6	-3.2	1.6	-1.4	-1.2	-3.4	-10.3	-32.9	-120.3	6.1	-10.6	-3.2	1.6	-1.4	-1.2	-3.4	-10.3	-32.9	-120.3
Unit 1C Exhaust Duct North			21.2	-0.2	9.9	16.4	13.0	9.4	16.0	8.7	-14.7	-105.0	21.2	-0.2	9.9	16.4	13.0	9.4	16.0	8.7	-14.7	-105.0
Unit 1C Exhaust Duct South			5.7	-10.9	-3.6	1.3	-1.7	-1.6	-3.9	-11.1	-34.3	-124.5	5.7	-10.9	-3.6	1.3	-1.7	-1.6	-3.9	-11.1	-34.3	-124.5
Unit 1D Exhaust Duct North			21.0	-0.3	9.7	16.3	12.8	9.2	15.7	8.4	-15.4	-107.1	21.0	-0.3	9.7	16.3	12.8	9.2	15.7	8.4	-15.4	-107.1
Unit 1D Exhaust Duct South			5.5	-11.1	-3.8	1.1	-1.9	-1.9	-4.2	-11.5	-35.1	-126.7	5.5	-11.1	-3.8	1.1	-1.9	-1.9	-4.2	-11.5	-35.1	-126.7
Unit 2 Condenser			7.9	-16.6	-5.3	0.4	1.5	4.3	-2.5	-13.8	-44.7	-150.1	7.9	-16.6	-5.3	0.4	1.5	4.3	-2.5	-13.8	-44.7	-150.1
Unit 1 Condenser			10.1	-14.4	-3.2	2.7	4.0	6.4	0.1	-10.1	-37.3	-128.5	10.1	-14.4	-3.2	2.7	4.0	6.4	0.1	-10.1	-37.3	-128.5
Unit 1 Steam Turbine Roof HP			24.9	1.6	13.7	18.0	21.3	18.4	11.8	-2.2	-30.2	-121.2	24.9	1.6	13.7	18.0	21.3	18.4	11.8	-2.2	-30.2	-121.2
Unit 1 Steam Turbine Roof LP			27.1	3.7	15.9	20.3	23.7	20.3	14.3	0.3	-27.9	-119.2	27.1	3.7	15.9	20.3	23.7	20.3	14.3	0.3	-27.9	-119.2
Unit 1 Steam Turbine Generator Roof			16.1	-5.9	5.6	11.3	10.8	8.3	6.4	-4.7	-37.0	-138.0	16.1	-5.9	5.6	11.3	10.8	8.3	6.4	-4.7	-37.0	-138.0
Unit 2 Steam Turbine Roof HP			23.6	0.4	12.6	17.0	20.2	16.3	10.0	-5.1	-36.8	-141.9	23.6	0.4	12.6	17.0	20.2	16.3	10.0	-5.1	-36.8	-141.9
Unit 2 Steam Turbine Roof LP			25.2	2.2	14.4	18.7	21.6	18.3	12.2	-2.6	-34.3	-139.6	25.2	2.2	14.4	18.7	21.6	18.3	12.2	-2.6	-34.3	-139.6
Unit 2 Steam Turbine Generator Roof			15.0	-6.9	4.9	10.8	9.1	6.2	6.3	-6.0	-42.5	-158.2	15.0	-6.9	4.9	10.8	9.1	6.2	6.3	-6.0	-42.5	-158.2
Cooling Tower 1 East			10.9	-38.6	-25.4	-16.3	-8.9	-3.7	9.3	4.8	-14.8	-96.8	10.9	-38.6	-25.4	-16.3	-8.9	-3.7	9.3	4.8	-14.8	-96.8
Cooling Tower 1 West			-6.8	-47.2	-36.6	-27.5	-20.9	-13.1	-9.4	-14.5	-34.4	-116.8	-6.8	-47.2	-36.6	-27.5	-20.9	-13.1	-9.4	-14.5	-34.4	-116.8
Cooling Tower 2 East			7.7	-40.1	-27.0	-17.9	-10.8	-6.0	6.4	0.7	-22.8	-120.2	7.7	-40.1	-27.0	-17.9	-10.8	-6.0	6.4	0.7	-22.8	-120.2
Cooling Tower 2 West			-9.4	-48.7	-38.1	-29.1	-22.7	-15.5	-12.0	-18.1	-41.7	-138.3	-9.4	-48.7	-38.1	-29.1	-22.7	-15.5	-12.0	-18.1	-41.7	-138.3
Unit 1A Air Inlet			5.8	-17.0	0.1	1.7	0.3	-10.3	-9.5	-18.3	-32.0	-122.2	5.8	-17.0	0.1	1.7	0.3	-10.3	-9.5	-18.3	-32.0	-122.2
Unit 1B Air Inlet			-0.9	-20.9	-5.8	-5.4	-6.7	-14.7	-25.8	-37.6	-52.8	-144.3	-0.9	-20.9	-5.8	-5.4	-6.7	-14.7	-25.8	-37.6	-52.8	-144.3
Unit 1C Air Inlet			5.4	-17.4	-0.3	1.3	-0.2	-10.9	-10.2	-19.4	-34.1	-128.2	5.4	-17.4	-0.3	1.3	-0.2	-10.9	-10.2	-19.4	-34.1	-128.2
Unit 1D Air Inlet			-0.4	-20.7	-5.4	-4.9	-6.2	-14.2	-25.5	-37.8	-54.7	-150.5	-0.4	-20.7	-5.4	-4.9	-6.2	-14.2	-25.5	-37.8	-54.7	-150.5
Unit 2A Air Inlet			4.3	-18.3	-1.2	0.3	-1.3	-12.3	-12.1	-21.9	-39.1	-142.9	4.3	-18.3	-1.2	0.3	-1.3	-12.3	-12.1	-21.9	-39.1	-142.9
Unit 2B Air Inlet			4.0	-18.6	-1.6	0.1	-1.6	-12.6	-13.6	-24.0	-42.0	-147.5	4.0	-18.6	-1.6	0.1	-1.6	-12.6	-13.6	-24.0	-42.0	-147.5

Quelle			Partial Level																			
Name	M.	ID	Nearest Residence																			
			Day	31.5	63	125	250	500	1000	2000	4000	8000	Night	31.5	63	125	250	500	1000	2000	4000	8000
Unit 2C Air Inlet			-0.3	-21.2	-5.5	-4.7	-5.8	-14.9	-25.7	-38.9	-59.9	-169.8	-0.3	-21.2	-5.5	-4.7	-5.8	-14.9	-25.7	-38.9	-59.9	-169.8
Unit 2D Air Inlet			3.7	-18.9	-1.8	-0.3	-2.0	-13.2	-13.4	-24.0	-43.0	-153.5	3.7	-18.9	-1.8	-0.3	-2.0	-13.2	-13.4	-24.0	-43.0	-153.5
Unit 1 Steam Turbine Generator			5.1	-13.4	-3.8	0.2	-1.4	-1.1	-6.7	-16.3	-46.7	-145.8	5.1	-13.4	-3.8	0.2	-1.4	-1.1	-6.7	-16.3	-46.7	-145.8
Unit 1 Steam Turbine Generator			16.0	-6.2	5.3	10.7	9.6	8.2	8.7	-0.6	-31.2	-130.2	16.0	-6.2	5.3	10.7	9.6	8.2	8.7	-0.6	-31.2	-130.2
Unit 1 Steam Turbine Generator			6.7	-12.5	-2.6	1.7	0.2	0.2	-3.9	-13.5	-44.1	-143.3	6.7	-12.5	-2.6	1.7	0.2	0.2	-3.9	-13.5	-44.1	-143.3
Unit 1 Steam Turbine LP			24.7	2.4	14.0	17.9	20.8	18.6	11.0	-3.1	-30.8	-120.3	24.7	2.4	14.0	17.9	20.8	18.6	11.0	-3.1	-30.8	-120.3
Unit 1 Steam Turbine LP			16.8	-3.5	7.1	10.0	12.4	10.8	4.4	-7.2	-32.5	-121.0	16.8	-3.5	7.1	10.0	12.4	10.8	4.4	-7.2	-32.5	-121.0
Unit 1 Steam Turbine HP			21.7	-0.2	11.2	14.9	17.7	15.7	7.7	-6.3	-33.4	-121.9	21.7	-0.2	11.2	14.9	17.7	15.7	7.7	-6.3	-33.4	-121.9
Unit 1 Steam Turbine HP			21.0	-0.6	10.7	14.3	17.0	15.0	6.9	-7.0	-33.8	-122.0	21.0	-0.6	10.7	14.3	17.0	15.0	6.9	-7.0	-33.8	-122.0
Unit 1 Steam Turbine HP			14.4	-5.9	4.6	7.5	9.9	8.5	2.3	-9.1	-34.3	-122.5	14.4	-5.9	4.6	7.5	9.9	8.5	2.3	-9.1	-34.3	-122.5
Unit 2 Steam Turbine Generator			13.1	-6.9	3.7	6.6	8.8	6.7	-0.3	-13.0	-42.1	-145.3	13.1	-6.9	3.7	6.6	8.8	6.7	-0.3	-13.0	-42.1	-145.3
Unit 2 Steam Turbine HP			20.5	-1.3	10.2	13.9	16.6	14.1	5.7	-9.4	-40.5	-143.6	20.5	-1.3	10.2	13.9	16.6	14.1	5.7	-9.4	-40.5	-143.6
Unit 2 Steam Turbine Generator			13.9	-7.5	3.9	9.5	8.4	6.2	2.4	-10.4	-47.2	-162.8	13.9	-7.5	3.9	9.5	8.4	6.2	2.4	-10.4	-47.2	-162.8
Unit 2 Steam Turbine Generator			4.2	-14.2	-4.5	-0.4	-2.1	-2.6	-8.6	-19.7	-54.0	-167.4	4.2	-14.2	-4.5	-0.4	-2.1	-2.6	-8.6	-19.7	-54.0	-167.4
Unit 1A HRSG North			23.4	-1.7	16.4	20.5	16.4	4.1	12.1	-4.5	-45.3	-157.4	23.4	-1.7	16.4	20.5	16.4	4.1	12.1	-4.5	-45.3	-157.4
Unit 1A HRSG South			7.2	-14.6	0.7	4.0	0.9	-6.7	-7.9	-24.8	-65.7	-178.0	7.2	-14.6	0.7	4.0	0.9	-6.7	-7.9	-24.8	-65.7	-178.0
Unit 1B HRSG North			23.1	-2.0	16.0	20.4	16.2	3.9	10.9	-6.0	-47.3	-160.8	23.1	-2.0	16.0	20.4	16.2	3.9	10.9	-6.0	-47.3	-160.8
Unit 1B HRSG South			7.1	-14.7	0.6	3.9	0.8	-6.9	-8.2	-25.1	-66.4	-180.0	7.1	-14.7	0.6	3.9	0.8	-6.9	-8.2	-25.1	-66.4	-180.0
Unit 1C HRSG North			22.8	-2.3	15.7	20.1	15.8	3.5	10.3	-6.9	-49.0	-165.3	22.8	-2.3	15.7	20.1	15.8	3.5	10.3	-6.9	-49.0	-165.3
Unit 1C HRSG South			6.9	-14.9	0.4	3.6	0.4	-7.3	-8.7	-25.9	-67.9	-184.3	6.9	-14.9	0.4	3.6	0.4	-7.3	-8.7	-25.9	-67.9	-184.3
Unit 1D HRSG North			22.6	-2.4	15.6	19.9	15.7	3.3	10.0	-7.2	-49.7	-167.4	22.6	-2.4	15.6	19.9	15.7	3.3	10.0	-7.2	-49.7	-167.4
Unit 1D HRSG South			6.7	-15.0	0.2	3.5	0.2	-7.5	-9.0	-26.3	-68.6	-186.5	6.7	-15.0	0.2	3.5	0.2	-7.5	-9.0	-26.3	-68.6	-186.5
Unit 2A HRSG North			21.8	-3.1	15.0	19.0	14.7	2.0	9.4	-8.2	-52.7	-178.8	21.8	-3.1	15.0	19.0	14.7	2.0	9.4	-8.2	-52.7	-178.8
Unit 2A HRSG South			5.9	-15.7	-0.4	2.7	-0.7	-8.8	-10.6	-28.5	-73.1	-199.5	5.9	-15.7	-0.4	2.7	-0.7	-8.8	-10.6	-28.5	-73.1	-199.5
Unit 2B HRSG North			21.6	-3.3	14.8	18.8	14.4	1.7	9.1	-8.7	-53.6	-181.2	21.6	-3.3	14.8	18.8	14.4	1.7	9.1	-8.7	-53.6	-181.2
Unit 2B HRSG South			5.7	-15.9	-0.6	2.5	-0.9	-9.0	-10.9	-28.9	-73.9	-201.9	5.7	-15.9	-0.6	2.5	-0.9	-9.0	-10.9	-28.9	-73.9	-201.9
Unit 2C HRSG North			21.2	-3.6	14.4	18.6	14.1	1.3	7.8	-10.4	-56.4	-187.6	21.2	-3.6	14.4	18.6	14.1	1.3	7.8	-10.4	-56.4	-187.6
Unit 2C HRSG South			5.4	-16.1	-0.8	2.3	-1.2	-9.5	-11.5	-29.8	-75.7	-207.0	5.4	-16.1	-0.8	2.3	-1.2	-9.5	-11.5	-29.8	-75.7	-207.0
Unit 2D HRSG North			20.9	-3.9	14.1	18.2	13.7	0.9	7.3	-11.0	-57.4	-190.3	20.9	-3.9	14.1	18.2	13.7	0.9	7.3	-11.0	-57.4	-190.3
Unit 2D HRSG South			5.3	-16.2	-1.0	2.1	-1.4	-9.7	-11.8	-30.2	-76.5	-209.6	5.3	-16.2	-1.0	2.1	-1.4	-9.7	-11.8	-30.2	-76.5	-209.6
Unit 2 Steam Turbine LP			24.6	1.8	13.8	18.1	21.0	17.3	11.6	-3.3	-34.9	-139.6	24.6	1.8	13.8	18.1	21.0	17.3	11.6	-3.3	-34.9	-139.6
Unit 2 Steam Turbine LP			14.9	-5.0	5.5	8.4	10.6	8.6	1.6	-10.9	-39.9	-142.7	14.9	-5.0	5.5	8.4	10.6	8.6	1.6	-10.9	-39.9	-142.7
Unit 2 Steam Turbine HP			20.0	-1.5	9.9	13.5	16.1	13.6	5.1	-10.1	-41.0	-143.6	20.0	-1.5	9.9	13.5	16.1	13.6	5.1	-10.1	-41.0	-143.6
Unit 2 Steam Turbine HP			13.1	-6.8	3.7	6.6	8.8	6.7	-0.2	-12.8	-41.7	-144.2	13.1	-6.8	3.7	6.6	8.8	6.7	-0.2	-12.8	-41.7	-144.2

Full - Three 4-on-1

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height	Coordinates		
			Day	Night	Day	Night	Type	Auto	Noise		X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(m)	(m)	(m)	(m)
Nearest Residence		R001	47.2	47.2	0.0	0.0		x	Total	-3.36	263458.84	263562.42	-3.36

Quelle			Partial Level																			
Name	M.	ID	Nearest Residence																			
			Day	31.5	63	125	250	500	1000	2000	4000	8000	Night	31.5	63	125	250	500	1000	2000	4000	8000
1A HRSG Stack			36.3	-0.6	20.5	31.7	32.2	21.9	29.3	10.7	-35.1	-135.6	36.3	-0.6	20.5	31.7	32.2	21.9	29.3	10.7	-35.1	-135.6
1B HRSG Stack			36.1	-0.7	20.4	31.5	32.1	21.7	29.0	10.4	-35.7	-137.5	36.1	-0.7	20.4	31.5	32.1	21.7	29.0	10.4	-35.7	-137.5
1C HRSG Stack			35.7	-1.0	20.1	31.2	31.7	21.2	28.4	9.6	-37.2	-141.7	35.7	-1.0	20.1	31.2	31.7	21.2	28.4	9.6	-37.2	-141.7
1D HRSG Stack			35.5	-1.2	19.9	31.0	31.5	21.0	28.2	9.2	-38.0	-144.0	35.5	-1.2	19.9	31.0	31.5	21.0	28.2	9.2	-38.0	-144.0
2A HRSG Stack			34.5	-2.0	19.1	30.1	30.5	19.7	26.5	6.9	-42.5	-157.1	34.5	-2.0	19.1	30.1	30.5	19.7	26.5	6.9	-42.5	-157.1
2B HRSG Stack			34.3	-2.2	18.9	30.0	30.3	19.5	26.2	6.5	-43.3	-159.4	34.3	-2.2	18.9	30.0	30.3	19.5	26.2	6.5	-43.3	-159.4
2C HRSG Stack			33.9	-2.5	18.6	29.7	30.0	19.0	25.6	5.6	-45.0	-164.6	33.9	-2.5	18.6	29.7	30.0	19.0	25.6	5.6	-45.0	-164.6
2D HRSG Stack			33.7	-2.6	18.4	29.5	29.8	18.8	25.3	5.2	-45.9	-167.2	33.7	-2.6	18.4	29.5	29.8	18.8	25.3	5.2	-45.9	-167.2
1A CT Transformer			15.5	-17.1	2.0	7.6	9.1	7.5	11.2	1.4	-25.6	-118.9	15.5	-17.1	2.0	7.6	9.1	7.5	11.2	1.4	-25.6	-118.9
1B CT Transformer			6.7	-24.6	-8.1	0.9	3.2	0.2	-9.0	-19.2	-46.5	-141.1	6.7	-24.6	-8.1	0.9	3.2	0.2	-9.0	-19.2	-46.5	-141.1
1C CT Transformer			14.0	-17.6	1.3	7.2	8.6	6.9	7.9	-4.2	-34.4	-134.2	14.0	-17.6	1.3	7.2	8.6	6.9	7.9	-4.2	-34.4	-134.2
1D CT Transformer			6.8	-24.5	-7.9	1.0	3.3	0.2	-9.7	-20.3	-48.7	-147.3	6.8	-24.5	-7.9	1.0	3.3	0.2	-9.7	-20.3	-48.7	-147.3
2A CT Transformer			13.5	-18.4	0.7	6.2	7.5	5.5	8.6	-2.2	-32.7	-139.7	13.5	-18.4	0.7	6.2	7.5	5.5	8.6	-2.2	-32.7	-139.7
2B CT Transformer			13.3	-18.6	0.5	6.1	7.4	5.3	8.3	-2.6	-33.5	-142.0	13.3	-18.6	0.5	6.1	7.4	5.3	8.3	-2.6	-33.5	-142.0
2C CT Transformer			8.2	-23.4	-6.5	2.7	4.9	1.5	-9.7	-23.7	-55.4	-167.2	8.2	-23.4	-6.5	2.7	4.9	1.5	-9.7	-23.7	-55.4	-167.2
2D CT Transformer			12.5	-19.0	0.0	5.6	6.8	4.6	7.1	-5.2	-38.3	-153.3	12.5	-19.0	0.0	5.6	6.8	4.6	7.1	-5.2	-38.3	-153.3
1A Boiler Feed Pump			17.2	-9.8	0.3	1.0	2.5	6.0	14.8	11.3	-17.8	-112.7	17.2	-9.8	0.3	1.0	2.5	6.0	14.8	11.3	-17.8	-112.7
1B Boiler Feed Pump			16.9	-9.9	0.2	0.9	2.4	5.8	14.6	11.0	-18.5	-114.6	16.9	-9.9	0.2	0.9	2.4	5.8	14.6	11.0	-18.5	-114.6
1C Boiler Feed Pump			10.6	-11.0	-1.6	0.6	2.0	5.4	5.6	-1.3	-34.3	-136.0	10.6	-11.0	-1.6	0.6	2.0	5.4	5.6	-1.3	-34.3	-136.0
1D Boiler Feed Pump			0.1	-22.8	-15.6	-11.8	-8.5	-3.6	-6.1	-10.4	-40.9	-141.1	0.1	-22.8	-15.6	-11.8	-8.5	-3.6	-6.1	-10.4	-40.9	-141.1
2A Boiler Feed Pump			14.4	-11.1	-1.0	-0.5	0.9	4.0	12.2	7.6	-25.0	-133.7	14.4	-11.1	-1.0	-0.5	0.9	4.0	12.2	7.6	-25.0	-133.7
2B Boiler Feed Pump			-1.4	-22.8	-15.6	-11.8	-9.7	-5.0	-8.0	-13.0	-46.1	-156.3	-1.4	-22.8	-15.6	-11.8	-9.7	-5.0	-8.0	-13.0	-46.1	-156.3
2C Boiler Feed Pump			9.9	-11.9	-2.1	-0.9	0.3	3.3	6.3	-1.3	-37.9	-154.3	9.9	-11.9	-2.1	-0.9	0.3	3.3	6.3	-1.3	-37.9	-154.3
2D Boiler Feed Pump			-2.0	-23.0	-15.8	-12.0	-10.0	-5.7	-8.9	-14.3	-48.7	-163.9	-2.0	-23.0	-15.8	-12.0	-10.0	-5.7	-8.9	-14.3	-48.7	-163.9
Unit 1 STG Transformer			2.7	-29.7	-13.5	-4.7	-1.6	-1.7	-9.3	-19.6	-47.3	-143.5	2.7	-29.7	-13.5	-4.7	-1.6	-1.7	-9.3	-19.6	-47.3	-143.5
Unit 2 STG Transformer			1.0	-31.0	-14.8	-6.1	-3.2	-3.7	-11.9	-23.3	-54.7	-164.9	1.0	-31.0	-14.8	-6.1	-3.2	-3.7	-11.9	-23.3	-54.7	-164.9
Turbine Vent Fan 1A1			22.3	-8.9	4.2	17.2	14.4	8.9	11.8	18.1	-1.3	-84.1	22.3	-8.9	4.2	17.2	14.4	8.9	11.8	18.1	-1.3	-84.1
Turbine Vent Fan 1A2			22.3	-8.9	4.2	17.2	14.4	8.9	11.7	18.0	-1.4	-84.5	22.3	-8.9	4.2	17.2	14.4	8.9	11.7	18.0	-1.4	-84.5
Turbine Vent Fan 1B1			22.1	-9.0	4.1	17.1	14.3	8.7	11.5	17.7	-2.0	-86.1	22.1	-9.0	4.1	17.1	14.3	8.7	11.5	17.7	-2.0	-86.1
Turbine Vent Fan 1B2			7.0	-18.3	-7.9	4.0	0.3	-2.3	-8.5	-2.6	-22.3	-106.7	7.0	-18.3	-7.9	4.0	0.3	-2.3	-8.5	-2.6	-22.3	-106.7
Turbine Vent Fan 1C1			21.0	-9.3	3.8	16.8	13.9	8.3	10.4	15.4	-6.1	-94.6	21.0	-9.3	3.8	16.8	13.9	8.3	10.4	15.4	-6.1	-94.6
Turbine Vent Fan 1C2			21.1	-9.3	3.8	16.7	13.9	8.2	10.5	15.6	-5.8	-94.3	21.1	-9.3	3.8	16.7	13.9	8.2	10.5	15.6	-5.8	-94.3
Turbine Vent Fan 1D1			6.3	-18.9	-8.5	3.3	-0.4	-2.9	-9.3	-3.6	-24.4	-112.6	6.3	-18.9	-8.5	3.3	-0.4	-2.9	-9.3	-3.6	-24.4	-112.6
Turbine Vent Fan 1D2			8.3	-16.8	-6.3	5.6	1.9	-1.3	-9.3	-3.7	-24.5	-112.9	8.3	-16.8	-6.3	5.6	1.9	-1.3	-9.3	-3.7	-24.5	-112.9
Turbine Vent Fan 2A1			20.0	-10.2	2.9	15.7	12.8	6.8	9.1	14.4	-8.5	-105.2	20.0	-10.2	2.9	15.7	12.8	6.8	9.1	14.4	-8.5	-105.2
Turbine Vent Fan 2A2			19.9	-10.2	2.8	15.7	12.7	6.8	9.1	14.3	-8.6	-105.5	19.9	-10.2	2.8	15.7	12.7	6.8	9.1	14.3	-8.6	-105.5
Turbine Vent Fan 2B1			6.4	-18.5	-8.0	3.8	0.0	-3.6	-11.1	-6.2	-29.6	-127.7	6.4	-18.5	-8.0	3.8	0.0	-3.6	-11.1	-6.2	-29.6	-127.7

Quelle			Partial Level																			
Name	M.	ID	Nearest Residence																			
			Day	31.5	63	125	250	500	1000	2000	4000	8000	Night	31.5	63	125	250	500	1000	2000	4000	8000
Turbine Vent Fan 2B2			6.3	-18.5	-8.1	3.8	-0.1	-3.6	-11.2	-6.3	-29.7	-128.0	6.3	-18.5	-8.1	3.8	-0.1	-3.6	-11.2	-6.3	-29.7	-128.0
Turbine Vent Fan 2C1			19.2	-10.7	2.4	15.3	12.2	6.1	8.3	12.8	-11.6	-113.6	19.2	-10.7	2.4	15.3	12.2	6.1	8.3	12.8	-11.6	-113.6
Turbine Vent Fan 2C2			19.2	-10.7	2.4	15.3	12.2	6.1	8.2	12.9	-11.6	-113.6	19.2	-10.7	2.4	15.3	12.2	6.1	8.2	12.9	-11.6	-113.6
Turbine Vent Fan 2D1			6.1	-18.6	-8.2	3.6	-0.3	-4.0	-12.0	-7.5	-32.1	-135.3	6.1	-18.6	-8.2	3.6	-0.3	-4.0	-12.0	-7.5	-32.1	-135.3
Turbine Vent Fan 2D2			6.0	-18.7	-8.2	3.6	-0.3	-4.0	-12.1	-7.6	-32.2	-135.6	6.0	-18.7	-8.2	3.6	-0.3	-4.0	-12.1	-7.6	-32.2	-135.6
Load Comp Vent Fan 1A			16.6	-11.9	3.2	9.4	11.2	3.8	10.7	8.9	-16.6	-108.0	16.6	-11.9	3.2	9.4	11.2	3.8	10.7	8.9	-16.6	-108.0
Load Comp Vent Fan 1B			2.0	-21.4	-9.1	-2.3	-2.9	-7.4	-9.6	-11.7	-37.5	-130.1	2.0	-21.4	-9.1	-2.3	-2.9	-7.4	-9.6	-11.7	-37.5	-130.1
Load Comp Vent Fan 1C			15.3	-12.4	2.7	9.0	10.7	3.2	8.6	5.1	-23.0	-120.5	15.3	-12.4	2.7	9.0	10.7	3.2	8.6	5.1	-23.0	-120.5
Load Comp Vent Fan 1D			2.8	-20.5	-8.1	-1.2	-1.9	-7.2	-10.4	-12.8	-39.6	-136.4	2.8	-20.5	-8.1	-1.2	-1.9	-7.2	-10.4	-12.8	-39.6	-136.4
Load Comp Vent Fan 2A			14.5	-13.3	1.8	8.0	9.5	1.8	8.1	5.3	-23.8	-128.9	14.5	-13.3	1.8	8.0	9.5	1.8	8.1	5.3	-23.8	-128.9
Load Comp Vent Fan 2B			1.1	-21.9	-9.6	-2.7	-3.6	-9.2	-12.2	-15.4	-44.8	-151.4	1.1	-21.9	-9.6	-2.7	-3.6	-9.2	-12.2	-15.4	-44.8	-151.4
Load Comp Vent Fan 2C			13.7	-13.7	1.4	7.5	9.0	1.1	7.1	3.4	-27.5	-138.4	13.7	-13.7	1.4	7.5	9.0	1.1	7.1	3.4	-27.5	-138.4
Load Comp Vent Fan 2D			1.3	-21.7	-9.3	-2.4	-3.3	-9.1	-13.1	-16.6	-47.4	-159.0	1.3	-21.7	-9.3	-2.4	-3.3	-9.1	-13.1	-16.6	-47.4	-159.0
Cooling Tower 1 Fan			24.5	-6.3	9.8	18.5	19.1	13.8	18.9	11.6	-11.4	-97.8	24.5	-6.3	9.8	18.5	19.1	13.8	18.9	11.6	-11.4	-97.8
Cooling Tower 1 Fan			24.3	-6.3	9.8	18.4	19.0	13.6	18.7	11.3	-11.8	-99.0	24.3	-6.3	9.8	18.4	19.0	13.6	18.7	11.3	-11.8	-99.0
Cooling Tower 1 Fan			24.4	-6.3	9.8	18.5	19.1	13.7	18.8	11.4	-11.7	-98.7	24.4	-6.3	9.8	18.5	19.1	13.7	18.8	11.4	-11.7	-98.7
Cooling Tower 1 Fan			24.2	-6.4	9.7	18.4	19.0	13.5	18.6	11.2	-12.1	-99.9	24.2	-6.4	9.7	18.4	19.0	13.5	18.6	11.2	-12.1	-99.9
Cooling Tower 1 Fan			24.3	-6.4	9.7	18.4	19.0	13.6	18.6	11.2	-12.0	-99.6	24.3	-6.4	9.7	18.4	19.0	13.6	18.6	11.2	-12.0	-99.6
Cooling Tower 1 Fan			24.1	-6.5	9.6	18.3	18.9	13.4	18.5	11.0	-12.4	-100.9	24.1	-6.5	9.6	18.3	18.9	13.4	18.5	11.0	-12.4	-100.9
Cooling Tower 1 Fan			24.2	-6.5	9.6	18.3	18.9	13.5	18.5	11.1	-12.3	-100.6	24.2	-6.5	9.6	18.3	18.9	13.5	18.5	11.1	-12.3	-100.6
Cooling Tower 1 Fan			24.0	-6.5	9.6	18.2	18.8	13.3	18.3	10.8	-12.8	-101.8	24.0	-6.5	9.6	18.2	18.8	13.3	18.3	10.8	-12.8	-101.8
Cooling Tower 1 Fan			24.1	-6.5	9.6	18.2	18.8	13.4	18.4	10.9	-12.7	-101.5	24.1	-6.5	9.6	18.2	18.8	13.4	18.4	10.9	-12.7	-101.5
Cooling Tower 1 Fan			24.0	-6.6	9.5	18.2	18.7	13.3	18.2	10.7	-13.1	-102.7	24.0	-6.6	9.5	18.2	18.7	13.3	18.2	10.7	-13.1	-102.7
Cooling Tower 1 Fan			24.0	-6.6	9.5	18.2	18.7	13.3	18.3	10.7	-13.0	-102.4	24.0	-6.6	9.5	18.2	18.7	13.3	18.3	10.7	-13.0	-102.4
Cooling Tower 1 Fan			23.9	-6.7	9.4	18.1	18.6	13.2	18.1	10.5	-13.4	-103.6	23.9	-6.7	9.4	18.1	18.6	13.2	18.1	10.5	-13.4	-103.6
Cooling Tower 1 Fan			23.9	-6.7	9.4	18.1	18.7	13.2	18.1	10.5	-13.3	-103.4	23.9	-6.7	9.4	18.1	18.7	13.2	18.1	10.5	-13.3	-103.4
Cooling Tower 1 Fan			23.8	-6.7	9.4	18.0	18.6	13.1	18.0	10.3	-13.7	-104.6	23.8	-6.7	9.4	18.0	18.6	13.1	18.0	10.3	-13.7	-104.6
Cooling Tower 1 Fan			23.8	-6.7	9.4	18.0	18.6	13.1	18.0	10.4	-13.7	-104.4	23.8	-6.7	9.4	18.0	18.6	13.1	18.0	10.4	-13.7	-104.4
Cooling Tower 1 Fan			23.7	-6.8	9.3	17.9	18.5	13.0	17.9	10.2	-14.1	-105.5	23.7	-6.8	9.3	17.9	18.5	13.0	17.9	10.2	-14.1	-105.5
Cooling Tower 1 Fan			23.7	-6.8	9.3	18.0	18.5	13.0	17.9	10.2	-14.0	-105.3	23.7	-6.8	9.3	18.0	18.5	13.0	17.9	10.2	-14.0	-105.3
Cooling Tower 1 Fan			23.6	-6.9	9.2	17.9	18.4	12.9	17.7	10.0	-14.4	-106.5	23.6	-6.9	9.2	17.9	18.4	12.9	17.7	10.0	-14.4	-106.5
Cooling Tower 1 Fan			23.6	-6.9	9.2	17.9	18.4	12.9	17.8	10.0	-14.4	-106.3	23.6	-6.9	9.2	17.9	18.4	12.9	17.8	10.0	-14.4	-106.3
Cooling Tower 1 Fan			23.5	-6.9	9.2	17.8	18.3	12.8	17.6	9.8	-14.8	-107.5	23.5	-6.9	9.2	17.8	18.3	12.8	17.6	9.8	-14.8	-107.5
Cooling Tower 1 Fan			23.5	-6.9	9.2	17.8	18.3	12.8	17.6	9.9	-14.7	-107.3	23.5	-6.9	9.2	17.8	18.3	12.8	17.6	9.9	-14.7	-107.3
Cooling Tower 1 Fan			23.4	-7.0	9.1	17.7	18.2	12.7	17.5	9.7	-15.1	-108.4	23.4	-7.0	9.1	17.7	18.2	12.7	17.5	9.7	-15.1	-108.4
Cooling Tower 2 Fan			22.3	-7.8	8.3	16.9	17.3	11.5	16.0	7.6	-19.1	-120.1	22.3	-7.8	8.3	16.9	17.3	11.5	16.0	7.6	-19.1	-120.1
Cooling Tower 2 Fan			22.2	-7.8	8.2	16.8	17.2	11.4	15.9	7.4	-19.4	-121.1	22.2	-7.8	8.2	16.8	17.2	11.4	15.9	7.4	-19.4	-121.1
Cooling Tower 2 Fan			22.2	-7.8	8.2	16.8	17.2	11.4	15.9	7.4	-19.5	-121.2	22.2	-7.8	8.2	16.8	17.2	11.4	15.9	7.4	-19.5	-121.2
Cooling Tower 2 Fan			22.1	-7.9	8.2	16.8	17.2	11.3	15.7	7.2	-19.8	-122.2	22.1	-7.9	8.2	16.8	17.2	11.3	15.7	7.2	-19.8	-122.2
Cooling Tower 2 Fan			22.1	-7.9	8.2	16.8	17.1	11.3	15.7	7.2	-19.9	-122.3	22.1	-7.9	8.2	16.8	17.1	11.3	15.7	7.2	-19.9	-122.3
Cooling Tower 2 Fan			22.0	-8.0	8.1	16.7	17.1	11.2	15.6	7.1	-20.2	-123.3	22.0	-8.0	8.1	16.7	17.1	11.2	15.6	7.1	-20.2	-123.3
Cooling Tower 2 Fan			22.0	-8.0	8.1	16.7	17.1	11.2	15.6	7.0	-20.2	-123.4	22.0	-8.0	8.1	16.7	17.1	11.2	15.6	7.0	-20.2	-123.4
Cooling Tower 2 Fan			21.9	-8.0	8.0	16.6	17.0	11.1	15.5	6.9	-20.6	-124.4	21.9	-8.0	8.0	16.6	17.0	11.1	15.5	6.9	-20.6	-124.4
Cooling Tower 2 Fan			21.9	-8.1	8.0	16.6	17.0	11.1	15.5	6.8	-20.6	-124.6	21.9	-8.1	8.0	16.6	17.0	11.1	15.5	6.8	-20.6	-124.6
Cooling Tower 2 Fan			21.8	-8.1	8.0	16.6	16.9	11.0	15.3	6.7	-21.0	-125.5	21.8	-8.1	8.0	16.6	16.9	11.0	15.3	6.7	-21.0	-125.5

Quelle			Partial Level																					
Name	M.	ID	Nearest Residence																					
			Day	31.5	63	125	250	500	1000	2000	4000	8000	Night	31.5	63	125	250	500	1000	2000	4000	8000		
Cooling Tower 2 Fan			21.8	-8.1	8.0	16.5	16.9	11.0	15.3	6.6	-21.0	-125.7	21.8	-8.1	8.0	16.5	16.9	11.0	15.3	6.6	-21.0	-125.7		
Cooling Tower 2 Fan			21.7	-8.2	7.9	16.5	16.8	10.9	15.2	6.5	-21.4	-126.7	21.7	-8.2	7.9	16.5	16.8	10.9	15.2	6.5	-21.4	-126.7		
Cooling Tower 2 Fan			21.7	-8.2	7.9	16.5	16.8	10.9	15.2	6.5	-21.4	-126.8	21.7	-8.2	7.9	16.5	16.8	10.9	15.2	6.5	-21.4	-126.8		
Cooling Tower 2 Fan			21.6	-8.3	7.8	16.4	16.7	10.8	15.1	6.3	-21.7	-127.8	21.6	-8.3	7.8	16.4	16.7	10.8	15.1	6.3	-21.7	-127.8		
Cooling Tower 2 Fan			21.6	-8.3	7.8	16.4	16.7	10.7	15.0	6.3	-21.8	-128.0	21.6	-8.3	7.8	16.4	16.7	10.7	15.0	6.3	-21.8	-128.0		
Cooling Tower 2 Fan			21.5	-8.3	7.8	16.3	16.7	10.7	14.9	6.1	-22.1	-128.9	21.5	-8.3	7.8	16.3	16.7	10.7	14.9	6.1	-22.1	-128.9		
Cooling Tower 2 Fan			21.5	-8.3	7.8	16.3	16.6	10.6	14.9	6.1	-22.2	-129.1	21.5	-8.3	7.8	16.3	16.6	10.6	14.9	6.1	-22.2	-129.1		
Cooling Tower 2 Fan			21.4	-8.4	7.7	16.3	16.6	10.6	14.8	5.9	-22.5	-130.0	21.4	-8.4	7.7	16.3	16.6	10.6	14.8	5.9	-22.5	-130.0		
Cooling Tower 2 Fan			21.4	-8.4	7.7	16.2	16.6	10.5	14.8	5.9	-22.6	-130.3	21.4	-8.4	7.7	16.2	16.6	10.5	14.8	5.9	-22.6	-130.3		
Cooling Tower 2 Fan			21.3	-8.5	7.6	16.2	16.5	10.4	14.7	5.7	-22.9	-131.2	21.3	-8.5	7.6	16.2	16.5	10.4	14.7	5.7	-22.9	-131.2		
Cooling Tower 2 Fan			21.3	-8.5	7.6	16.2	16.5	10.4	14.6	5.7	-23.0	-131.4	21.3	-8.5	7.6	16.2	16.5	10.4	14.6	5.7	-23.0	-131.4		
Cooling Tower 2 Fan			21.2	-8.5	7.6	16.1	16.4	10.3	14.5	5.5	-23.3	-132.3	21.2	-8.5	7.6	16.1	16.4	10.3	14.5	5.5	-23.3	-132.3		
3A HRSG Stack			32.6	-3.5	17.6	28.6	28.7	17.4	23.5	2.7	-51.0	-182.3	32.6	-3.5	17.6	28.6	28.7	17.4	23.5	2.7	-51.0	-182.3		
3B HRSG Stack			32.4	-3.6	17.5	28.5	28.6	17.2	23.2	2.2	-51.9	-185.0	32.4	-3.6	17.5	28.5	28.6	17.2	23.2	2.2	-51.9	-185.0		
3C HRSG Stack			32.0	-3.9	17.2	28.1	28.2	16.7	22.6	1.3	-53.8	-190.7	32.0	-3.9	17.2	28.1	28.2	16.7	22.6	1.3	-53.8	-190.7		
3D HRSG Stack			31.8	-4.0	17.0	28.0	28.0	16.5	22.3	0.9	-54.8	-193.5	31.8	-4.0	17.0	28.0	28.0	16.5	22.3	0.9	-54.8	-193.5		
3A CT Transformer			11.4	-19.8	-0.7	4.8	5.9	3.3	5.8	-6.3	-41.0	-164.1	11.4	-19.8	-0.7	4.8	5.9	3.3	5.8	-6.3	-41.0	-164.1		
3B CT Transformer			11.2	-19.9	-0.8	4.6	5.7	3.1	5.5	-6.7	-41.8	-166.7	11.2	-19.9	-0.8	4.6	5.7	3.1	5.5	-6.7	-41.8	-166.7		
3C CT Transformer			6.1	-25.0	-8.2	0.8	2.8	-1.2	-13.0	-27.8	-63.9	-192.4	6.1	-25.0	-8.2	0.8	2.8	-1.2	-13.0	-27.8	-63.9	-192.4		
3D CT Transformer			7.2	-24.2	-7.2	1.9	3.9	0.0	-11.9	-27.8	-64.8	-195.2	7.2	-24.2	-7.2	1.9	3.9	0.0	-11.9	-27.8	-64.8	-195.2		
3A Boiler Feed Pump			11.5	-12.5	-2.5	-2.0	-0.9	1.7	9.3	3.5	-33.4	-158.6	11.5	-12.5	-2.5	-2.0	-0.9	1.7	9.3	3.5	-33.4	-158.6		
3B Boiler Feed Pump			-3.7	-24.3	-17.1	-13.4	-11.4	-7.3	-10.9	-17.2	-54.6	-181.5	-3.7	-24.3	-17.1	-13.4	-11.4	-7.3	-10.9	-17.2	-54.6	-181.5		
3C Boiler Feed Pump			9.1	-13.0	-3.1	-2.4	-1.4	1.0	6.4	-1.6	-41.9	-174.9	9.1	-13.0	-3.1	-2.4	-1.4	1.0	6.4	-1.6	-41.9	-174.9		
3D Boiler Feed Pump			-4.3	-24.4	-17.2	-13.6	-11.8	-8.0	-11.8	-18.5	-57.4	-189.9	-4.3	-24.4	-17.2	-13.6	-11.8	-8.0	-11.8	-18.5	-57.4	-189.9		
Unit 3 STG Transformer			-0.7	-31.7	-15.5	-6.8	-4.9	-5.9	-14.7	-27.4	-63.1	-189.9	-0.7	-31.7	-15.5	-6.8	-4.9	-5.9	-14.7	-27.4	-63.1	-189.9		
Turbine Vent Fan 3A1			17.7	-11.6	1.5	14.3	11.1	4.6	6.3	10.3	16.9	-129.9	17.7	-11.6	1.5	14.3	11.1	4.6	6.3	10.3	16.9	-129.9		
Turbine Vent Fan 3A2			17.7	-11.6	1.4	14.2	11.0	4.6	6.2	10.2	17.0	-130.2	17.7	-11.6	1.4	14.2	11.0	4.6	6.2	10.2	17.0	-130.2		
Turbine Vent Fan 3B1			4.5	-19.9	-9.5	2.3	-1.8	-5.9	-14.0	-10.4	-38.0	-152.8	4.5	-19.9	-9.5	2.3	-1.8	-5.9	-14.0	-10.4	-38.0	-152.8		
Turbine Vent Fan 3B2			5.4	-19.1	-8.7	3.1	-1.0	-5.0	-14.1	-10.4	-38.1	-153.1	5.4	-19.1	-8.7	3.1	-1.0	-5.0	-14.1	-10.4	-38.1	-153.1		
Turbine Vent Fan 3C1			17.0	-12.0	1.0	13.8	10.5	3.9	5.3	8.9	-19.7	-138.2	17.0	-12.0	1.0	13.8	10.5	3.9	5.3	8.9	-19.7	-138.2		
Turbine Vent Fan 3C2			6.9	-17.8	-7.2	4.7	0.7	-3.5	-14.0	-11.3	-40.0	-158.6	6.9	-17.8	-7.2	4.7	0.7	-3.5	-14.0	-11.3	-40.0	-158.6		
Turbine Vent Fan 3D1			4.4	-20.0	-9.6	2.2	-2.0	-6.3	-15.0	-11.7	-40.8	-161.2	4.4	-20.0	-9.6	2.2	-2.0	-6.3	-15.0	-11.7	-40.8	-161.2		
Turbine Vent Fan 3D2			5.3	-19.2	-8.7	3.1	-1.0	-5.3	-15.0	-11.8	-40.9	-161.4	5.3	-19.2	-8.7	3.1	-1.0	-5.3	-15.0	-11.8	-40.9	-161.4		
Load Comp Vent Fan 3A			12.4	-14.6	0.4	6.5	7.8	-0.5	5.2	1.2	-32.1	-153.5	12.4	-14.6	0.4	6.5	7.8	-0.5	5.2	1.2	-32.1	-153.5		
Load Comp Vent Fan 3B			2.0	-21.1	-8.5	-1.6	-2.6	-8.7	-15.1	-19.5	-53.2	-176.4	2.0	-21.1	-8.5	-1.6	-2.6	-8.7	-15.1	-19.5	-53.2	-176.4		
Load Comp Vent Fan 3C			4.5	-19.1	-6.2	1.0	0.0	-6.1	-12.6	-20.2	-55.1	-181.9	4.5	-19.1	-6.2	1.0	0.0	-6.1	-12.6	-20.2	-55.1	-181.9		
Load Comp Vent Fan 3D			3.1	-20.2	-7.4	-0.4	-1.5	-7.7	-14.3	-20.8	-56.0	-184.7	3.1	-20.2	-7.4	-0.4	-1.5	-7.7	-14.3	-20.8	-56.0	-184.7		
Cooling Tower Fan 3			20.2	-9.3	6.8	15.3	15.5	9.1	12.9	3.2	-27.9	-146.0	20.2	-9.3	6.8	15.3	15.5	9.1	12.9	3.2	-27.9	-146.0		
Cooling Tower Fan 3			20.1	-9.3	6.7	15.3	15.4	9.0	12.8	3.1	-28.2	-146.8	20.1	-9.3	6.7	15.3	15.4	9.0	12.8	3.1	-28.2	-146.8		
Cooling Tower Fan 3			20.1	-9.3	6.7	15.2	15.4	9.0	12.8	3.0	-28.3	-147.2	20.1	-9.3	6.7	15.2	15.4	9.0	12.8	3.0	-28.3	-147.2		
Cooling Tower Fan 3			20.0	-9.4	6.7	15.2	15.3	8.9	12.7	2.9	-28.6	-148.0	20.0	-9.4	6.7	15.2	15.3	8.9	12.7	2.9	-28.6	-148.0		
Cooling Tower Fan 3			20.0	-9.4	6.7	15.2	15.3	8.9	12.6	2.8	-28.7	-148.4	20.0	-9.4	6.7	15.2	15.3	8.9	12.6	2.8	-28.7	-148.4		
Cooling Tower Fan 3			19.9	-9.5	6.6	15.1	15.2	8.8	12.6	2.7	-29.0	-149.3	19.9	-9.5	6.6	15.1	15.2	8.8	12.6	2.7	-29.0	-149.3		
Cooling Tower Fan 3			19.9	-9.5	6.6	15.1	15.2	8.8	12.5	2.6	-29.1	-149.7	19.9	-9.5	6.6	15.1	15.2	8.8	12.5	2.6	-29.1	-149.7		
Cooling Tower Fan 3			19.8	-9.5	6.5	15.0	15.2	8.7	12.4	2.5	-29.4	-150.5	19.8	-9.5	6.5	15.0	15.2	8.7	12.4	2.5	-29.4	-150.5		

Quelle			Partial Level																			
Name	M.	ID	Nearest Residence																			
			Day	31.5	63	125	250	500	1000	2000	4000	8000	Night	31.5	63	125	250	500	1000	2000	4000	8000
Cooling Tower Fan 3			19.8	-9.5	6.5	15.0	15.1	8.7	12.4	2.4	-29.5	-150.9	19.8	-9.5	6.5	15.0	15.1	8.7	12.4	2.4	-29.5	-150.9
Cooling Tower Fan 3			19.7	-9.6	6.5	15.0	15.1	8.6	12.3	2.3	-29.8	-151.7	19.7	-9.6	6.5	15.0	15.1	8.6	12.3	2.3	-29.8	-151.7
Cooling Tower Fan 3			19.7	-9.6	6.5	15.0	15.1	8.6	12.2	2.2	-30.0	-152.1	19.7	-9.6	6.5	15.0	15.1	8.6	12.2	2.2	-30.0	-152.1
Cooling Tower Fan 3			19.6	-9.6	6.4	14.9	15.0	8.5	12.1	2.1	-30.2	-152.9	19.6	-9.6	6.4	14.9	15.0	8.5	12.1	2.1	-30.2	-152.9
Cooling Tower Fan 3			19.6	-9.7	6.4	14.9	15.0	8.5	12.1	2.0	-30.4	-153.3	19.6	-9.7	6.4	14.9	15.0	8.5	12.1	2.0	-30.4	-153.3
Cooling Tower Fan 3			19.6	-9.7	6.3	14.8	14.9	8.4	12.0	1.9	-30.6	-154.1	19.6	-9.7	6.3	14.8	14.9	8.4	12.0	1.9	-30.6	-154.1
Cooling Tower Fan 3			19.5	-9.7	6.3	14.8	14.9	8.4	11.9	1.8	-30.8	-154.6	19.5	-9.7	6.3	14.8	14.9	8.4	11.9	1.8	-30.8	-154.6
Cooling Tower Fan 3			19.5	-9.8	6.3	14.8	14.8	8.3	11.9	1.7	-31.1	-155.4	19.5	-9.8	6.3	14.8	14.8	8.3	11.9	1.7	-31.1	-155.4
Cooling Tower Fan 3			19.4	-9.8	6.3	14.7	14.8	8.3	11.8	1.6	-31.2	-155.8	19.4	-9.8	6.3	14.7	14.8	8.3	11.8	1.6	-31.2	-155.8
Cooling Tower Fan 3			19.4	-9.8	6.2	14.7	14.8	8.2	11.7	1.5	-31.5	-156.6	19.4	-9.8	6.2	14.7	14.8	8.2	11.7	1.5	-31.5	-156.6
Cooling Tower Fan 3			19.3	-9.9	6.2	14.7	14.7	8.2	11.7	1.4	-31.6	-157.1	19.3	-9.9	6.2	14.7	14.7	8.2	11.7	1.4	-31.6	-157.1
Cooling Tower Fan 3			19.3	-9.9	6.2	14.6	14.7	8.1	11.6	1.3	-31.9	-157.9	19.3	-9.9	6.2	14.6	14.7	8.1	11.6	1.3	-31.9	-157.9
Cooling Tower Fan 3			19.3	-9.9	6.1	14.6	14.6	8.0	11.5	1.2	-32.0	-158.3	19.3	-9.9	6.1	14.6	14.6	8.0	11.5	1.2	-32.0	-158.3
Cooling Tower Fan 3			19.2	-10.0	6.1	14.6	14.6	8.0	11.4	1.1	-32.3	-159.1	19.2	-10.0	6.1	14.6	14.6	8.0	11.4	1.1	-32.3	-159.1
Unit 2A Exhaust Duct North			19.9	-1.1	8.9	15.5	11.9	7.9	14.3	6.6	-19.1	-118.9	19.9	-1.1	8.9	15.5	11.9	7.9	14.3	6.6	-19.1	-118.9
Unit 2A Exhaust Duct South			3.4	-13.2	-6.0	-1.2	-4.6	-3.1	-5.8	-13.7	-39.5	-139.6	3.4	-13.2	-6.0	-1.2	-4.6	-3.1	-5.8	-13.7	-39.5	-139.6
Unit 2B Exhaust Duct North			8.5	-7.8	0.0	5.1	1.4	-0.1	-4.7	-14.0	-40.1	-141.5	8.5	-7.8	0.0	5.1	1.4	-0.1	-4.7	-14.0	-40.1	-141.5
Unit 2B Exhaust Duct South			4.1	-12.1	-4.9	-0.1	-3.4	-3.3	-6.0	-14.1	-40.3	-142.0	4.1	-12.1	-4.9	-0.1	-3.4	-3.3	-6.0	-14.1	-40.3	-142.0
Unit 2C Exhaust Duct North			19.2	-1.6	8.5	15.0	11.3	7.2	13.4	5.2	-21.8	-126.7	19.2	-1.6	8.5	15.0	11.3	7.2	13.4	5.2	-21.8	-126.7
Unit 2C Exhaust Duct South			4.0	-12.0	-4.7	0.0	-3.5	-3.8	-6.7	-15.0	-42.0	-147.0	4.0	-12.0	-4.7	0.0	-3.5	-3.8	-6.7	-15.0	-42.0	-147.0
Unit 2D Exhaust Duct North			8.7	-7.7	0.1	5.3	1.6	0.0	-5.2	-14.9	-42.7	-149.2	8.7	-7.7	0.1	5.3	1.6	0.0	-5.2	-14.9	-42.7	-149.2
Unit 2D Exhaust Duct South			3.8	-12.3	-5.0	-0.2	-3.6	-4.0	-7.0	-15.4	-42.9	-149.6	3.8	-12.3	-5.0	-0.2	-3.6	-4.0	-7.0	-15.4	-42.9	-149.6
Unit 1A Exhaust Duct North			21.9	0.2	10.3	16.9	13.5	10.0	17.0	10.3	-11.8	-97.8	21.9	0.2	10.3	16.9	13.5	10.0	17.0	10.3	-11.8	-97.8
Unit 1A Exhaust Duct South			5.4	-11.4	-4.2	0.6	-2.9	-1.0	-3.1	-10.0	-32.2	-118.4	5.4	-11.4	-4.2	0.6	-2.9	-1.0	-3.1	-10.0	-32.2	-118.4
Unit 1B Exhaust Duct North			21.7	0.1	10.2	16.8	13.3	9.8	16.7	9.9	-12.5	-99.7	21.7	0.1	10.2	16.8	13.3	9.8	16.7	9.9	-12.5	-99.7
Unit 1B Exhaust Duct South			6.1	-10.6	-3.2	1.6	-1.4	-1.2	-3.4	-10.3	-32.9	-120.3	6.1	-10.6	-3.2	1.6	-1.4	-1.2	-3.4	-10.3	-32.9	-120.3
Unit 1C Exhaust Duct North			21.2	-0.2	9.9	16.4	13.0	9.4	16.0	8.7	-14.7	-105.0	21.2	-0.2	9.9	16.4	13.0	9.4	16.0	8.7	-14.7	-105.0
Unit 1C Exhaust Duct South			5.7	-10.9	-3.6	1.3	-1.7	-1.6	-3.9	-11.1	-34.3	-124.5	5.7	-10.9	-3.6	1.3	-1.7	-1.6	-3.9	-11.1	-34.3	-124.5
Unit 1D Exhaust Duct North			21.0	-0.3	9.7	16.3	12.8	9.2	15.7	8.4	-15.4	-107.1	21.0	-0.3	9.7	16.3	12.8	9.2	15.7	8.4	-15.4	-107.1
Unit 1D Exhaust Duct South			5.5	-11.1	-3.8	1.1	-1.9	-1.9	-4.2	-11.5	-35.1	-126.7	5.5	-11.1	-3.8	1.1	-1.9	-1.9	-4.2	-11.5	-35.1	-126.7
Unit 3A Exhaust Duct North			17.8	-2.5	7.5	14.0	10.1	5.7	11.4	2.4	-27.5	-143.8	17.8	-2.5	7.5	14.0	10.1	5.7	11.4	2.4	-27.5	-143.8
Unit 3A Exhaust Duct South			1.5	-14.6	-7.4	-2.7	-6.3	-5.4	-8.7	-17.9	-47.9	-164.6	1.5	-14.6	-7.4	-2.7	-6.3	-5.4	-8.7	-17.9	-47.9	-164.6
Unit 3B Exhaust Duct North			8.3	-7.7	0.1	5.1	1.1	-0.9	-7.2	-18.2	-48.6	-166.7	8.3	-7.7	0.1	5.1	1.1	-0.9	-7.2	-18.2	-48.6	-166.7
Unit 3B Exhaust Duct South			1.4	-14.6	-7.4	-2.8	-6.5	-5.6	-9.0	-18.3	-48.8	-167.2	1.4	-14.6	-7.4	-2.8	-6.5	-5.6	-9.0	-18.3	-48.8	-167.2
Unit 3C Exhaust Duct North			17.2	-3.0	7.1	13.6	9.6	5.0	10.4	1.1	-30.3	-152.1	17.2	-3.0	7.1	13.6	9.6	5.0	10.4	1.1	-30.3	-152.1
Unit 3C Exhaust Duct South			1.2	-14.7	-7.5	-2.9	-6.8	-6.1	-9.6	-19.2	-50.7	-172.8	1.2	-14.7	-7.5	-2.9	-6.8	-6.1	-9.6	-19.2	-50.7	-172.8
Unit 3D Exhaust Duct North			8.2	-7.8	0.0	5.0	1.0	-1.1	-7.7	-19.6	-51.5	-175.1	8.2	-7.8	0.0	5.0	1.0	-1.1	-7.7	-19.6	-51.5	-175.1
Unit 3D Exhaust Duct South			1.0	-14.7	-7.6	-2.9	-7.0	-6.3	-9.9	-19.7	-51.6	-175.6	1.0	-14.7	-7.6	-2.9	-7.0	-6.3	-9.9	-19.7	-51.6	-175.6
Unit 1 Condenser			10.1	-14.4	-3.1	2.7	4.0	6.4	0.1	-10.1	-37.3	-128.5	10.1	-14.4	-3.1	2.7	4.0	6.4	0.1	-10.1	-37.3	-128.5
Unit 2 Condenser			7.9	-16.5	-5.3	0.4	1.5	4.3	-2.5	-13.8	-44.7	-150.1	7.9	-16.5	-5.3	0.4	1.5	4.3	-2.5	-13.8	-44.7	-150.1
Unit 3 Condenser			6.3	-17.2	-6.0	-0.3	0.6	2.1	-5.4	-18.0	-53.2	-175.3	6.3	-17.2	-6.0	-0.3	0.6	2.1	-5.4	-18.0	-53.2	-175.3
Unit 1 Steam Turbine Roof HP			24.9	1.6	13.7	18.0	21.3	18.4	11.8	-2.2	-30.2	-121.2	24.9	1.6	13.7	18.0	21.3	18.4	11.8	-2.2	-30.2	-121.2
Unit 2 Steam Turbine Roof HP			23.6	0.4	12.6	17.0	20.3	16.3	10.0	-5.0	-36.8	-141.9	23.6	0.4	12.6	17.0	20.3	16.3	10.0	-5.0	-36.8	-141.9
Unit 3 Steam Turbine Roof HP			23.4	0.0	12.9	17.6	19.7	14.1	13.7	-1.6	-37.1	-158.6	23.4	0.0	12.9	17.6	19.7	14.1	13.7	-1.6	-37.1	-158.6
Unit 1 Steam Turbine Roof LP			27.1	3.7	15.9	20.3	23.7	20.3	14.3	0.3	-27.9	-119.2	27.1	3.7	15.9	20.3	23.7	20.3	14.3	0.3	-27.9	-119.2

Quelle			Partial Level																			
Name	M.	ID	Nearest Residence																			
			Day	31.5	63	125	250	500	1000	2000	4000	8000	Night	31.5	63	125	250	500	1000	2000	4000	8000
Unit 2 Steam Turbine Roof LP			25.2	2.2	14.4	18.7	21.6	18.3	12.2	-2.6	-34.3	-139.6	25.2	2.2	14.4	18.7	21.6	18.3	12.2	-2.6	-34.3	-139.6
Unit 3 Steam Turbine Roof LP			25.4	1.9	14.9	19.6	21.7	16.1	15.6	0.3	-35.2	-157.0	25.4	1.9	14.9	19.6	21.7	16.1	15.6	0.3	-35.2	-157.0
Unit 1 Steam Turbine Generator Roof			16.1	-5.9	5.6	11.3	10.8	8.3	6.4	-4.6	-36.9	-137.8	16.1	-5.9	5.6	11.3	10.8	8.3	6.4	-4.6	-36.9	-137.8
Unit 2 Steam Turbine Generator Roof			15.0	-6.9	4.9	10.8	9.1	6.2	6.3	-6.0	-42.5	-158.2	15.0	-6.9	4.9	10.8	9.1	6.2	6.3	-6.0	-42.5	-158.2
Unit 2 Steam Turbine Generator Roof			13.7	-8.1	3.9	9.6	7.6	4.0	5.0	-8.1	-48.6	-180.7	13.7	-8.1	3.9	9.6	7.6	4.0	5.0	-8.1	-48.6	-180.7
Cooling Tower 1 East			10.9	-38.5	-25.4	-16.3	-8.9	-3.7	9.3	4.9	-14.7	-95.9	10.9	-38.5	-25.4	-16.3	-8.9	-3.7	9.3	4.9	-14.7	-95.9
Cooling Tower 1 West			-6.8	-47.2	-36.6	-27.5	-20.9	-13.1	-9.4	-14.5	-34.3	-116.3	-6.8	-47.2	-36.6	-27.5	-20.9	-13.1	-9.4	-14.5	-34.3	-116.3
Cooling Tower 2 East			7.7	-40.1	-27.0	-17.9	-10.8	-6.1	6.4	0.8	-22.7	-118.9	7.7	-40.1	-27.0	-17.9	-10.8	-6.1	6.4	0.8	-22.7	-118.9
Cooling Tower 2 West			-9.4	-48.7	-38.1	-29.1	-22.7	-15.4	-12.0	-18.1	-41.6	-137.8	-9.4	-48.7	-38.1	-29.1	-22.7	-15.4	-12.0	-18.1	-41.6	-137.8
Unit 1A Air Inlet			5.8	-17.0	0.1	1.7	0.3	-10.3	-9.5	-18.3	-32.0	-122.2	5.8	-17.0	0.1	1.7	0.3	-10.3	-9.5	-18.3	-32.0	-122.2
Unit 1B Air Inlet			-0.9	-20.9	-5.8	-5.4	-6.7	-14.7	-25.8	-37.6	-52.8	-144.3	-0.9	-20.9	-5.8	-5.4	-6.7	-14.7	-25.8	-37.6	-52.8	-144.3
Unit 1C Air Inlet			5.4	-17.4	-0.3	1.3	-0.2	-10.9	-10.2	-19.4	-34.1	-128.2	5.4	-17.4	-0.3	1.3	-0.2	-10.9	-10.2	-19.4	-34.1	-128.2
Unit 1D Air Inlet			-0.4	-20.7	-5.4	-4.9	-6.2	-14.2	-25.5	-37.8	-54.7	-150.5	-0.4	-20.7	-5.4	-4.9	-6.2	-14.2	-25.5	-37.8	-54.7	-150.5
Unit 2A Air Inlet			4.3	-18.3	-1.2	0.3	-1.3	-12.3	-12.1	-21.9	-39.1	-142.9	4.3	-18.3	-1.2	0.3	-1.3	-12.3	-12.1	-21.9	-39.1	-142.9
Unit 2B Air Inlet			4.0	-18.6	-1.6	0.1	-1.6	-12.6	-13.6	-24.0	-42.0	-147.5	4.0	-18.6	-1.6	0.1	-1.6	-12.6	-13.6	-24.0	-42.0	-147.5
Unit 2C Air Inlet			-0.3	-21.2	-5.5	-4.7	-5.8	-14.9	-25.7	-38.9	-59.9	-169.8	-0.3	-21.2	-5.5	-4.7	-5.8	-14.9	-25.7	-38.9	-59.9	-169.8
Unit 2D Air Inlet			3.7	-18.9	-1.8	-0.3	-2.0	-13.2	-13.4	-24.0	-43.0	-153.5	3.7	-18.9	-1.8	-0.3	-2.0	-13.2	-13.4	-24.0	-43.0	-153.5
Unit 1 Steam Turbine Generator			5.1	-13.3	-3.8	0.2	-1.4	-1.1	-6.7	-16.3	-46.7	-145.8	5.1	-13.3	-3.8	0.2	-1.4	-1.1	-6.7	-16.3	-46.7	-145.8
Unit 1 Steam Turbine Generator			16.0	-6.2	5.3	10.7	9.6	8.2	8.8	-0.6	-31.2	-130.2	16.0	-6.2	5.3	10.7	9.6	8.2	8.8	-0.6	-31.2	-130.2
Unit 1 Steam Turbine Generator			6.7	-12.5	-2.6	1.7	0.2	0.2	-3.9	-13.5	-44.1	-143.3	6.7	-12.5	-2.6	1.7	0.2	0.2	-3.9	-13.5	-44.1	-143.3
Unit 1 Steam Turbine LP			24.7	2.4	14.0	17.9	20.8	18.6	11.0	-3.1	-30.8	-120.3	24.7	2.4	14.0	17.9	20.8	18.6	11.0	-3.1	-30.8	-120.3
Unit 1 Steam Turbine LP			16.8	-3.5	7.0	10.0	12.4	10.8	4.3	-7.2	-32.5	-121.0	16.8	-3.5	7.0	10.0	12.4	10.8	4.3	-7.2	-32.5	-121.0
Unit 1 Steam Turbine HP			21.0	-0.6	10.7	14.3	17.0	15.0	6.9	-7.0	-33.8	-122.0	21.0	-0.6	10.7	14.3	17.0	15.0	6.9	-7.0	-33.8	-122.0
Unit 1 Steam Turbine HP			21.7	-0.2	11.2	14.9	17.7	15.7	7.7	-6.3	-33.4	-121.9	21.7	-0.2	11.2	14.9	17.7	15.7	7.7	-6.3	-33.4	-121.9
Unit 1 Steam Turbine HP			14.4	-5.8	4.6	7.6	10.0	8.5	2.3	-9.1	-34.3	-122.5	14.4	-5.8	4.6	7.6	10.0	8.5	2.3	-9.1	-34.3	-122.5
Unit 2 Steam Turbine Generator			3.3	-14.8	-5.3	-1.4	-3.2	-3.3	-9.3	-20.0	-54.1	-167.3	3.3	-14.8	-5.3	-1.4	-3.2	-3.3	-9.3	-20.0	-54.1	-167.3
Unit 2 Steam Turbine Generator			13.9	-7.5	3.9	9.5	8.4	6.2	2.4	-10.4	-47.2	-162.8	13.9	-7.5	3.9	9.5	8.4	6.2	2.4	-10.4	-47.2	-162.8
Unit 2 Steam Turbine Generator			4.2	-14.2	-4.5	-0.4	-2.1	-2.6	-8.6	-19.7	-54.0	-167.4	4.2	-14.2	-4.5	-0.4	-2.1	-2.6	-8.6	-19.7	-54.0	-167.4
Unit 2 Steam Turbine LP			24.5	1.8	13.8	18.1	21.0	17.3	11.6	-3.3	-34.9	-139.6	24.5	1.8	13.8	18.1	21.0	17.3	11.6	-3.3	-34.9	-139.6
Unit 2 Steam Turbine LP			14.9	-5.0	5.5	8.4	10.6	8.6	1.6	-10.9	-39.9	-142.7	14.9	-5.0	5.5	8.4	10.6	8.6	1.6	-10.9	-39.9	-142.7
Unit 2 Steam Turbine HP			20.5	-1.3	10.2	13.9	16.6	14.1	5.7	-9.4	-40.5	-143.6	20.5	-1.3	10.2	13.9	16.6	14.1	5.7	-9.4	-40.5	-143.6
Unit 2 Steam Turbine HP			20.0	-1.5	9.9	13.5	16.1	13.7	5.1	-10.1	-41.0	-143.6	20.0	-1.5	9.9	13.5	16.1	13.7	5.1	-10.1	-41.0	-143.6
Unit 2 Steam Turbine HP			13.1	-6.8	3.7	6.6	8.8	6.7	-0.2	-12.8	-41.7	-144.2	13.1	-6.8	3.7	6.6	8.8	6.7	-0.2	-12.8	-41.7	-144.2
Unit 1A HRSG North			23.4	-1.7	16.4	20.5	16.4	4.1	12.1	-4.5	-45.3	-157.4	23.4	-1.7	16.4	20.5	16.4	4.1	12.1	-4.5	-45.3	-157.4
Unit 1A HRSG South			7.2	-14.6	0.7	4.0	0.9	-6.7	-7.9	-24.8	-65.7	-178.0	7.2	-14.6	0.7	4.0	0.9	-6.7	-7.9	-24.8	-65.7	-178.0
Unit 1B HRSG North			23.1	-2.0	16.0	20.4	16.2	3.9	10.9	-6.0	-47.3	-160.8	23.1	-2.0	16.0	20.4	16.2	3.9	10.9	-6.0	-47.3	-160.8
Unit 1B HRSG South			7.1	-14.7	0.6	3.9	0.8	-6.9	-8.2	-25.1	-66.4	-180.0	7.1	-14.7	0.6	3.9	0.8	-6.9	-8.2	-25.1	-66.4	-180.0
Unit 1C HRSG North			22.8	-2.3	15.7	20.1	15.8	3.5	10.3	-6.9	-49.0	-165.3	22.8	-2.3	15.7	20.1	15.8	3.5	10.3	-6.9	-49.0	-165.3
Unit 1C HRSG South			6.9	-14.9	0.4	3.6	0.4	-7.3	-8.7	-25.9	-67.9	-184.3	6.9	-14.9	0.4	3.6	0.4	-7.3	-8.7	-25.9	-67.9	-184.3
Unit 1D HRSG North			22.6	-2.4	15.6	19.9	15.7	3.3	10.0	-7.2	-49.7	-167.4	22.6	-2.4	15.6	19.9	15.7	3.3	10.0	-7.2	-49.7	-167.4
Unit 1D HRSG South			6.7	-15.0	0.2	3.5	0.2	-7.5	-9.0	-26.3	-68.6	-186.5	6.7	-15.0	0.2	3.5	0.2	-7.5	-9.0	-26.3	-68.6	-186.5
Unit 2A HRSG North			21.8	-3.1	15.0	19.0	14.7	2.0	9.4	-8.2	-52.7	-178.8	21.8	-3.1	15.0	19.0	14.7	2.0	9.4	-8.2	-52.7	-178.8
Unit 2A HRSG South			5.9	-15.7	-0.4	2.7	-0.7	-8.8	-10.6	-28.5	-73.1	-199.5	5.9	-15.7	-0.4	2.7	-0.7	-8.8	-10.6	-28.5	-73.1	-199.5
Unit 2B HRSG North			21.6	-3.3	14.8	18.8	14.4	1.7	9.1	-8.7	-53.6	-181.2	21.6	-3.3	14.8	18.8	14.4	1.7	9.1	-8.7	-53.6	-181.2
Unit 2B HRSG South			5.7	-15.9	-0.6	2.5	-0.9	-9.0	-10.9	-28.9	-73.9	-201.9	5.7	-15.9	-0.6	2.5	-0.9	-9.0	-10.9	-28.9	-73.9	-201.9

Quelle			Partial Level																			
Name	M.	ID	Nearest Residence																			
			Day	31.5	63	125	250	500	1000	2000	4000	8000	Night	31.5	63	125	250	500	1000	2000	4000	8000
Unit 2C HRSG North			21.2	-3.6	14.4	18.6	14.1	1.3	7.8	-10.4	-56.4	-187.6	21.2	-3.6	14.4	18.6	14.1	1.3	7.8	-10.4	-56.4	-187.6
Unit 2C HRSG South			5.4	-16.1	-0.8	2.3	-1.2	-9.5	-11.5	-29.8	-75.7	-207.0	5.4	-16.1	-0.8	2.3	-1.2	-9.5	-11.5	-29.8	-75.7	-207.0
Unit 2D HRSG North			20.9	-3.9	14.1	18.2	13.7	0.9	7.3	-11.0	-57.4	-190.3	20.9	-3.9	14.1	18.2	13.7	0.9	7.3	-11.0	-57.4	-190.3
Unit 2D HRSG South			5.3	-16.2	-1.0	2.1	-1.4	-9.7	-11.8	-30.2	-76.5	-209.6	5.3	-16.2	-1.0	2.1	-1.4	-9.7	-11.8	-30.2	-76.5	-209.6
Cooling Tower 3 West			-13.3	-50.2	-39.7	-30.8	-24.7	-17.9	-16.5	-24.2	-52.6	-168.5	-13.3	-50.2	-39.7	-30.8	-24.7	-17.9	-16.5	-24.2	-52.6	-168.5
Cooling Tower 3 East			4.4	-41.6	-28.5	-19.5	-12.6	-8.5	3.3	-3.7	-31.7	-145.3	4.4	-41.6	-28.5	-19.5	-12.6	-8.5	3.3	-3.7	-31.7	-145.3
Unit 3A Air Inlet			2.8	-19.7	-2.6	-1.1	-3.0	-14.5	-14.9	-26.0	-47.4	-167.4	2.8	-19.7	-2.6	-1.1	-3.0	-14.5	-14.9	-26.0	-47.4	-167.4
Unit 3B Air Inlet			2.6	-19.8	-2.7	-1.3	-3.2	-14.8	-15.2	-26.4	-48.3	-170.0	2.6	-19.8	-2.7	-1.3	-3.2	-14.8	-15.2	-26.4	-48.3	-170.0
Unit 3C Air Inlet			0.2	-21.4	-5.2	-4.0	-5.2	-15.5	-25.6	-40.0	-65.7	-193.7	0.2	-21.4	-5.2	-4.0	-5.2	-15.5	-25.6	-40.0	-65.7	-193.7
Unit 3D Air Inlet			2.2	-20.2	-3.2	-1.7	-3.7	-15.5	-16.1	-27.7	-51.0	-178.3	2.2	-20.2	-3.2	-1.7	-3.7	-15.5	-16.1	-27.7	-51.0	-178.3
Unit 3 Steam Turbine Generator			2.3	-15.5	-5.9	-2.0	-4.0	-4.8	-11.9	-24.1	-62.6	-192.4	2.3	-15.5	-5.9	-2.0	-4.0	-4.8	-11.9	-24.1	-62.6	-192.4
Unit 3 Steam Turbine Generator			12.8	-8.5	3.0	8.7	7.3	4.0	1.3	-12.5	-53.4	-185.5	12.8	-8.5	3.0	8.7	7.3	4.0	1.3	-12.5	-53.4	-185.5
Unit 3 Steam Turbine Generator			3.5	-14.8	-4.9	-0.9	-2.8	-3.6	-11.1	-23.7	-62.6	-192.4	3.5	-14.8	-4.9	-0.9	-2.8	-3.6	-11.1	-23.7	-62.6	-192.4
Unit 3 Steam Turbine LP			24.3	1.3	13.7	18.3	20.9	16.1	11.1	-4.9	-40.7	-162.6	24.3	1.3	13.7	18.3	20.9	16.1	11.1	-4.9	-40.7	-162.6
Unit 3 Steam Turbine LP			14.2	-5.5	5.1	8.1	10.0	7.2	-0.8	-15.0	-48.4	-167.8	14.2	-5.5	5.1	8.1	10.0	7.2	-0.8	-15.0	-48.4	-167.8
Unit 3 Steam Turbine HP			21.6	-1.1	11.2	15.5	18.2	13.8	8.2	-7.7	-43.5	-165.0	21.6	-1.1	11.2	15.5	18.2	13.8	8.2	-7.7	-43.5	-165.0
Unit 3 Steam Turbine HP			12.2	-7.5	3.1	6.1	8.0	5.2	-2.8	-16.9	-50.2	-169.5	12.2	-7.5	3.1	6.1	8.0	5.2	-2.8	-16.9	-50.2	-169.5
Unit 3 Steam Turbine HP			22.3	-0.7	11.7	16.3	18.9	14.1	9.2	-6.8	-42.6	-164.2	22.3	-0.7	11.7	16.3	18.9	14.1	9.2	-6.8	-42.6	-164.2
Unit 3A HRSG North			20.2	-4.5	13.6	17.5	12.9	-0.3	6.5	-12.4	-61.2	-203.9	20.2	-4.5	13.6	17.5	12.9	-0.3	6.5	-12.4	-61.2	-203.9
Unit 3A HRSG South			4.6	-16.7	-1.4	1.5	-2.3	-11.0	-13.6	-32.7	-81.6	-224.7	4.6	-16.7	-1.4	1.5	-2.3	-11.0	-13.6	-32.7	-81.6	-224.7
Unit 3B HRSG North			20.0	-4.6	13.4	17.4	12.7	-0.5	6.2	-12.8	-62.1	-206.5	20.0	-4.6	13.4	17.4	12.7	-0.5	6.2	-12.8	-62.1	-206.5
Unit 3B HRSG South			4.4	-16.8	-1.6	1.4	-2.5	-11.3	-13.9	-33.2	-82.5	-227.3	4.4	-16.8	-1.6	1.4	-2.5	-11.3	-13.9	-33.2	-82.5	-227.3
Unit 3C HRSG North			19.7	-4.9	13.1	17.1	12.4	-1.0	5.2	-14.3	-64.7	-213.1	19.7	-4.9	13.1	17.1	12.4	-1.0	5.2	-14.3	-64.7	-213.1
Unit 3C HRSG South			4.1	-17.1	-1.8	1.1	-2.8	-11.7	-14.5	-34.1	-84.4	-233.0	4.1	-17.1	-1.8	1.1	-2.8	-11.7	-14.5	-34.1	-84.4	-233.0
Unit 3D HRSG North			19.5	-5.1	13.0	16.9	12.2	-1.2	4.9	-14.8	-65.6	-215.9	19.5	-5.1	13.0	16.9	12.2	-1.2	4.9	-14.8	-65.6	-215.9
Unit 3D HRSG South			4.0	-17.2	-1.9	1.0	-2.9	-12.0	-14.8	-34.5	-85.3	-235.8	4.0	-17.2	-1.9	1.0	-2.9	-12.0	-14.8	-34.5	-85.3	-235.8

NOISE METER CERTIFICATIONS

Certificate of Calibration and Conformance

Certificate Number 2004-59584

Instrument Model 824, Serial Number 0366, was calibrated on 06-03-2004. The instrument meets factory specifications per Procedure D0001.8046, ANSI S1.4 1983, IEC 651-1979 Type 1, IEC 804-1985 Type 1, IEC 1260-1995 Class 1, and ANSI S1.11-1986 Type 1D.

Instrument found to be in calibration as received: YES

Date Calibrated: 06-03-2004

Calibration due: 06-03-2005

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO.
Larson Davis	LDSigGn/2209	0617 / 0104	12 Months	02/02/2005	2004-56449

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Temperature: 25 ° Centigrade

Relative Humidity: 32 %

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

Due to state-of-the-art limitations, 4:1 calibration ratios are not possible on pressure measurement standards, microphones and acoustic calibrators. Calibration ratios for these types of devices are limited to 1:1.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

As received data is the same as shipped data.
Tested with PRM902-0699.

Signed: 

Technician: Brent Heaton

Larson Davis



A PCB GROUP CO.

Larson Davis, Inc. is an ISO 9001-2000 Registered Company

1681 West 820 North • Provo, UT 84601 U.S.A. • 801.375.0177 • Fax: 801.375.0182 • www.larsondavis.com

Certificate of Calibration and Conformance

Certificate Number 2004-59560

Instrument Model 902, Serial Number 0699, was calibrated on 06-03-2004. The instrument meets factory specifications per Procedure D0001.8167.

Instrument found to be in calibration as received: YES

Date Calibrated: 06-03-2004

Calibration due: 06-03-2005

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL DUE	TRACEABILITY NO.
Hewlett Packard	34401A	US36033460	16 Months	01/25/2005	261441
Larson Davis	LDSigGn/2209	0617 / 0104	12 Months	02/02/2005	2004-56449

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Temperature: 25 ° Centigrade

Relative Humidity: 32 %

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

Due to state-of-the-art limitations, 4:1 calibration ratios are not possible on pressure measurement standards, microphones and acoustic calibrators. Calibration ratios for these types of devices are limited to 1:1.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

As received data is the same as shipped data.

Signed: 

Technician: Brent Heaton

Larson Davis



A PCB GROUP CO.

Larson Davis, Inc. is an ISO 9001-2000 Registered Company

1681 West 820 North • Provo, UT 84601 U.S.A. • 801.375.0177 • Fax: 801.375.0182 • www.larsondavis.com

Certificate of Calibration and Conformance

Certificate Number 2004-59564

Microphone Model 2560, Serial Number 2814, was calibrated on 06-02-2004. The microphone meets current factory specifications per Test Procedure D0001.8167.

Instrument found to be in calibration as received: YES

Date Calibrated: 06-02-2004

Calibration due: 06-02-2005

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO.
Larson Davis	2900	0575	12 Months	06/24/2004	2003-50789
Larson Davis	2559	3034LE	12 Months	09/16/2004	2003-52997
Larson Davis	MTS1000 / 2201	1000 / 0100	12 Months	09/17/2004	09171-2003
Larson Davis	PRM902	0529	12 Months	09/17/2004	2003-5300
Larson Davis	PRM902	0528	12 Months	09/17/2004	2003-52998
Hewlett Packard	34401A	3146A62099	12 Months	11/04/2004	262593
Larson Davis	PRM915	0102	12 Months	11/06/2004	2003-54089
Larson Davis	PRM902	0206	12 Months	11/06/2004	2003-54094
Larson Davis	PRM916	0102	12 Months	11/06/2004	2003-54092
Larson Davis	2559	2504	12 Months	05/19/2005	12354-1
Larson Davis	CAL250	0102	12 Months	05/25/2005	2004-59407

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Environmental test conditions as printed on microphone calibration chart.

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

Due to state-of-the-art limitations, 4:1 calibration ratios are not possible on pressure measurement standards, microphones and acoustic calibrators. Calibration ratios for these types of devices are limited to 1:1.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

"AS RECEIVED" data is the same as shipped data.

Signed:

Technician: Scott McIlrath

Larson Davis



A PCB GROUP CO.

Larson Davis, Inc. is an ISO 9001-2000 Registered Company

1681 West 820 North • Provo, UT 84601 U.S.A. • 801.375.0177 • Fax: 801.375.0182 • www.larsondavis.com

Certificate of Calibration and Conformance

Certificate Number 2004-59469

Instrument Model CAL200, Serial Number 1111, was calibrated on 06-01-2004.
The instrument meets factory specifications per Procedure D0001.8190.

Instrument found to be in calibration as received: YES

Date Calibrated: 06-01-2004

Calibration due: 06-01-2005

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO.
Larson Davis	PRM915	0112	12 Months	09/15/2004	2003-52882
Larson Davis	PRM902	0480	12 Months	09/15/2004	2003-52877
Larson Davis	MTS1000/2201	0111	12 Months	09/15/2004	09151-2003
Larson Davis	2559	2506	12 Months	11/11/2004	11920-1
Hewlett Packard	34401A	US36015216	16 Months	12/31/2004	260418
Hewlett Packard	34401A	US36033460	16 Months	01/25/2005	261441
Schaevitz	P3061-15PSIA	4987	12 Months	02/14/2005	266108
Larson Davis	2900	0661	12 Months	04/05/2005	2004-58183

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Temperature: 23 ° Centigrade

Relative Humidity: 28 %

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

Due to state-of-the-art limitations, 4:1 calibration ratios are not possible on pressure measurement standards, microphones and acoustic calibrators. Calibration ratios for these types of devices are limited to 1:1.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

Before: 113.89 dB, 93.78 dB, 999.9 Hz @ 1013 mbar.
After: Refer to Certificate of Measured Output.

Signed:

Technician: Scott Montgomery

Larson Davis



A PCB GROUP CO.

Larson Davis, Inc. is an ISO 9001-2000 Registered Company

1681 West 820 North • Provo, UT 84601 U.S.A. • 801.375.0177 • Fax: 801.375.0182 • www.larsondavis.com

APPENDIX 10.5.3

**CULTURAL RESOURCES
AND FDHR LETTER**



FLORIDA DEPARTMENT OF STATE
Glenda E. Hood
Secretary of State
DIVISION OF HISTORICAL RESOURCES

June 22, 2004

Mike Arrants
Golder Associates
6241 NW 23rd Street, Suite 500
Gainesville, FL 32653
FAX#: 352-336-6603

Dear Mr. Arrants:

In response to your inquiry of July 21, 2004, the Florida Master Site File lists no previously recorded cultural resources in the following parcels of Palm Beach County:

T43S, R40E, Section 29

In interpreting the results of our search, please remember the following points:

- Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites, unrecorded historically important structures, or both.
- As you may know, state and federal laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review of cultural resources. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.

Sincerely,

A handwritten signature in black ink, appearing to read "Nick Bertram", is written over the word "Sincerely,".

Nicholas D Bertram, 850-245-6440
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

State SunCom: 205-6440
Fax line: 850-245-6439
Email: fmsfile@dos.state.fl.us
Web: <http://www.dos.state.fl.us/dhr/msff>

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

☐ Director's Office
(850) 245-6300 • FAX: 245-6435

☐ Archaeological Research
(850) 245-6444 • FAX: 245-6436

☐ Historic Preservation
(850) 245-6333 • FAX: 245-6437

☐ Historical Museums
(850) 245-6400 • FAX: 245-6433

☐ Palm Beach Regional Office
(561) 279-1475 • FAX: 279-1476

☐ St. Augustine Regional Office
(904) 825-5045 • FAX: 825-5044

☐ Tampa Regional Office
(813) 272-3843 • FAX: 272-2340



FLORIDA DEPARTMENT OF STATE
Glenda E. Hood
Secretary of State
DIVISION OF HISTORICAL RESOURCES

June 22, 2004

Mike Arrants
Golder Associates
6241 NW 23rd Street, Suite 500
Gainesville, FL 32653
FAX#: 352-336-6603

Dear Mr. Arrants:

In response to your inquiry of July 21, 2004, the Florida Master Site File lists no previously recorded cultural resources in the following parcels of Palm Beach County:

T43S, R40E, Section 32

In interpreting the results of our search, please remember the following points:

- Areas which have not been completely surveyed, such as yours, may contain unrecorded archaeological sites, unrecorded historically important structures, or both.
- As you may know, state and federal laws require formal environmental review for some projects. Record searches by the staff of the Florida Master Site File do not constitute such a review of cultural resources. If your project falls under these laws, you should contact the Compliance Review Section of the Bureau of Historic Preservation at 850-245-6333 or at this address.

Sincerely,

A handwritten signature in black ink, appearing to read "Nick Bertram", is written over a large, stylized "X" mark.

Nicholas D Bertram, 850-245-6440
Data Analyst, Florida Master Site File
Division of Historical Resources
R. A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

State SunCom: 205-6440
Fax line: 850-245-6439
Email: fmsfile@dos.state.fl.us
Web: <http://www.dos.state.fl.us/dhr/msf/>

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

☐ Director's Office
(850) 245-6300 • FAX: 245-6435

☐ Archaeological Research
(850) 245-6444 • FAX: 245-6436

☐ Historic Preservation
(850) 245-6333 • FAX: 245-6437

☐ Historical Museums
(850) 245-6400 • FAX: 245-6433

☐ Palm Beach Regional Office
(561) 279-1475 • FAX: 279-1476

☐ St. Augustine Regional Office
(904) 825-5045 • FAX: 825-5044

☐ Tampa Regional Office
(813) 272-3843 • FAX: 272-2340

TOTAL P.02

APPENDIX 10.6

STORMWATER MANAGEMENT AND CALCULATIONS

**STORMWATER MANAGEMENT AND
CONSTRUCTION POLLUTION PREVENTION PLAN
WEST COUNTY ENERGY CENTER
PALM BEACH COUNTY, FLORIDA**

Submitted to:

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

Submitted by:

*Golder Associates Inc.
5100 West Lemon Street, No. 114
Tampa, Florida 33609*

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Project Description	1
1.2	Applicable Regulations	2
1.3	Design Criteria	3
2.0	STORMWATER MANAGEMENT SYSTEM ANALYSIS	4
2.1	Design Base Site Condition.....	4
2.2	Rainfall Depth, Duration, and Distribution	4
2.3	Drainage Basins and Surface Storage.....	5
2.4	Soil Storage	7
2.5	Time of Concentration.....	8
2.6	Stormwater Pumps.....	8
2.7	Runoff Hydrograph Routing Modeling	9
2.8	Storm Sewer Hydraulic Analysis	9
2.9	Modeling Results.....	9
3.0	STORMWATER POLLUTION PREVENTION PLAN	11

LIST OF FIGURES

Figure 1	Site Location Map
Figure 2	Construction Drainage Plan
Figure 3	Operations Drainage Plan

LIST OF APPENDICES

Appendix A	SFWMD Rainfall Maps and 72-Hour Rainfall Distribution
Appendix B	SFWMD Soil Storage versus Depth to Water Table Relationship
Appendix C	Basin Data Summary for Modeling Purposes
Appendix D	Storm Sewer Analysis
Appendix E	Modeling Input/Output for 100-year 72-hour Design Storm
Appendix F	Modeling Input/Output for 25-year 72-hour Design Storm
Appendix G	Stormwater Pollution Prevention Plan

1.0 INTRODUCTION

This plan documents the hydraulic and hydrologic analysis for the development of the West County Energy Center (WCEC) on approximately 220-acres in Palm Beach County, Florida (referred to as the Project throughout this document). A site location map is provided on Figure 1. The surface water management system design is intended to reduce the impact to water quantity and quality as a result of site development during construction and normal operation periods. This plan provides a description of the Project and documents the drainage analysis and calculations, assumptions, methods, and criteria used in developing the Stormwater Management Plan (SWMP) for the Project and the Stormwater Pollution Prevention Plan to be implemented during construction.

1.1 Project Description

The Project consists of two nominal 1,100 MW combined cycle units that will be constructed on the 220-acre Site. The Site was previously used by Palm Beach Aggregates, Inc. (PBA) as a quarry site where limestone aggregate and road base material were produced. Approximately 10 acres on the northern portion of the Site was reportedly mined to approximately elevation -5 ft NGVD and the remainder of the site was cleared of organic soils (but not mined). Subsequently, nearly the entire Site was filled by PBA to approximately elevation 23 ft NGVD by hydraulically-placing sand dredged from a nearby PBA mining cell. The pre-existing ground elevation along the western property boundary was reported to be approximately 10 ft NGVD.

The Project will provide two Power Blocks that will be constructed sequentially from north to south. There will be two potential configurations for each of the two Units to be constructed within the two Power Block areas. The worst-case configuration with respect to impervious area and stormwater management is referred to as "4-on-1" combined cycle unit. Therefore, the stormwater management system design will be completed for this configuration, and the same stormwater management system will be used for the selected configuration. The "4-on-1" unit will include four GE "F" Class advanced combustion turbines (CTs) and four heat recovery steam generators (HRSGs). Within the Project, each of the two areas designated as Power Blocks will contain a Unit consisting of the CT/HRSG trains and 1 steam turbine/electric generator), cooling tower, ultra low-sulfur light oil tank, and other associated facilities.

The Project will also include the construction of an off-site intake and/or inlet structure on the L10/L12 canal on the southern side of State Road 80. Currently two alternatives are under consideration: to construct the intake structure on the southern bank of the canal and to construct the intake structure within the 220-acre Project area with a separate inlet structure on the northern bank of the canal. Both alternatives will require constructing 36-inch-diameter intake pipelines under State Road 80 by trenchless methods (e.g., bore and jack). The intake structure would have a footprint of approximately 46 ft by 40 ft, and the inlet structure would have a footprint of approximately 30 ft by 10 ft. The area associated with constructing, operating, and maintaining either alternative is expected to be less than ½ acres. Runoff from the areas associated with the intake or inlet structure on the canal will be diverted into the canal. Appropriate erosion and sediment control measures such as silt fence, hay bales, floating turbidity barriers, etc. will be provided during construction of these elements.

1.2 Applicable Regulations

The storm water control measures are designed to comply with the applicable federal, state, and local regulations. The SWMP was prepared in accordance with the following regulatory agencies and regulations:

<u>Regulatory Agency</u>	<u>Applicable Regulations</u>
Federal	40 CFR 423 – Stream Electric Power Generating Point Source Category
Florida Department of Environmental Protection (FDEP)	Chapter 62-4, F.A.C. – Permits Chapter 62-25, F.A.C. – Regulation of Stormwater Discharge Chapter 62-330, F.A.C. – Environmental Resource Permitting Chapter 62-620, F.A.C. – Wastewater Facility and Activity Permitting Chapter 62-621, F.A.C. – Generic Permits
South Florida Water Management District (SFWMD) rules adopted by reference in Chapter 62-330, F.A.C.	Chapter 40E-4, F.A.C. – Environmental Resource Permits Chapter 40E-40, F.A.C. – Environmental Resource Standard General Permits Basis of Review for ERP Applications within the SFWMD (1995)
Palm Beach County	Land Development Code Article 11.E.4
Note: CFR means Code of Federal Regulations, and F.A.C. means Florida Administrative Code	

1.3 Design Criteria

With the exception of the fill slope along the western property boundary covering approximately 6.2 acres, the stormwater management system was designed to retain the runoff generated from the 100-year, 3-day storm event with no off-site discharge. Runoff from the fill slope along the western property boundary will be allowed to infiltrate into the ground within the adjacent FPL transmission line right-of-way, without a likelihood of direct discharge to surface waters. On-site retention will be accomplished by a combination of site grading, swales/ditches, storm drains, storm sewers, retention ponds, and stormwater pumping stations.

2.0 STORMWATER MANAGEMENT SYSTEM ANALYSIS

2.1 Design Base Site Condition

The surface soils at the Site are sands with relatively high hydraulic conductivity and infiltration potential. The maximum amount of impervious area is expected to occur during the normal operating condition of the Project area. Therefore, the normal operating condition of the site is taken as the controlling base condition for the design of the stormwater management system. Erosion control during construction of the storm water management system will be achieved through the use of temporary controls such as silt fence, hay bales, sedimentation ponds, etc. The Construction Drainage Plan and Operations Drainage Plan are shown on Figures 2 and 3, respectively.

Secondary containment will be provided for oil-containing above ground tanks and equipment within the power block areas. Rainfall collected in secondary containment structures will be discharged into an oil-water separator after storm events and then into the stormwater ponds. These areas will not contribute runoff to the stormwater management system during storm events and were excluded from the drainage areas developed for modeling purposes.

2.2 Rainfall Depth, Duration, and Distribution

The rainfall depths for the 72-hour duration design storms used in the analysis were obtained from the rainfall maps included in the SFWMD Permit Information Manual for Environmental Resource Permits Volume IV. The following recurrence intervals, depths, durations, and distributions were used to simulate storm events for this analysis:

Storm Recurrence Interval	Rainfall Depth (in)	Duration (hrs)
25 year	10.5	72
100 year	13	72

The SFWMD rainfall maps are included in Appendix A. The SFWMD72 rainfall distribution was used throughout the 72-hour storm simulation (also included in Appendix A). The SFWMD recommends using a unit hydrograph peak factor of 256 for slopes greater than 5 feet per mile and 100 for slopes less than 5 feet per mile. Since the site grades will range between these slopes, an average value of 178 was used for modeling purposes.

2.3 Drainage Basins and Surface Storage

The Project was divided into areas labeled A through M. The Construction Drainage Plan and Operations Drainage Plan showing the drainage system and drainage area designations are provided on Figures 2 and 3, respectively. Grading, surface cover, and surface storage of the various drainage basins of the Project are described as follows:

- The construction laydown, trailer storage, parking lots, and open spaces surrounding the northern retention pond (Areas A, B, and C) will be graded to drain directly into the pond by overland flow. The northern retention pond will have an open-water surface area of 10.4 acres at the top of bank elevation 23 ft and 8.5 acres at the bottom elevation 15 ft (4 horizontal on 1 vertical side slopes). The construction laydown areas will be lined with limerock; the construction trailer storage and parking areas and retention pond surface area were taken to be impervious, and the area north of the retention pond footprint will be graded to divert runoff into the retention pond and will remain as open space.
- The areas within the perimeter road around the two Power Blocks (Areas D, E, and F) will be graded to divert runoff into storm drains and storm sewers that will divert the captured runoff into two stormwater sumps. Within the Power Blocks, the tops of storm drains will be set to elevation 22.5 ft. The equipment footprints and perimeter roads around the Power Blocks will be graded to elevation 24 ft to establish a working surface for construction and to serve as interior drainage divides. The equipment will be elevated about 6 inches above the surrounding areas (i.e., elevation 24.5 ft). Secondary containment structures for transformers, lube-oil containing equipment associated with the steam and combustion turbines, aboveground fuel oil tanks and unloading station, and aboveground ammonia tank and unloading station will be designed to discharge into an oil-water separator. The footprints of secondary containment structures and the cooling towers will not contribute runoff to the

stormwater management system during storm events and were excluded from the drainage areas used for modeling purposes.

Surface storage within the Power Blocks (Areas D, E, and F) will be provided in the storm sewers (between elevations 15 and 22.5 ft) and in areas between the storm drains and equipment/perimeter roads (between elevations 22.5 ft and 24 ft). The storm sewers will be 36-inch-diameter reinforced concrete pipe (RCP, or hydraulic equivalent) constructed on minimum grade of 0.1%. The surfaces within the Power Blocks were assumed to be covered with impervious asphalt, equipment, buildings, and limerock.

- The areas west of Unit 1 (Areas G-01, G-02, and G-03) will be graded to divert runoff into three storm drains and storm sewers that will discharge the captured runoff into the northern retention pond. These areas will be grassed and stabilized early during construction and will remain as open space (future transmission line corridor). The tops of the storm drains will be set to elevation 22.5 ft and the basin boundaries at the outer edge of the Power Block perimeter road, top of the western fill slope, and between the storm drains will be set to elevation 24 ft. The storm sewers will be 24 to 48-inch-diameter (increasing in size towards the north) RCP (or hydraulic equivalent) constructed on minimum grade of 0.1%. Surface storage will be provided in the storm sewers up to elevation 22.5 ft and in the areas surrounding the storm drains below elevation 24 ft.
- The areas east of Unit 1 (Areas H-01, H-02, and H-03) will be graded to divert runoff into three storm drains and storm sewers that will discharge the captured runoff into the northern retention pond. Areas H-01 and H-02 will be lined with limerock and used for construction laydown and parking. Area H-03 will be paved to serve as permanent parking. The tops of the storm drains will be set to elevation 22.5 ft and the basin boundaries at the outer edge of the Power Block perimeter road, eastern Project boundary, and between the storm drains will be set to elevation 24 ft. The storm sewers will be 24 to 48-inch-diameter (increasing in size towards the north) RCP (or hydraulic equivalent) constructed on minimum grade of 0.1%. Surface storage will be provided in the storm sewers up to elevation 22.5 ft and in the areas surrounding the storm drains below elevation 24 ft.
- The areas east and west of Unit 2 (Areas G-04, G-05, H-04, and H-05) will be graded to divert runoff into storm drains and storm sewers that will discharge the captured runoff into

the drainage system of Unit 2 and its stormwater sump. These areas will be grassed and stabilized early during construction and will remain as open space. The tops of the storm drains will be set to elevation 22.5 ft and the basin boundaries at the outer edge of the Power Block perimeter road, top of the western fill slope, and between the storm drains will be set to elevation 24 ft. The storm sewers will be 36-inch-diameter RCP (or hydraulic equivalent) constructed on minimum grade of 0.1%. Surface storage will be provided in the storm sewers up to elevation 22.5 ft and in the areas surrounding the storm drains below elevation 24 ft.

- A fill slope will be constructed along the western boundary of the Project (Area I) to extend from elevation 10 ft at the Project boundary up to elevation 24 ft. Runoff from the fill slope (approximately 42-foot-wide strip along the Project boundary) will discharge to the western property boundary where runoff will collect in depressional areas and infiltrate the ground. The area west of the Project is unpaved and occupied by a transmission line right-of-way.
- The construction laydown areas, parking, access road, electrical yard and open spaces in the areas surrounding the southern retention pond (Areas J, K, L, L-1, and M) will be graded to drain directly into the pond via overland flow and shallow swales and ditches. The southern retention pond will have an open-water surface area of 14.2 acres at the top of bank elevation 23 ft and 12.0 acres at the bottom elevation 15 ft (4 horizontal on 1 vertical side slopes). The construction laydown and parking areas and the electrical yard were assumed to be lined with limerock. The access road and retention pond surface areas were assumed to be impervious.

The Project areas served by each inlet into the stormwater ponds (i.e., the two stormwater pump stations, the two storm sewers, and overland flow areas) were lumped together into six drainage basins for modeling purposes. The western fill slope (Area I) was assigned as the seventh drainage basin for modeling purposes. The surface cover and storages estimated for each drainage basin used in modeling the Project drainage are summarized in Appendix B.

2.4 Soil Storage

The moisture storage capability of the site soils were estimated based on the depth to the water table and Figure E-1 from the SFWMD Permit Information Manual (Appendix B). The pond bottoms will be above the normal water levels in the surrounding canals (i.e., approximately elevation 10 ft per PBA ERP) and the reported high (flood) water level in the SFWMD reservoir located east of the

Project will be elevation 15 ft. The minimum depth to the high water table for the Project will be about 8 ft (i.e., 23 ft minus 15 ft). A soil storage value of 8 inches corresponding to a depth to water table of 4 feet (maximum depth on Figure E-1; included in Appendix B) in developed, compacted conditions was assigned to soils at the Site.

The soil storage for each basin was calculated as an area-weighted average of 8 inches within pervious areas (i.e., open space), 1 inch within limerock-covered areas (i.e., some depressional storage but essentially impervious), and zero within impervious areas (i.e., limerock, building/equipment footprints, pavements, and retention pond). The surface cover and soil storage estimate for each drainage basin used in modeling the Project drainage are provided in Appendix C.

2.5 Time of Concentration

Time of concentration is defined as the time it takes runoff to travel from the hydraulically most remote point in the watershed to the point of interest downstream. The time of concentration for each basin of the Project will be relatively short and a minimum value of 10 minutes (0.17 hours) was assigned to every basin for modeling purposes.

2.6 Stormwater Pumps

Stormwater runoff captured by the storm drains and storm sewers inside the Power Blocks will be diverted into two stormwater pump stations. The northern stormwater pump station will collect runoff from Areas D and E, and the southern stormwater pump station will collect runoff from Areas F, G-04, G-05, H-04, and H-05. Runoff collected into the stormwater pump stations will be transferred to the northern retention pond. For modeling purposes, the pumps in each stormwater sump were assumed to operate at 500 gallons per minute (gpm) when the water level in the sumps exceeded elevation 22 ft and to cease pumping when the water level returned to elevation 15 ft.

Stormwater collected in the northern pond will be returned for use as cooling tower makeup and other plant processes. The plant water use demand calls for about 7.6 million gallons per day (mgd, 5,250 gpm) for each Unit, operating at 5 cycles of concentration. The return pump was assumed to begin pumping when the water level in the northern retention pond exceeded elevations 20 feet and to cease pumping when the water level returned to elevation 15 feet.

2.7 Runoff Hydrograph Routing Modeling

The CASCADE 2001 (Version 1.0, SFWMD) program was used for modeling and analysis. This program is a hydrologic/hydraulic routing model which routes a single-event synthetic storm runoff through basins, connected in series or parallel, to a final outfall. The design storm and basin parameters developed in the previous sections are used as input to the program. The program simulates the design storm event by calculating the rate and direction of flow through each basin discharge control structure at each time step and then updating the stages based on computed runoffs and flows to and from other basins.

2.8 Storm Sewer Hydraulic Analysis

The maximum flows in the storm sewers within the Power Block areas are expected to correspond to the pumping capacity of the stormwater pump stations (500 gpm or 1.1 cfs). The storm sewers in these areas will be 36-inch-diameter RCP (or hydraulic equivalent). The hydraulic capacity of these pipes under the maximum flow condition was checked using the program CulvertMaster (Version 1.0 by Haested Methods). The program input and output sheets are provided in Appendix D. The hydraulic analysis indicates that the maximum headwater elevation for the storm sewers under maximum flow conditions should be below the top of the storm drains.

2.9 Modeling Results

The modeling of the stormwater management system indicated the following conclusions:

- Under the normal operating condition and 100-yr 72-hr design storm event, the peak stage at the northern retention pond should be about elevation 20 ft, the peak stage at the southern retention pond should be about elevation 18.9 ft, and the peak stages in the Power Block areas and other areas of the Project should be at or below elevation 24 ft. The model input/output file for this condition is included in Appendix E.
- Under normal operating condition and 25-yr 72-hr design storm event, the peak stage at the northern retention pond should be about elevation 20 ft, the peak stage at the southern retention pond should be about elevation 18 ft, and the peak stages in the Power Block areas and other areas of the Project should be at or below elevation 23.5 ft. The model input/output file for this condition is included in Appendix F.

- Under a temporary condition where the stormwater reuse pump in the northern retention pond is not operating, the peak stage at the northern retention pond should be about elevation 20.9 ft for the 100-yr 72-hr storm event.
- The volume of runoff from the western fill slope (Area I) should be approximately 2.4 and 3.5 acre-feet for the 25-yr 72-hr and 100-yr 72-hr storm events, respectively. The area of the FPL transmission right-of-way directly adjacent to the western fill slope is approximately 99 acres (7,200 ft by 600 ft). The volume runoff from the western fill slope is not expected to create a significant impact to the peak flood elevations on the adjacent FPL transmission line right-of-way.

The modeling results indicate that the stormwater management system will meet the design criteria for complete on-site retention of the runoff generated from the 100-yr 72-hr storm event and that the equipment, structures, and buildings associated with the Project should be protected from flooding by constructing them on finished floor elevations at 24.5 ft or above.

3.0 STORMWATER POLLUTION PREVENTION PLAN

The purpose of the Stormwater Pollution Prevention Plan is to detail the site stormwater management and erosion and sedimentation controls that will be implemented to prevent/minimize the discharge of pollutants in stormwater runoff during construction of the Project. To assure that erosion, sedimentation, and pollution are controlled during construction, this plan is intended to implement the following four guidance items:

1. Minimize Land Disturbance. To the extent possible and practical, construction-disturbed areas and the duration of exposure to erosion elements will be minimized. Clearing of natural vegetation will be limited to only those areas of the site to be developed at a given time. To the extent possible and practical, natural vegetation will be retained and protected.
2. Forward Planning. Planning for construction activity will consider site topography and soils, and the potential effects on erosion and sedimentation. Areas susceptible to erosion will not be disturbed or removed without instituting proper engineering controls to minimize these concerns.
3. Stabilization of Disturbed Areas. Any cut and/or fill slopes will be stabilized as quickly as is practical. Silt fences will be placed around stockpiled topsoil and backfill material. Temporary vegetation is not planned since construction activities in the Project Area will be ongoing throughout the duration of the project. Temporary grassing and mulching will be considered if work is stopped in certain disturbed areas for longer than 21 days. Erosion and sedimentation controls will be cleaned and/or installed in order to protect against having sediment-laden runoff enter State waters.
4. Runoff and Sediment Retention. Sediment barriers, and other related structures will be installed to filter or trap sediment on the site. It is recognized, however, that the most effective method of controlling sediment is to control erosion at its source. Retention structures will be placed to retain runoff and sediment on-site when erosion control methods are not practical, or insufficient, or in the process of being installed/replaced, or have failed due to some unforeseen factor.

The Stormwater Pollution Prevention Plan was prepared in accordance with the FDEP's Generic Permit for Stormwater Discharge from Large and Small Construction Activities and is included in Appendix G.

GOLDER ASSOCIATES INC.

Certificate of Authorization No. 1670

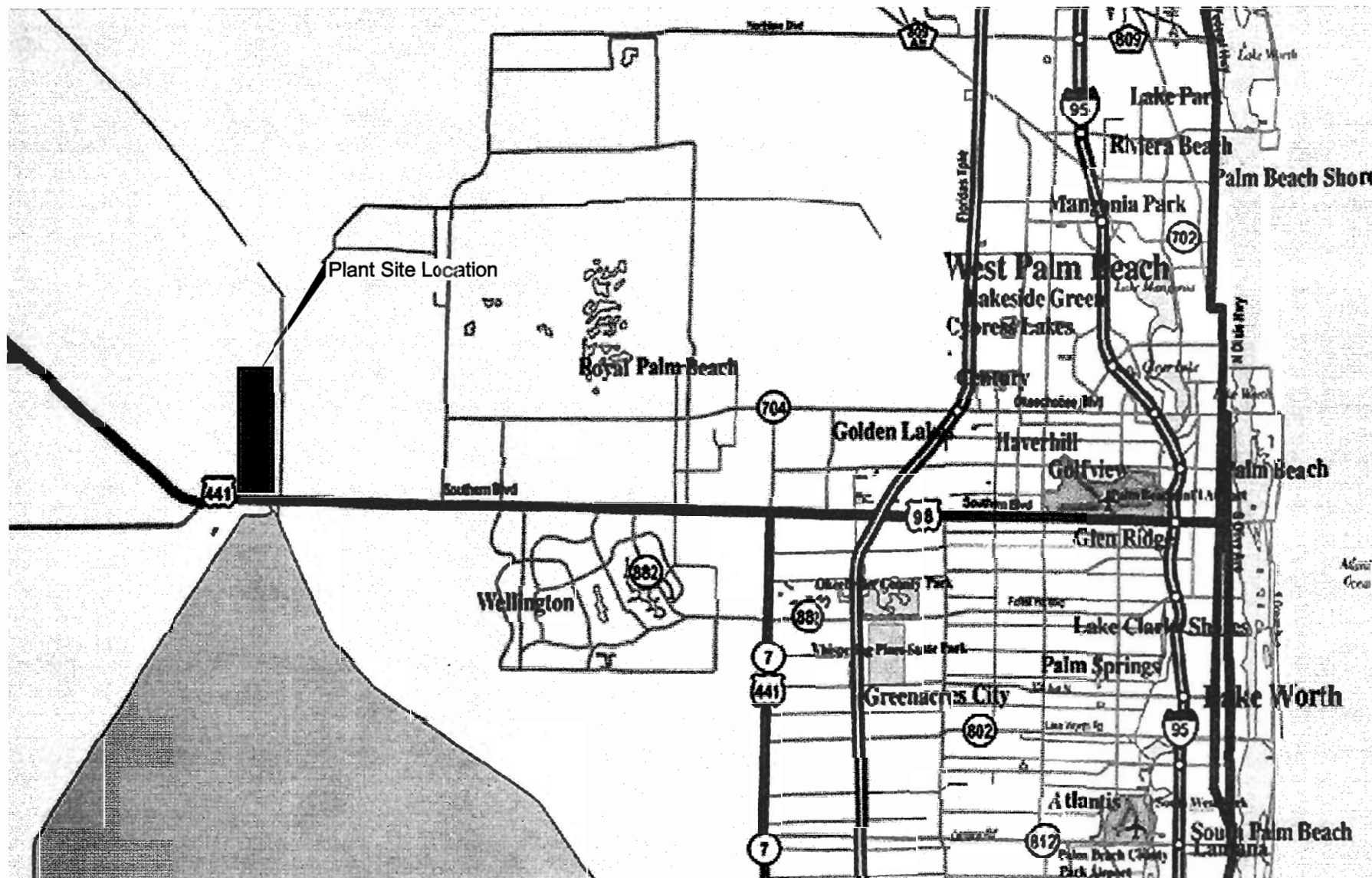


3-28-2005

Kerem H. Esin, P.E.
Senior Project Engineer
Florida Registration No. 54014
Golder Associates Inc. CA No.

H:\PROJECTS\2004proj\043-7649 FPL Corbett\Phase-1\102.Stormwater\250 Final Reports\WCEC.swmp.18Mar2005.doc

FIGURES



SOURCE: Golder, 2005.



FILE No. 0437649 Site Location.dwg

PROJECT No. 043-7649 REV. 0

SCALE NTS

DATE 3/28/05

DESIGN KE

CADD KT

CHECK KE

REVIEW KE

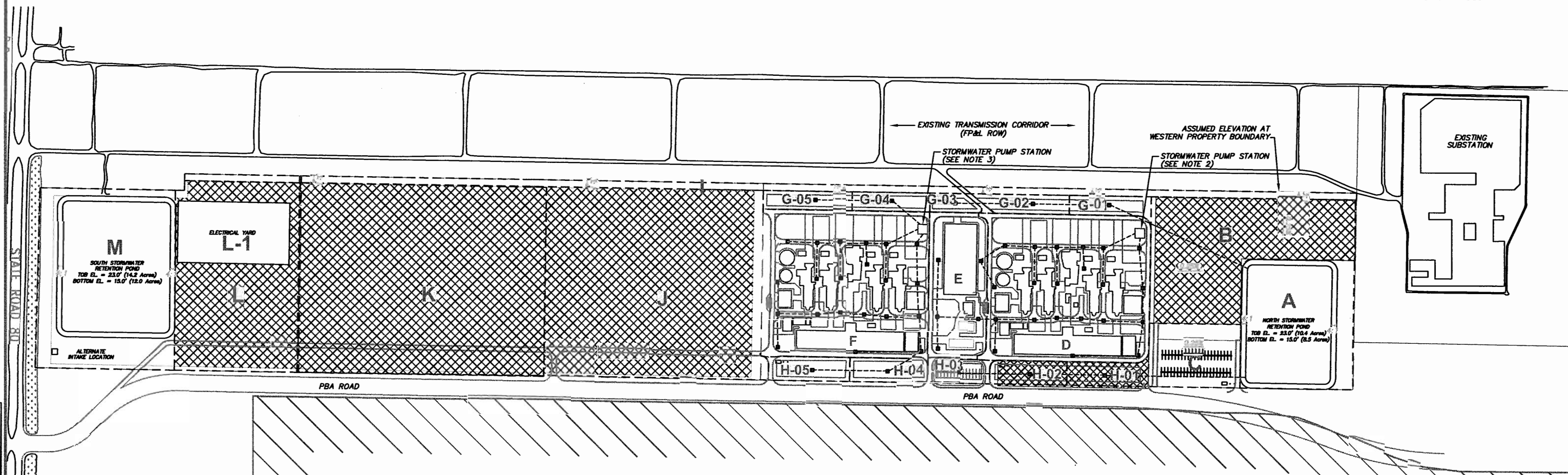
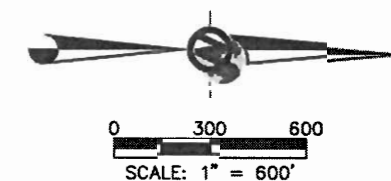
TITLE

SITE LOCATION MAP

WEST COUNTY ENERGY CENTER

FIGURE

1



SF/MD STORAGE PONDS

NOTES

1. REFER TO PLOT PLAN IN SCA FOR DETAILED DESCRIPTIONS OF THE VARIOUS BUILDING, EQUIPMENT AND STRUCTURES.
2. THE NORTHERN STORMWATER PUMP STATION WILL TRANSFER RUNOFF FROM AREAS "D" AND "E" TO THE NORTH STORMWATER POND.
3. THE SOUTHERN STORMWATER PUMP STATION WILL TRANSFER RUNOFF FROM AREAS "F", "G-04", "G-05", "H-04" AND "H-05" TO THE NORTH STORMWATER POND.
4. STORMWATER REUSE PUMP STATION WILL BE PROVIDED AT THE NORTH RETENTION POND TO TRANSFER RUNOFF FOR USE IN COOLING TOWER MAKEUP AND OTHER PLANT PROCESSES.
5. PROJECT BOUNDARIES AND INTERNAL DRAINAGE DIVIDES SHALL BE GRADED TO MINIMUM ELEVATION 24.0 FT. IN AREAS DESIGNATED FOR CONSTRUCTION LAYDOWN, THE CONTRACTOR SHALL PROVIDE DITCHES AND SWALES TO DIVERT RUNOFF INTO THE STORMWATER RETENTION PONDS AND/OR TEMPORARY SEDIMENTATION PONDS, IF NECESSARY.

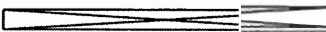
LEGEND

- K**
DRAINAGE BASIN IDENTIFICATION
- DRAINAGE BASIN DIVIDES (24 FT)
- SWALES AND DITCHES
- PROJECT BOUNDARY
- STORM DRAINS
- STORM SEWERS
- GRADING CONTOUR LINES (23 FT)
- EQUIPMENT OUTLINES (24 FT)
- XXXXXX
CONSTRUCTION LAYDOWN, TRAILER, AND PARKING AREAS

Project Basin Id	Project Area (acres)	Area Contributing to Stormwater System (acres) see Note 5	Description
A	12.4	12.4	Northern Retention Pond
B	15.8	15.8	Construction Laydown for Unit 1
C	5.0	5.0	Construction Trailers and Parking
D	20.5	17.5	Unit 1 Power Block
E	6.8	4.8	Fuel Tanks, control/admin building, maintenance building
F	20.4	17.5	Unit 2 Power Block
G	6.1	6.1	Western Strip - future transmission line expansion
H	7.8	7.8	Eastern Strip - construction laydown, permanent parking, open space
I	7.0	7.0	Western Fill Slope
J	36.1	36.1	Construction Laydown for Unit 2 - future expansion
K	39.6	39.6	Construction Laydown, Trailers, and Parking for Unit 2 and future exp.
L	13.8	13.8	Construction Laydown, Trailers, and Parking
L-1	5.9	5.9	Electrical Yard
M	21.1	21.1	Southern Retention Pond
Total	218.4	210.5	

ISSUED FOR SITE CERTIFICATION
NOT FOR CONSTRUCTION



FILE No.  PROJECT No. 043-7649

SCALE 1" = 600'

DATE 3/28/05

DESIGN KE

CADD KT

CHECK KE

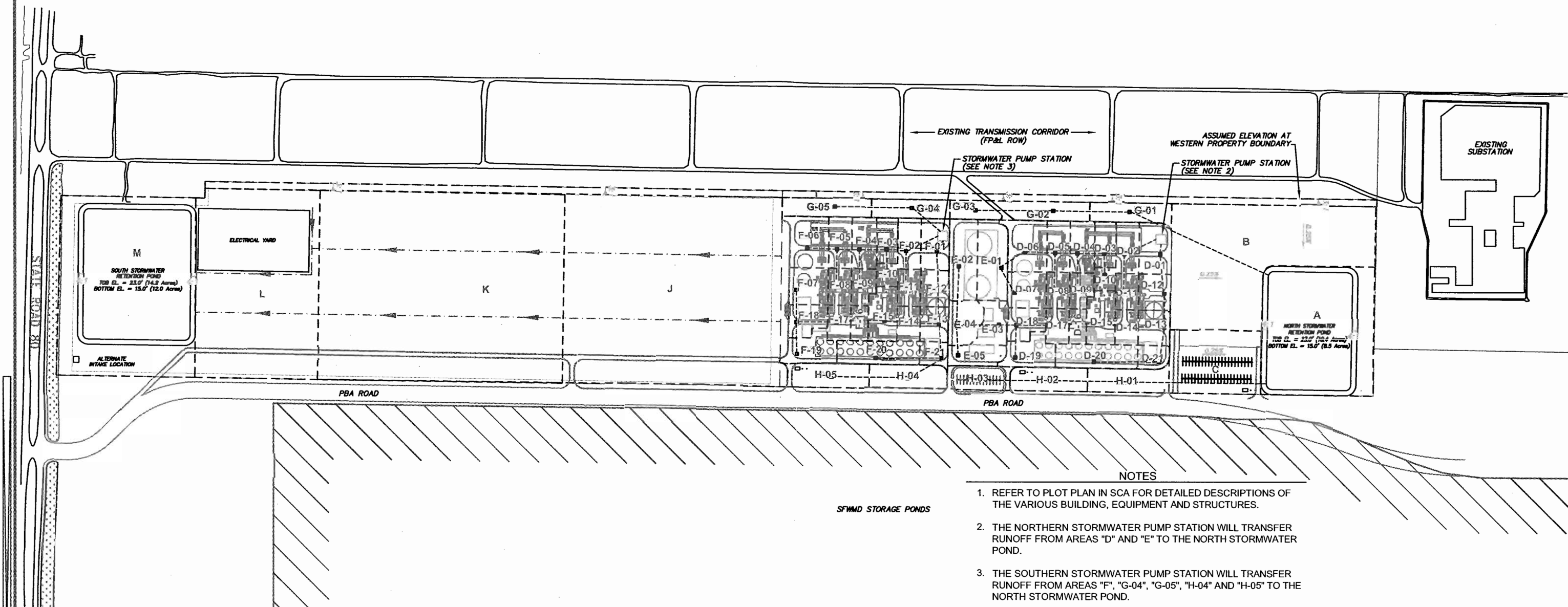
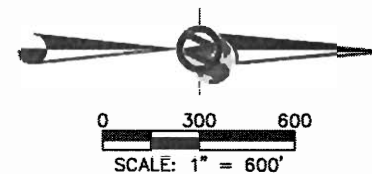
REVIEW KE

TITLE

CONSTRUCTION DRAINAGE PLAN

WEST COUNTY ENERGY CENTER

FIGURE 2



- LEGEND**
- K**
DRAINAGE BASIN IDENTIFICATION
- DRAINAGE BASIN DIVIDES (24 FT)
- SWALES AND DITCHES
- PROJECT BOUNDARY
- STORM DRAINS
- STORM SEWERS

Project Basin Id	Project Area (acres)	Area Contributing to Stormwater System (acres) see Note 5	Description
A	12.4	12.4	Northern Retention Pond
B	15.8	15.8	Operation & Maintenance Laydown for Unit 1
C	5.0	5.0	Operation and Maintenance Trailers and Parking
D	20.5	17.5	Unit 1 Power Block
E	6.8	4.8	Fuel Tanks, control/admin building, maintenance building
F	20.4	17.5	Unit 2 Power Block
G	6.1	6.1	Western Strip - future transmission line expansion
H	7.8	7.8	Eastern Strip - O&M laydown, permanent parking, open space
I	7.0	7.0	Western Fill Slope
J	36.1	36.1	Operation & Maintenance Laydown for Unit 2 - future expansion
K	39.6	39.6	Open Space - future expansion
L	13.8	13.8	Open Space
L-1	5.9	5.9	Electrical Yard
M	21.1	21.1	Southern Retention Pond
Total	218.4	210.5	

- NOTES**
1. REFER TO PLOT PLAN IN SCA FOR DETAILED DESCRIPTIONS OF THE VARIOUS BUILDING, EQUIPMENT AND STRUCTURES.
 2. THE NORTHERN STORMWATER PUMP STATION WILL TRANSFER RUNOFF FROM AREAS "D" AND "E" TO THE NORTH STORMWATER POND.
 3. THE SOUTHERN STORMWATER PUMP STATION WILL TRANSFER RUNOFF FROM AREAS "F", "G-04", "G-05", "H-04" AND "H-05" TO THE NORTH STORMWATER POND.
 4. STORMWATER RECYCLE PUMP STATION WILL BE PROVIDED AT THE NORTH RETENTION POND TO TRANSFER RUNOFF FOR USE IN COOLING TOWER MAKEUP AND OTHER PLANT PROCESSES.
 5. SECONDARY CONTAINMENT WILL BE PROVIDED FOR OIL-CONTAINING ABOVE GROUND TANKS AND EQUIPMENT WITHIN THE POWER BLOCK AREAS "D", "E", AND "F". RAINFALL COLLECTED IN SECONDARY CONTAINMENT STRUCTURES WILL BE DISCHARGED INTO AN OIL-WATER SEPARATOR AFTER STORM EVENTS AND THEN INTO THE STORMWATER MANAGEMENT SYSTEM. THESE AREAS WILL NOT CONTRIBUTE RUNOFF TO THE STORMWATER MANAGEMENT SYSTEM DURING STORM EVENTS.

ISSUED FOR SITE CERTIFICATION
NOT FOR CONSTRUCTION

 Tampa, Florida	SCALE	1" = 600'	TITLE	OPERATIONS DRAINAGE PLAN	
	DATE	3/23/05			
	DESIGN	KE			
	CADD	KT			
FILE No.		CHECK	KE	FIGURE	3
PROJECT No.	043-7649	REV.	0		
				WEST COUNTY ENERGY CENTER	

APPENDIX A

SFWMD RAINFALL MAPS AND

72-HOUR RAINFALL DISTRIBUTION

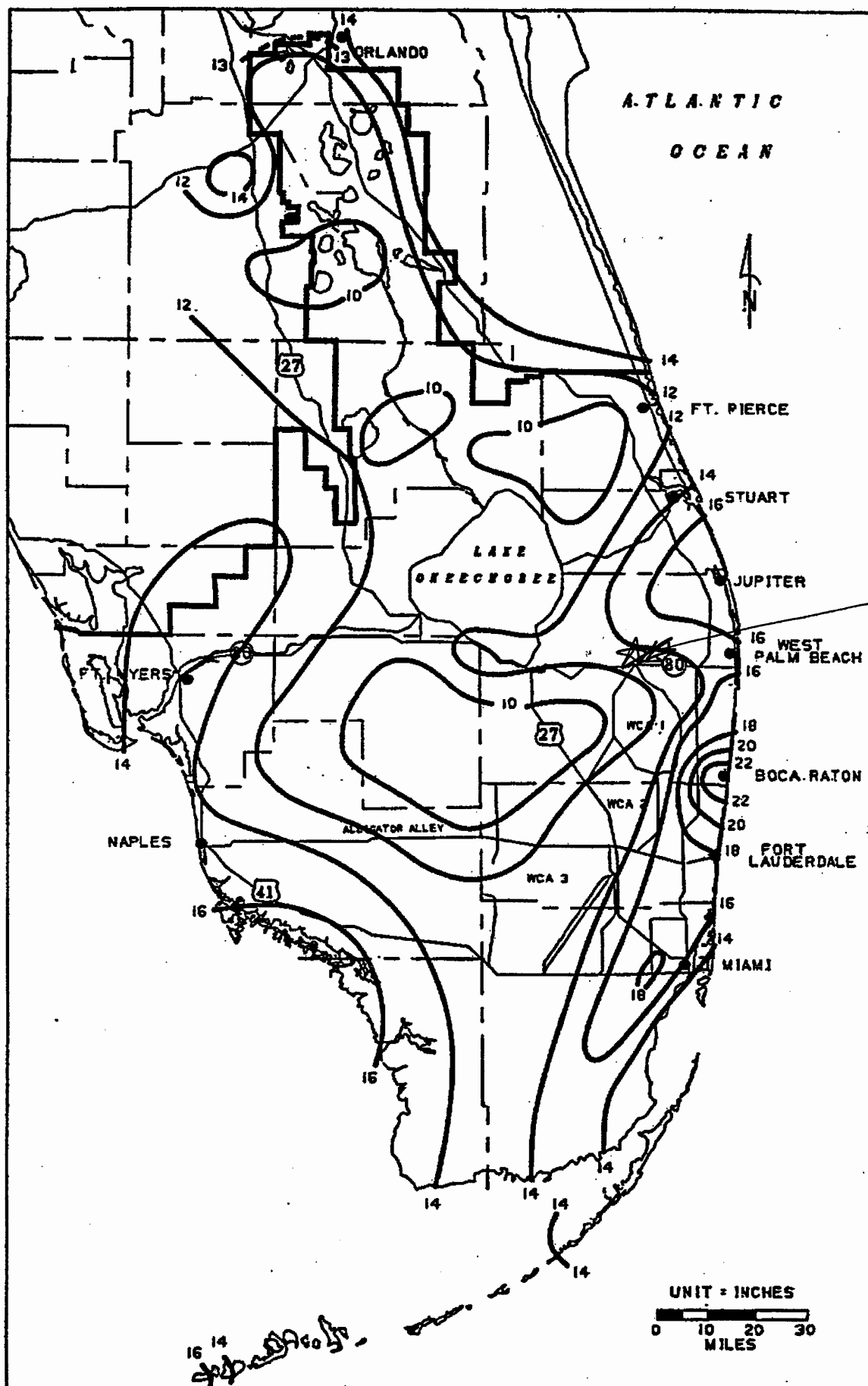


FIGURE C-9. 3-DAY RAINFALL: 100-YEAR RETURN PERIOD

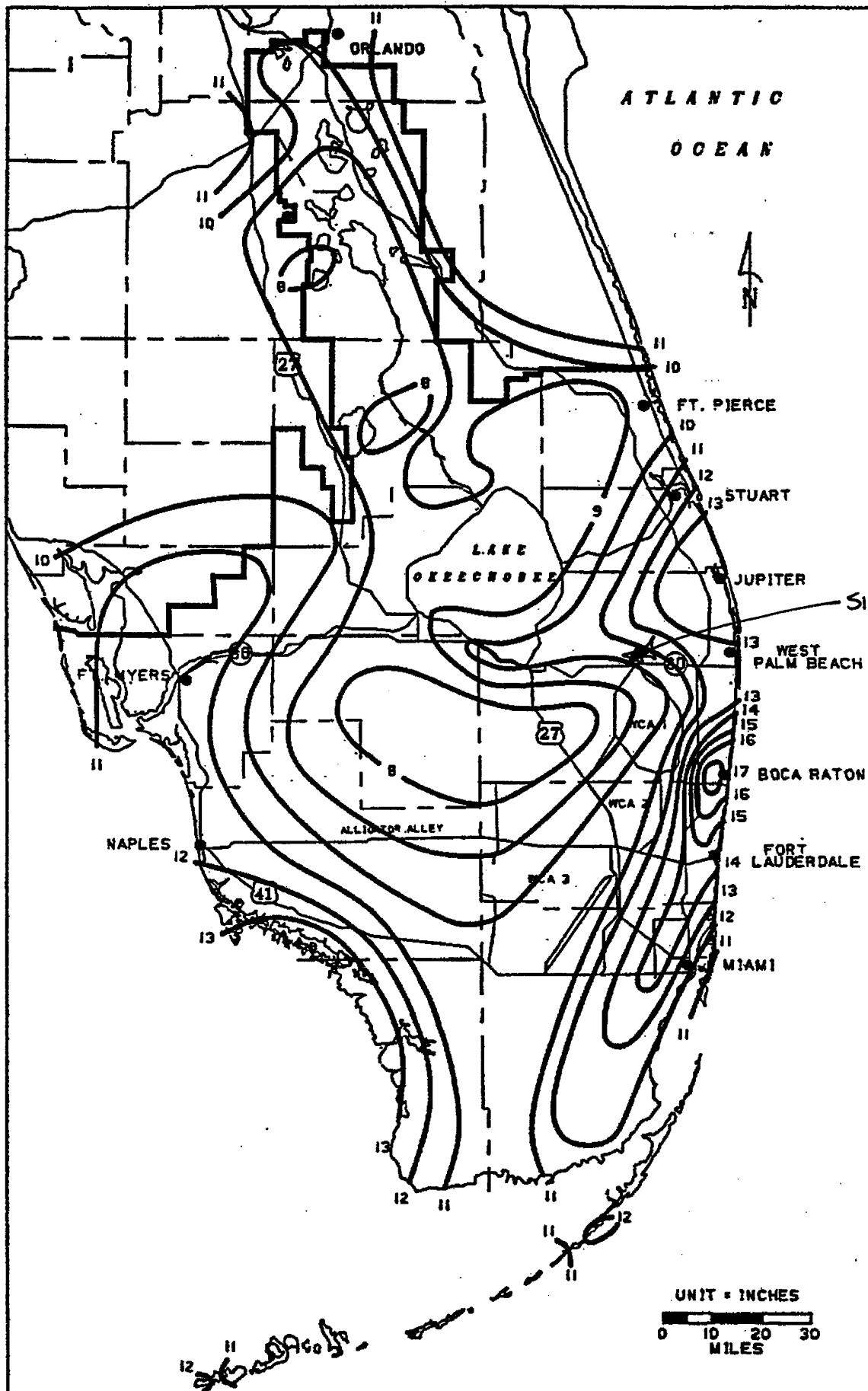


FIGURE C-8. 3-DAY RAINFALL: 25-YEAR RETURN PERIOD

8.0 REQUIRED DESIGN INFORMATION AND ASSUMPTIONS

8.1 Antecedent Conditions –

Antecedent conditions shall be average wet season elevations for water table or other water surfaces.

8.2 Rainfall –

Distributions and intensities consistent with one or more of these Reference Sources:

- (a) SFWMD Technical Memorandum, Frequency Analysis of One and Three Day Rainfall Maxima for central and southern Florida, Paul Trimble, October 1990 and the following distribution table:

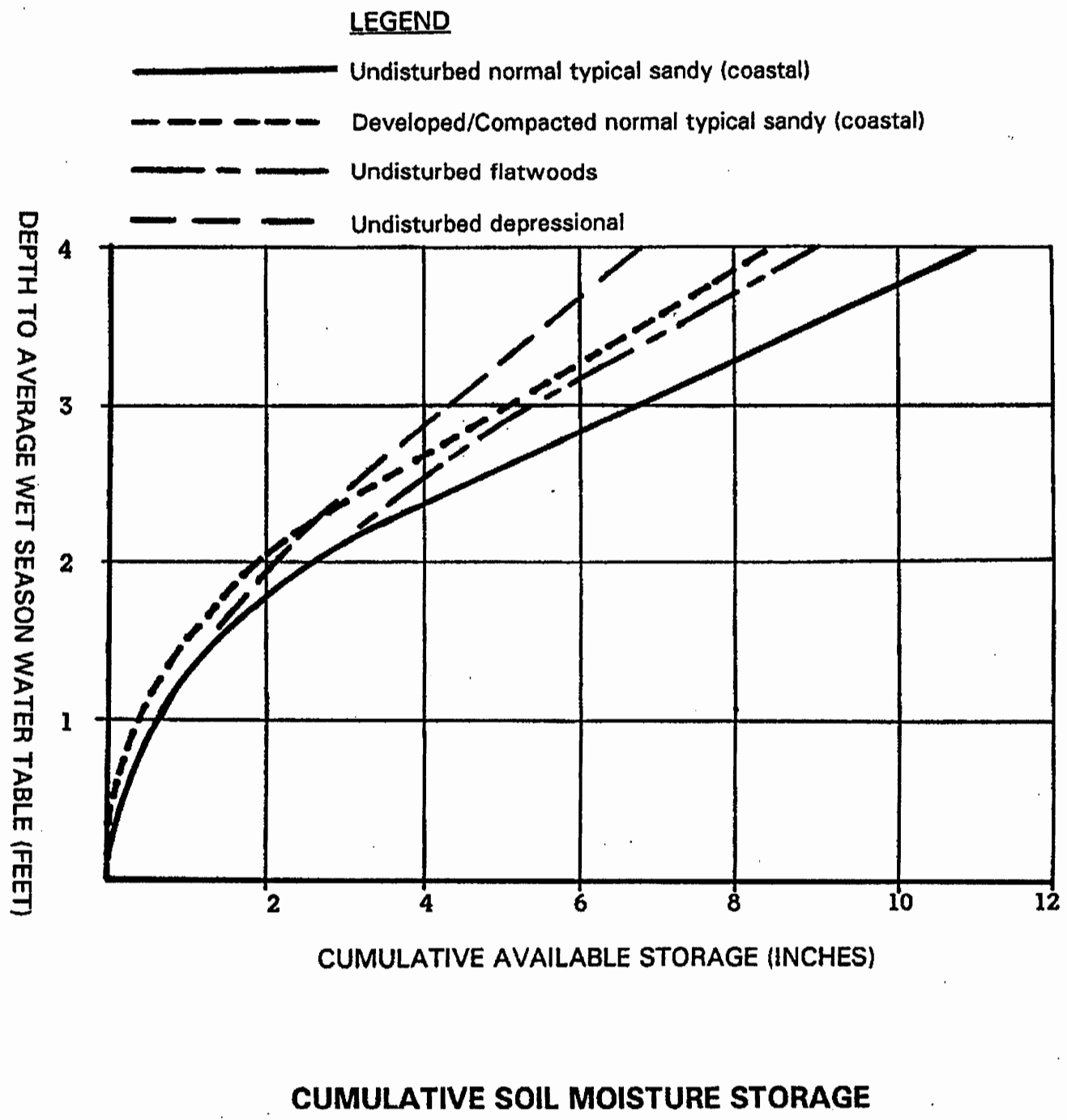
Time (hours)	Cumulative Percentage of Peak One Day Rainfall
0	0
24	14.6
48	35.9
58	57.2
59	62.8
59.5	67.8
59.75	82.8
60	101.5
60.5	108.8
61	112.6
62	117.7
72	135.9

100% One Day
Rainfall

- (b) Actual gage data analyzed by accepted statistical methods,
- (c) U.S. Department of Agriculture, Soil Conservation Service, "Rainfall Frequency Atlas of Alabama, Florida, Georgia and South Carolina for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 years" (1973).

APPENDIX B

SFWMD SOIL STORAGE VERSUS DEPTH TO WATER TABLE RELATIONSHIP



E-3

Figure E-1

APPENDIX C

BASIN DATA SUMMARY TABLES FOR MODELING PURPOSES

MODELING BASIN 1

Areas A, B and C		
Stage	Area	Storage
15	8.50	0.00
23	10.40	75.60
24	32.44	97.02
28	32.44	226.80
Drain Area =	33.13	acres
Equipment =	0.00	acres
Buildings -	0.69	acres
Pavement =	0.47	acres
Pond =	10.39	acres
Limerock =	19.58	acres
Open Sp =	2.00	acres
TOC =	0.17	hr
S =	1.1	in

MODELING BASIN 2

Areas D & E		
Stage	Area	Storage
15	0.01	0.00
22.5	0.01	1.14
23	9.12	3.42
24	19.84	17.90
28	19.84	80.78
Drain Area =	22.30	acres
Equipment =	4.96	acres
Buildings -	2.46	acres
Pavement =	5.34	acres
Pond =	0.00	acres
Limerock =	12.73	acres
Open Sp =	1.76	acres
TOC =	0.17	hr
S =	1.2	in

MODELING BASIN 3

Areas H-01 thru H-03		
Stage	Area	Storage
15	0.00	0.00
22.5	0.00	0.00
23	2.57	0.64
24	4.52	4.19
28	4.52	22.28
Drain Area =	4.52	acres
Equipment =	0.00	acres
Buildings -	0.00	acres
Pavement =	0.00	acres
Pond =	0.00	acres
Limerock =	4.52	acres
Open Sp =	0.00	acres
TOC =	0.17	hr
S =	1.0	in

MODELING BASIN 4

Areas G-01 thru G-03		
Stage	Area	Storage
15	0.000	0.00
22.5	0.000	0.00
23	1.836	0.46
24	3.633	3.19
28	3.633	17.72
Drain Area =	3.63	acres
Equipment =	0.00	acres
Buildings -	0.00	acres
Pavement =	0.00	acres
Pond =	0.00	acres
Limerock =	0.00	acres
Open Sp =	3.63	acres
TOC =	0.17	hr
S =	8.0	in

Note: S means soil storage - related to SCS Curve Number as:

$$CN = \frac{1000}{10 + S}$$

- S in open spaces taken as 8" (CN=56)
- S in limerock covered areas taken as 1" (CN=91)
- S in other areas taken as 0" (CN=100; impervious)

MODELING BASIN 5

Areas F / G-04 / G-05 / H-04 / H-05		
Stage	Area	Storage
15	0.01	0.00
22.5	0.01	1.56
23	9.64	3.97
24	21.18	19.38
28	21.18	104.10
Drain Area =	23.25	acres
Equipment =	2.93	acres
Buildings -	2.07	acres
Pavement =	4.48	acres
Pond =	0.00	acres
Limerock =	10.93	acres
Open Sp =	5.76	acres
TOC =	0.17	hr
S =	2.5	in

MODELING BASIN 6

Areas J, K, L, L-1 & M - South Pond		
Stage	Area	Storage
15	12.00	0
23	35.60	190.4
24	116.60	266.5
28	116.60	732.9
Drain Area =	116.60	acres
Equipment =	0.00	acres
Buildings -	0.00	acres
Pavement =	2.48	acres
Pond =	14.20	acres
Limerock =	93.00	acres
Open Sp =	6.92	acres
TOC =	0.17	hr
S =	1.3	in

MODELING BASIN 7

Area I - Off-site Drainage		
Stage	Area	Storage
10	7.03	0
24	7.03	98.5
Drain Area =	7.03	acres
Equipment =	0.00	acres
Buildings -	0.00	acres
Pavement =	0.00	acres
Pond =	0.00	acres
Limerock =	0.00	acres
Open Sp =	7.03	acres
TOC =	0.17	hr
S =	8.0	in

APPENDIX D

STORM SEWER ANALYSIS

Culvert Designer/Analyzer Report

[REDACTED]

Peak Discharge Method: User-Specified

Design Discharge	1.10 cfs	Check Discharge	0.00 cfs
------------------	----------	-----------------	----------

Grades Model: Inverts

Invert Upstream	18.50 ft	Invert Downstream	15.50 ft
Length	3,000.00 ft	Slope	0.001000 ft/ft
Drop	3.00 ft		

Headwater Model: Maximum Allowable HW

Headwater Elevation	22.00 ft
---------------------	----------

Tailwater Conditions: Constant Tailwater

Tailwater Elevation	15.00 ft
---------------------	----------

	Name	Desc	Discharge	HW Elev	Velocity
x	Trial-1	1-36 inch Circular	1.10 cfs	19.02 ft	2.67 ft/s

Culvert Designer/Analyzer Report

Design: Trial-1

Solve For: Headwater Elevation

Culvert Summary

Allowable HW Elevation	22.00 ft	Storm Event	Design
Computed Headwater Elevation	19.02 ft	Discharge	1.10 cfs
Headwater Depth/ Height	0.17	Tailwater Elevation	15.00 ft
Inlet Control HW Elev	18.93 ft	Control Type	Outlet Control
Outlet Control HW Elev	19.02 ft		

Grades

Upstream Invert	18.50 ft	Downstream Invert	15.50 ft
Length	3,000.00 ft	Constructed Slope	0.001000 ft/ft

Hydraulic Profile

Profile	M2	Depth, Downstream	0.32 ft
Slope Type	Mild	Normal Depth	0.47 ft
Flow Regime	Subcritical	Critical Depth	0.32 ft
Velocity Downstream	2.67 ft/s	Critical Slope	0.004514 ft/ft

Section

Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	3.00 ft
Section Size	36 inch	Rise	3.00 ft
Number Sections	1		

Outlet Control Properties

Outlet Control HW Elev	19.02 ft	Upstream Velocity Head	0.04 ft
Ke	0.50	Entrance Loss	0.02 ft

Inlet Control Properties

Inlet Control HW Elev	18.93 ft	Flow Control	Unsubmerged
Inlet Type	Square edge w/headwall	Area Full	7.1 ft ²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

Pressure Pipe Worksheet for Pressure Pipe

Project Description	
Project File	c:\haestad\fmw\043-7649.fm2
Worksheet	test
Flow Element	Pressure Pipe
Method	Manning's Formula
Solve For	Pressure at 2

Input Data		
Pressure at 1	0.00	psi
Elevation at 1	18.50	ft
Elevation at 2	15.50	ft
Length	3,000.00	ft
Mannings Coefficient	0.013	
Diameter	36.00	in
Discharge	500.0	gal/min

Results		
Pressure at 2	1.30	psi
Headloss	0.01	ft
Energy Grade at 1	18.50	ft
Energy Grade at 2	18.49	ft
Hydraulic Grade at 1	18.50	ft
Hydraulic Grade at 2	18.49	ft
Flow Area	7.07	ft ²
Wetted Perimeter	9.42	ft
Velocity	0.16	ft/s
Velocity Head	0.39e-3	ft
Friction Slope	0.000003	ft/ft

APPENDIX E

MODELING INPUT/OUTPUT FOR

100-YEAR 72-HOUR STORM

Project Name: FPL / WCEC / FL

Reviewer: K. Esin

Project Number: 043-7649

Period Begin: Jan 01, 2000;0000 hr End: Jan 07, 2000;0000 hr Duration: 144 hr

Time Step: 0.2 hr, Iterations: 10

Basin 1: A-B-C

Method: Generalized Unit Hydrograph

Rainfall Distribution: SFWMD - 3day

Design Frequency: 100 year

3 Day Rainfall: 13 inches

Area: 33.13 acres

Ground Storage: 1.1 inches

Time of Concentration: 0.17 hours

Peak Rate Factor: 178

Initial Stage: 15 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
-----	-----
15.00	0.00
23.00	75.60
24.00	97.02
28.00	226.80

Basin 2: D - E

Method: Generalized Unit Hydrograph

Rainfall Distribution: SFWMD - 3day

Design Frequency: 100 year

3 Day Rainfall: 13 inches

Area: 22.3 acres

Ground Storage: 1.2 inches

Time of Concentration: 0.17 hours

Peak Rate Factor: 178

Initial Stage: 15 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
-----	-----
15.00	0.00
22.50	1.14
23.00	3.42
24.00	17.90
28.00	80.78

Basin 3: H01 thru H03

Method: Generalized Unit Hydrograph

Rainfall Distribution: SFWMD - 3day

Design Frequency: 100 year

3 Day Rainfall: 13 inches

Area: 4.52 acres

Ground Storage: 1 inches

Time of Concentration: 0.17 hours

Peak Rate Factor: 178

Initial Stage: 15 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
-----	-----
22.50	0.00
23.00	0.64
24.00	4.19
28.00	22.28

Basin 4: G01 thru G03

Method: Generalized Unit Hydrograph
 Rainfall Distribution: SFWMD - 3day
 Design Frequency: 100 year
 3 Day Rainfall: 13 inches
 Area: 3.63 acres
 Ground Storage: 8 inches
 Time of Concentration: 0.17 hours
 Peak Rate Factor: 178
 Initial Stage: 15 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
-----	-----
22.50	0.00
23.00	0.46
24.00	3.19
28.00	17.72

Basin 5: F/G04/G05/H04/H05

Method: Generalized Unit Hydrograph
 Rainfall Distribution: SFWMD - 3day
 Design Frequency: 100 year
 3 Day Rainfall: 13 inches
 Area: 23.25 acres
 Ground Storage: 2.5 inches
 Time of Concentration: 0.17 hours
 Peak Rate Factor: 178
 Initial Stage: 15 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
-----	-----
15.00	0.00
22.50	1.56
23.00	3.97
24.00	19.38
28.00	104.10

Basin 6: J - K - L - L-1 - M

Method: Generalized Unit Hydrograph
 Rainfall Distribution: SFWMD - 3day
 Design Frequency: 100 year
 3 Day Rainfall: 13 inches
 Area: 116.6 acres
 Ground Storage: 1.3 inches
 Time of Concentration: 0.17 hours
 Peak Rate Factor: 178
 Initial Stage: 15 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
-----	-----
15.00	0.00
23.00	190.40
24.00	266.50
28.00	732.90

Basin 7: I

Method: Generalized Unit Hydrograph
 Rainfall Distribution: SFWMD - 3day
 Design Frequency: 100 year
 3 Day Rainfall: 13 inches
 Area: 7.03003 acres

Ground Storage: 8 inches
 Time of Concentration: 0.17 hours
 Peak Rate Factor: 178
 Initial Stage: 10 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
10.00	10.00
10.20	10.00

Offsite Receiving Body: Cooling Tower Makeup

Time (hr)	Stage (ft NGVD)
0.00	10.00
1000.00	10.00

Structure: 1

From Basin: A-B-C

To Basin: Cooling Tower Makeup

Structure Type: Pump

On Elev = 20 ft NGVD, Off Elev = 15 ft NGVD, Capacity = 5250 gpm

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	15.00	10.00
1.00	0.06	0.00	0.00	0.00	15.00	10.00
2.00	0.12	0.00	0.00	0.00	15.00	10.00
3.00	0.17	0.00	0.00	0.00	15.00	10.00
4.00	0.23	0.01	0.00	0.00	15.00	10.00
5.00	0.29	0.14	0.00	0.00	15.00	10.00
6.00	0.35	0.29	0.00	0.00	15.00	10.00
7.00	0.41	0.42	0.00	0.00	15.01	10.00
8.00	0.47	0.53	0.00	0.00	15.01	10.00
9.00	0.52	0.63	0.00	0.00	15.02	10.00
10.00	0.58	0.72	0.00	0.00	15.02	10.00
11.00	0.64	0.80	0.00	0.00	15.03	10.00
12.00	0.70	0.87	0.00	0.00	15.04	10.00
13.00	0.76	0.93	0.00	0.00	15.05	10.00
14.00	0.81	0.98	0.00	0.00	15.06	10.00
15.00	0.87	1.03	0.00	0.00	15.07	10.00
16.00	0.93	1.08	0.00	0.00	15.08	10.00
17.00	0.99	1.12	0.00	0.00	15.09	10.00
18.00	1.05	1.15	0.00	0.00	15.10	10.00
19.00	1.11	1.19	0.00	0.00	15.11	10.00
20.00	1.16	1.22	0.00	0.00	15.12	10.00
21.00	1.22	1.25	0.00	0.00	15.13	10.00
22.00	1.28	1.27	0.00	0.00	15.15	10.00
23.00	1.34	1.30	0.00	0.00	15.16	10.00
24.00	1.40	1.32	0.00	0.00	15.17	10.00
25.00	1.48	1.93	0.00	0.00	15.19	10.00
26.00	1.57	2.00	0.00	0.00	15.21	10.00
27.00	1.65	2.03	0.00	0.00	15.24	10.00
28.00	1.74	2.07	0.00	0.00	15.27	10.00
29.00	1.82	2.09	0.00	0.00	15.30	10.00
30.00	1.91	2.12	0.00	0.00	15.33	10.00
31.00	1.99	2.14	0.00	0.00	15.36	10.00
32.00	2.08	2.17	0.00	0.00	15.40	10.00
33.00	2.16	2.19	0.00	0.00	15.43	10.00
34.00	2.25	2.20	0.00	0.00	15.46	10.00
35.00	2.33	2.22	0.00	0.00	15.49	10.00
36.00	2.42	2.24	0.00	0.00	15.52	10.00
37.00	2.50	2.25	0.00	0.00	15.56	10.00
38.00	2.59	2.26	0.00	0.00	15.60	10.00

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
39.00	2.67	2.28	0.00	0.00	15.64	10.00
40.00	2.75	2.29	0.00	0.00	15.69	10.00
41.00	2.84	2.30	0.00	0.00	15.73	10.00
42.00	2.92	2.31	0.00	0.00	15.77	10.00
43.00	3.01	2.32	0.00	0.00	15.81	10.00
44.00	3.09	2.33	0.00	0.00	15.86	10.00
45.00	3.18	2.33	0.00	0.00	15.90	10.00
46.00	3.26	2.34	0.00	0.00	15.94	10.00
47.00	3.35	2.35	0.00	0.00	15.99	10.00
48.00	3.43	2.36	0.00	0.00	16.03	10.00
49.00	3.53	2.65	0.00	0.00	16.08	10.00
50.00	3.63	2.67	0.00	0.00	16.12	10.00
51.00	3.74	3.19	0.00	0.00	16.17	10.00
52.00	3.86	3.61	0.00	0.00	16.23	10.00
53.00	4.03	4.67	0.00	0.00	16.29	10.00
54.00	4.23	5.77	0.00	0.00	16.36	10.00
55.00	4.47	6.88	0.00	0.00	16.44	10.00
56.00	4.74	8.01	0.00	0.00	16.54	10.00
57.00	5.07	9.53	0.00	0.00	16.65	10.00
58.00	5.47	11.74	0.00	0.00	16.78	10.00
59.00	6.01	16.42	0.00	0.00	16.93	10.00
60.00	9.71	144.21	0.00	0.00	17.51	10.00
61.00	10.77	32.88	0.00	0.00	18.34	10.00
62.00	11.26	14.43	0.00	0.00	18.62	10.00
63.00	11.57	9.00	0.00	0.00	18.77	10.00
64.00	11.85	8.48	0.00	0.00	18.89	10.00
65.00	12.02	5.26	0.00	0.00	18.98	10.00
66.00	12.20	5.09	0.00	0.00	19.06	10.00
67.00	12.37	5.08	0.00	0.00	19.13	10.00
68.00	12.54	5.08	0.00	0.00	19.21	10.00
69.00	12.66	3.48	0.00	0.00	19.27	10.00
70.00	12.77	3.39	0.00	0.00	19.33	10.00
71.00	12.89	3.39	0.00	0.00	19.38	10.00
72.00	13.00	3.39	0.00	0.00	19.44	10.00
73.00	13.00	0.18	0.00	0.00	19.48	10.00
74.00	13.00	0.01	0.00	0.00	19.50	10.00
75.00	13.00	0.00	0.00	0.00	19.52	10.00
76.00	13.00	0.00	0.00	0.00	19.54	10.00
77.00	13.00	0.00	0.00	0.00	19.56	10.00
78.00	13.00	0.00	0.00	0.00	19.58	10.00
79.00	13.00	0.00	0.00	0.00	19.60	10.00
80.00	13.00	0.00	0.00	0.00	19.62	10.00
81.00	13.00	0.00	0.00	0.00	19.64	10.00
82.00	13.00	0.00	0.00	0.00	19.66	10.00
83.00	13.00	0.00	0.00	0.00	19.68	10.00
84.00	13.00	0.00	0.00	0.00	19.70	10.00
85.00	13.00	0.00	0.00	0.00	19.72	10.00
86.00	13.00	0.00	0.00	0.00	19.74	10.00
87.00	13.00	0.00	0.00	0.00	19.76	10.00
88.00	13.00	0.00	0.00	0.00	19.78	10.00
89.00	13.00	0.00	0.00	0.00	19.80	10.00
90.00	13.00	0.00	0.00	0.00	19.82	10.00
91.00	13.00	0.00	0.00	0.00	19.84	10.00
92.00	13.00	0.00	0.00	0.00	19.86	10.00
93.00	13.00	0.00	0.00	0.00	19.88	10.00
94.00	13.00	0.00	0.00	0.00	19.90	10.00
95.00	13.00	0.00	0.00	0.00	19.92	10.00
96.00	13.00	0.00	0.00	0.00	19.93	10.00
97.00	13.00	0.00	0.00	0.00	19.95	10.00
98.00	13.00	0.00	0.00	0.00	19.97	10.00
99.00	13.00	0.00	0.00	0.00	19.99	10.00
100.00	13.00	0.00	11.70	0.77	19.94	10.00
101.00	13.00	0.00	11.70	1.74	19.86	10.00
102.00	13.00	0.00	11.70	2.71	19.78	10.00
103.00	13.00	0.00	11.70	3.67	19.69	10.00
104.00	13.00	0.00	11.70	4.64	19.61	10.00
105.00	13.00	0.00	11.70	5.61	19.53	10.00

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
106.00	13.00	0.00	11.70	6.57	19.44	10.00
107.00	13.00	0.00	11.70	7.54	19.36	10.00
108.00	13.00	0.00	11.70	8.51	19.28	10.00
109.00	13.00	0.00	11.70	9.48	19.20	10.00
110.00	13.00	0.00	11.70	10.44	19.11	10.00
111.00	13.00	0.00	11.70	11.41	19.03	10.00
112.00	13.00	0.00	11.70	12.38	18.95	10.00
113.00	13.00	0.00	11.70	13.34	18.86	10.00
114.00	13.00	0.00	11.70	14.31	18.78	10.00
115.00	13.00	0.00	11.70	15.28	18.70	10.00
116.00	13.00	0.00	11.70	16.24	18.62	10.00
117.00	13.00	0.00	11.70	17.21	18.53	10.00
118.00	13.00	0.00	11.70	18.18	18.45	10.00
119.00	13.00	0.00	11.70	19.14	18.37	10.00
120.00	13.00	0.00	11.70	20.11	18.28	10.00
121.00	13.00	0.00	11.70	21.08	18.20	10.00
122.00	13.00	0.00	11.70	22.05	18.12	10.00
123.00	13.00	0.00	11.70	23.01	18.04	10.00
124.00	13.00	0.00	11.70	23.98	17.95	10.00
125.00	13.00	0.00	11.70	24.95	17.87	10.00
126.00	13.00	0.00	11.70	25.91	17.79	10.00
127.00	13.00	0.00	11.70	26.88	17.71	10.00
128.00	13.00	0.00	11.70	27.85	17.62	10.00
129.00	13.00	0.00	11.70	28.81	17.54	10.00
130.00	13.00	0.00	11.70	29.78	17.46	10.00
131.00	13.00	0.00	11.70	30.75	17.37	10.00
132.00	13.00	0.00	11.70	31.71	17.29	10.00
133.00	13.00	0.00	11.70	32.68	17.21	10.00
134.00	13.00	0.00	11.70	33.65	17.13	10.00
135.00	13.00	0.00	11.70	34.61	17.04	10.00
136.00	13.00	0.00	11.70	35.58	16.96	10.00
137.00	13.00	0.00	11.70	36.55	16.88	10.00
138.00	13.00	0.00	11.70	37.52	16.79	10.00
139.00	13.00	0.00	11.70	38.48	16.71	10.00
140.00	13.00	0.00	11.70	39.45	16.63	10.00
141.00	13.00	0.00	11.70	40.42	16.55	10.00
142.00	13.00	0.00	11.70	41.38	16.46	10.00
143.00	13.00	0.00	11.70	42.35	16.38	10.00
144.00	13.00	0.00	11.70	43.32	16.30	10.00

Structure: 2

From Basin: D - E

To Basin: A-B-C

Structure Type: Pump

On Elev = 22 ft NGVD, Off Elev = 15 ft NGVD, Capacity = 500 gpm

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	15.00	15.00
1.00	0.06	0.00	0.00	0.00	15.00	15.00
2.00	0.12	0.00	0.00	0.00	15.00	15.00
3.00	0.17	0.00	0.00	0.00	15.00	15.00
4.00	0.23	0.00	0.00	0.00	15.00	15.00
5.00	0.29	0.06	0.00	0.00	15.01	15.00
6.00	0.35	0.15	0.00	0.00	15.07	15.00
7.00	0.41	0.24	0.00	0.00	15.17	15.01
8.00	0.47	0.31	0.00	0.00	15.32	15.01
9.00	0.52	0.38	0.00	0.00	15.51	15.02
10.00	0.58	0.44	0.00	0.00	15.73	15.02
11.00	0.64	0.49	0.00	0.00	15.99	15.03
12.00	0.70	0.54	0.00	0.00	16.27	15.04
13.00	0.76	0.58	0.00	0.00	16.57	15.05
14.00	0.81	0.62	0.00	0.00	16.90	15.06

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
15.00	0.87	0.65	0.00	0.00	17.24	15.07
16.00	0.93	0.68	0.00	0.00	17.61	15.08
17.00	0.99	0.71	0.00	0.00	17.99	15.09
18.00	1.05	0.74	0.00	0.00	18.38	15.10
19.00	1.11	0.76	0.00	0.00	18.79	15.11
20.00	1.16	0.78	0.00	0.00	19.21	15.12
21.00	1.22	0.80	0.00	0.00	19.64	15.13
22.00	1.28	0.82	0.00	0.00	20.09	15.15
23.00	1.34	0.84	0.00	0.00	20.54	15.16
24.00	1.40	0.86	0.00	0.00	21.00	15.17
25.00	1.48	1.26	0.00	0.00	21.61	15.19
26.00	1.57	1.30	1.11	0.06	22.00	15.21
27.00	1.65	1.33	1.11	0.15	22.12	15.24
28.00	1.74	1.35	1.11	0.24	22.24	15.27
29.00	1.82	1.37	1.11	0.33	22.38	15.30
30.00	1.91	1.39	1.11	0.42	22.50	15.33
31.00	1.99	1.41	1.11	0.52	22.51	15.36
32.00	2.08	1.43	1.11	0.61	22.51	15.40
33.00	2.16	1.44	1.11	0.70	22.52	15.43
34.00	2.25	1.46	1.11	0.79	22.52	15.46
35.00	2.33	1.47	1.11	0.88	22.53	15.49
36.00	2.42	1.48	1.11	0.98	22.54	15.52
37.00	2.50	1.49	1.11	1.07	22.54	15.56
38.00	2.59	1.50	1.11	1.16	22.55	15.60
39.00	2.67	1.51	1.11	1.25	22.56	15.64
40.00	2.75	1.52	1.11	1.34	22.56	15.69
41.00	2.84	1.53	1.11	1.44	22.57	15.73
42.00	2.92	1.53	1.11	1.53	22.58	15.77
43.00	3.01	1.54	1.11	1.62	22.59	15.81
44.00	3.09	1.55	1.11	1.71	22.59	15.86
45.00	3.18	1.55	1.11	1.80	22.60	15.90
46.00	3.26	1.56	1.11	1.90	22.61	15.94
47.00	3.35	1.56	1.11	1.99	22.62	15.99
48.00	3.43	1.57	1.11	2.08	22.63	16.03
49.00	3.53	1.76	1.11	2.17	22.64	16.08
50.00	3.63	1.78	1.11	2.27	22.65	16.12
51.00	3.74	2.13	1.11	2.36	22.67	16.17
52.00	3.86	2.41	1.11	2.45	22.69	16.23
53.00	4.03	3.12	1.11	2.54	22.72	16.29
54.00	4.23	3.86	1.11	2.63	22.76	16.36
55.00	4.47	4.60	1.11	2.73	22.82	16.44
56.00	4.74	5.35	1.11	2.82	22.89	16.54
57.00	5.07	6.38	1.11	2.91	22.97	16.65
58.00	5.47	7.86	1.11	3.00	23.03	16.78
59.00	6.01	11.00	1.11	3.09	23.07	16.93
60.00	9.71	96.82	1.11	3.19	23.29	17.51
61.00	10.77	22.09	1.11	3.28	23.57	18.34
62.00	11.26	9.70	1.11	3.37	23.65	18.62
63.00	11.57	6.05	1.11	3.46	23.68	18.77
64.00	11.85	5.70	1.11	3.55	23.71	18.89
65.00	12.02	3.53	1.11	3.65	23.73	18.98
66.00	12.20	3.42	1.11	3.74	23.74	19.06
67.00	12.37	3.42	1.11	3.83	23.75	19.13
68.00	12.54	3.42	1.11	3.92	23.77	19.21
69.00	12.66	2.34	1.11	4.01	23.77	19.27
70.00	12.77	2.28	1.11	4.11	23.78	19.33
71.00	12.89	2.28	1.11	4.20	23.79	19.38
72.00	13.00	2.28	1.11	4.29	23.79	19.44
73.00	13.00	0.12	1.11	4.38	23.79	19.48
74.00	13.00	0.00	1.11	4.48	23.79	19.50
75.00	13.00	0.00	1.11	4.57	23.78	19.52
76.00	13.00	0.00	1.11	4.66	23.77	19.54
77.00	13.00	0.00	1.11	4.75	23.77	19.56
78.00	13.00	0.00	1.11	4.84	23.76	19.58
79.00	13.00	0.00	1.11	4.94	23.76	19.60
80.00	13.00	0.00	1.11	5.03	23.75	19.62
81.00	13.00	0.00	1.11	5.12	23.74	19.64

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
82.00	13.00	0.00	1.11	5.21	23.74	19.66
83.00	13.00	0.00	1.11	5.30	23.73	19.68
84.00	13.00	0.00	1.11	5.40	23.72	19.70
85.00	13.00	0.00	1.11	5.49	23.72	19.72
86.00	13.00	0.00	1.11	5.58	23.71	19.74
87.00	13.00	0.00	1.11	5.67	23.70	19.76
88.00	13.00	0.00	1.11	5.76	23.70	19.78
89.00	13.00	0.00	1.11	5.86	23.69	19.80
90.00	13.00	0.00	1.11	5.95	23.69	19.82
91.00	13.00	0.00	1.11	6.04	23.68	19.84
92.00	13.00	0.00	1.11	6.13	23.67	19.86
93.00	13.00	0.00	1.11	6.22	23.67	19.88
94.00	13.00	0.00	1.11	6.32	23.66	19.90
95.00	13.00	0.00	1.11	6.41	23.65	19.92
96.00	13.00	0.00	1.11	6.50	23.65	19.93
97.00	13.00	0.00	1.11	6.59	23.64	19.95
98.00	13.00	0.00	1.11	6.69	23.63	19.97
99.00	13.00	0.00	1.11	6.78	23.63	19.99
100.00	13.00	0.00	1.11	6.87	23.62	19.94
101.00	13.00	0.00	1.11	6.96	23.62	19.86
102.00	13.00	0.00	1.11	7.05	23.61	19.78
103.00	13.00	0.00	1.11	7.15	23.60	19.69
104.00	13.00	0.00	1.11	7.24	23.60	19.61
105.00	13.00	0.00	1.11	7.33	23.59	19.53
106.00	13.00	0.00	1.11	7.42	23.58	19.44
107.00	13.00	0.00	1.11	7.51	23.58	19.36
108.00	13.00	0.00	1.11	7.61	23.57	19.28
109.00	13.00	0.00	1.11	7.70	23.56	19.20
110.00	13.00	0.00	1.11	7.79	23.56	19.11
111.00	13.00	0.00	1.11	7.88	23.55	19.03
112.00	13.00	0.00	1.11	7.97	23.55	18.95
113.00	13.00	0.00	1.11	8.07	23.54	18.86
114.00	13.00	0.00	1.11	8.16	23.53	18.78
115.00	13.00	0.00	1.11	8.25	23.53	18.70
116.00	13.00	0.00	1.11	8.34	23.52	18.62
117.00	13.00	0.00	1.11	8.43	23.51	18.53
118.00	13.00	0.00	1.11	8.53	23.51	18.45
119.00	13.00	0.00	1.11	8.62	23.50	18.37
120.00	13.00	0.00	1.11	8.71	23.49	18.28
121.00	13.00	0.00	1.11	8.80	23.49	18.20
122.00	13.00	0.00	1.11	8.90	23.48	18.12
123.00	13.00	0.00	1.11	8.99	23.48	18.04
124.00	13.00	0.00	1.11	9.08	23.47	17.95
125.00	13.00	0.00	1.11	9.17	23.46	17.87
126.00	13.00	0.00	1.11	9.26	23.46	17.79
127.00	13.00	0.00	1.11	9.36	23.45	17.71
128.00	13.00	0.00	1.11	9.45	23.44	17.62
129.00	13.00	0.00	1.11	9.54	23.44	17.54
130.00	13.00	0.00	1.11	9.63	23.43	17.46
131.00	13.00	0.00	1.11	9.72	23.42	17.37
132.00	13.00	0.00	1.11	9.82	23.42	17.29
133.00	13.00	0.00	1.11	9.91	23.41	17.21
134.00	13.00	0.00	1.11	10.00	23.41	17.13
135.00	13.00	0.00	1.11	10.09	23.40	17.04
136.00	13.00	0.00	1.11	10.18	23.39	16.96
137.00	13.00	0.00	1.11	10.28	23.39	16.88
138.00	13.00	0.00	1.11	10.37	23.38	16.79
139.00	13.00	0.00	1.11	10.46	23.37	16.71
140.00	13.00	0.00	1.11	10.55	23.37	16.63
141.00	13.00	0.00	1.11	10.65	23.36	16.55
142.00	13.00	0.00	1.11	10.74	23.35	16.46
143.00	13.00	0.00	1.11	10.83	23.35	16.38
144.00	13.00	0.00	1.11	10.92	23.34	16.30

From Basin: F/G04/G05/H04/H05

To Basin: A-B-C

Structure Type: Pump

On Elev = 22 ft NGVD, Off Elev = 15 ft NGVD, Capacity = 500 gpm

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	15.00	15.00
1.00	0.06	0.00	0.00	0.00	15.00	15.00
2.00	0.12	0.00	0.00	0.00	15.00	15.00
3.00	0.17	0.00	0.00	0.00	15.00	15.00
4.00	0.23	0.00	0.00	0.00	15.00	15.00
5.00	0.29	0.00	0.00	0.00	15.00	15.00
6.00	0.35	0.00	0.00	0.00	15.00	15.00
7.00	0.41	0.00	0.00	0.00	15.00	15.01
8.00	0.47	0.00	0.00	0.00	15.00	15.01
9.00	0.52	0.01	0.00	0.00	15.00	15.02
10.00	0.58	0.06	0.00	0.00	15.01	15.02
11.00	0.64	0.11	0.00	0.00	15.05	15.03
12.00	0.70	0.15	0.00	0.00	15.10	15.04
13.00	0.76	0.20	0.00	0.00	15.17	15.05
14.00	0.81	0.24	0.00	0.00	15.26	15.06
15.00	0.87	0.28	0.00	0.00	15.36	15.07
16.00	0.93	0.32	0.00	0.00	15.48	15.08
17.00	0.99	0.35	0.00	0.00	15.61	15.09
18.00	1.05	0.38	0.00	0.00	15.76	15.10
19.00	1.11	0.42	0.00	0.00	15.92	15.11
20.00	1.16	0.45	0.00	0.00	16.09	15.12
21.00	1.22	0.47	0.00	0.00	16.27	15.13
22.00	1.28	0.50	0.00	0.00	16.46	15.15
23.00	1.34	0.52	0.00	0.00	16.67	15.16
24.00	1.40	0.55	0.00	0.00	16.88	15.17
25.00	1.48	0.83	0.00	0.00	17.17	15.19
26.00	1.57	0.88	0.00	0.00	17.51	15.21
27.00	1.65	0.93	0.00	0.00	17.87	15.24
28.00	1.74	0.96	0.00	0.00	18.25	15.27
29.00	1.82	1.00	0.00	0.00	18.64	15.30
30.00	1.91	1.03	0.00	0.00	19.04	15.33
31.00	1.99	1.06	0.00	0.00	19.46	15.36
32.00	2.08	1.09	0.00	0.00	19.89	15.40
33.00	2.16	1.12	0.00	0.00	20.33	15.43
34.00	2.25	1.15	0.00	0.00	20.78	15.46
35.00	2.33	1.17	0.00	0.00	21.24	15.49
36.00	2.42	1.19	0.00	0.00	21.71	15.52
37.00	2.50	1.22	1.11	0.04	22.05	15.56
38.00	2.59	1.24	1.11	0.13	22.10	15.60
39.00	2.67	1.26	1.11	0.22	22.15	15.64
40.00	2.75	1.27	1.11	0.31	22.21	15.69
41.00	2.84	1.29	1.11	0.41	22.28	15.73
42.00	2.92	1.31	1.11	0.50	22.35	15.77
43.00	3.01	1.32	1.11	0.59	22.43	15.81
44.00	3.09	1.34	1.11	0.68	22.50	15.86
45.00	3.18	1.35	1.11	0.77	22.50	15.90
46.00	3.26	1.37	1.11	0.87	22.51	15.94
47.00	3.35	1.38	1.11	0.96	22.51	15.99
48.00	3.43	1.39	1.11	1.05	22.52	16.03
49.00	3.53	1.57	1.11	1.14	22.52	16.08
50.00	3.63	1.60	1.11	1.23	22.53	16.12
51.00	3.74	1.92	1.11	1.33	22.54	16.17
52.00	3.86	2.19	1.11	1.42	22.56	16.23
53.00	4.03	2.85	1.11	1.51	22.58	16.29
54.00	4.23	3.55	1.11	1.60	22.62	16.36
55.00	4.47	4.28	1.11	1.69	22.67	16.44
56.00	4.74	5.02	1.11	1.79	22.73	16.54
57.00	5.07	6.04	1.11	1.88	22.81	16.65
58.00	5.47	7.52	1.11	1.97	22.90	16.78
59.00	6.01	10.63	1.11	2.06	23.01	16.93
60.00	9.71	96.44	1.11	2.15	23.21	17.51
61.00	10.77	22.27	1.11	2.25	23.48	18.34

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
62.00	11.26	9.83	1.11	2.34	23.55	18.62
63.00	11.57	6.14	1.11	2.43	23.58	18.77
64.00	11.85	5.80	1.11	2.52	23.61	18.89
65.00	12.02	3.60	1.11	2.62	23.63	18.98
66.00	12.20	3.48	1.11	2.71	23.64	19.06
67.00	12.37	3.48	1.11	2.80	23.65	19.13
68.00	12.54	3.48	1.11	2.89	23.66	19.21
69.00	12.66	2.38	1.11	2.98	23.67	19.27
70.00	12.77	2.33	1.11	3.08	23.68	19.33
71.00	12.89	2.33	1.11	3.17	23.69	19.38
72.00	13.00	2.33	1.11	3.26	23.69	19.44
73.00	13.00	0.12	1.11	3.35	23.69	19.48
74.00	13.00	0.00	1.11	3.44	23.68	19.50
75.00	13.00	0.00	1.11	3.54	23.68	19.52
76.00	13.00	0.00	1.11	3.63	23.67	19.54
77.00	13.00	0.00	1.11	3.72	23.67	19.56
78.00	13.00	0.00	1.11	3.81	23.66	19.58
79.00	13.00	0.00	1.11	3.90	23.65	19.60
80.00	13.00	0.00	1.11	4.00	23.65	19.62
81.00	13.00	0.00	1.11	4.09	23.64	19.64
82.00	13.00	0.00	1.11	4.18	23.64	19.66
83.00	13.00	0.00	1.11	4.27	23.63	19.68
84.00	13.00	0.00	1.11	4.36	23.62	19.70
85.00	13.00	0.00	1.11	4.46	23.62	19.72
86.00	13.00	0.00	1.11	4.55	23.61	19.74
87.00	13.00	0.00	1.11	4.64	23.61	19.76
88.00	13.00	0.00	1.11	4.73	23.60	19.78
89.00	13.00	0.00	1.11	4.83	23.60	19.80
90.00	13.00	0.00	1.11	4.92	23.59	19.82
91.00	13.00	0.00	1.11	5.01	23.58	19.84
92.00	13.00	0.00	1.11	5.10	23.58	19.86
93.00	13.00	0.00	1.11	5.19	23.57	19.88
94.00	13.00	0.00	1.11	5.29	23.57	19.90
95.00	13.00	0.00	1.11	5.38	23.56	19.92
96.00	13.00	0.00	1.11	5.47	23.55	19.93
97.00	13.00	0.00	1.11	5.56	23.55	19.95
98.00	13.00	0.00	1.11	5.65	23.54	19.97
99.00	13.00	0.00	1.11	5.75	23.54	19.99
100.00	13.00	0.00	1.11	5.84	23.53	19.94
101.00	13.00	0.00	1.11	5.93	23.52	19.86
102.00	13.00	0.00	1.11	6.02	23.52	19.78
103.00	13.00	0.00	1.11	6.11	23.51	19.69
104.00	13.00	0.00	1.11	6.21	23.51	19.61
105.00	13.00	0.00	1.11	6.30	23.50	19.53
106.00	13.00	0.00	1.11	6.39	23.49	19.44
107.00	13.00	0.00	1.11	6.48	23.49	19.36
108.00	13.00	0.00	1.11	6.57	23.48	19.28
109.00	13.00	0.00	1.11	6.67	23.48	19.20
110.00	13.00	0.00	1.11	6.76	23.47	19.11
111.00	13.00	0.00	1.11	6.85	23.46	19.03
112.00	13.00	0.00	1.11	6.94	23.46	18.95
113.00	13.00	0.00	1.11	7.04	23.45	18.86
114.00	13.00	0.00	1.11	7.13	23.45	18.78
115.00	13.00	0.00	1.11	7.22	23.44	18.70
116.00	13.00	0.00	1.11	7.31	23.43	18.62
117.00	13.00	0.00	1.11	7.40	23.43	18.53
118.00	13.00	0.00	1.11	7.50	23.42	18.45
119.00	13.00	0.00	1.11	7.59	23.42	18.37
120.00	13.00	0.00	1.11	7.68	23.41	18.28
121.00	13.00	0.00	1.11	7.77	23.40	18.20
122.00	13.00	0.00	1.11	7.86	23.40	18.12
123.00	13.00	0.00	1.11	7.96	23.39	18.04
124.00	13.00	0.00	1.11	8.05	23.39	17.95
125.00	13.00	0.00	1.11	8.14	23.38	17.87
126.00	13.00	0.00	1.11	8.23	23.37	17.79
127.00	13.00	0.00	1.11	8.32	23.37	17.71
128.00	13.00	0.00	1.11	8.42	23.36	17.62

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
129.00	13.00	0.00	1.11	8.51	23.36	17.54
130.00	13.00	0.00	1.11	8.60	23.35	17.46
131.00	13.00	0.00	1.11	8.69	23.34	17.37
132.00	13.00	0.00	1.11	8.78	23.34	17.29
133.00	13.00	0.00	1.11	8.88	23.33	17.21
134.00	13.00	0.00	1.11	8.97	23.33	17.13
135.00	13.00	0.00	1.11	9.06	23.32	17.04
136.00	13.00	0.00	1.11	9.15	23.31	16.96
137.00	13.00	0.00	1.11	9.25	23.31	16.88
138.00	13.00	0.00	1.11	9.34	23.30	16.79
139.00	13.00	0.00	1.11	9.43	23.30	16.71
140.00	13.00	0.00	1.11	9.52	23.29	16.63
141.00	13.00	0.00	1.11	9.61	23.28	16.55
142.00	13.00	0.00	1.11	9.71	23.28	16.46
143.00	13.00	0.00	1.11	9.80	23.27	16.38
144.00	13.00	0.00	1.11	9.89	23.27	16.30

Structure: 4

From Basin: H01 thru H03

To Basin: A-B-C

Structure Type: Gravity

Weir: Drop Inlet, Crest Elev = 22.5 ft NGVD, Diameter = 8 ft

Bleeder: None

Pipe: Diameter = 3 ft, Manning's n = 0.013, Length = 500 ft

US Invert Elev = 18.5 ft NGVD, DS Invert Elev = 15 ft NGVD, no flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	15.00	15.00
1.00	0.06	0.00	0.00	0.00	22.50	15.00
2.00	0.12	0.00	0.00	0.00	22.50	15.00
3.00	0.17	0.00	0.00	0.00	22.50	15.00
4.00	0.23	0.01	0.00	0.00	22.50	15.00
5.00	0.29	0.03	0.00	0.00	22.50	15.00
6.00	0.35	0.05	0.01	0.00	22.50	15.00
7.00	0.41	0.07	0.02	0.00	22.51	15.01
8.00	0.47	0.08	0.03	0.00	22.51	15.01
9.00	0.52	0.10	0.05	0.01	22.51	15.02
10.00	0.58	0.11	0.07	0.01	22.52	15.02
11.00	0.64	0.12	0.08	0.02	22.52	15.03
12.00	0.70	0.13	0.10	0.03	22.52	15.04
13.00	0.76	0.14	0.11	0.03	22.52	15.05
14.00	0.81	0.14	0.12	0.04	22.52	15.06
15.00	0.87	0.15	0.13	0.05	22.53	15.07
16.00	0.93	0.16	0.14	0.07	22.53	15.08
17.00	0.99	0.16	0.15	0.08	22.53	15.09
18.00	1.05	0.17	0.15	0.09	22.53	15.10
19.00	1.11	0.17	0.16	0.10	22.53	15.11
20.00	1.16	0.17	0.16	0.12	22.53	15.12
21.00	1.22	0.18	0.17	0.13	22.53	15.13
22.00	1.28	0.18	0.17	0.14	22.53	15.15
23.00	1.34	0.18	0.18	0.16	22.53	15.16
24.00	1.40	0.19	0.18	0.17	22.53	15.17
25.00	1.48	0.27	0.21	0.19	22.53	15.19
26.00	1.57	0.28	0.24	0.21	22.54	15.21
27.00	1.65	0.29	0.26	0.23	22.54	15.24
28.00	1.74	0.29	0.27	0.25	22.54	15.27
29.00	1.82	0.29	0.28	0.27	22.54	15.30
30.00	1.91	0.30	0.29	0.30	22.54	15.33
31.00	1.99	0.30	0.29	0.32	22.54	15.36
32.00	2.08	0.30	0.30	0.35	22.54	15.40
33.00	2.16	0.30	0.30	0.37	22.54	15.43
34.00	2.25	0.31	0.30	0.40	22.54	15.46

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
35.00	2.33	0.31	0.30	0.42	22.54	15.49
36.00	2.42	0.31	0.31	0.45	22.55	15.52
37.00	2.50	0.31	0.31	0.47	22.55	15.56
38.00	2.59	0.31	0.31	0.50	22.55	15.60
39.00	2.67	0.32	0.31	0.52	22.55	15.64
40.00	2.75	0.32	0.31	0.55	22.55	15.69
41.00	2.84	0.32	0.32	0.58	22.55	15.73
42.00	2.92	0.32	0.32	0.60	22.55	15.77
43.00	3.01	0.32	0.32	0.63	22.55	15.81
44.00	3.09	0.32	0.32	0.65	22.55	15.86
45.00	3.18	0.32	0.32	0.68	22.55	15.90
46.00	3.26	0.32	0.32	0.71	22.55	15.94
47.00	3.35	0.32	0.32	0.73	22.55	15.99
48.00	3.43	0.32	0.32	0.76	22.55	16.03
49.00	3.53	0.36	0.34	0.79	22.55	16.08
50.00	3.63	0.37	0.35	0.82	22.55	16.12
51.00	3.74	0.44	0.39	0.85	22.55	16.17
52.00	3.86	0.50	0.42	0.88	22.56	16.23
53.00	4.03	0.64	0.51	0.92	22.56	16.29
54.00	4.23	0.79	0.63	0.97	22.57	16.36
55.00	4.47	0.95	0.78	1.03	22.58	16.44
56.00	4.74	1.10	0.94	1.10	22.60	16.54
57.00	5.07	1.31	1.11	1.19	22.61	16.65
58.00	5.47	1.61	1.36	1.29	22.62	16.78
59.00	6.01	2.25	1.75	1.42	22.64	16.93
60.00	9.71	19.72	8.42	1.76	22.93	17.51
61.00	10.77	4.49	8.88	2.60	22.95	18.34
62.00	11.26	1.97	3.82	3.06	22.74	18.62
63.00	11.57	1.23	2.04	3.28	22.66	18.77
64.00	11.85	1.16	1.44	3.41	22.63	18.89
65.00	12.02	0.72	1.04	3.51	22.60	18.98
66.00	12.20	0.69	0.83	3.58	22.59	19.06
67.00	12.37	0.69	0.75	3.65	22.58	19.13
68.00	12.54	0.69	0.72	3.71	22.58	19.21
69.00	12.66	0.47	0.61	3.76	22.57	19.27
70.00	12.77	0.46	0.53	3.81	22.57	19.33
71.00	12.89	0.46	0.49	3.85	22.56	19.38
72.00	13.00	0.46	0.48	3.89	22.56	19.44
73.00	13.00	0.02	0.31	3.92	22.55	19.48
74.00	13.00	0.00	0.17	3.94	22.53	19.50
75.00	13.00	0.00	0.10	3.95	22.52	19.52
76.00	13.00	0.00	0.07	3.96	22.52	19.54
77.00	13.00	0.00	0.05	3.96	22.51	19.56
78.00	13.00	0.00	0.03	3.97	22.51	19.58
79.00	13.00	0.00	0.02	3.97	22.51	19.60
80.00	13.00	0.00	0.02	3.97	22.51	19.62
81.00	13.00	0.00	0.01	3.97	22.51	19.64
82.00	13.00	0.00	0.01	3.97	22.51	19.66
83.00	13.00	0.00	0.01	3.97	22.50	19.68
84.00	13.00	0.00	0.01	3.97	22.50	19.70
85.00	13.00	0.00	0.01	3.97	22.50	19.72
86.00	13.00	0.00	0.01	3.98	22.50	19.74
87.00	13.00	0.00	0.00	3.98	22.50	19.76
88.00	13.00	0.00	0.00	3.98	22.50	19.78
89.00	13.00	0.00	0.00	3.98	22.50	19.80
90.00	13.00	0.00	0.00	3.98	22.50	19.82
91.00	13.00	0.00	0.00	3.98	22.50	19.84
92.00	13.00	0.00	0.00	3.98	22.50	19.86
93.00	13.00	0.00	0.00	3.98	22.50	19.88
94.00	13.00	0.00	0.00	3.98	22.50	19.90
95.00	13.00	0.00	0.00	3.98	22.50	19.92
96.00	13.00	0.00	0.00	3.98	22.50	19.93
97.00	13.00	0.00	0.00	3.98	22.50	19.95
98.00	13.00	0.00	0.00	3.98	22.50	19.97
99.00	13.00	0.00	0.00	3.98	22.50	19.99
100.00	13.00	0.00	0.00	3.98	22.50	19.94
101.00	13.00	0.00	0.00	3.98	22.50	19.86

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
102.00	13.00	0.00	0.00	3.98	22.50	19.78
103.00	13.00	0.00	0.00	3.98	22.50	19.69
104.00	13.00	0.00	0.00	3.98	22.50	19.61
105.00	13.00	0.00	0.00	3.98	22.50	19.53
106.00	13.00	0.00	0.00	3.98	22.50	19.44
107.00	13.00	0.00	0.00	3.98	22.50	19.36
108.00	13.00	0.00	0.00	3.98	22.50	19.28
109.00	13.00	0.00	0.00	3.98	22.50	19.20
110.00	13.00	0.00	0.00	3.98	22.50	19.11
111.00	13.00	0.00	0.00	3.98	22.50	19.03
112.00	13.00	0.00	0.00	3.98	22.50	18.95
113.00	13.00	0.00	0.00	3.98	22.50	18.86
114.00	13.00	0.00	0.00	3.98	22.50	18.78
115.00	13.00	0.00	0.00	3.98	22.50	18.70
116.00	13.00	0.00	0.00	3.98	22.50	18.62
117.00	13.00	0.00	0.00	3.98	22.50	18.53
118.00	13.00	0.00	0.00	3.98	22.50	18.45
119.00	13.00	0.00	0.00	3.98	22.50	18.37
120.00	13.00	0.00	0.00	3.98	22.50	18.28
121.00	13.00	0.00	0.00	3.98	22.50	18.20
122.00	13.00	0.00	0.00	3.98	22.50	18.12
123.00	13.00	0.00	0.00	3.98	22.50	18.04
124.00	13.00	0.00	0.00	3.98	22.50	17.95
125.00	13.00	0.00	0.00	3.98	22.50	17.87
126.00	13.00	0.00	0.00	3.98	22.50	17.79
127.00	13.00	0.00	0.00	3.98	22.50	17.71
128.00	13.00	0.00	0.00	3.98	22.50	17.62
129.00	13.00	0.00	0.00	3.98	22.50	17.54
130.00	13.00	0.00	0.00	3.98	22.50	17.46
131.00	13.00	0.00	0.00	3.98	22.50	17.37
132.00	13.00	0.00	0.00	3.98	22.50	17.29
133.00	13.00	0.00	0.00	3.98	22.50	17.21
134.00	13.00	0.00	0.00	3.98	22.50	17.13
135.00	13.00	0.00	0.00	3.98	22.50	17.04
136.00	13.00	0.00	0.00	3.98	22.50	16.96
137.00	13.00	0.00	0.00	3.98	22.50	16.88
138.00	13.00	0.00	0.00	3.98	22.50	16.79
139.00	13.00	0.00	0.00	3.98	22.50	16.71
140.00	13.00	0.00	0.00	3.98	22.50	16.63
141.00	13.00	0.00	0.00	3.98	22.50	16.55
142.00	13.00	0.00	0.00	3.98	22.50	16.46
143.00	13.00	0.00	0.00	3.98	22.50	16.38
144.00	13.00	0.00	0.00	3.98	22.50	16.30

Structure: 5

From Basin: G01 thru G03

To Basin: A-B-C

Structure Type: Gravity

Weir: Drop Inlet, Crest Elev = 22.5 ft NGVD, Diameter = 8 ft

Bleeder: None

Pipe: Diameter = 4 ft, Manning's n = 0.013, Length = 500 ft

US Invert Elev = 18.5 ft NGVD, DS Invert Elev = 15 ft NGVD, no flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	15.00	15.00
1.00	0.06	0.00	0.00	0.00	22.50	15.00
2.00	0.12	0.00	0.00	0.00	22.50	15.00
3.00	0.17	0.00	0.00	0.00	22.50	15.00
4.00	0.23	0.00	0.00	0.00	22.50	15.00
5.00	0.29	0.00	0.00	0.00	22.50	15.00
6.00	0.35	0.00	0.00	0.00	22.50	15.00
7.00	0.41	0.00	0.00	0.00	22.50	15.01

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
8.00	0.47	0.00	0.00	0.00	22.50	15.01
9.00	0.52	0.00	0.00	0.00	22.50	15.02
10.00	0.58	0.00	0.00	0.00	22.50	15.02
11.00	0.64	0.00	0.00	0.00	22.50	15.03
12.00	0.70	0.00	0.00	0.00	22.50	15.04
13.00	0.76	0.00	0.00	0.00	22.50	15.05
14.00	0.81	0.00	0.00	0.00	22.50	15.06
15.00	0.87	0.00	0.00	0.00	22.50	15.07
16.00	0.93	0.00	0.00	0.00	22.50	15.08
17.00	0.99	0.00	0.00	0.00	22.50	15.09
18.00	1.05	0.00	0.00	0.00	22.50	15.10
19.00	1.11	0.00	0.00	0.00	22.50	15.11
20.00	1.16	0.00	0.00	0.00	22.50	15.12
21.00	1.22	0.00	0.00	0.00	22.50	15.13
22.00	1.28	0.00	0.00	0.00	22.50	15.15
23.00	1.34	0.00	0.00	0.00	22.50	15.16
24.00	1.40	0.00	0.00	0.00	22.50	15.17
25.00	1.48	0.00	0.00	0.00	22.50	15.19
26.00	1.57	0.00	0.00	0.00	22.50	15.21
27.00	1.65	0.00	0.00	0.00	22.50	15.24
28.00	1.74	0.01	0.00	0.00	22.50	15.27
29.00	1.82	0.01	0.00	0.00	22.50	15.30
30.00	1.91	0.02	0.00	0.00	22.50	15.33
31.00	1.99	0.02	0.01	0.00	22.50	15.36
32.00	2.08	0.03	0.01	0.00	22.51	15.40
33.00	2.16	0.03	0.02	0.00	22.51	15.43
34.00	2.25	0.04	0.02	0.00	22.51	15.46
35.00	2.33	0.04	0.03	0.01	22.51	15.49
36.00	2.42	0.05	0.03	0.01	22.51	15.52
37.00	2.50	0.05	0.04	0.01	22.51	15.56
38.00	2.59	0.06	0.05	0.02	22.51	15.60
39.00	2.67	0.06	0.05	0.02	22.51	15.64
40.00	2.75	0.06	0.05	0.02	22.51	15.69
41.00	2.84	0.07	0.06	0.03	22.52	15.73
42.00	2.92	0.07	0.06	0.03	22.52	15.77
43.00	3.01	0.08	0.07	0.04	22.52	15.81
44.00	3.09	0.08	0.07	0.05	22.52	15.86
45.00	3.18	0.08	0.08	0.05	22.52	15.90
46.00	3.26	0.09	0.08	0.06	22.52	15.94
47.00	3.35	0.09	0.08	0.07	22.52	15.99
48.00	3.43	0.09	0.09	0.07	22.52	16.03
49.00	3.53	0.11	0.09	0.08	22.52	16.08
50.00	3.63	0.11	0.10	0.09	22.52	16.12
51.00	3.74	0.14	0.11	0.10	22.52	16.17
52.00	3.86	0.16	0.13	0.11	22.53	16.23
53.00	4.03	0.22	0.16	0.12	22.53	16.29
54.00	4.23	0.28	0.21	0.14	22.54	16.36
55.00	4.47	0.35	0.28	0.16	22.54	16.44
56.00	4.74	0.43	0.35	0.18	22.55	16.54
57.00	5.07	0.54	0.44	0.22	22.56	16.65
58.00	5.47	0.71	0.58	0.26	22.57	16.78
59.00	6.01	1.06	0.80	0.32	22.59	16.93
60.00	9.71	11.18	5.18	0.50	22.80	17.51
61.00	10.77	2.76	4.69	1.02	22.78	18.34
62.00	11.26	1.26	2.02	1.25	22.66	18.62
63.00	11.57	0.79	1.15	1.37	22.61	18.77
64.00	11.85	0.75	0.86	1.45	22.59	18.89
65.00	12.02	0.47	0.63	1.51	22.57	18.98
66.00	12.20	0.46	0.52	1.56	22.56	19.06
67.00	12.37	0.46	0.48	1.60	22.56	19.13
68.00	12.54	0.46	0.47	1.64	22.56	19.21
69.00	12.66	0.32	0.39	1.67	22.55	19.27
70.00	12.77	0.31	0.34	1.70	22.55	19.33
71.00	12.89	0.31	0.32	1.73	22.55	19.38
72.00	13.00	0.31	0.31	1.75	22.55	19.44
73.00	13.00	0.02	0.19	1.77	22.53	19.48
74.00	13.00	0.00	0.10	1.78	22.52	19.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
75.00	13.00	0.00	0.05	1.79	22.51	19.52
76.00	13.00	0.00	0.03	1.79	22.51	19.54
77.00	13.00	0.00	0.02	1.80	22.51	19.56
78.00	13.00	0.00	0.02	1.80	22.51	19.58
79.00	13.00	0.00	0.01	1.80	22.51	19.60
80.00	13.00	0.00	0.01	1.80	22.50	19.62
81.00	13.00	0.00	0.01	1.80	22.50	19.64
82.00	13.00	0.00	0.01	1.80	22.50	19.66
83.00	13.00	0.00	0.00	1.80	22.50	19.68
84.00	13.00	0.00	0.00	1.80	22.50	19.70
85.00	13.00	0.00	0.00	1.80	22.50	19.72
86.00	13.00	0.00	0.00	1.80	22.50	19.74
87.00	13.00	0.00	0.00	1.80	22.50	19.76
88.00	13.00	0.00	0.00	1.80	22.50	19.78
89.00	13.00	0.00	0.00	1.80	22.50	19.80
90.00	13.00	0.00	0.00	1.80	22.50	19.82
91.00	13.00	0.00	0.00	1.80	22.50	19.84
92.00	13.00	0.00	0.00	1.80	22.50	19.86
93.00	13.00	0.00	0.00	1.80	22.50	19.88
94.00	13.00	0.00	0.00	1.80	22.50	19.90
95.00	13.00	0.00	0.00	1.80	22.50	19.92
96.00	13.00	0.00	0.00	1.80	22.50	19.93
97.00	13.00	0.00	0.00	1.80	22.50	19.95
98.00	13.00	0.00	0.00	1.80	22.50	19.97
99.00	13.00	0.00	0.00	1.80	22.50	19.99
100.00	13.00	0.00	0.00	1.80	22.50	19.94
101.00	13.00	0.00	0.00	1.80	22.50	19.86
102.00	13.00	0.00	0.00	1.80	22.50	19.78
103.00	13.00	0.00	0.00	1.80	22.50	19.69
104.00	13.00	0.00	0.00	1.80	22.50	19.61
105.00	13.00	0.00	0.00	1.80	22.50	19.53
106.00	13.00	0.00	0.00	1.80	22.50	19.44
107.00	13.00	0.00	0.00	1.80	22.50	19.36
108.00	13.00	0.00	0.00	1.80	22.50	19.28
109.00	13.00	0.00	0.00	1.80	22.50	19.20
110.00	13.00	0.00	0.00	1.80	22.50	19.11
111.00	13.00	0.00	0.00	1.80	22.50	19.03
112.00	13.00	0.00	0.00	1.80	22.50	18.95
113.00	13.00	0.00	0.00	1.80	22.50	18.86
114.00	13.00	0.00	0.00	1.80	22.50	18.78
115.00	13.00	0.00	0.00	1.80	22.50	18.70
116.00	13.00	0.00	0.00	1.80	22.50	18.62
117.00	13.00	0.00	0.00	1.80	22.50	18.53
118.00	13.00	0.00	0.00	1.80	22.50	18.45
119.00	13.00	0.00	0.00	1.80	22.50	18.37
120.00	13.00	0.00	0.00	1.80	22.50	18.28
121.00	13.00	0.00	0.00	1.80	22.50	18.20
122.00	13.00	0.00	0.00	1.80	22.50	18.12
123.00	13.00	0.00	0.00	1.80	22.50	18.04
124.00	13.00	0.00	0.00	1.80	22.50	17.95
125.00	13.00	0.00	0.00	1.80	22.50	17.87
126.00	13.00	0.00	0.00	1.80	22.50	17.79
127.00	13.00	0.00	0.00	1.80	22.50	17.71
128.00	13.00	0.00	0.00	1.80	22.50	17.62
129.00	13.00	0.00	0.00	1.80	22.50	17.54
130.00	13.00	0.00	0.00	1.80	22.50	17.46
131.00	13.00	0.00	0.00	1.80	22.50	17.37
132.00	13.00	0.00	0.00	1.80	22.50	17.29
133.00	13.00	0.00	0.00	1.80	22.50	17.21
134.00	13.00	0.00	0.00	1.80	22.50	17.13
135.00	13.00	0.00	0.00	1.80	22.50	17.04
136.00	13.00	0.00	0.00	1.80	22.50	16.96
137.00	13.00	0.00	0.00	1.80	22.50	16.88
138.00	13.00	0.00	0.00	1.80	22.50	16.79
139.00	13.00	0.00	0.00	1.80	22.50	16.71
140.00	13.00	0.00	0.00	1.80	22.50	16.63
141.00	13.00	0.00	0.00	1.80	22.50	16.55

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
142.00	13.00	0.00	0.00	1.80	22.50	16.46
143.00	13.00	0.00	0.00	1.80	22.50	16.38
144.00	13.00	0.00	0.00	1.80	22.50	16.30

STRUCTURE MAXIMUM AND MINIMUM DISCHARGES

Struc	Max (cfs)	Time (hr)	Min (cfs)	Time (hr)
1	11.70	99.40	0.00	0.00
2	1.11	25.60	0.00	0.00
3	1.11	36.80	0.00	0.00
4	10.75	60.40	0.00	0.00
5	7.26	60.40	0.00	0.00

BASIN MAXIMUM AND MINIMUM STAGES

Basin	Max (ft)	Time (hr)	Min (ft)	Time (hr)
A-B-C	20.00	99.20	15.00	0.00
D - E	23.80	72.20	15.00	0.00
H01 thru H03	23.02	60.40	15.00	0.00
G01 thru G03	22.87	60.40	15.00	0.00
F/G04/G05/H04/	23.69	72.40	15.00	0.00
J - K - L - L-	19.20	74.80	15.00	0.00
I	0.00	26.60	10.00	0.00

BASIN WATER BUDGETS (all units in acre-ft)

Basin	Total Runoff	Structure Inflow	Structure Outflow	Initial Storage	Final Storage	Residual
A-B-C	28.90	26.57	43.21	0.00	12.26	0.00
D - E	19.28	0.00	10.91	0.00	8.37	0.00
H01 thru H03	3.98	0.00	3.98	0.00	0.00	0.00
G01 thru G03	1.80	0.00	1.80	0.00	0.00	0.00
F/G04/G05/H04/	17.96	0.00	9.88	0.00	8.08	0.00
J - K - L - L-	99.93	0.00	0.00	0.00	99.93	0.00
I	3.49	0.00	0.00	10.00	13.49	0.00

APPENDIX F

MODELING INPUT/OUTPUT FOR

25-YEAR 72-HOUR STORM

Project Name: FPL / WCEC / FL

Reviewer: K. Esin

Project Number: 043-7649

Period Begin: Jan 01, 2000;0000 hr End: Jan 07, 2000;0000 hr Duration: 144 hr

Time Step: 0.2 hr, Iterations: 10

Basin 1: A-B-C

Method: Generalized Unit Hydrograph

Rainfall Distribution: SFWMD - 3day

Design Frequency: 25 year

3 Day Rainfall: 10.5 inches

Area: 33.13 acres

Ground Storage: 1.1 inches

Time of Concentration: 0.17 hours

Peak Rate Factor: 178

Initial Stage: 15 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
-----	-----
15.00	0.00
23.00	75.60
24.00	97.02
28.00	226.80

Basin 2: D - E

Method: Generalized Unit Hydrograph

Rainfall Distribution: SFWMD - 3day

Design Frequency: 25 year

3 Day Rainfall: 10.5 inches

Area: 22.3 acres

Ground Storage: 1.2 inches

Time of Concentration: 0.17 hours

Peak Rate Factor: 178

Initial Stage: 15 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
-----	-----
15.00	0.00
22.50	1.14
23.00	3.42
24.00	17.90
28.00	80.78

Basin 3: H01 thru H03

Method: Generalized Unit Hydrograph

Rainfall Distribution: SFWMD - 3day

Design Frequency: 25 year

3 Day Rainfall: 10.5 inches

Area: 4.52 acres

Ground Storage: 1 inches

Time of Concentration: 0.17 hours

Peak Rate Factor: 178

Initial Stage: 15 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
-----	-----
22.50	0.00
23.00	0.64
24.00	4.19
28.00	22.28

Basin 4: G01 thru G03

Method: Generalized Unit Hydrograph
 Rainfall Distribution: SFWMD - 3day
 Design Frequency: 25 year
 3 Day Rainfall: 10.5 inches
 Area: 3.63 acres
 Ground Storage: 8 inches
 Time of Concentration: 0.17 hours
 Peak Rate Factor: 178
 Initial Stage: 15 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
-----	-----
22.50	0.00
23.00	0.46
24.00	3.19
28.00	17.72

Basin 5: F/G04/G05/H04/H05

Method: Generalized Unit Hydrograph
 Rainfall Distribution: SFWMD - 3day
 Design Frequency: 25 year
 3 Day Rainfall: 10.5 inches
 Area: 23.25 acres
 Ground Storage: 2.5 inches
 Time of Concentration: 0.17 hours
 Peak Rate Factor: 178
 Initial Stage: 15 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
-----	-----
15.00	0.00
22.50	1.56
23.00	3.97
24.00	19.38
28.00	104.10

Basin 6: J - K - L - L-1 - M

Method: Generalized Unit Hydrograph
 Rainfall Distribution: SFWMD - 3day
 Design Frequency: 25 year
 3 Day Rainfall: 10.5 inches
 Area: 116.6 acres
 Ground Storage: 1.3 inches
 Time of Concentration: 0.17 hours
 Peak Rate Factor: 178
 Initial Stage: 15 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
-----	-----
15.00	0.00
23.00	190.40
24.00	266.50
28.00	732.90

Basin 7: I

Method: Generalized Unit Hydrograph
 Rainfall Distribution: SFWMD - 3day
 Design Frequency: 25 year
 3 Day Rainfall: 10.5 inches
 Area: 7.03003 acres

Ground Storage: 8 inches
 Time of Concentration: 0.17 hours
 Peak Rate Factor: 178
 Initial Stage: 10 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
10.00	10.00
10.20	10.00

Offsite Receiving Body: Cooling Tower Makeup

Time (hr)	Stage (ft NGVD)
0.00	10.00
1000.00	10.00

Structure: 1

From Basin: A-B-C

To Basin: Cooling Tower Makeup

Structure Type: Pump

On Elev = 20 ft NGVD, Off Elev = 15 ft NGVD, Capacity = 5250 gpm

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	15.00	10.00
1.00	0.05	0.00	0.00	0.00	15.00	10.00
2.00	0.09	0.00	0.00	0.00	15.00	10.00
3.00	0.14	0.00	0.00	0.00	15.00	10.00
4.00	0.19	0.00	0.00	0.00	15.00	10.00
5.00	0.24	0.01	0.00	0.00	15.00	10.00
6.00	0.28	0.11	0.00	0.00	15.00	10.00
7.00	0.33	0.21	0.00	0.00	15.00	10.00
8.00	0.38	0.29	0.00	0.00	15.00	10.00
9.00	0.42	0.37	0.00	0.00	15.01	10.00
10.00	0.47	0.44	0.00	0.00	15.01	10.00
11.00	0.52	0.51	0.00	0.00	15.02	10.00
12.00	0.56	0.57	0.00	0.00	15.02	10.00
13.00	0.61	0.62	0.00	0.00	15.03	10.00
14.00	0.66	0.67	0.00	0.00	15.03	10.00
15.00	0.71	0.71	0.00	0.00	15.04	10.00
16.00	0.75	0.75	0.00	0.00	15.05	10.00
17.00	0.80	0.78	0.00	0.00	15.05	10.00
18.00	0.85	0.82	0.00	0.00	15.06	10.00
19.00	0.89	0.85	0.00	0.00	15.07	10.00
20.00	0.94	0.88	0.00	0.00	15.08	10.00
21.00	0.99	0.90	0.00	0.00	15.09	10.00
22.00	1.03	0.93	0.00	0.00	15.10	10.00
23.00	1.08	0.95	0.00	0.00	15.11	10.00
24.00	1.13	0.97	0.00	0.00	15.12	10.00
25.00	1.20	1.43	0.00	0.00	15.13	10.00
26.00	1.27	1.49	0.00	0.00	15.14	10.00
27.00	1.33	1.52	0.00	0.00	15.16	10.00
28.00	1.40	1.55	0.00	0.00	15.17	10.00
29.00	1.47	1.58	0.00	0.00	15.19	10.00
30.00	1.54	1.61	0.00	0.00	15.21	10.00
31.00	1.61	1.63	0.00	0.00	15.23	10.00
32.00	1.68	1.65	0.00	0.00	15.26	10.00
33.00	1.75	1.67	0.00	0.00	15.28	10.00
34.00	1.81	1.69	0.00	0.00	15.31	10.00
35.00	1.88	1.71	0.00	0.00	15.34	10.00
36.00	1.95	1.72	0.00	0.00	15.36	10.00
37.00	2.02	1.74	0.00	0.00	15.39	10.00
38.00	2.09	1.75	0.00	0.00	15.42	10.00

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
39.00	2.16	1.77	0.00	0.00	15.45	10.00
40.00	2.23	1.78	0.00	0.00	15.47	10.00
41.00	2.29	1.79	0.00	0.00	15.50	10.00
42.00	2.36	1.80	0.00	0.00	15.53	10.00
43.00	2.43	1.81	0.00	0.00	15.56	10.00
44.00	2.50	1.82	0.00	0.00	15.59	10.00
45.00	2.57	1.83	0.00	0.00	15.63	10.00
46.00	2.64	1.84	0.00	0.00	15.67	10.00
47.00	2.71	1.84	0.00	0.00	15.70	10.00
48.00	2.77	1.85	0.00	0.00	15.74	10.00
49.00	2.85	2.08	0.00	0.00	15.78	10.00
50.00	2.93	2.10	0.00	0.00	15.82	10.00
51.00	3.02	2.51	0.00	0.00	15.87	10.00
52.00	3.12	2.85	0.00	0.00	15.91	10.00
53.00	3.25	3.69	0.00	0.00	15.96	10.00
54.00	3.42	4.57	0.00	0.00	16.02	10.00
55.00	3.61	5.45	0.00	0.00	16.09	10.00
56.00	3.83	6.35	0.00	0.00	16.17	10.00
57.00	4.09	7.58	0.00	0.00	16.26	10.00
58.00	4.42	9.35	0.00	0.00	16.37	10.00
59.00	4.85	13.10	0.00	0.00	16.50	10.00
60.00	7.84	115.65	0.00	0.00	16.96	10.00
61.00	8.70	26.42	0.00	0.00	17.62	10.00
62.00	9.09	11.60	0.00	0.00	17.85	10.00
63.00	9.34	7.24	0.00	0.00	17.97	10.00
64.00	9.57	6.83	0.00	0.00	18.07	10.00
65.00	9.71	4.23	0.00	0.00	18.15	10.00
66.00	9.85	4.09	0.00	0.00	18.22	10.00
67.00	9.99	4.09	0.00	0.00	18.28	10.00
68.00	10.13	4.09	0.00	0.00	18.34	10.00
69.00	10.22	2.80	0.00	0.00	18.40	10.00
70.00	10.31	2.73	0.00	0.00	18.45	10.00
71.00	10.41	2.73	0.00	0.00	18.50	10.00
72.00	10.50	2.73	0.00	0.00	18.55	10.00
73.00	10.50	0.14	0.00	0.00	18.58	10.00
74.00	10.50	0.00	0.00	0.00	18.60	10.00
75.00	10.50	0.00	0.00	0.00	18.62	10.00
76.00	10.50	0.00	0.00	0.00	18.64	10.00
77.00	10.50	0.00	0.00	0.00	18.66	10.00
78.00	10.50	0.00	0.00	0.00	18.68	10.00
79.00	10.50	0.00	0.00	0.00	18.70	10.00
80.00	10.50	0.00	0.00	0.00	18.72	10.00
81.00	10.50	0.00	0.00	0.00	18.74	10.00
82.00	10.50	0.00	0.00	0.00	18.76	10.00
83.00	10.50	0.00	0.00	0.00	18.78	10.00
84.00	10.50	0.00	0.00	0.00	18.80	10.00
85.00	10.50	0.00	0.00	0.00	18.82	10.00
86.00	10.50	0.00	0.00	0.00	18.84	10.00
87.00	10.50	0.00	0.00	0.00	18.86	10.00
88.00	10.50	0.00	0.00	0.00	18.88	10.00
89.00	10.50	0.00	0.00	0.00	18.90	10.00
90.00	10.50	0.00	0.00	0.00	18.92	10.00
91.00	10.50	0.00	0.00	0.00	18.94	10.00
92.00	10.50	0.00	0.00	0.00	18.96	10.00
93.00	10.50	0.00	0.00	0.00	18.98	10.00
94.00	10.50	0.00	0.00	0.00	19.00	10.00
95.00	10.50	0.00	0.00	0.00	19.02	10.00
96.00	10.50	0.00	0.00	0.00	19.04	10.00
97.00	10.50	0.00	0.00	0.00	19.06	10.00
98.00	10.50	0.00	0.00	0.00	19.08	10.00
99.00	10.50	0.00	0.00	0.00	19.10	10.00
100.00	10.50	0.00	0.00	0.00	19.12	10.00
101.00	10.50	0.00	0.00	0.00	19.13	10.00
102.00	10.50	0.00	0.00	0.00	19.15	10.00
103.00	10.50	0.00	0.00	0.00	19.17	10.00
104.00	10.50	0.00	0.00	0.00	19.19	10.00
105.00	10.50	0.00	0.00	0.00	19.21	10.00

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
106.00	10.50	0.00	0.00	0.00	19.23	10.00
107.00	10.50	0.00	0.00	0.00	19.25	10.00
108.00	10.50	0.00	0.00	0.00	19.27	10.00
109.00	10.50	0.00	0.00	0.00	19.29	10.00
110.00	10.50	0.00	0.00	0.00	19.31	10.00
111.00	10.50	0.00	0.00	0.00	19.33	10.00
112.00	10.50	0.00	0.00	0.00	19.35	10.00
113.00	10.50	0.00	0.00	0.00	19.37	10.00
114.00	10.50	0.00	0.00	0.00	19.39	10.00
115.00	10.50	0.00	0.00	0.00	19.41	10.00
116.00	10.50	0.00	0.00	0.00	19.43	10.00
117.00	10.50	0.00	0.00	0.00	19.45	10.00
118.00	10.50	0.00	0.00	0.00	19.47	10.00
119.00	10.50	0.00	0.00	0.00	19.49	10.00
120.00	10.50	0.00	0.00	0.00	19.51	10.00
121.00	10.50	0.00	0.00	0.00	19.52	10.00
122.00	10.50	0.00	0.00	0.00	19.54	10.00
123.00	10.50	0.00	0.00	0.00	19.56	10.00
124.00	10.50	0.00	0.00	0.00	19.58	10.00
125.00	10.50	0.00	0.00	0.00	19.60	10.00
126.00	10.50	0.00	0.00	0.00	19.62	10.00
127.00	10.50	0.00	0.00	0.00	19.64	10.00
128.00	10.50	0.00	0.00	0.00	19.66	10.00
129.00	10.50	0.00	0.00	0.00	19.68	10.00
130.00	10.50	0.00	0.00	0.00	19.70	10.00
131.00	10.50	0.00	0.00	0.00	19.72	10.00
132.00	10.50	0.00	0.00	0.00	19.74	10.00
133.00	10.50	0.00	0.00	0.00	19.76	10.00
134.00	10.50	0.00	0.00	0.00	19.78	10.00
135.00	10.50	0.00	0.00	0.00	19.80	10.00
136.00	10.50	0.00	0.00	0.00	19.82	10.00
137.00	10.50	0.00	0.00	0.00	19.84	10.00
138.00	10.50	0.00	0.00	0.00	19.86	10.00
139.00	10.50	0.00	0.00	0.00	19.88	10.00
140.00	10.50	0.00	0.00	0.00	19.89	10.00
141.00	10.50	0.00	0.00	0.00	19.91	10.00
142.00	10.50	0.00	0.00	0.00	19.93	10.00
143.00	10.50	0.00	0.00	0.00	19.95	10.00
144.00	10.50	0.00	0.00	0.00	19.97	10.00

Structure: 2

From Basin: D - E

To Basin: A-B-C

Structure Type: Pump

On Elev = 22 ft NGVD, Off Elev = 15 ft NGVD, Capacity = 500 gpm

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	15.00	15.00
1.00	0.05	0.00	0.00	0.00	15.00	15.00
2.00	0.09	0.00	0.00	0.00	15.00	15.00
3.00	0.14	0.00	0.00	0.00	15.00	15.00
4.00	0.19	0.00	0.00	0.00	15.00	15.00
5.00	0.24	0.00	0.00	0.00	15.00	15.00
6.00	0.28	0.04	0.00	0.00	15.01	15.00
7.00	0.33	0.10	0.00	0.00	15.05	15.00
8.00	0.38	0.16	0.00	0.00	15.12	15.00
9.00	0.42	0.21	0.00	0.00	15.22	15.01
10.00	0.47	0.26	0.00	0.00	15.35	15.01
11.00	0.52	0.30	0.00	0.00	15.50	15.02
12.00	0.56	0.34	0.00	0.00	15.68	15.02
13.00	0.61	0.38	0.00	0.00	15.88	15.03
14.00	0.66	0.41	0.00	0.00	16.09	15.03

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
15.00	0.71	0.44	0.00	0.00	16.32	15.04
16.00	0.75	0.47	0.00	0.00	16.57	15.05
17.00	0.80	0.49	0.00	0.00	16.83	15.05
18.00	0.85	0.52	0.00	0.00	17.11	15.06
19.00	0.89	0.54	0.00	0.00	17.39	15.07
20.00	0.94	0.56	0.00	0.00	17.69	15.08
21.00	0.99	0.58	0.00	0.00	18.00	15.09
22.00	1.03	0.59	0.00	0.00	18.32	15.10
23.00	1.08	0.61	0.00	0.00	18.64	15.11
24.00	1.13	0.62	0.00	0.00	18.98	15.12
25.00	1.20	0.92	0.00	0.00	19.43	15.13
26.00	1.27	0.96	0.00	0.00	19.94	15.14
27.00	1.33	0.99	0.00	0.00	20.47	15.16
28.00	1.40	1.01	0.00	0.00	21.01	15.17
29.00	1.47	1.03	0.00	0.00	21.57	15.19
30.00	1.54	1.05	1.11	0.04	21.95	15.21
31.00	1.61	1.07	1.11	0.13	21.92	15.23
32.00	1.68	1.08	1.11	0.22	21.90	15.26
33.00	1.75	1.10	1.11	0.31	21.89	15.28
34.00	1.81	1.11	1.11	0.41	21.88	15.31
35.00	1.88	1.12	1.11	0.50	21.88	15.34
36.00	1.95	1.13	1.11	0.59	21.89	15.36
37.00	2.02	1.15	1.11	0.68	21.90	15.39
38.00	2.09	1.16	1.11	0.77	21.92	15.42
39.00	2.16	1.16	1.11	0.87	21.95	15.45
40.00	2.23	1.17	1.11	0.96	21.98	15.47
41.00	2.29	1.18	1.11	1.05	22.01	15.50
42.00	2.36	1.19	1.11	1.14	22.05	15.53
43.00	2.43	1.20	1.11	1.23	22.10	15.56
44.00	2.50	1.20	1.11	1.33	22.14	15.59
45.00	2.57	1.21	1.11	1.42	22.19	15.63
46.00	2.64	1.22	1.11	1.51	22.25	15.67
47.00	2.71	1.22	1.11	1.60	22.31	15.70
48.00	2.77	1.23	1.11	1.69	22.37	15.74
49.00	2.85	1.38	1.11	1.79	22.48	15.78
50.00	2.93	1.40	1.11	1.88	22.50	15.82
51.00	3.02	1.67	1.11	1.97	22.51	15.87
52.00	3.12	1.90	1.11	2.06	22.52	15.91
53.00	3.25	2.46	1.11	2.15	22.54	15.96
54.00	3.42	3.04	1.11	2.25	22.57	16.02
55.00	3.61	3.64	1.11	2.34	22.61	16.09
56.00	3.83	4.24	1.11	2.43	22.67	16.17
57.00	4.09	5.06	1.11	2.52	22.73	16.26
58.00	4.42	6.25	1.11	2.62	22.81	16.37
59.00	4.85	8.76	1.11	2.71	22.92	16.50
60.00	7.84	77.56	1.11	2.80	23.15	16.96
61.00	8.70	17.73	1.11	2.89	23.37	17.62
62.00	9.09	7.79	1.11	2.98	23.43	17.85
63.00	9.34	4.86	1.11	3.08	23.46	17.97
64.00	9.57	4.59	1.11	3.17	23.48	18.07
65.00	9.71	2.84	1.11	3.26	23.49	18.15
66.00	9.85	2.75	1.11	3.35	23.50	18.22
67.00	9.99	2.75	1.11	3.44	23.51	18.28
68.00	10.13	2.75	1.11	3.54	23.52	18.34
69.00	10.22	1.88	1.11	3.63	23.53	18.40
70.00	10.31	1.84	1.11	3.72	23.53	18.45
71.00	10.41	1.83	1.11	3.81	23.54	18.50
72.00	10.50	1.83	1.11	3.90	23.54	18.55
73.00	10.50	0.10	1.11	4.00	23.54	18.58
74.00	10.50	0.00	1.11	4.09	23.53	18.60
75.00	10.50	0.00	1.11	4.18	23.52	18.62
76.00	10.50	0.00	1.11	4.27	23.52	18.64
77.00	10.50	0.00	1.11	4.36	23.51	18.66
78.00	10.50	0.00	1.11	4.46	23.51	18.68
79.00	10.50	0.00	1.11	4.55	23.50	18.70
80.00	10.50	0.00	1.11	4.64	23.49	18.72
81.00	10.50	0.00	1.11	4.73	23.49	18.74

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
82.00	10.50	0.00	1.11	4.83	23.48	18.76
83.00	10.50	0.00	1.11	4.92	23.47	18.78
84.00	10.50	0.00	1.11	5.01	23.47	18.80
85.00	10.50	0.00	1.11	5.10	23.46	18.82
86.00	10.50	0.00	1.11	5.19	23.45	18.84
87.00	10.50	0.00	1.11	5.29	23.45	18.86
88.00	10.50	0.00	1.11	5.38	23.44	18.88
89.00	10.50	0.00	1.11	5.47	23.44	18.90
90.00	10.50	0.00	1.11	5.56	23.43	18.92
91.00	10.50	0.00	1.11	5.65	23.42	18.94
92.00	10.50	0.00	1.11	5.75	23.42	18.96
93.00	10.50	0.00	1.11	5.84	23.41	18.98
94.00	10.50	0.00	1.11	5.93	23.40	19.00
95.00	10.50	0.00	1.11	6.02	23.40	19.02
96.00	10.50	0.00	1.11	6.11	23.39	19.04
97.00	10.50	0.00	1.11	6.21	23.38	19.06
98.00	10.50	0.00	1.11	6.30	23.38	19.08
99.00	10.50	0.00	1.11	6.39	23.37	19.10
100.00	10.50	0.00	1.11	6.48	23.37	19.12
101.00	10.50	0.00	1.11	6.57	23.36	19.13
102.00	10.50	0.00	1.11	6.67	23.35	19.15
103.00	10.50	0.00	1.11	6.76	23.35	19.17
104.00	10.50	0.00	1.11	6.85	23.34	19.19
105.00	10.50	0.00	1.11	6.94	23.33	19.21
106.00	10.50	0.00	1.11	7.04	23.33	19.23
107.00	10.50	0.00	1.11	7.13	23.32	19.25
108.00	10.50	0.00	1.11	7.22	23.31	19.27
109.00	10.50	0.00	1.11	7.31	23.31	19.29
110.00	10.50	0.00	1.11	7.40	23.30	19.31
111.00	10.50	0.00	1.11	7.50	23.30	19.33
112.00	10.50	0.00	1.11	7.59	23.29	19.35
113.00	10.50	0.00	1.11	7.68	23.28	19.37
114.00	10.50	0.00	1.11	7.77	23.28	19.39
115.00	10.50	0.00	1.11	7.86	23.27	19.41
116.00	10.50	0.00	1.11	7.96	23.26	19.43
117.00	10.50	0.00	1.11	8.05	23.26	19.45
118.00	10.50	0.00	1.11	8.14	23.25	19.47
119.00	10.50	0.00	1.11	8.23	23.24	19.49
120.00	10.50	0.00	1.11	8.32	23.24	19.51
121.00	10.50	0.00	1.11	8.42	23.23	19.52
122.00	10.50	0.00	1.11	8.51	23.23	19.54
123.00	10.50	0.00	1.11	8.60	23.22	19.56
124.00	10.50	0.00	1.11	8.69	23.21	19.58
125.00	10.50	0.00	1.11	8.78	23.21	19.60
126.00	10.50	0.00	1.11	8.88	23.20	19.62
127.00	10.50	0.00	1.11	8.97	23.19	19.64
128.00	10.50	0.00	1.11	9.06	23.19	19.66
129.00	10.50	0.00	1.11	9.15	23.18	19.68
130.00	10.50	0.00	1.11	9.25	23.17	19.70
131.00	10.50	0.00	1.11	9.34	23.17	19.72
132.00	10.50	0.00	1.11	9.43	23.16	19.74
133.00	10.50	0.00	1.11	9.52	23.16	19.76
134.00	10.50	0.00	1.11	9.61	23.15	19.78
135.00	10.50	0.00	1.11	9.71	23.14	19.80
136.00	10.50	0.00	1.11	9.80	23.14	19.82
137.00	10.50	0.00	1.11	9.89	23.13	19.84
138.00	10.50	0.00	1.11	9.98	23.12	19.86
139.00	10.50	0.00	1.11	10.07	23.12	19.88
140.00	10.50	0.00	1.11	10.17	23.11	19.89
141.00	10.50	0.00	1.11	10.26	23.10	19.91
142.00	10.50	0.00	1.11	10.35	23.10	19.93
143.00	10.50	0.00	1.11	10.44	23.09	19.95
144.00	10.50	0.00	1.11	10.53	23.09	19.97

From Basin: F/G04/G05/H04/H05

To Basin: A-B-C

Structure Type: Pump

On Elev = 22 ft NGVD, Off Elev = 15 ft NGVD, Capacity = 500 gpm

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	15.00	15.00
1.00	0.05	0.00	0.00	0.00	15.00	15.00
2.00	0.09	0.00	0.00	0.00	15.00	15.00
3.00	0.14	0.00	0.00	0.00	15.00	15.00
4.00	0.19	0.00	0.00	0.00	15.00	15.00
5.00	0.24	0.00	0.00	0.00	15.00	15.00
6.00	0.28	0.00	0.00	0.00	15.00	15.00
7.00	0.33	0.00	0.00	0.00	15.00	15.00
8.00	0.38	0.00	0.00	0.00	15.00	15.00
9.00	0.42	0.00	0.00	0.00	15.00	15.01
10.00	0.47	0.00	0.00	0.00	15.00	15.01
11.00	0.52	0.00	0.00	0.00	15.00	15.02
12.00	0.56	0.04	0.00	0.00	15.01	15.02
13.00	0.61	0.07	0.00	0.00	15.03	15.03
14.00	0.66	0.10	0.00	0.00	15.06	15.03
15.00	0.71	0.13	0.00	0.00	15.11	15.04
16.00	0.75	0.16	0.00	0.00	15.17	15.05
17.00	0.80	0.19	0.00	0.00	15.24	15.05
18.00	0.85	0.21	0.00	0.00	15.32	15.06
19.00	0.89	0.24	0.00	0.00	15.41	15.07
20.00	0.94	0.26	0.00	0.00	15.51	15.08
21.00	0.99	0.29	0.00	0.00	15.62	15.09
22.00	1.03	0.31	0.00	0.00	15.73	15.10
23.00	1.08	0.33	0.00	0.00	15.86	15.11
24.00	1.13	0.35	0.00	0.00	15.99	15.12
25.00	1.20	0.53	0.00	0.00	16.18	15.13
26.00	1.27	0.58	0.00	0.00	16.40	15.14
27.00	1.33	0.61	0.00	0.00	16.64	15.16
28.00	1.40	0.65	0.00	0.00	16.89	15.17
29.00	1.47	0.68	0.00	0.00	17.15	15.19
30.00	1.54	0.71	0.00	0.00	17.42	15.21
31.00	1.61	0.73	0.00	0.00	17.71	15.23
32.00	1.68	0.76	0.00	0.00	18.01	15.26
33.00	1.75	0.78	0.00	0.00	18.31	15.28
34.00	1.81	0.81	0.00	0.00	18.63	15.31
35.00	1.88	0.83	0.00	0.00	18.95	15.34
36.00	1.95	0.85	0.00	0.00	19.29	15.36
37.00	2.02	0.87	0.00	0.00	19.63	15.39
38.00	2.09	0.89	0.00	0.00	19.98	15.42
39.00	2.16	0.91	0.00	0.00	20.34	15.45
40.00	2.23	0.92	0.00	0.00	20.70	15.47
41.00	2.29	0.94	0.00	0.00	21.07	15.50
42.00	2.36	0.95	0.00	0.00	21.45	15.53
43.00	2.43	0.97	0.00	0.00	21.83	15.56
44.00	2.50	0.98	1.11	0.06	21.99	15.59
45.00	2.57	1.00	1.11	0.15	21.95	15.63
46.00	2.64	1.01	1.11	0.24	21.90	15.67
47.00	2.71	1.02	1.11	0.33	21.86	15.70
48.00	2.77	1.03	1.11	0.42	21.83	15.74
49.00	2.85	1.17	1.11	0.52	21.83	15.78
50.00	2.93	1.19	1.11	0.61	21.86	15.82
51.00	3.02	1.44	1.11	0.70	21.95	15.87
52.00	3.12	1.64	1.11	0.79	22.11	15.91
53.00	3.25	2.15	1.11	0.88	22.43	15.96
54.00	3.42	2.69	1.11	0.98	22.52	16.02
55.00	3.61	3.25	1.11	1.07	22.55	16.09
56.00	3.83	3.83	1.11	1.16	22.59	16.17
57.00	4.09	4.63	1.11	1.25	22.65	16.26
58.00	4.42	5.79	1.11	1.34	22.72	16.37
59.00	4.85	8.23	1.11	1.44	22.82	16.50
60.00	7.84	75.88	1.11	1.53	23.10	16.96
61.00	8.70	17.63	1.11	1.62	23.31	17.62

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
62.00	9.09	7.81	1.11	1.71	23.36	17.85
63.00	9.34	4.89	1.11	1.80	23.39	17.97
64.00	9.57	4.62	1.11	1.90	23.41	18.07
65.00	9.71	2.86	1.11	1.99	23.42	18.15
66.00	9.85	2.77	1.11	2.08	23.43	18.22
67.00	9.99	2.77	1.11	2.17	23.44	18.28
68.00	10.13	2.78	1.11	2.27	23.45	18.34
69.00	10.22	1.90	1.11	2.36	23.45	18.40
70.00	10.31	1.86	1.11	2.45	23.46	18.45
71.00	10.41	1.85	1.11	2.54	23.46	18.50
72.00	10.50	1.86	1.11	2.63	23.46	18.55
73.00	10.50	0.10	1.11	2.73	23.46	18.58
74.00	10.50	0.00	1.11	2.82	23.45	18.60
75.00	10.50	0.00	1.11	2.91	23.45	18.62
76.00	10.50	0.00	1.11	3.00	23.44	18.64
77.00	10.50	0.00	1.11	3.09	23.44	18.66
78.00	10.50	0.00	1.11	3.19	23.43	18.68
79.00	10.50	0.00	1.11	3.28	23.43	18.70
80.00	10.50	0.00	1.11	3.37	23.42	18.72
81.00	10.50	0.00	1.11	3.46	23.41	18.74
82.00	10.50	0.00	1.11	3.55	23.41	18.76
83.00	10.50	0.00	1.11	3.65	23.40	18.78
84.00	10.50	0.00	1.11	3.74	23.40	18.80
85.00	10.50	0.00	1.11	3.83	23.39	18.82
86.00	10.50	0.00	1.11	3.92	23.38	18.84
87.00	10.50	0.00	1.11	4.01	23.38	18.86
88.00	10.50	0.00	1.11	4.11	23.37	18.88
89.00	10.50	0.00	1.11	4.20	23.37	18.90
90.00	10.50	0.00	1.11	4.29	23.36	18.92
91.00	10.50	0.00	1.11	4.38	23.35	18.94
92.00	10.50	0.00	1.11	4.48	23.35	18.96
93.00	10.50	0.00	1.11	4.57	23.34	18.98
94.00	10.50	0.00	1.11	4.66	23.34	19.00
95.00	10.50	0.00	1.11	4.75	23.33	19.02
96.00	10.50	0.00	1.11	4.84	23.32	19.04
97.00	10.50	0.00	1.11	4.94	23.32	19.06
98.00	10.50	0.00	1.11	5.03	23.31	19.08
99.00	10.50	0.00	1.11	5.12	23.31	19.10
100.00	10.50	0.00	1.11	5.21	23.30	19.12
101.00	10.50	0.00	1.11	5.30	23.29	19.13
102.00	10.50	0.00	1.11	5.40	23.29	19.15
103.00	10.50	0.00	1.11	5.49	23.28	19.17
104.00	10.50	0.00	1.11	5.58	23.28	19.19
105.00	10.50	0.00	1.11	5.67	23.27	19.21
106.00	10.50	0.00	1.11	5.76	23.26	19.23
107.00	10.50	0.00	1.11	5.86	23.26	19.25
108.00	10.50	0.00	1.11	5.95	23.25	19.27
109.00	10.50	0.00	1.11	6.04	23.25	19.29
110.00	10.50	0.00	1.11	6.13	23.24	19.31
111.00	10.50	0.00	1.11	6.22	23.23	19.33
112.00	10.50	0.00	1.11	6.32	23.23	19.35
113.00	10.50	0.00	1.11	6.41	23.22	19.37
114.00	10.50	0.00	1.11	6.50	23.22	19.39
115.00	10.50	0.00	1.11	6.59	23.21	19.41
116.00	10.50	0.00	1.11	6.69	23.20	19.43
117.00	10.50	0.00	1.11	6.78	23.20	19.45
118.00	10.50	0.00	1.11	6.87	23.19	19.47
119.00	10.50	0.00	1.11	6.96	23.19	19.49
120.00	10.50	0.00	1.11	7.05	23.18	19.51
121.00	10.50	0.00	1.11	7.15	23.17	19.52
122.00	10.50	0.00	1.11	7.24	23.17	19.54
123.00	10.50	0.00	1.11	7.33	23.16	19.56
124.00	10.50	0.00	1.11	7.42	23.16	19.58
125.00	10.50	0.00	1.11	7.51	23.15	19.60
126.00	10.50	0.00	1.11	7.61	23.14	19.62
127.00	10.50	0.00	1.11	7.70	23.14	19.64
128.00	10.50	0.00	1.11	7.79	23.13	19.66

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
129.00	10.50	0.00	1.11	7.88	23.13	19.68
130.00	10.50	0.00	1.11	7.97	23.12	19.70
131.00	10.50	0.00	1.11	8.07	23.11	19.72
132.00	10.50	0.00	1.11	8.16	23.11	19.74
133.00	10.50	0.00	1.11	8.25	23.10	19.76
134.00	10.50	0.00	1.11	8.34	23.10	19.78
135.00	10.50	0.00	1.11	8.43	23.09	19.80
136.00	10.50	0.00	1.11	8.53	23.08	19.82
137.00	10.50	0.00	1.11	8.62	23.08	19.84
138.00	10.50	0.00	1.11	8.71	23.07	19.86
139.00	10.50	0.00	1.11	8.80	23.07	19.88
140.00	10.50	0.00	1.11	8.90	23.06	19.89
141.00	10.50	0.00	1.11	8.99	23.05	19.91
142.00	10.50	0.00	1.11	9.08	23.05	19.93
143.00	10.50	0.00	1.11	9.17	23.04	19.95
144.00	10.50	0.00	1.11	9.26	23.04	19.97

Structure: 4

From Basin: H01 thru H03

To Basin: A-B-C

Structure Type: Gravity

Weir: Drop Inlet, Crest Elev = 22.5 ft NGVD, Diameter = 8 ft

Bleeder: None

Pipe: Diameter = 3 ft, Manning's n = 0.013, Length = 500 ft

US Invert Elev = 18.5 ft NGVD, DS Invert Elev = 15 ft NGVD, no flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	15.00	15.00
1.00	0.05	0.00	0.00	0.00	22.50	15.00
2.00	0.09	0.00	0.00	0.00	22.50	15.00
3.00	0.14	0.00	0.00	0.00	22.50	15.00
4.00	0.19	0.00	0.00	0.00	22.50	15.00
5.00	0.24	0.01	0.00	0.00	22.50	15.00
6.00	0.28	0.02	0.00	0.00	22.50	15.00
7.00	0.33	0.04	0.00	0.00	22.50	15.00
8.00	0.38	0.05	0.01	0.00	22.51	15.00
9.00	0.42	0.06	0.02	0.00	22.51	15.01
10.00	0.47	0.07	0.03	0.00	22.51	15.01
11.00	0.52	0.08	0.04	0.01	22.51	15.02
12.00	0.56	0.09	0.05	0.01	22.51	15.02
13.00	0.61	0.09	0.07	0.02	22.52	15.03
14.00	0.66	0.10	0.08	0.02	22.52	15.03
15.00	0.71	0.10	0.08	0.03	22.52	15.04
16.00	0.75	0.11	0.09	0.04	22.52	15.05
17.00	0.80	0.11	0.10	0.05	22.52	15.05
18.00	0.85	0.12	0.11	0.05	22.52	15.06
19.00	0.89	0.12	0.11	0.06	22.52	15.07
20.00	0.94	0.13	0.12	0.07	22.52	15.08
21.00	0.99	0.13	0.12	0.08	22.52	15.09
22.00	1.03	0.13	0.12	0.09	22.52	15.10
23.00	1.08	0.14	0.13	0.10	22.53	15.11
24.00	1.13	0.14	0.13	0.11	22.53	15.12
25.00	1.20	0.20	0.15	0.13	22.53	15.13
26.00	1.27	0.21	0.18	0.14	22.53	15.14
27.00	1.33	0.22	0.19	0.15	22.53	15.16
28.00	1.40	0.22	0.20	0.17	22.53	15.17
29.00	1.47	0.22	0.21	0.19	22.54	15.19
30.00	1.54	0.23	0.22	0.21	22.54	15.21
31.00	1.61	0.23	0.22	0.22	22.54	15.23
32.00	1.68	0.23	0.23	0.24	22.54	15.26
33.00	1.75	0.23	0.23	0.26	22.54	15.28
34.00	1.81	0.24	0.23	0.28	22.54	15.31

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
35.00	1.88	0.24	0.23	0.30	22.54	15.34
36.00	1.95	0.24	0.24	0.32	22.54	15.36
37.00	2.02	0.24	0.24	0.34	22.54	15.39
38.00	2.09	0.24	0.24	0.36	22.54	15.42
39.00	2.16	0.25	0.24	0.38	22.54	15.45
40.00	2.23	0.25	0.24	0.40	22.54	15.47
41.00	2.29	0.25	0.25	0.42	22.54	15.50
42.00	2.36	0.25	0.25	0.44	22.54	15.53
43.00	2.43	0.25	0.25	0.46	22.54	15.56
44.00	2.50	0.25	0.25	0.48	22.54	15.59
45.00	2.57	0.25	0.25	0.50	22.54	15.63
46.00	2.64	0.25	0.25	0.52	22.54	15.67
47.00	2.71	0.26	0.25	0.54	22.54	15.70
48.00	2.77	0.26	0.25	0.56	22.54	15.74
49.00	2.85	0.29	0.27	0.59	22.54	15.78
50.00	2.93	0.29	0.28	0.61	22.54	15.82
51.00	3.02	0.35	0.30	0.63	22.54	15.87
52.00	3.12	0.39	0.33	0.66	22.55	15.91
53.00	3.25	0.51	0.40	0.69	22.55	15.96
54.00	3.42	0.63	0.49	0.73	22.56	16.02
55.00	3.61	0.75	0.61	0.77	22.57	16.09
56.00	3.83	0.87	0.73	0.83	22.58	16.17
57.00	4.09	1.04	0.87	0.90	22.59	16.26
58.00	4.42	1.28	1.07	0.98	22.60	16.37
59.00	4.85	1.80	1.38	1.08	22.62	16.50
60.00	7.84	15.83	6.84	1.35	22.86	16.96
61.00	8.70	3.61	7.09	2.03	22.87	17.62
62.00	9.09	1.59	3.06	2.39	22.71	17.85
63.00	9.34	0.99	1.69	2.57	22.64	17.97
64.00	9.57	0.93	1.19	2.68	22.61	18.07
65.00	9.71	0.58	0.87	2.76	22.59	18.15
66.00	9.85	0.56	0.69	2.82	22.58	18.22
67.00	9.99	0.56	0.61	2.87	22.57	18.28
68.00	10.13	0.56	0.58	2.92	22.57	18.34
69.00	10.22	0.38	0.50	2.97	22.56	18.40
70.00	10.31	0.37	0.43	3.00	22.56	18.45
71.00	10.41	0.37	0.40	3.04	22.55	18.50
72.00	10.50	0.37	0.39	3.07	22.55	18.55
73.00	10.50	0.02	0.26	3.10	22.54	18.58
74.00	10.50	0.00	0.15	3.11	22.53	18.60
75.00	10.50	0.00	0.09	3.12	22.52	18.62
76.00	10.50	0.00	0.06	3.13	22.52	18.64
77.00	10.50	0.00	0.04	3.13	22.51	18.66
78.00	10.50	0.00	0.03	3.13	22.51	18.68
79.00	10.50	0.00	0.02	3.14	22.51	18.70
80.00	10.50	0.00	0.02	3.14	22.51	18.72
81.00	10.50	0.00	0.01	3.14	22.51	18.74
82.00	10.50	0.00	0.01	3.14	22.50	18.76
83.00	10.50	0.00	0.01	3.14	22.50	18.78
84.00	10.50	0.00	0.01	3.14	22.50	18.80
85.00	10.50	0.00	0.01	3.14	22.50	18.82
86.00	10.50	0.00	0.01	3.14	22.50	18.84
87.00	10.50	0.00	0.00	3.14	22.50	18.86
88.00	10.50	0.00	0.00	3.14	22.50	18.88
89.00	10.50	0.00	0.00	3.14	22.50	18.90
90.00	10.50	0.00	0.00	3.14	22.50	18.92
91.00	10.50	0.00	0.00	3.14	22.50	18.94
92.00	10.50	0.00	0.00	3.14	22.50	18.96
93.00	10.50	0.00	0.00	3.14	22.50	18.98
94.00	10.50	0.00	0.00	3.14	22.50	19.00
95.00	10.50	0.00	0.00	3.14	22.50	19.02
96.00	10.50	0.00	0.00	3.15	22.50	19.04
97.00	10.50	0.00	0.00	3.15	22.50	19.06
98.00	10.50	0.00	0.00	3.15	22.50	19.08
99.00	10.50	0.00	0.00	3.15	22.50	19.10
100.00	10.50	0.00	0.00	3.15	22.50	19.12
101.00	10.50	0.00	0.00	3.15	22.50	19.13

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
102.00	10.50	0.00	0.00	3.15	22.50	19.15
103.00	10.50	0.00	0.00	3.15	22.50	19.17
104.00	10.50	0.00	0.00	3.15	22.50	19.19
105.00	10.50	0.00	0.00	3.15	22.50	19.21
106.00	10.50	0.00	0.00	3.15	22.50	19.23
107.00	10.50	0.00	0.00	3.15	22.50	19.25
108.00	10.50	0.00	0.00	3.15	22.50	19.27
109.00	10.50	0.00	0.00	3.15	22.50	19.29
110.00	10.50	0.00	0.00	3.15	22.50	19.31
111.00	10.50	0.00	0.00	3.15	22.50	19.33
112.00	10.50	0.00	0.00	3.15	22.50	19.35
113.00	10.50	0.00	0.00	3.15	22.50	19.37
114.00	10.50	0.00	0.00	3.15	22.50	19.39
115.00	10.50	0.00	0.00	3.15	22.50	19.41
116.00	10.50	0.00	0.00	3.15	22.50	19.43
117.00	10.50	0.00	0.00	3.15	22.50	19.45
118.00	10.50	0.00	0.00	3.15	22.50	19.47
119.00	10.50	0.00	0.00	3.15	22.50	19.49
120.00	10.50	0.00	0.00	3.15	22.50	19.51
121.00	10.50	0.00	0.00	3.15	22.50	19.52
122.00	10.50	0.00	0.00	3.15	22.50	19.54
123.00	10.50	0.00	0.00	3.15	22.50	19.56
124.00	10.50	0.00	0.00	3.15	22.50	19.58
125.00	10.50	0.00	0.00	3.15	22.50	19.60
126.00	10.50	0.00	0.00	3.15	22.50	19.62
127.00	10.50	0.00	0.00	3.15	22.50	19.64
128.00	10.50	0.00	0.00	3.15	22.50	19.66
129.00	10.50	0.00	0.00	3.15	22.50	19.68
130.00	10.50	0.00	0.00	3.15	22.50	19.70
131.00	10.50	0.00	0.00	3.15	22.50	19.72
132.00	10.50	0.00	0.00	3.15	22.50	19.74
133.00	10.50	0.00	0.00	3.15	22.50	19.76
134.00	10.50	0.00	0.00	3.15	22.50	19.78
135.00	10.50	0.00	0.00	3.15	22.50	19.80
136.00	10.50	0.00	0.00	3.15	22.50	19.82
137.00	10.50	0.00	0.00	3.15	22.50	19.84
138.00	10.50	0.00	0.00	3.15	22.50	19.86
139.00	10.50	0.00	0.00	3.15	22.50	19.88
140.00	10.50	0.00	0.00	3.15	22.50	19.89
141.00	10.50	0.00	0.00	3.15	22.50	19.91
142.00	10.50	0.00	0.00	3.15	22.50	19.93
143.00	10.50	0.00	0.00	3.15	22.50	19.95
144.00	10.50	0.00	0.00	3.15	22.50	19.97

Structure: 5

From Basin: G01 thru G03

To Basin: A-B-C

Structure Type: Gravity

Weir: Drop Inlet, Crest Elev = 22.5 ft NGVD, Diameter = 8 ft

Bleeder: None

Pipe: Diameter = 4 ft, Manning's n = 0.013, Length = 500 ft

US Invert Elev = 18.5 ft NGVD, DS Invert Elev = 15 ft NGVD, no flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	15.00	15.00
1.00	0.05	0.00	0.00	0.00	22.50	15.00
2.00	0.09	0.00	0.00	0.00	22.50	15.00
3.00	0.14	0.00	0.00	0.00	22.50	15.00
4.00	0.19	0.00	0.00	0.00	22.50	15.00
5.00	0.24	0.00	0.00	0.00	22.50	15.00
6.00	0.28	0.00	0.00	0.00	22.50	15.00
7.00	0.33	0.00	0.00	0.00	22.50	15.00

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
8.00	0.38	0.00	0.00	0.00	22.50	15.00
9.00	0.42	0.00	0.00	0.00	22.50	15.01
10.00	0.47	0.00	0.00	0.00	22.50	15.01
11.00	0.52	0.00	0.00	0.00	22.50	15.02
12.00	0.56	0.00	0.00	0.00	22.50	15.02
13.00	0.61	0.00	0.00	0.00	22.50	15.03
14.00	0.66	0.00	0.00	0.00	22.50	15.03
15.00	0.71	0.00	0.00	0.00	22.50	15.04
16.00	0.75	0.00	0.00	0.00	22.50	15.05
17.00	0.80	0.00	0.00	0.00	22.50	15.05
18.00	0.85	0.00	0.00	0.00	22.50	15.06
19.00	0.89	0.00	0.00	0.00	22.50	15.07
20.00	0.94	0.00	0.00	0.00	22.50	15.08
21.00	0.99	0.00	0.00	0.00	22.50	15.09
22.00	1.03	0.00	0.00	0.00	22.50	15.10
23.00	1.08	0.00	0.00	0.00	22.50	15.11
24.00	1.13	0.00	0.00	0.00	22.50	15.12
25.00	1.20	0.00	0.00	0.00	22.50	15.13
26.00	1.27	0.00	0.00	0.00	22.50	15.14
27.00	1.33	0.00	0.00	0.00	22.50	15.16
28.00	1.40	0.00	0.00	0.00	22.50	15.17
29.00	1.47	0.00	0.00	0.00	22.50	15.19
30.00	1.54	0.00	0.00	0.00	22.50	15.21
31.00	1.61	0.00	0.00	0.00	22.50	15.23
32.00	1.68	0.00	0.00	0.00	22.50	15.26
33.00	1.75	0.01	0.00	0.00	22.50	15.28
34.00	1.81	0.01	0.00	0.00	22.50	15.31
35.00	1.88	0.01	0.00	0.00	22.50	15.34
36.00	1.95	0.02	0.01	0.00	22.50	15.36
37.00	2.02	0.02	0.01	0.00	22.50	15.39
38.00	2.09	0.02	0.01	0.00	22.51	15.42
39.00	2.16	0.03	0.02	0.00	22.51	15.45
40.00	2.23	0.03	0.02	0.00	22.51	15.47
41.00	2.29	0.03	0.02	0.01	22.51	15.50
42.00	2.36	0.04	0.03	0.01	22.51	15.53
43.00	2.43	0.04	0.03	0.01	22.51	15.56
44.00	2.50	0.04	0.03	0.01	22.51	15.59
45.00	2.57	0.04	0.04	0.02	22.51	15.63
46.00	2.64	0.05	0.04	0.02	22.51	15.67
47.00	2.71	0.05	0.04	0.02	22.51	15.70
48.00	2.77	0.05	0.05	0.03	22.51	15.74
49.00	2.85	0.06	0.05	0.03	22.51	15.78
50.00	2.93	0.07	0.06	0.04	22.51	15.82
51.00	3.02	0.08	0.06	0.04	22.52	15.87
52.00	3.12	0.10	0.07	0.05	22.52	15.91
53.00	3.25	0.13	0.09	0.05	22.52	15.96
54.00	3.42	0.18	0.12	0.06	22.52	16.02
55.00	3.61	0.22	0.17	0.08	22.53	16.09
56.00	3.83	0.28	0.21	0.09	22.54	16.17
57.00	4.09	0.36	0.28	0.11	22.54	16.26
58.00	4.42	0.47	0.37	0.14	22.55	16.37
59.00	4.85	0.72	0.52	0.18	22.56	16.50
60.00	7.84	8.03	3.36	0.30	22.72	16.96
61.00	8.70	2.03	3.46	0.66	22.73	17.62
62.00	9.09	0.93	1.56	0.84	22.63	17.85
63.00	9.34	0.59	0.89	0.93	22.59	17.97
64.00	9.57	0.56	0.66	0.99	22.58	18.07
65.00	9.71	0.35	0.49	1.04	22.56	18.15
66.00	9.85	0.34	0.40	1.07	22.55	18.22
67.00	9.99	0.34	0.36	1.10	22.55	18.28
68.00	10.13	0.35	0.35	1.13	22.55	18.34
69.00	10.22	0.24	0.30	1.16	22.54	18.40
70.00	10.31	0.23	0.26	1.18	22.54	18.45
71.00	10.41	0.23	0.24	1.20	22.54	18.50
72.00	10.50	0.23	0.24	1.22	22.54	18.55
73.00	10.50	0.01	0.15	1.24	22.53	18.58
74.00	10.50	0.00	0.08	1.25	22.52	18.60

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
75.00	10.50	0.00	0.05	1.25	22.51	18.62
76.00	10.50	0.00	0.03	1.25	22.51	18.64
77.00	10.50	0.00	0.02	1.25	22.51	18.66
78.00	10.50	0.00	0.01	1.26	22.51	18.68
79.00	10.50	0.00	0.01	1.26	22.50	18.70
80.00	10.50	0.00	0.01	1.26	22.50	18.72
81.00	10.50	0.00	0.01	1.26	22.50	18.74
82.00	10.50	0.00	0.00	1.26	22.50	18.76
83.00	10.50	0.00	0.00	1.26	22.50	18.78
84.00	10.50	0.00	0.00	1.26	22.50	18.80
85.00	10.50	0.00	0.00	1.26	22.50	18.82
86.00	10.50	0.00	0.00	1.26	22.50	18.84
87.00	10.50	0.00	0.00	1.26	22.50	18.86
88.00	10.50	0.00	0.00	1.26	22.50	18.88
89.00	10.50	0.00	0.00	1.26	22.50	18.90
90.00	10.50	0.00	0.00	1.26	22.50	18.92
91.00	10.50	0.00	0.00	1.26	22.50	18.94
92.00	10.50	0.00	0.00	1.26	22.50	18.96
93.00	10.50	0.00	0.00	1.26	22.50	18.98
94.00	10.50	0.00	0.00	1.26	22.50	19.00
95.00	10.50	0.00	0.00	1.26	22.50	19.02
96.00	10.50	0.00	0.00	1.26	22.50	19.04
97.00	10.50	0.00	0.00	1.26	22.50	19.06
98.00	10.50	0.00	0.00	1.26	22.50	19.08
99.00	10.50	0.00	0.00	1.26	22.50	19.10
100.00	10.50	0.00	0.00	1.26	22.50	19.12
101.00	10.50	0.00	0.00	1.26	22.50	19.13
102.00	10.50	0.00	0.00	1.26	22.50	19.15
103.00	10.50	0.00	0.00	1.26	22.50	19.17
104.00	10.50	0.00	0.00	1.26	22.50	19.19
105.00	10.50	0.00	0.00	1.26	22.50	19.21
106.00	10.50	0.00	0.00	1.26	22.50	19.23
107.00	10.50	0.00	0.00	1.26	22.50	19.25
108.00	10.50	0.00	0.00	1.26	22.50	19.27
109.00	10.50	0.00	0.00	1.26	22.50	19.29
110.00	10.50	0.00	0.00	1.26	22.50	19.31
111.00	10.50	0.00	0.00	1.26	22.50	19.33
112.00	10.50	0.00	0.00	1.26	22.50	19.35
113.00	10.50	0.00	0.00	1.26	22.50	19.37
114.00	10.50	0.00	0.00	1.26	22.50	19.39
115.00	10.50	0.00	0.00	1.26	22.50	19.41
116.00	10.50	0.00	0.00	1.26	22.50	19.43
117.00	10.50	0.00	0.00	1.26	22.50	19.45
118.00	10.50	0.00	0.00	1.26	22.50	19.47
119.00	10.50	0.00	0.00	1.26	22.50	19.49
120.00	10.50	0.00	0.00	1.26	22.50	19.51
121.00	10.50	0.00	0.00	1.26	22.50	19.52
122.00	10.50	0.00	0.00	1.26	22.50	19.54
123.00	10.50	0.00	0.00	1.26	22.50	19.56
124.00	10.50	0.00	0.00	1.26	22.50	19.58
125.00	10.50	0.00	0.00	1.26	22.50	19.60
126.00	10.50	0.00	0.00	1.26	22.50	19.62
127.00	10.50	0.00	0.00	1.26	22.50	19.64
128.00	10.50	0.00	0.00	1.26	22.50	19.66
129.00	10.50	0.00	0.00	1.26	22.50	19.68
130.00	10.50	0.00	0.00	1.26	22.50	19.70
131.00	10.50	0.00	0.00	1.26	22.50	19.72
132.00	10.50	0.00	0.00	1.26	22.50	19.74
133.00	10.50	0.00	0.00	1.26	22.50	19.76
134.00	10.50	0.00	0.00	1.26	22.50	19.78
135.00	10.50	0.00	0.00	1.26	22.50	19.80
136.00	10.50	0.00	0.00	1.26	22.50	19.82
137.00	10.50	0.00	0.00	1.26	22.50	19.84
138.00	10.50	0.00	0.00	1.26	22.50	19.86
139.00	10.50	0.00	0.00	1.26	22.50	19.88
140.00	10.50	0.00	0.00	1.26	22.50	19.89
141.00	10.50	0.00	0.00	1.26	22.50	19.91

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
142.00	10.50	0.00	0.00	1.26	22.50	19.93
143.00	10.50	0.00	0.00	1.26	22.50	19.95
144.00	10.50	0.00	0.00	1.26	22.50	19.97

STRUCTURE MAXIMUM AND MINIMUM DISCHARGES

Struc	Max (cfs)	Time (hr)	Min (cfs)	Time (hr)
1	0.00	0.00	0.00	0.00
2	1.11	29.80	0.00	0.00
3	1.11	43.60	0.00	0.00
4	9.11	60.40	0.00	0.00
5	4.98	60.40	0.00	0.00

BASIN MAXIMUM AND MINIMUM STAGES

Basin	Max (ft)	Time (hr)	Min (ft)	Time (hr)
A-B-C	19.97	144.00	15.00	0.00
D - E	23.54	72.20	15.00	0.00
H01 thru H03	22.96	60.40	15.00	0.00
G01 thru G03	22.79	60.40	15.00	0.00
F/G04/G05/H04/	23.46	72.20	15.00	0.00
J - K - L - L-	18.30	74.80	15.00	0.00
I	0.00	31.00	10.00	0.00

BASIN WATER BUDGETS (all units in acre-ft)

Basin	Total Runoff	Structure Inflow	Structure Outflow	Initial Storage	Final Storage	Residual
A-B-C	22.81	24.18	0.00	0.00	46.99	0.00
D - E	15.19	0.00	10.52	0.00	4.66	0.00
H01 thru H03	3.15	0.00	3.15	0.00	0.00	0.00
G01 thru G03	1.26	0.00	1.26	0.00	0.00	0.00
F/G04/G05/H04/	13.79	0.00	9.25	0.00	4.54	0.00
J - K - L - L-	78.55	0.00	0.00	0.00	78.55	0.00
I	2.44	0.00	0.00	10.00	12.44	0.00

APPENDIX G

STORMWATER POLLUTION PREVENTION PLAN

**FLORIDA POWER & LIGHT, WEST COUNTY ENERGY CENTER
STORMWATER POLLUTION PREVENTION PLAN**

SITE DESCRIPTION

Project Name and Location (Latitude/Longitude, or Address)	Florida Power & Light Co. West County Energy Center	Owner Name and Address	Florida Power & Light Company 700 Universe Boulevard Juno Beach, FL 33408-2683
---	--	-------------------------------	--

Site Description (Purpose and Types of Soil Disturbing Activities)

The Project consists of two nominal 1,100 MW combined cycle units that will be constructed on the 220-acre Site. The Site was previously used by Palm Beach Aggregates, Inc. (PBA) as a quarry site where limestone aggregate and road base material were produced. Approximately 10 acres on the northern portion of the Site was reportedly mined to approximately elevation -5 ft NGVD and the remainder of the site was cleared of organic soils (but not mined). Subsequently, nearly the entire Site was filled by PBA to approximately elevation 23 ft NGVD by hydraulically-placing sand dredged from a nearby PBA mining cell. The existing ground elevation along the western property boundary was reported to be approximately 10 ft NGVD.

The Project will provide two Power Blocks that will be constructed sequentially from north to south. There will be two potential configurations for each of the two Units to be constructed within the two Power Block areas. The worst-case configuration with respect to impervious area and stormwater management is referred to as "4-on-1" combined cycle unit. Therefore, the stormwater management system design was completed for this configuration, and the same stormwater management system will be used for the selected configuration. The "4-on-1" unit will consist of four GE "F" Class advanced combustion turbines (CTs) and four heat recovery steam generators (HRSGs). Within the Project, each of the two areas designated as Power Blocks will contain a Unit consisting of the CT/HRSG trains and 1 steam turbine/electric generator), cooling tower, ultra low-sulfur light oil tank, and other associated facilities.

Onsite construction activities for the Project are anticipated to begin by May 2007 and be completed by June 2010. Demobilization, site restoration, and clean-up may extend to November 2010. The Construction Drainage Plan showing the stormwater management system layout and drainage basins within the Project is provided on Figure 2 of the Stormwater Management Plan. The various site areas (labeled A through M) are described in the Stormwater Management Plan and shown on the Construction Drainage Plan.

The Project will also include the construction of an intake structure on the southern bank of the L10/L12 canal on the southern side of State Road 80. Alternatively, an inlet will be constructed on the northern bank of the L10/L12 canal on the southern side of State Road 80 with the intake structure to be constructed within the Project limits. In either case, an inlet pipe will be extended from the canal under State Road 80 to the Project. Runoff from the intake or inlet structures on the L10/L12 canal will be diverted into the canal. During construction, erosion and sediment control measures will be provided to protect water quality in the canal.

**FLORIDA POWER & LIGHT, WEST COUNTY ENERGY CENTER
STORMWATER POLLUTION PREVENTION PLAN**

Construction Drainage and Sequences

The two stormwater retention ponds in Areas A and M will be excavated at the start of construction to serve as sedimentation ponds during construction. Initially, a silt fence will be installed along the perimeter of the areas where the stormwater retention ponds will be excavated and the construction laydown, trailer, and parking areas surrounding the retention pond will be graded to divert runoff into the retention pond.

Except for the area of the fill slope along the western Project boundary, the entire Project will be graded to divert stormwater runoff from construction activities, including the construction laydown and parking areas into the drainage system and the stormwater retention ponds. Installation of the storm drains, storm sewers, and stormwater pump stations will be planned to maximize their use during the construction period. Until these elements are installed, stormwater will be diverted into temporary sediment control basins within the drainage basin where construction work is proceeding. The locations of temporary sediment control basins will be determined by the Contractor based on the detailed sequence of activities within the Power Blocks. The stormwater management system modeling results indicate that the volume of runoff from the 100-yr 72-hr storm should be about 28 and 25 acre-feet in the Power Block areas for Units 1 and 2, respectively. Random excavation will not be allowed by Project specifications, and temporary sediment basins will be cleaned, backfilled and stabilized as soon as practical. Finished surfaces will generally be seeded or covered with gravel as soon as practical.

Runoff collected in the stormwater retention pond and temporary sediment control basins will be released by seepage and evaporation.

The erosion of the fill slope along the western Project boundary will be controlled by seeding with permanent grass as soon as practical. Until vegetation is established on the fill slope, erosion will be minimized by a combination of mulching, surface roughening, and silt fence along the toe of slope. Using erosion control blankets on the fill slope will be considered if required based on inspections and maintenance efforts.

Description of Existing Soils on Site

The Site has been filled with 10 to 20 feet of shell and sand quarried from nearby Palm Beach Aggregates (PBA) mining activities. The fill material is described (BCI, 2004) as non-cohesive well-graded sand and shell, with less than 5% by weight passing the No. 200 sieve. The underlying material is described (Golder, 2002) as medium to coarse grained, poorly graded sand with trace to some silt/clay. Based on the descriptions of these soils and test data (Golder, 2002), the site soils are expected to have high infiltration capacity (on the order of 10 to 20 inches per hour under saturated conditions).

Name of Receiving Waters:

Construction activities will alter runoff in several parts of the Project; however, no adverse effects are anticipated from this alteration. Surface water runoff from the power block, construction parking, and laydown areas will be directed during construction to stormwater ponds. Stormwater runoff from the Site currently enters the Palm Beach Aggregates, Inc. master drainage system, which is designed to retain up to the 100-year 72-hour storm with no off-site discharge (per Environmental Resource Permit Number 50-00281-S), and the stormwater management system is designed for on-site retention of the runoff generated during the 100-year 72-hour. The runoff from the western fill slope (Area I) should be retained within the FP&L transmission line right-of-way. Therefore, no receiving waters will be impacted by construction of the Project.

**FLORIDA POWER & LIGHT, WEST COUNTY ENERGY CENTER
STORMWATER POLLUTION PREVENTION PLAN**

CONTROLS

Erosion and Sediment Controls

Stabilization Practices

Temporary Stabilization

During construction, erosion will be controlled by grading, construction of the Project stormwater management system, ditches, maintenance of relatively flat grades, and other appropriate erosion control techniques. Aggregate-surfaced areas will be provided for roads, while limerock surfacing will be provided for laydown and parking areas. Sedimentation will be controlled during construction by using the stormwater retention pond as a sedimentation basin. Additional temporary sediment control basins may also be provided as needed; particularly until the storm drains and sewers are installed and placed into service. Silt fence and/or hay bales will be installed around construction areas prior to starting earth disturbing activities.

Silt fences and/or inlet and outlet protection will be used at storm drains and storm sewers to assist in sediment control. Sediment collected in the sedimentation pond and erosion control devices (e.g., staked silt fence, hay bales, inlet/outlet protection) during construction will be removed as required to maintain proper functioning of these measures. All temporary sediment and erosion control measures will be removed at the end of construction.

Top soil stock piles and disturbed portions of the site where construction activity temporarily ceases for at least 21 days will be stabilized with temporary seed and mulch no later than 21 days from the last construction activity in that area.

After grading, open or lightly traveled areas will be paved or vegetated to minimize fugitive dust. Heavily traveled construction and laydown areas will be stabilized with limerock. Watering will be performed on an as-needed basis to minimize fugitive dust from these areas.

Construction personnel and equipment will enter the site over paved roads (State Road 80 and PBA Road). At least one stabilized temporary construction entrance will be maintained to help reduce vehicle tracking of sediments off site. If sediments are subsequently observed being tracked off site, additional measures will be implemented such as washing vehicles with water only (no soaps or detergents), placing a coarser stone at the entrance or implementing a regular street sweeping program. At the conclusion of all work, construction equipment will be thoroughly cleaned before leaving the Site.

Permanent Stabilization

Disturbed portions of the site where construction activities permanently cease shall be stabilized with permanent seed in accordance with the construction specifications no later than 21 days after the last construction activity in that area.

Prior to seeding, fertilizer shall be applied to each area to be stabilized. After seeding, each area shall be mulched.

Structural Practices

The contractor will be required to comply with state water quality standards for runoff from construction areas. As such, the contractor will be responsible for erecting sediment control measures such as, but not limited to, hay bales, silt fences, sedimentation basins, inlet protection, outlet protection, etc.

Storm water Management

The design basis of the stormwater management system and modeling results are documented in the Stormwater Management Plan. In general, the site is designed to retain the runoff from the 100-year 72-hour storm with no off-site discharge.

The contractor will be required to comply with state water quality standards for off-site discharge of runoff from construction areas. As such, the contractor will be responsible for erecting sediment control measures such as, but not limited to, hay bales, silt fences, impermeable barriers, etc.

**FLORIDA POWER & LIGHT, WEST COUNTY ENERGY CENTER
STORMWATER POLLUTION PREVENTION PLAN**

OTHER CONTROLS

Solid waste materials generated during construction will be collected in roll-off boxes and disposed of off-site. These roll-off boxes will be picked up weekly or as needed to maintain good housekeeping procedures. No solid waste materials shall be discharged to receiving waters.

Site facilities, which consist of portable facilities and trailer facilities, are not connected to sewer or septic systems. These facilities will be emptied and cleaned on a periodic basis.

Petroleum products associated with the normal operations of construction equipment will be maintained on site. In order to reduce the chance of spills or leaks of these products polluting the receiving water, all materials stored on site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure. Fuel and oil tanks will be surrounded by secondary containment devices to contain spills or leaks.

Impacts from the use of chemicals for cleanup of spillage of chemicals or oil and grease will be mitigated through proper handling and disposal practices. Construction contractors will be required to implement environmental control 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 to conform with FPL's Spill Prevention Control and Countermeasure (SPCC) plans and hazardous waste management plans implemented at many of its power generating facilities. In addition, construction-specific procedures will be developed and implemented by individual contractors.

Offsite Vehicle Tracking:

Construction personnel and equipment will enter the site primarily over paved roads. The paved street adjacent to the site entrance will be swept as required to remove any excess mud, dirt or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

TIMING OF CONTROLS/MEASURES

As indicated above, silt fence will be installed around the perimeter of the construction areas before construction begins. All erosion and sediment control measures will be in place prior to excavation, hauling, and site grading. These measures will consist of sediment control measures such as hay bales, silt fences, etc.

Areas where construction activity temporarily ceases for more than 21 days will be stabilized with a temporary seed and mulch within 21 days of the last disturbance. Once construction activity ceases permanently in an area, that area will be stabilized with permanent seed and mulch. After the entire site is stabilized, accumulated soil in sediment traps will be removed.

It is expected that temporary erosion control measures will be in place until approximately six months following the in-service date of the new unit, fuel oil tank, pipe lines, cooling towers, pumps, substation, associated facilities and any area where land is disturbed.

COMPLIANCE WITH REGULATIONS

This Stormwater Management Plan complies with the requirements of the State of Florida Department of Environmental Protection Generic Permit for Stormwater Discharge from Large and Small Construction Activities (May 2003, DEP Document No. 62-621.300(4)(a)).

**FLORIDA POWER & LIGHT, WEST COUNTY ENERGY CENTER
STORMWATER POLLUTION PREVENTION PLAN**

MAINTENANCE/INSPECTION PROCEDURES

Erosion and Sediment Control Inspection and Maintenance Practices

These are the inspection and maintenance practices that will be used to maintain erosion and sediment controls:

- Silt fence and drainage structures will be inspected at least once each week and following any storm event of 0.5 inches or greater. Maintenance, cleaning, and repair work will be completed as required.
- Sediment traps located in the swales will be inspected by the construction contractor every two weeks at a minimum and after every rainfall event in excess of 0.50 inches. The construction contractor will repair or replace them as required.
- All control measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of report
- Built up sediment will be removed from silt fences when it has reached one-third the height of the fence
- Silt fences will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
- A maintenance inspection report will be made after each inspection. A copy of the report form to be completed by the inspector is attached.
- The Site Construction Manager will assign personnel who will be responsible for inspections, maintenance and repair activities, and filling out the inspection and maintenance report.
- Personnel assigned inspection and maintenance responsibilities will be trained in this plan and all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

Non-Storm water Discharges

It is expected that the following non-storm water discharges will occur from the site during the construction period:

- Dewatering
- Hydrostatic test water
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).

Non-storm water discharges except for hydrostatic test water will be directed to the existing storm water system. Hydrostatic test water will be released to the sump/oil water separator unit and discharged into the Site wastewater disposal system.

**FLORIDA POWER & LIGHT, WEST COUNTY ENERGY CENTER
STORMWATER POLLUTION PREVENTION PLAN**

INVENTORY FOR POLLUTION PREVENTION

The materials or substances listed below will be present onsite during construction:

- | | |
|-----------------------------|----------------------------|
| - Detergents | - Fertilizers |
| - Paints (enamel and latex) | - Petroleum-Based Products |
| - Metal Studs | - Cleaning Solvents |
| - Tar | - Wood |
| | - Masonry block |

SPILL PREVENTION

Material Management Practices

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff:

Good Housekeeping

The following good housekeeping practices will be followed onsite during the construction project:

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers.
- Products will be kept in their original containers with the original manufacturer's label
- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of a product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The Site Construction Manager will assign personnel who will inspect daily to ensure proper use and disposal of materials onsite.

Hazardous Products

These practices will be used to reduce the risks associated with hazardous materials:

- Products will be kept in original containers unless they are not resealable
- Original labels and material safety data sheets will be retained; they contain important product information
- If surplus product must be disposed of, manufacturers' or local and State recommended methods for proper disposal will be followed

**FLORIDA POWER & LIGHT, WEST COUNTY ENERGY CENTER
STORMWATER POLLUTION PREVENTION PLAN**

Product Specific Practices

The following product specific practices will be followed onsite:

Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.

Fertilizers

Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to storm water. Storage will be in a covered shed according to manufacturers label and/or MSDS sheet. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills. Each container should be inspected regularly to assure that no product is being unintentionally released into the environment.

Paints

All containers will be tightly sealed and stored when not required for used. Excess paint will not be discharged to the storm sewer system but will be properly disposed of according to manufacturers' instructions or State and local regulations.

Concrete Trucks

Concrete trucks will be allowed to wash out and discharge surplus concrete on-site only in temporary pits designated by the Site Construction Manager for this purpose. The temporary pits will be located sized to prevent off-site discharge. The temporary pits will be cleaned out at a later date as directed by the Site Construction Manager.

Spill Control Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted, and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance
- Spills of toxic or hazardous material will be reported to the appropriate State or local government agency, regardless of the size.
- The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.

The Site Construction Manager will be the spill prevention and cleanup coordinator and will designate site personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area and in the office trailer onsite.

**FLORIDA POWER & LIGHT, WEST COUNTY ENERGY CENTER
STORMWATER POLLUTION PREVENTION PLAN**

CONTRACTORS' CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

Signature	Company	Responsible for
_____ <i>[typed name and title]</i> Date: _____		
_____ <i>[typed name and title]</i> Date: _____		
_____ <i>[typed name and title]</i> Date: _____		

STORMWATER POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT FORM

TO BE COMPLETED EVERY 7 DAYS AND WITHIN 24 HOURS OF
A RAINFALL EVENT OF 0.5 INCHES OR MORE

INSPECTOR: _____

DATE: _____

INSPECTOR'S QUALIFICATIONS:

DAYS SINCE LAST RAINFALL: _____ AMOUNT OF LAST RAINFALL : _____ INCHES

STABILIZATION MEASURES

AREA	DATE SINCE LAST DISTURBED	DATE OF NEXT DISTURBANCE	STABILIZED? (YES/NO)	STABILIZED WITH	CONDITION

STABILIZATION REQUIRED:

TO BE PERFORMED BY: _____

ON OR BEFORE: _____

STORMWATER POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT FORM

SEDIMENT BASINS:

AREA	DEPTH OF SEDIMENT IN BASIN	CONDITION OF BASIN SIDE SLOPES	ANY EVIDENCE OF OVERTOPPING OF THE EMBANKMENT?	CONDITION OF OUTFALL FROM SEDIMENT BASIN

MAINTENANCE REQUIRED FOR SEDIMENT BASINS:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

ADDITIONAL NOTES: _____

ATTACHMENT 10.7

GROUNDWATER MODELING EVALUATION

APPENDIX 10.7

GROUNDWATER MODELING EVALUATION (METHODOLOGY, INPUT, AND RESULTS)

INTRODUCTION

The objective of this modeling evaluation is to simulate the impacts in the vicinity of the West County Energy Center resulting from Project water supply withdrawal from the Upper Floridan Aquifer (UFA) and the surficial aquifer. The Project consists of two nominal 1,100 MW combined cycle units. The primary source of cooling water will be the L10/L12 Canal. The UFA will be used for cooling water makeup only when sufficient water is not available from the L10/L12 Canal and curtailment of this supply is required by the South Florida Water Management District (SFWMD). If the UFA is used as a secondary/backup supply of cooling water, the average withdrawal would be 14.56 million gallons per day (mgd). The maximum daily withdrawal could be 16.59 mgd. Based on planning studies conducted by the South Florida Water Management District, (Lower East Coast Regional Water Supply Plan, May 2000) expected curtailment of L10/L12 water could be in the range of 90 days, once or twice every ten years. Water from the surficial aquifer (0.035 mgd) will be used as the potable water supply during construction and operation of the Project. The modeling evaluation was conducted to meet the rule requirements of the South Florida Water Management District for a water supply permit.

A multi-layer computer model was used to simulate pumping from the UFA. The simulated pumping rate was 14.56 mgd for 90 days (i.e., a 90-day transient stress period). This pumping rate was selected because the UFA is a secondary/backup water supply, only for cooling water. Process water will be supplied from the L10/L12 canal. This pumping rate represents the maximum expected for a 90 day duration.

A single-layer model was used to simulate pumping from the surficial aquifer at a rate of 0.035 mgd. The single-layer model was used to evaluate two scenarios:

- 1) Steady-state conditions with pumping at 0.035 mgd, annual average surface recharge and perimeter boundary conditions that are representative of the actual site environment; and
- 2) A 90-day transient period, with pumping at 0.035 mgd, no surface recharge and no flow boundary conditions at the perimeter of the model.

The hydrogeologic modeling presented herein was conducted using the United States Geological Survey's (USGS) Modular Three-Dimensional Finite-Difference Ground Water Flow Model (MODFLOW) (Harbaugh and McDonald, 1996). This model uses a finite-difference approach to approximate the solution of the partial-differential flow equations and is based on approximations of flow through a three dimensional array of cells. The MODFLOW model was selected because it is publicly available and specifically referenced in the SFWMD Basis of Review document. Furthermore, it is well documented and it has been widely used and tested.

SITE HYDROGEOLOGY

This section briefly describes the site hydrogeology starting at the surface and moving down to the base of the Floridan Aquifer System (FAS). More detailed descriptions of the geology and lithology are provided in Chapter 2 of the SCA. The hydrogeologic information used for

development of the groundwater flow models was obtained from several published sources, including reports by the United States Geological Survey (USGS) and the SFWMD. Specifically, the regional geology and hydrogeology discussed below was developed primarily from information provided in the following reports:

- Hydrogeology and the Distribution of Salinity in the Floridan Aquifer System, Palm Beach County, Florida, USGS WRI Report 99-4061, by Reese and Memberg (2000).
- A Three-Dimensional Finite Difference Groundwater Flow Model of the Floridan Aquifer System in Martin, St. Lucie, and Eastern Okeechobee Counties, Florida, SFWMD Technical Publication 92-03, by Lukasiewicz (April 1992).
- Inventory and Review of Aquifer Storage and Recovery in Southern Florida, USGS WRI Report 02-4036, by Ronald S. Reese (2002)
- Documentation for the Lower East Coast Floridan Aquifer Model, Prepared by the Resource Assessment Division, Lower East Coast Planning Division, SFWMD (February 1999).
- Simulation of Ground-Water Flow in the Intermediate and Floridan Aquifer Systems in Peninsular Florida, USGS WRI Report 02-4009, by Nicasio Sepulveda (2002).
- Feasibility Study of Ground Water Supply and Deep Well Injection Discharge at Corbett Site, prepared for FPL by ECT (October 2004).

The natural ground surface elevations in the area of the Site are 15 to 20 ft NGVD; and in most areas the water table is within a few feet of the ground surface. The surficial aquifer system (SAS) is approximately 200 ft thick and extends from near the ground surface to approximately -180 ft msl. The SAS is composed of quartz sand, clayey sand, shell, coquina, limestone and calcareous sandstone. A reasonable estimate of the horizontal hydraulic conductivity of the surficial aquifer is 50 ft/day (Lukasiewicz, April 1992).

The Intermediate Confining Unit (ICU) (sometimes referred to as the Upper Confining Unit) extends from the base of the SAS to the top of the FAS. This unit is composed of low permeability clayey material of the Hawthorn Group. In the area of the site the ICU is estimated to be approximately 570 ft thick and extends from -180 ft msl to -750 ft msl (Reese and Memberg, 2000). The vertical hydraulic conductivity of this unit, on a regional average basis, was estimated by Lukasiewicz (April 1992) to be 3.1×10^{-4} ft/day.

The Upper Floridan Aquifer (UFA) underlies the ICU. The UFA is approximately 600 ft thick in the area of the site and extends from -750 ft msl to -1350 ft msl (Reese and Memberg, 2000). This aquifer includes the lower part of the Basal Hawthorn Unit and the upper part of the calcarenitic limestone of the Eocene Group (i.e., the Suwannee and/or Ocala Limestone). Much of this aquifer can consist of thick intervals of relatively low permeability material with thin zones of high transmissivity. The potentiometric surface of the UFA ranges from 40 ft above mean sea level in coastal Palm Beach County to 60 ft msl in western part of the county (Reese and Memberg, 2000). Estimates of the transmissivity of this aquifer range from less than 30,000 ft²/day to over 130,000 ft²/day.

The Middle Confining Unit (MCU) underlies the UFA and separates the UFA from the Lower Floridan Aquifer (LFA). In the area of the site, the MCU is estimated to be 150 ft thick and extends from -1350 ft msl to -1500 ft msl. The MCU is in the middle to lower part of the Eocene group and consists principally of low permeability material of the Avon Park Formation. The base of the MCU is at the top of the shallowest zone of high permeability dolomite occurring in the Oldsmar or Avon Park Formations; and the lithology of this unit is similar to the lithology of

the confining unit in the upper part of the LFA (Reese and Memberg, 2000). Consequently, Reese and Memberg suggest that the vertical hydraulic conductivity of this layer may be similar to the vertical hydraulic conductivity of the confining layer above the Boulder Zone (i.e., 2×10^{-2} to 2×10^{-5} ft/day).

In the area of the Site, the LFA is estimated to be at least 1,900 ft thick. The upper permeable portion of the LFA is estimated to be 400 to 500 ft thick (based on information from Reese and Memberg, 2000; Sepulveda, 2002; Lukasiewicz, 1992). This portion of the LFA likely extends from -1500 ft msl to approximately -2000 ft msl. Within the upper permeable portion of the LFA there are typically at least two high transmissivity zones separated by a semi-confining unit (Lukasiewicz, April 1992). In the area of the Site, the upper production zone (LFA PZ-1) and the semi-confining unit are each estimated to be 150 ft thick. The lower production zone (LFA PZ-2) is estimated to be 200 ft thick.

Below LFA PZ-2 there is another confining unit (sometimes called the lower confining unit) that separates LFA PZ-2 from the highly transmissive Boulder Zone. This unit is 700 to 1000 ft thick; and the vertical hydraulic conductivity is typically 2×10^{-2} ft/day to 2×10^{-5} ft/day (Reese and Memberg, 2000).

The highly transmissive Boulder Zone is in the middle to lower part of the LFA. The Boulder Zone is about 300 to 650 ft thick and is composed primarily of dolomite. Transmissivities in this zone have been estimated to be 3.2×10^{-6} to 2.5×10^{-7} ft²/day (Reese and Memberg, 2000). The base of the LFA is in the Cedar Keys Formation, 500 to 600 ft below the base of the Boulder Zone.

UPPER FLORIDAN AQUIFER SIMULATON

Model Set-Up

Since the proposed withdrawal will be obtained from the confined UFA, which has limited leakance from the SAS above and much higher leakance from the LFA below, a multi-layer quasi three-dimensional groundwater flow model was constructed for the simulation.

The first step in the modeling process requires creation of a suitable model framework to represent the area of interest. The model developed for this simulation is composed of three layers of uniformly sized finite difference cells. The grid consists of 119 columns and 119 rows resulting in 14,161 blocks (or cells) in each layer. The cell dimensions are 1 mile on a side (5,280 ft x 5,280 ft). Consequently, the total model domain represents an area of 14,161 square miles. The pumping well is located in the center of the model domain at row 60 and column 60.

To accurately simulate the hydrogeologic units, the model domain was divided into three computational layers (i.e., aquifers). Between the three aquifers there are two confining beds. The hydrogeologic structure generally follows the description provided above:

- Aquifer 1 (Model Layer 1): Surficial Aquifer System (20 to -180 ft NGVD);
- Confining Unit 1: Intermediate Confining Unit (-180 to -750 feet NGVD);
- Aquifer 2 (Model Layer 2): Upper Floridan Aquifer (-750 to -1350 feet NGVD);
- Confining Unit 2: Middle Confining Unit (-1350 to -1500 feet NGVD);
- Aquifer 3 (Model Layer 3): LFA PZ-1 (-1500 to -1650 ft NGVD).

All withdrawals are from the UFA (Model Layer 2). The SAS (Model Layer 1) and the LFA

PZ-1 (Model Layer 3) act as source beds with leakance through the ICU and the MCU. Leakance and confining bed storage were incorporated into the model using the Transient Leakage Package (Leake, et al, 1994).

Unless otherwise specified, the model implicitly places no-flow boundaries at the bottom of the lowest layer and at the perimeter boundaries of each layer. These boundary conditions were used in the simulation. The 90-day transient simulation was run with zero recharge specified at the surface.

Model Hydrogeologic Input Parameters

The input parameters used in MODFLOW (those representing the hydraulic characteristics of the system) include the following:

- transmissivity for model layers 1, 2 and 3;
- storativity/storage coefficient (S) for model layers 2 and 3;
- specific yield (Sy) (model layer 1);
- vertical hydraulic conductivity for the confining units (ICU and MCU);
- thickness of confining units (ICU and MCU);
- specific storage (Ss) for the confining units (ICU and MCU); and
- initial head conditions.

To evaluate the impacts from pumping it is not necessary to represent the existing potentiometric surface elevation. Therefore, the initial heads were set to zero.

To determine the best estimate and a reasonable range for the model hydrologic input parameters, Golder Associates, Inc. (Golder) reviewed and assessed the available literature. Table 1 provides a summary, by source, of the aquifer values reported in the literature; and the estimates made by Golder and others based on the reported values. Based on the summary presented in Table 1 and professional judgement, Golder selected the following values to represent the best estimate, the minimum and the maximum values for the hydraulic parameters.

Hydraulic Parameter	Minimum	Best Estimate	Maximum
ICU Leakance (ft/day/ft)	4.0E-07	4.0E-06	4.0E-5
UFA Transmissivity (ft ² /day)	33,000	66,000	132,000
LFA PZ-1 Transmissivity (ft ² /day)	33,000	66,000	132,000
UFA & LFA PZ-1 Storativity	2.0E-04	6.0E-04	18.0E-04
MCU Leakance (ft/day/ft)	6.7E-06	2.0E-04	6.0E-03

The minimum and maximum values for the ICU leakance are the best estimate value divided by 10 and multiplied by 10, respectively. The available transmissivity and storativity data for the UFA and the LFA PZ-1 did not suggest a significant difference between these aquifers. Therefore, the same values were used in the model for both aquifers. The minimum transmissivity is half the best estimate value; and the maximum transmissivity is twice the best estimate. The minimum and maximum storativity values are the best estimate divided by and multiplied by a factor of three, respectively. These parameter values are generally consistent with the geometric means presented in Table 1.

The best estimate values were used in the model to simulate the base case scenario and the maximum and minimum values were used to conduct a model sensitivity analysis. The model

input values for the base case scenario and the ten scenarios used to conduct the sensitivity analysis are shown in Table 2, along with the key model results for each run.

MODELING RESULTS

The “area of influence” is defined by the distance to the 1 ft drawdown contour in the UFA and by the distance to the 0.1 ft drawdown contour in the SAS (Basis of Review document, SFWMD, August 31, 2003). Table 2 gives the area of influence, in miles, for the base case (i.e., best estimate) scenario after 30, 60 and 90 days of pumping. Also shown in this table are the corresponding results for the ten sensitivity scenarios. Figure 1 shows a plot of drawdown in the UFA versus the radial distance from the pumping center for the base case scenario, after 30, 60 and 90 days. Figure 2 and Table 3 show the existing permitted water supply wells in the UFA within the maximum area of influence, as determined from the SFWMD database. The best estimate scenario shows the area of influence would extend 14.73 miles from the center of pumping after 90 days. Based on the sensitivity analysis, the minimum and maximum area of influence after 90 days could extend from 9.7 miles to 17.89 miles from the center of pumping. There are four permitted wells within the maximum area of influence after 90 days of pumping. These wells are between 13.9 miles and 15.4 miles from the Project. The wells are 1200 feet deep and are cased to at least 700 ft. In this area, the potentiometric surface is between 40 ft and 60 ft above mean sea level. Consequently, a drawdown of 1 to 2 feet should have no significant impact on operation of these wells.

SURFICIAL AQUIFER SIMULATION

Model Set-Up

The modeling grid developed for the steady-state simulation consists of 23 columns and 95 rows resulting in 2,185 blocks in one layer (i.e., the surficial aquifer). The cell dimensions are 100 x 100 feet. The total grid covers a representative area of approximately 21.85 million square feet (about 0.78 square miles). The model domain for the steady-state simulation was selected to make the model boundaries correspond with surface features that represent constant head boundaries. Boundary conditions were determined by measuring the distance between the property boundaries and significant bodies of water (ponds or canals) from aerial maps. Boundary conditions used during the steady-state simulation are outlined in Table 4.

The model grid developed for the transient simulation consists of 100 columns and 100 rows resulting in 10,000 blocks (or cells) in one layer. The cell dimensions are 100 x 100 feet. The total grid (model domain) covers a representative area of approximately 100 million square feet (about 3.59 square miles). The domain for the transient model was expanded from the steady-state model to reduce boundary effects when the constant head boundary features were removed to match the simulation requirements in the Basis of Review document (SFWMD, August 31, 2003). Lateral boundary conditions were not used during the transient simulation.

In both models, the domain was set up as a 1-layer system, generally following the hydrogeologic cross-section discussed above for the surficial aquifer (20 feet to -180 feet NGVD).

Unless otherwise specified, the model implicitly places a no-flow boundary at the bottom of the lowest layer. Based on leakance values reported for the intermediate confining unit, this is a reasonable assumption. The initial head condition was set at 10 feet for the transient simulation.

Model Hydrogeologic Input Parameters

The input parameters used in MODFLOW (those representing the hydraulic characteristics of the SAS) include the following:

- lateral hydraulic conductivity (K_x and K_y);
- vertical hydraulic conductivity (K_z);
- specific yield (S_y); and
- net recharge (steady-state simulation only).

The input parameters were entered into the model using consistent units of feet and days. The model was run using steady-state simulation with pumping set at 35,000 gpd. The well was centered between the east and west property boundaries in the northern portion of the site. The western and northern boundary conditions were set to represent a canal and mine pits, respectively (each approximately 3,000 feet from the property boundaries). The canal to the west is a major irrigation canal. The boundary condition to the east (approximately 200 feet from the property boundary) represents the SFWMD water storage reservoirs. The boundary condition to the south (approximately 300 feet from the property boundary) is the West Palm Beach Canal (i.e., L10/L12 Canal). A summary of the model input parameters for the 1-layer steady-state simulation is presented in Table 4.

A transient simulation was also conducted for the surficial aquifer. The model was run using a 90-day transient simulation (pumping at 35,000 gpd) for three different scenarios: High horizontal hydraulic conductivity ($K=100$ ft/day); Average horizontal hydraulic conductivity ($K=50$ ft/day); and low horizontal hydraulic conductivity ($K=10$ ft/day). Input parameters for the three transient simulations are summarized in Table 4. The range of hydraulic conductivity was determined from slug tests conducted at the site during the preliminary geotechnical investigation (Golder, 2002). Sixteen slug tests were conducted at three locations and two depth intervals. The slug test results are consistent with surficial aquifer hydraulic conductivity value ($K=50$ ft/day) used in the ground water flow model by Lukasiewicz (April 1992). Initial head was set to 10 feet for the transient simulation with zero recharge. Also, boundary conditions were not specified for the transient simulation.

Modeling Results

The results of the groundwater model under steady-state pumping show drawdown within the surficial aquifer was 0.1 feet or less at the property boundaries, approximately 600 feet from the pumping well. The drawdown at the well was approximately 0.34 feet. Results for the steady-state run are included in Table 4. A profile of drawdown versus distance for the steady-state scenario is shown on Figure 3.

For the transient pumping scenarios, drawdown at the well in the surficial aquifer after 90 days with no surface recharge, ranged from 0.2 feet (high K) to 1.66 feet (low K). Radial distances measured from the pumping well to the 0.1-foot contour (in any direction) ranged from 300 feet (high K) to 1,350 feet (low K). Table 5 summarizes the radial distances, drawdown at the well, and drawdown at the property boundary for the each hydraulic conductivity scenario. Graphs showing the drawdown versus distance for the surficial aquifer for each scenario are attached (Figure 4 – high K ; Figure 5 – average K ; and Figure 6 – low K). Drawdown versus time plots for each scenario are also included (Figure 7 – high K ; Figure 8 – average K ; and Figure 9 – low K).

CONCLUSIONS

A modeling evaluation was conducted to simulate the impacts of pumping from the Upper Floridan Aquifer (UFA) and surficial aquifer for the Project within the immediate vicinity of the West County Energy Center. The modeling evaluation was conducted as required by the rules of the South Florida Water Management District. The results of the evaluation indicate that the withdrawals requested for the UFA and surficial will not impact existing legal users and will meet the requirements of the SFWMD. For the UFA, there are four permitted wells within the maximum area of influence after 90 days of pumping. These wells are between 13.9 miles and 15.4 miles from the Project. The wells are 1,200 feet deep and are cased to at least 700 ft. In this area, the potentiometric surface is between 40 ft and 60 ft above mean sea level. Consequently, a drawdown of 1 to 2 feet should not interfere with the operation of these wells. For the surficial aquifer, there are no permitted wells within the 0.1 foot drawdown contour and the surficial aquifer drawdown caused by the water use will not adversely impact wetland values, impact surface water functions or cause environmental harm.

TABLE 1
Summary Table of Literature Values for Aquifer Parameters

Data Source or Calculation	Intermediate (upper) Confining Unit				Upper Floridan Aquifer								Middle Confining Unit				Lower Floridan Aquifer PZ-1			
	Leakance				Transmissivity				Storage				Leakance				Transmissivity			
	Minimum	Best Est.	Maximum	Notes	Minimum	Best Est.	Maximum	Notes	Minimum	Best Est.	Maximum	Notes	Minimum	Best Est.	Maximum	Notes	Minimum	Best Est.	Maximum	Notes
1					10,000		100,000										32,000		132,000	1
2																				3
3						64,800		2										49,100		
4													1.33E-07		1.33E-04	4				
5													8.70E-07			5				
6													1.10E-07	1.20E-05	1.70E-03	5				
7					24,000		132,000													
8	3.80E-07	5.40E-07	1.20E-06	6	100,000		200,000	7	1.9E-04	4.0E-04	9.5E-04	8	1.00E-03	4.00E-02	5.00E-02	9				
9						130,000														
10					108,000	108,000	138,000	10	1.0E-04		8.0E-04	10								
11					34,000	34,000	198,000	11	8.5E-04		3.6E-03	11						198,500		15
12	1.00E-06		1.00E-05	12	50,000		100,000													
13	1.80E-07	3.50E-05	3.50E-03	13		41,350							6.00E-04	2.30E-03	6.40E-03	14				
14	4.1E-07	4.3E-06	3.5E-05		40490	66,280	139003		2.5E-04	4.0E-04	1.4E-03		6.0E-06	1.0E-03	2.9E-03		32,000	98,724	132,000	
16		3.8E-06				75,022					5.9E-04							64,992		
15		2.5E-05				44,721					6.0E-04				7.4E-05			64,992		

Data Source or Calculation Description

1	USGS WRI Report 99-4061, Reese and Memberg, 2000 (from Bush & Johnson, 1988)
2	USGS WRI Report 99-4061, Reese and Memberg, 2000 (from ViroGroup, 1994 pump test PB-1197)
3	USGS WRI Report 99-4061, Reese and Memberg, 2000 (from Lukasiewicz communication, 1996 well PB-1695)
4	USGS WRI Report 99-4061, Reese and Memberg, 2000 (from CH2M Hill, 1988)
5	USGS WRI Report 99-4061, Reese and Memberg, 2000 (from CDM, 1987)
6	Copy of portions of CDM report for Royal Palm Beach from SFWMD permit file (source: Jon Shaw)
7	USGS WRI Report 99-4061, Reese and Memberg, 2000 (from conclusions section)
8	SFWMD, Technical Publication 92-03, By John Lukasiewicz, 1992
9	Feasibility Study of Ground Water Supply and Deep Well Injection Discharge at Corbett Site, ECT, October 2004 (from Lukasiewicz 1992 model).
10	Inventory and Review of Aquifer Storage and Recovery in Southern Florida, USGS WRI Report 02-4036, Ronald S. Reese, 2002
11	Feasibility Study of Ground Water Supply and Deep Well Injection Discharge at Corbett Site, ECT, October 2004 (from Lukasiewicz, 2001)
12	Feasibility Study of Ground Water Supply and Deep Well Injection Discharge at Corbett Site, ECT, October 2004 (from Sepulveda, 2002)
13	Documentation for the Lower East Coast Floridan Aquifer Model, SFWMD, February 1999
14	Geometric Mean of Values Listed Above
16	Geometric Mean (GM(Max),GM(Min))
15	GM(Min(Min),Max(Max))

Notes:

Note 1: Multi-well pump test in well PB-1197, interval -1451 to -1665 (LFA PZ-1)
Note 2: Packer test in Well PB-1695 from -1035 to -1175 below msl (UFA)
Note 3: Packer test in Well PB-1695 from -1345 to -1485 below msl (LFA PZ-1)
Note 4: Based on vertical conductivity of 9 core samples between 2217 bgs and 2777 bgs in well PB-1176 (northeast PB County) and layer thickness of 150 ft.
Note 5: Based on vertical conductivity of 8 core samples between 2149 to 2808 bgs in eastern Broward County (LFA semi-confining layer) and MCU layer thickness of 150 ft.
Note 6: Best Est. based on regional vertical conductivity used in the model and layer thickness of 570 ft. Max and Min values from model reported layer thicknesses.
Note 7: Figure 19, North Central Palm Beach County
Note 8: Based on 9 pump test results in the area.
Note 9: Based on three APT tests in study area.
Note 10: West Palm Beach WTP ASR pump tests interval -985 to -1200 ft
Note 11: Lake Lytal Park (PB-1695 dolomite unit not present) well 17 miles east of site, interval -1050 to -1250 ft bgs (UFA). See Note 15.
Note 12: These values may include leakance from above and below
Note 13: Based on vertical conductivity data (LEC model layer 2) and layer thickness of 570 ft
Note 14: Based on vertical conductivity data (LEC model layer 6) and layer thickness of 150 ft. (layer 6 in LEC model includes MCU, PZ-1 and Semi-confining unit below PZ-1)
Note 15: From packer test Lake Lytal Park well PB-1695 interval -1360 to -1510 ft bgs (UFA or LFA PZ-1?), Storage = .00085

TABLE 2
MODEL INPUT VALUES, RESULTS AND SENSITIVITY ANALYSIS

		Base Case	Scenario									
		1	2	3	4	5	6	7	8	9	10	
Layer 1 SAS	Top Elevation (ft-msl)	20	20	20	20	20	20	20	20	20	20	
	Bottom Elevation (ft-msl)	-180	-180	-180	-180	-180	-180	-180	-180	-180	-180	
	Thickness (ft)	200	200	200	200	200	200	200	200	200	200	
	Kx, Ky (ft/day)	10	10	10	10	10	10	10	10	10	10	
	Kz (ft/day)	1	1	1	1	1	1	1	1	1	1	
	Transmissivity (ft^2/day)	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
	Specific Yield	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
Layer 2 ICU	Top Elevation (ft-msl)	-180	-180	-180	-180	-180	-180	-180	-180	-180	-180	
	Bottom Elevation (ft-msl)	-750	-750	-750	-750	-750	-750	-750	-750	-750	-750	
	Thickness (ft)	570	570	570	570	570	570	570	570	570	570	
	Kx, Ky (ft/day)	2.28E-01	2.28E-01	2.28E-01	2.28E-01	2.28E-01	2.28E-01	2.28E-01	2.28E-01	2.28E-01	2.28E-01	
	Kz (ft/day)	2.28E-03	2.28E-04	2.28E-02	2.28E-03	2.28E-03	2.28E-03	2.28E-03	2.28E-03	2.28E-03	2.28E-03	
	Transmissivity (ft^2/day)	130	130	130	130	130	130	130	130	130	130	
	Leakance (ft/day/ft)	4.00E-06	4.00E-07	4.00E-05	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	
	Storage Coefficient	1.71E-03	1.71E-03	1.71E-03	1.71E-03	1.71E-03	1.71E-03	1.71E-03	5.70E-04	5.13E-03	1.71E-03	1.71E-03
	Specific Storage (1/ft)	3.00E-06	3.00E-06	3.00E-06	3.00E-06	3.00E-06	3.00E-06	3.00E-06	1.00E-06	9.00E-06	3.00E-06	3.00E-06
Layer 3 UFA	Top Elevation (ft-msl)	-750	-750	-750	-750	-750	-750	-750	-750	-750	-750	
	Bottom Elevation (ft-msl)	-1350	-1350	-1350	-1350	-1350	-1350	-1350	-1350	-1350	-1350	
	Thickness (ft)	600	600	600	600	600	600	600	600	600	600	
	Kx, Ky (ft/day)	110.0	110.0	110.0	55.0	220.0	110.0	110.0	110.0	110.0	110.0	
	Kz (ft/day)	11.0	11.0	11.0	5.5	22.0	11.0	11.0	11.0	11.0	11.0	
	Transmissivity (ft^2/day)	66,000	66,000	66,000	33,000	132,000	66,000	66,000	66,000	66,000	66,000	
	Storage Coefficient	6.00E-04	6.00E-04	6.00E-04	6.00E-04	6.00E-04	6.00E-04	6.00E-04	6.00E-04	6.00E-04	2.00E-04	1.80E-03
	Specific Storage (1/ft)	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	3.33E-07	3.00E-06
Layer 4 MCU	Top Elevation (ft-msl)	-1350	-1350	-1350	-1350	-1350	-1350	-1350	-1350	-1350	-1350	
	Bottom Elevation (ft-msl)	-1500	-1500	-1500	-1500	-1500	-1500	-1500	-1500	-1500	-1500	
	Thickness (ft)	150	150	150	150	150	150	150	150	150	150	
	Kx, Ky (ft/day)	3.00E+00	3.00E+00	3.00E+00	3.00E+00	3.00E+00	3.00E+00	3.00E+00	3.00E+00	3.00E+00	3.00E+00	
	Kz (ft/day)	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	1.01E-03	9.00E-01	3.00E-02	3.00E-02	3.00E-02	3.00E-02
	Transmissivity (ft^2/day)	450	450	450	450	450	450	450	450	450	450	450
	Leakance (ft/day/ft)	2.00E-04	2.00E-04	2.00E-04	2.00E-04	2.00E-04	6.70E-06	6.00E-03	2.00E-04	2.00E-04	2.00E-04	2.00E-04
	Storage Coefficient	4.50E-04	4.50E-04	4.50E-04	4.50E-04	4.50E-04	4.50E-04	4.50E-04	1.50E-04	1.35E-03	4.50E-04	4.50E-04
	Specific Storage (1/ft)	3.00E-06	3.00E-06	3.00E-06	3.00E-06	3.00E-06	3.00E-06	3.00E-06	1.00E-06	9.00E-06	3.00E-06	3.00E-06
Layer 5 LFA PZ-1	Top Elevation (ft-msl)	-1500	-1500	-1500	-1500	-1500	-1500	-1500	-1500	-1500	-1500	
	Bottom Elevation (ft-msl)	-1650	-1650	-1650	-1650	-1650	-1650	-1650	-1650	-1650	-1650	
	Thickness (ft)	150	150	150	150	150	150	150	150	150	150	
	Kx, Ky (ft/day)	440.0	440.0	440.0	220.0	880.0	440.0	440.0	440.0	440.0	440.0	
	Kz (ft/day)	44.0	44.0	44.0	22.0	88.0	44.0	44.0	44.0	44.0	44.0	
	Transmissivity (ft^2/day)	66,000	66,000	66,000	33,000	132,000	66,000	66,000	66,000	66,000	66,000	
	Storage Coefficient	6.00E-04	6.00E-04	6.00E-04	6.00E-04	6.00E-04	6.00E-04	6.00E-04	6.00E-04	6.00E-04	2.00E-04	1.80E-03
Specific Storage (1/ft)	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	1.33E-06	1.20E-05	
After 30 Days of Pumping at 14.56 MGD												
Distance to 1 ft drawdown in UFA (miles)		8.90	9.72	7.10	9.00	7.76	11.44	8.89	10.13	7.23	11.14	6.45
Distance to 0.1 ft drawdown in SAS (miles)		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Drawdown at the Pumping Cell (ft)		15.36	15.66	14.54	27.31	8.51	18.09	11.14	15.73	14.78	15.88	14.49
After 60 Days of Pumping at 14.56 MGD												
Distance to 1 ft drawdown in UFA (miles)		12.25	13.75	8.84	12.44	10.36	14.81	12.38	14.18	9.78	15.10	8.76
Distance to 0.1 ft drawdown in SAS (miles)		<0.1	<0.1	0.71	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Drawdown at the Pumping Cell (ft)		16.19	16.56	15.05	28.98	8.93	19.28	11.94	16.58	15.59	16.65	15.39
After 90 Days of Pumping at 14.56 MGD												
Distance to 1 ft drawdown in UFA (miles)		14.73	16.80	9.69	14.94	12.25	17.08	14.91	17.11	11.64	17.89	10.53
Distance to 0.1 ft drawdown in SAS (miles)		<0.1	<0.1	1.50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Drawdown at the Pumping Cell (ft)		16.64	17.04	15.21	29.88	9.15	19.87	12.38	17.01	16.02	17.05	15.88
Scenario	Change from Base Case											
1 Layer 2 (ICU) L = L(base)/10												
2 Layer 2 (ICU) L = L(base)*10												
3 Layers 3 and 5 (UFA and LFA PZ-1) T = T(base)/2												
4 Layers 3 and 5 (UFA and LFA PZ-1) T = T(base)*2												
5 Layer 4 (MCU) L = L(base)/30												
6 Layer 4 (MCU) L = L(base)*30												
7 Layers 2 and 4 (ICU and MCU) Ss = Ss(base)/3												
8 Layers 2 and 4 (ICU and MCU) Ss = Ss(base)*3												
9 Layers 3 and 5 (UFA and LFA PZ-1) S = S(base)/3												
10 Layers 3 and 5 (UFA and LFA PZ-1) S = S(base)*3												

Bold -- Indicates an input value for the base case or for a scenario change.

--Unshaded cells show values that is different from base case.

value -- Shaded cells show calculated values.

TABLE 3

INVENTORY OF PERMITTED WATER SUPPLY WELLS
WITHIN THE AREA OF INFLUENCE

ID	PERMIT_NO	PROJECT_NA	FACIL_ID	FACIL_NAME	DIAMETER	PUMP_DEPTH	PUMP_CAPAC	WELL_DEPTH	CASE_DEPTH	USE_STATUS	FAC_STATUS	WATER_USE	SECNO	TWP	RGE	DIST_NI
1	50-03147-W	OSCEOLA COGENERATION PLANT	6688	FW1	10.00	-850.00	350	1235	860	STD	P	IND	17	42.0	38.0	13.88864666
2	50-03147-W	OSCEOLA COGENERATION PLANT	6689	FW2	10.00	-850.00	350	1235	860	STD	P	IND	8	42.0	38.0	14.20100573
3	50-01528-W	PALM BEACH PARK OF COMMERCE	121122	5	24.00	0.00	700	1200	700	PRM	P	PWS	17	41.0	41.0	15.27860309
4	50-01528-W	PALM BEACH PARK OF COMMERCE	121121	4	24.00	0.00	700	1200	700	PRM	P	PWS	17	41.0	41.0	15.36284482

ITEM NAME DESCRIPTION

PERMIT_NO	Permit number
PERMIT_TYP	Type (INDividual or General Permit, see below)
PROJECT_NA	Name of project
FACIL_ID	SFWMD internal ID number
FACIL_NAME	SFWMD internal facility name
PUMP_TYPE	Pump type
DIAMETER	Of well, pump, or culvert (in inches)
PUMP_CAPAC	MAX capacity of pump (GPM)
X_COORD	X coordinate
Y_COORD	Y coordinate
WELL_DEPTH	Total well depth (in feet)
CASE_DEPTH	Cased depth (in feet)
USE_STATUS	Primary, secondary, abandoned, stand-by, to-be-plugged-and-abandoned, recharge, monitor, injection
FAC_STATUS	E = Existing; P = Proposed
WATER_USE	Irrigation, PWS, Industrial, Aquifer Storage Recovery, Monitor, Freeze Protection, Recharge, Diversion & Impoundment
SECNO	Section number
TWP	Township
RGE	Range

TABLE 4

**MODFLOW MODEL - PUMPING FROM THE SURFICIAL AQUIFER - STEADY STATE
INPUT VARIABLES* AND MODELING RESULTS**

West County Energy Center
Palm Beach County, Florida

Parameter	Unit	Surficial Aquifer - Layer 1 (20 to -180 feet)
Steady State Simulation - Pumping 35,000 gpd		
Lateral Hydraulic Conductivity (Kx)	feet/day	50
Transverse (Ky)	feet/day	50
Vertical (Kz)	feet/day	5
Specific Yield (Sy)	feet/day	0.2
Net Recharge (2 zones ¹)	inches/year	16, 17
Distance ² to western B.C. - General Head = 10 feet	feet	3000
Distance ² to northern B.C. - General Head = 10 feet	feet	3000
Distance ² to eastern B.C. - Constant Head = 10 feet	feet	200
Distance ² to southern B.C. - Constant Head = 10 feet	feet	300
Radial Distance to the 0.1-foot drawdown contour ³	feet	600
Drawdown at the pumping well	feet	0.34
Drawdown at eastern edge of property boundary	feet	0.09
Drawdown at western edge of property boundary	feet	0.1
Notes: * - Input parameters were obtained from the USGS Water Resources Report 99-4061 - Hydrogeology and the Distribution of Salinity in the Floridan Aquifer System, Palm Beach County, Florida by Reese and Memberg, and from the Hydrogeology Division Department of Research and Evaluation South Florida Water Management District Technical Publication 92-03 - A Three-Dimensional Finite Difference Ground Water Flow Model of the Floridan Aquifer System in Martin, St. Lucie and Eastern Okeechobee Counties, Florida by Lukasiewicz. ¹ - Zone two was set at 17 inches/year within the property boundary; Zone 1 the remaining model domain. ² - Distances measured from the edge of the property. ³ - Distance measured from the pumping well toward the west. B.C. - Boundary Condition		

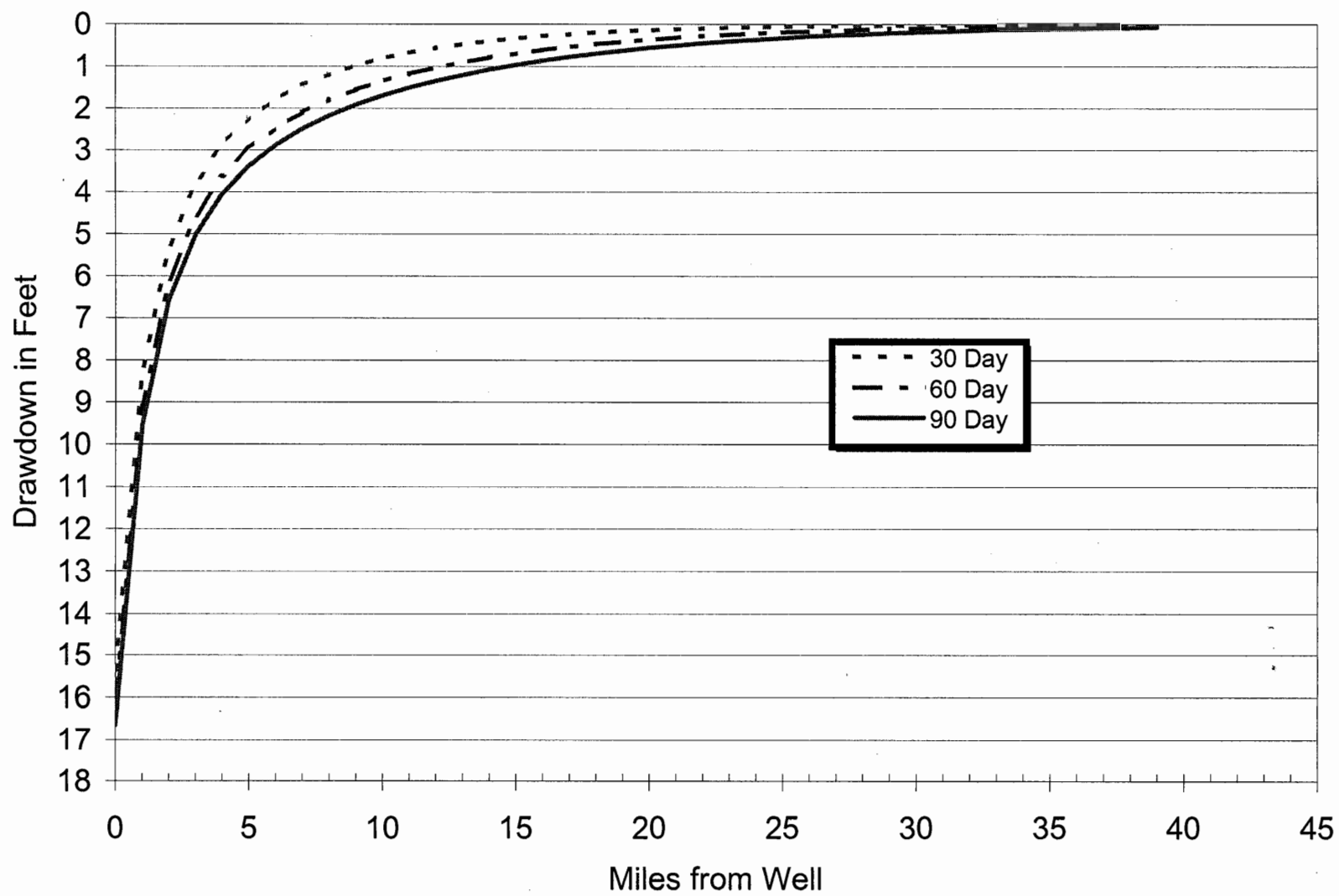
TABLE 5

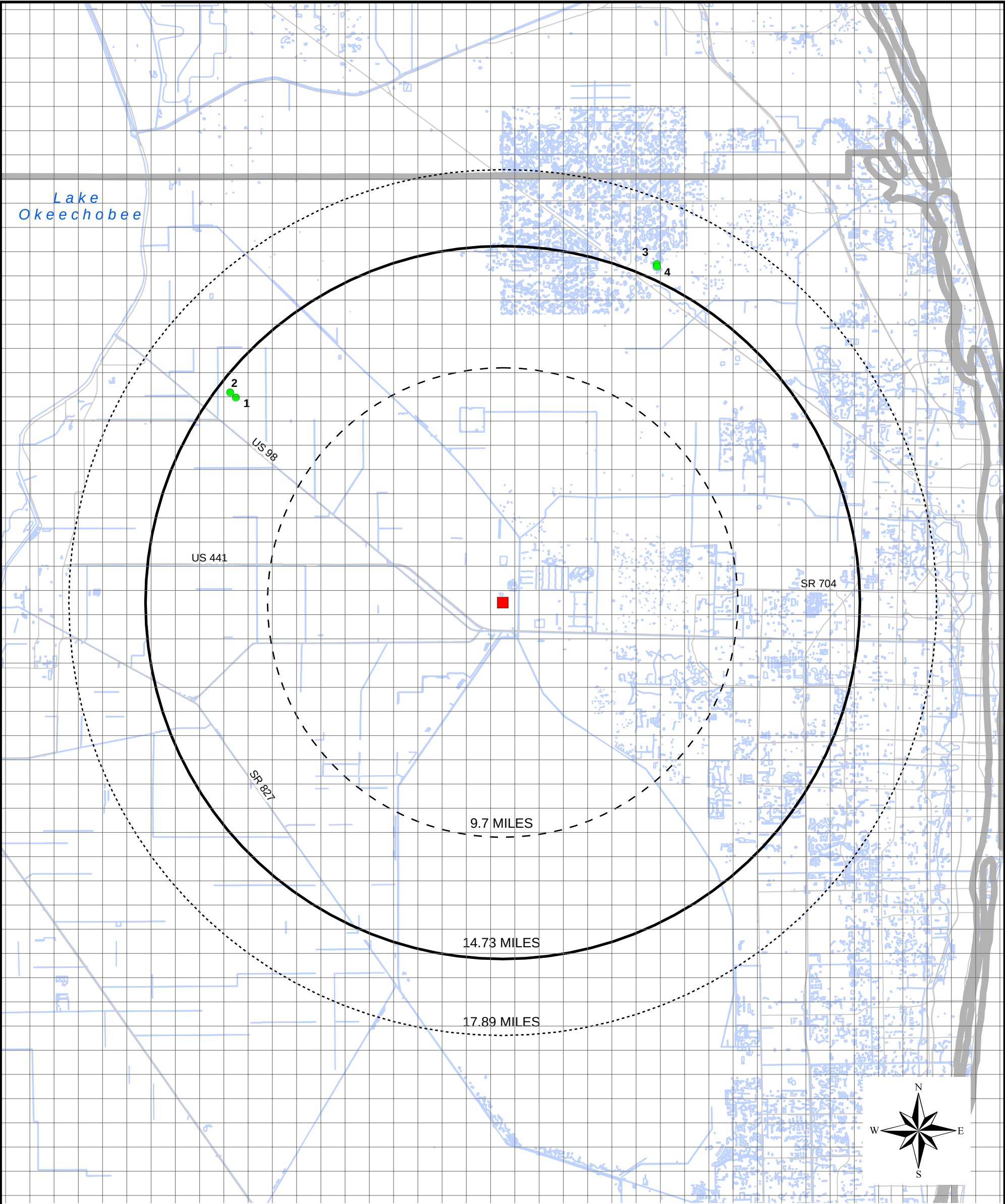
**MODFLOW MODEL - PUMPING FROM THE SURFICIAL AQUIFER - TRANSIENT SIMULATION WITH NO RECHARGE
INPUT VARIABLES* AND MODELING RESULTS**

West County Energy Center
Palm Beach County, Florida

Parameter	Unit	Surficial Aquifer - Layer 1 (20 to -180 feet)
Pumping 35,000 gpd for 90 days - High K		
Lateral Hydraulic Conductivity (Kx)	feet/day	100
Transverse (Ky)	feet/day	100
Vertical (Kz)	feet/day	10
Specific Yield (Sy)	feet/day	0.2
Net Recharge	inches/year	0
Radial Distance to the 0.1-foot drawdown contour ¹	feet	300
Drawdown at the well	feet	0.2
Drawdown at eastern and western edge of property boundary	feet	0.07
Pumping 35,000 gpd for 90 days - Average K		
Lateral Hydraulic Conductivity (Kx)	feet/day	50
Transverse (Ky)	feet/day	50
Vertical (Kz)	feet/day	5
Specific Yield (Sy)	feet/day	0.2
Net Recharge	inches/year	0
Radial Distance to the 0.1-foot drawdown contour ¹	feet	800
Drawdown at the well	feet	0.38
Drawdown at eastern and western edge of property boundary	feet	0.12
Pumping 35,000 gpd for 90 days - Low K		
Lateral Hydraulic Conductivity (Kx)	feet/day	10
Transverse (Ky)	feet/day	10
Vertical (Kz)	feet/day	1
Specific Yield (Sy)	feet/day	0.2
Net Recharge	inches/year	0
Radial Distance to the 0.1-foot drawdown contour ¹	feet	1350
Drawdown at the well	feet	1.66
Drawdown at eastern and western edge of property boundary	feet	0.34
Notes:		
* - Input parameters were obtained from the USGS Water Resources Report 99-4061 - Hydrogeology and the Distribution of Salinity in the Floridan Aquifer System, Palm Beach County, Florida by Reese and Memberg, and from the Hydrogeology Division Department of Research and Evaluation South Florida Water Management District Technical Publication 92-03 - A Three-Dimensional Finite Difference Ground Water Flow Model of the Floridan Aquifer System in Martin, St. Lucie and Eastern Okeechobee Counties, Florida by Lukasiewicz.		
¹ - Distance measured from the pumping well toward the west.		

Figure 1. Drawdown for Base Case





LEGEND

- SFWMD water use wells within 17.89 miles
- Pumping well location
- 9.7 miles - minimum distance to 1-ft drawdown
- 14.73 miles - expected distance to 1-ft drawdown
- 17.89 miles - maximum distance to 1-ft drawdown
- MODFLOW model grid

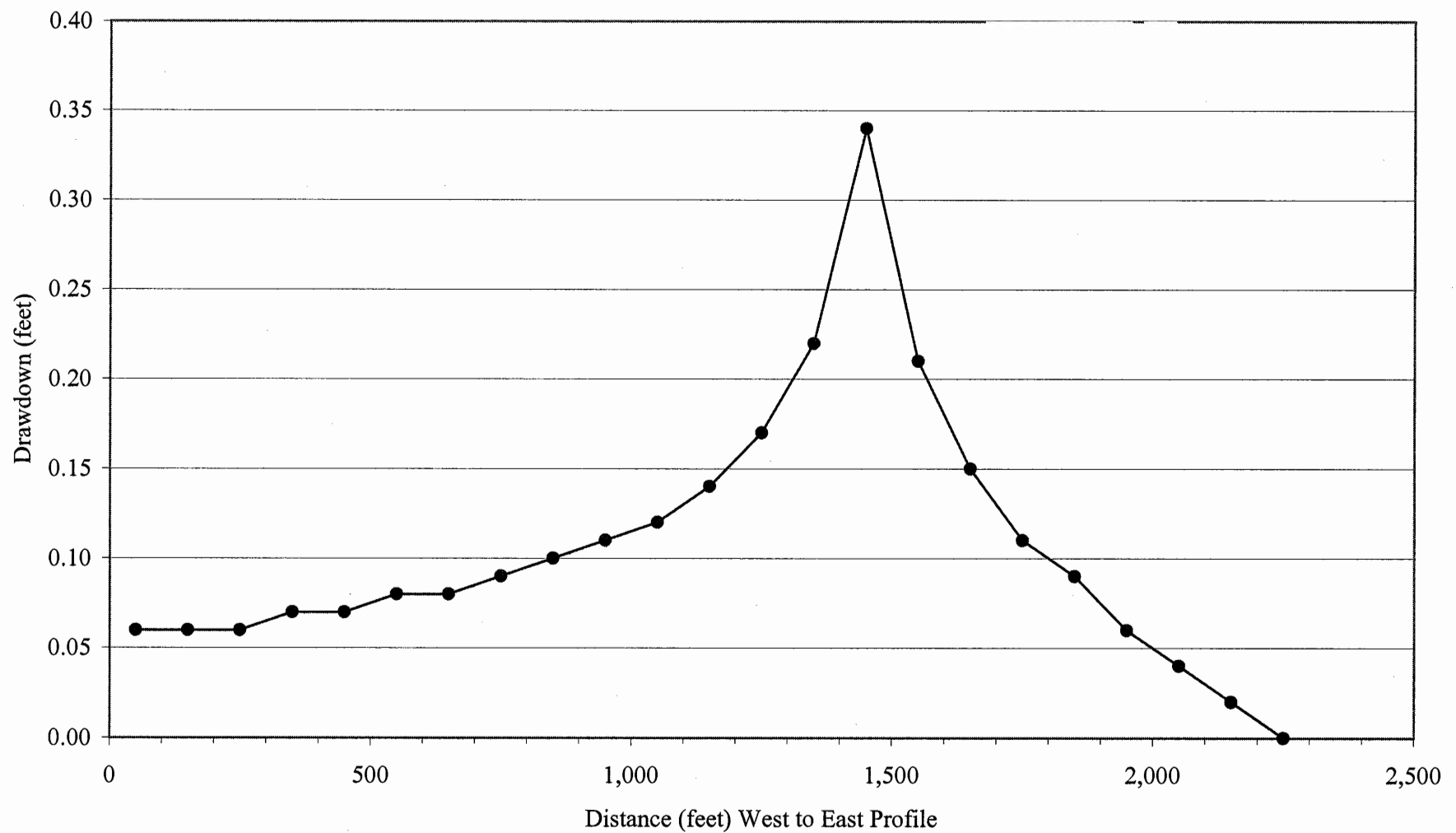
NOTES

- 1.) Well labels are related to Well ID value in Table 3 - Inventory of Permitted Water Supply Wells within Area of Influence.
- 2.) Area of Influence is defined by 1-ft drawdown contour.

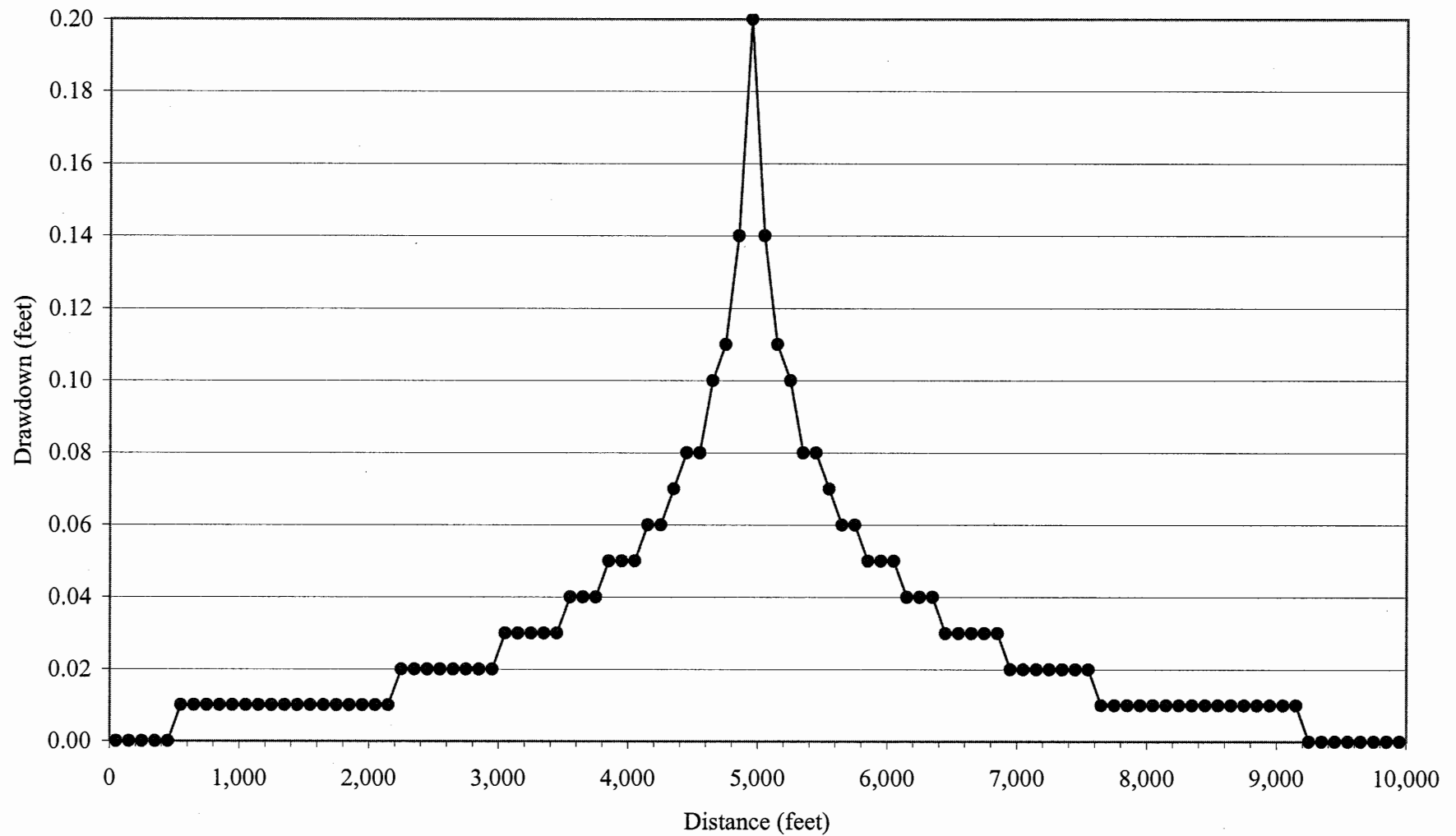
REFERENCES

- 1.) Water use permitted wells, SFWMD RegDBD website

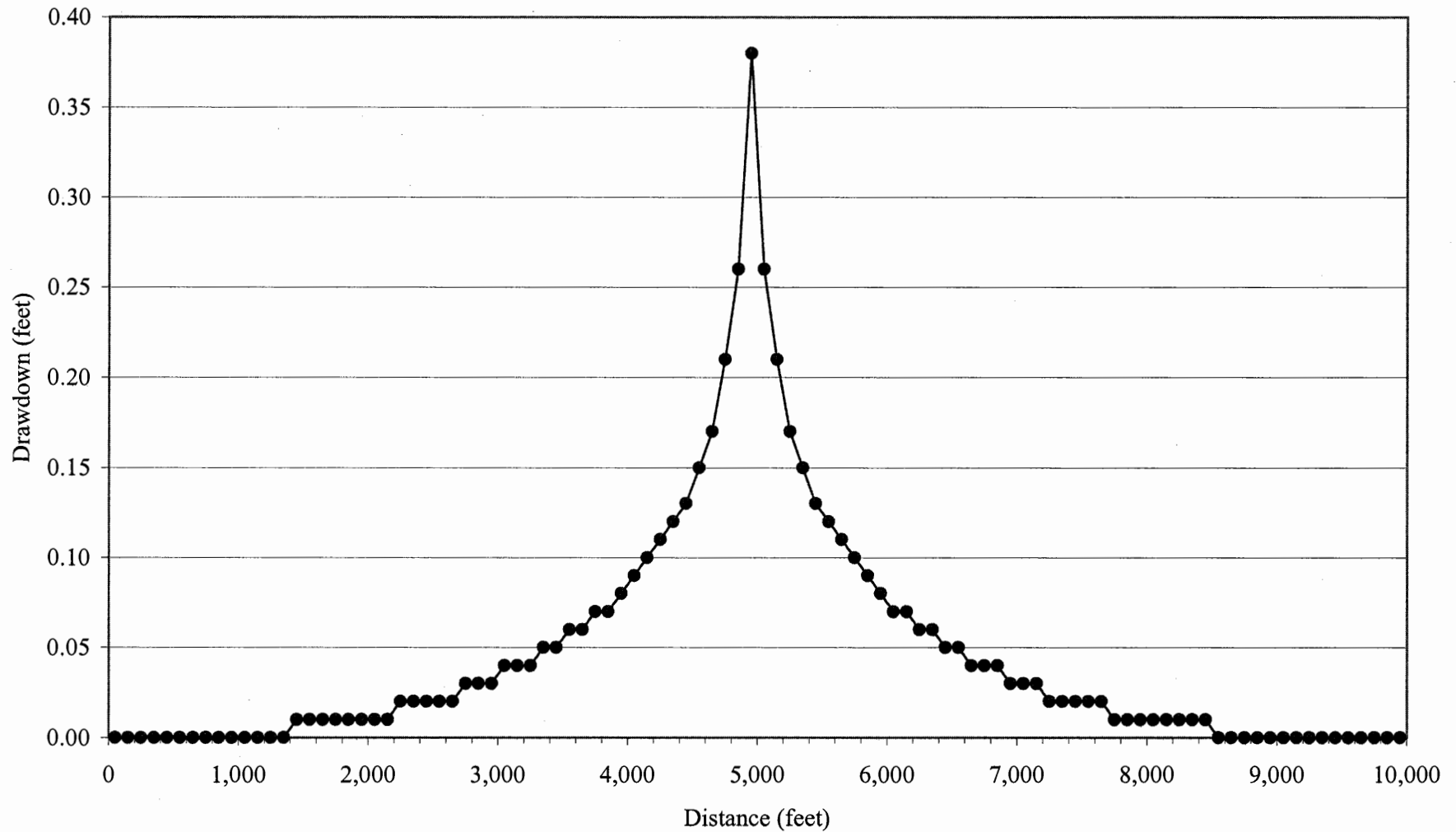
**Figure 3. Drawdown in Surficial Aquifer, Steady-State Scenario
(Pumping = 35,000 gpd, with surface recharge)**



**Figure 4. Drawdown in Surficial Aquifer After 90 Days
Pumping 35,000 gpd, $K=100$ ft/day, No Recharge**



**Figure 5. Drawdown in Surficial Aquifer After 90 Days
(Pumping 35,000 gpd, $K=50$ ft/day, No Recharge)**



**Figure 6. Drawdown in Surficial Aquifer After 90 days
(Pumping = 35,000 gpd, K = 10 ft/day, No Recharge)**

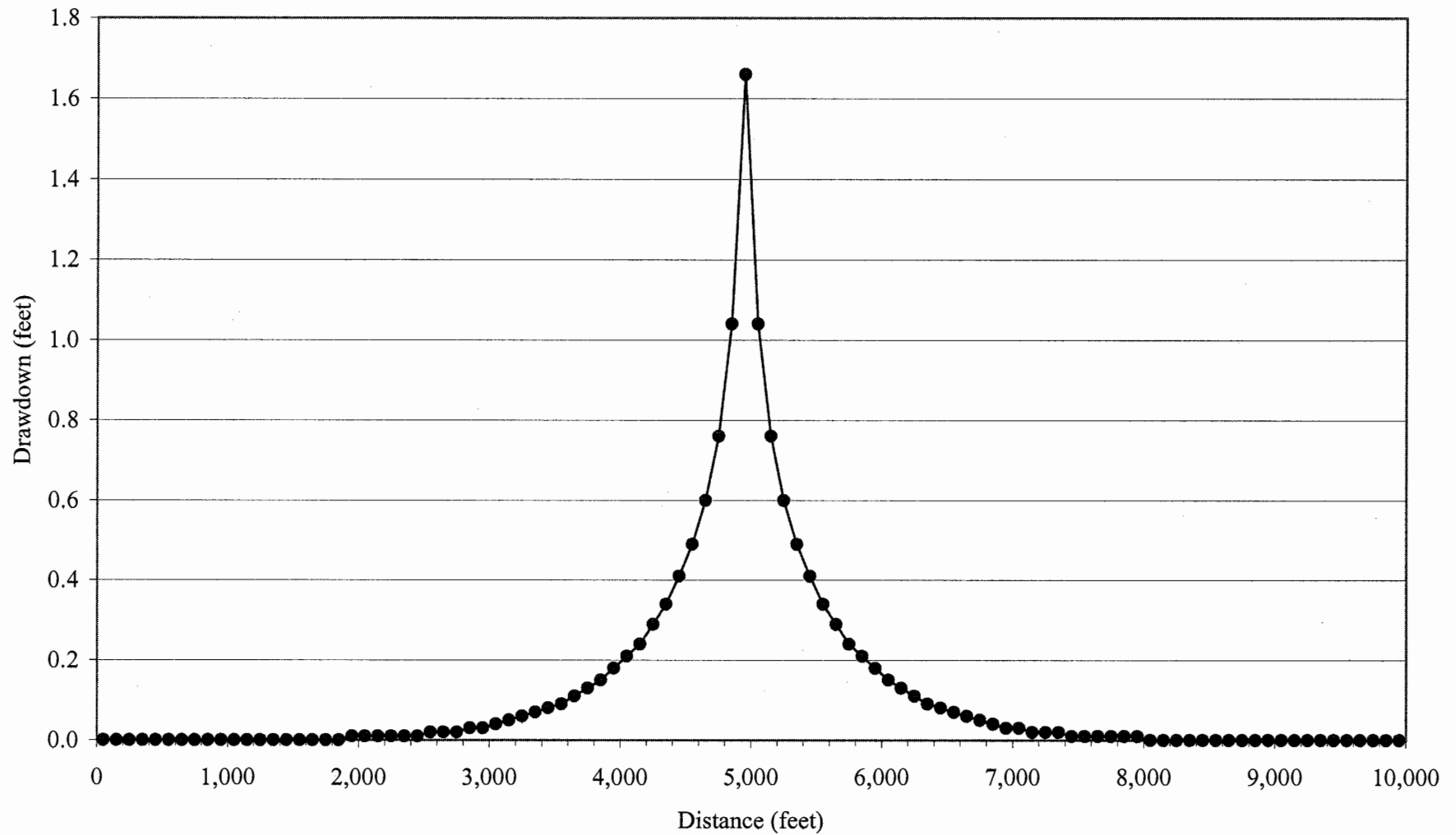


Figure 7. Drawdown vs. Time at the Pumping Well and at the Property Boundary
(Pumping = 35,000 gpd, K = 100 ft/day, No Recharge)

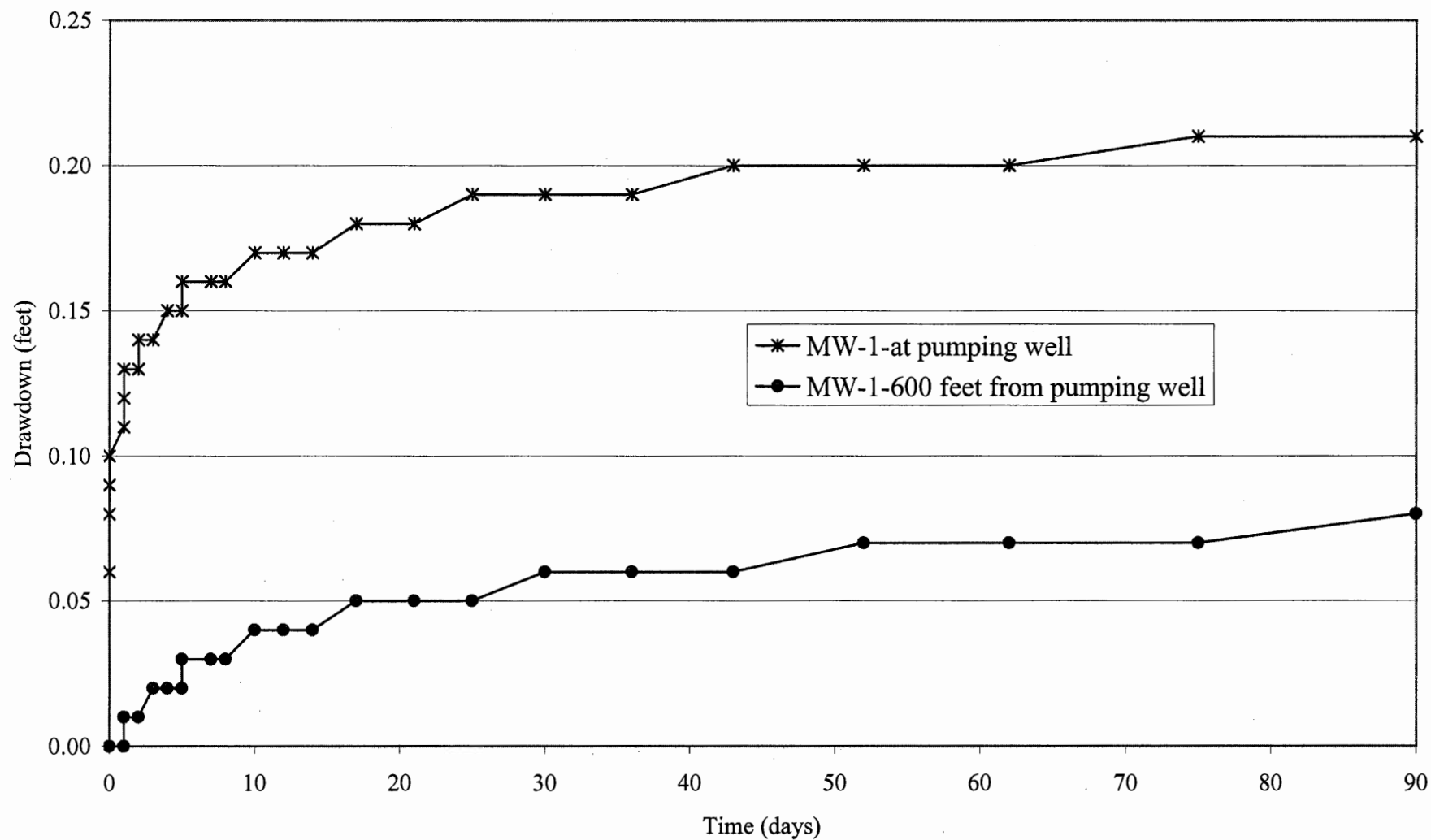


Figure 8. Drawdown Vs. Time at the Pumping Well and at the Property Boundary
(Pumping = 35,000 gpd, K = 50 ft/day, No Recharge)

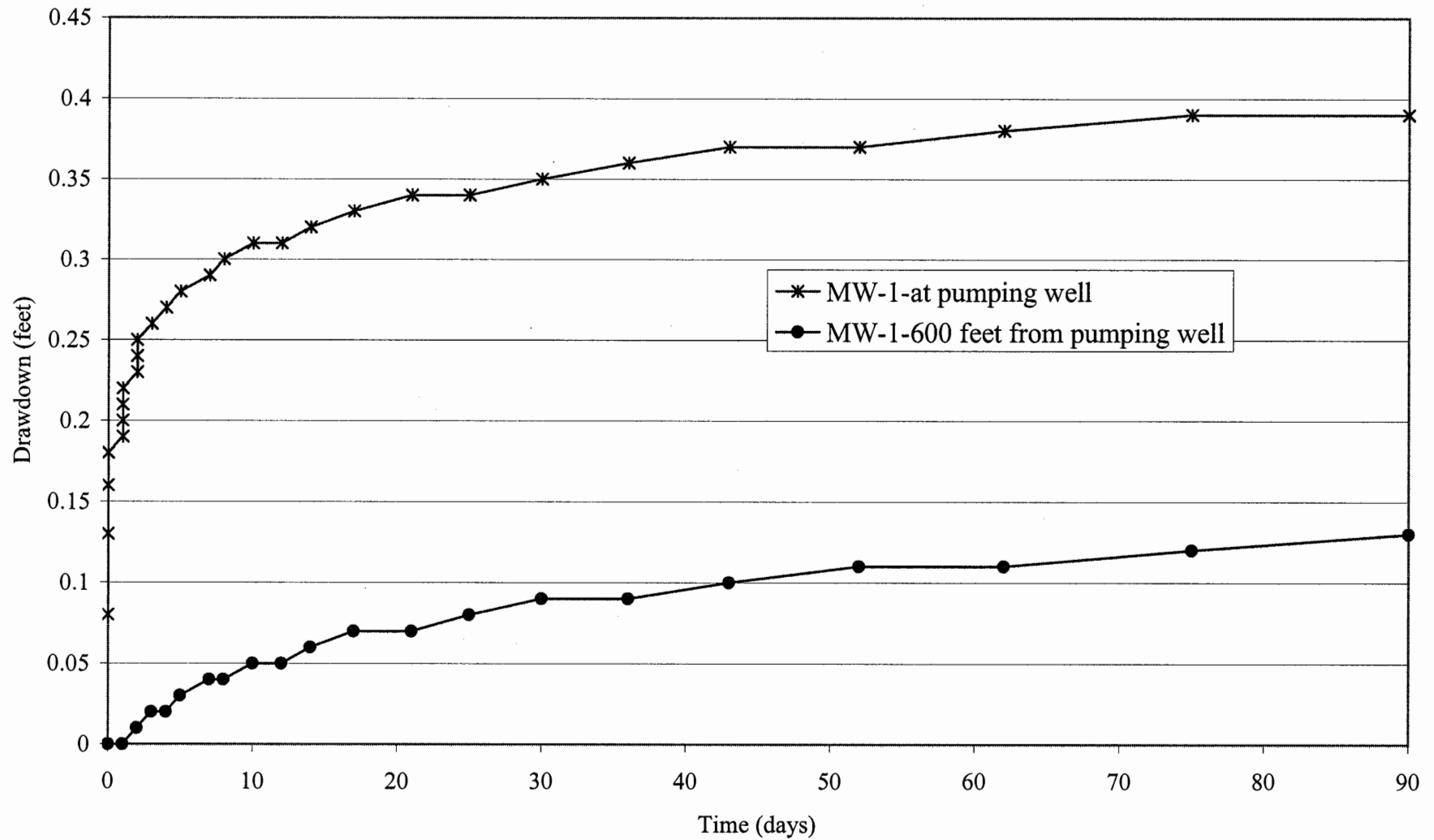
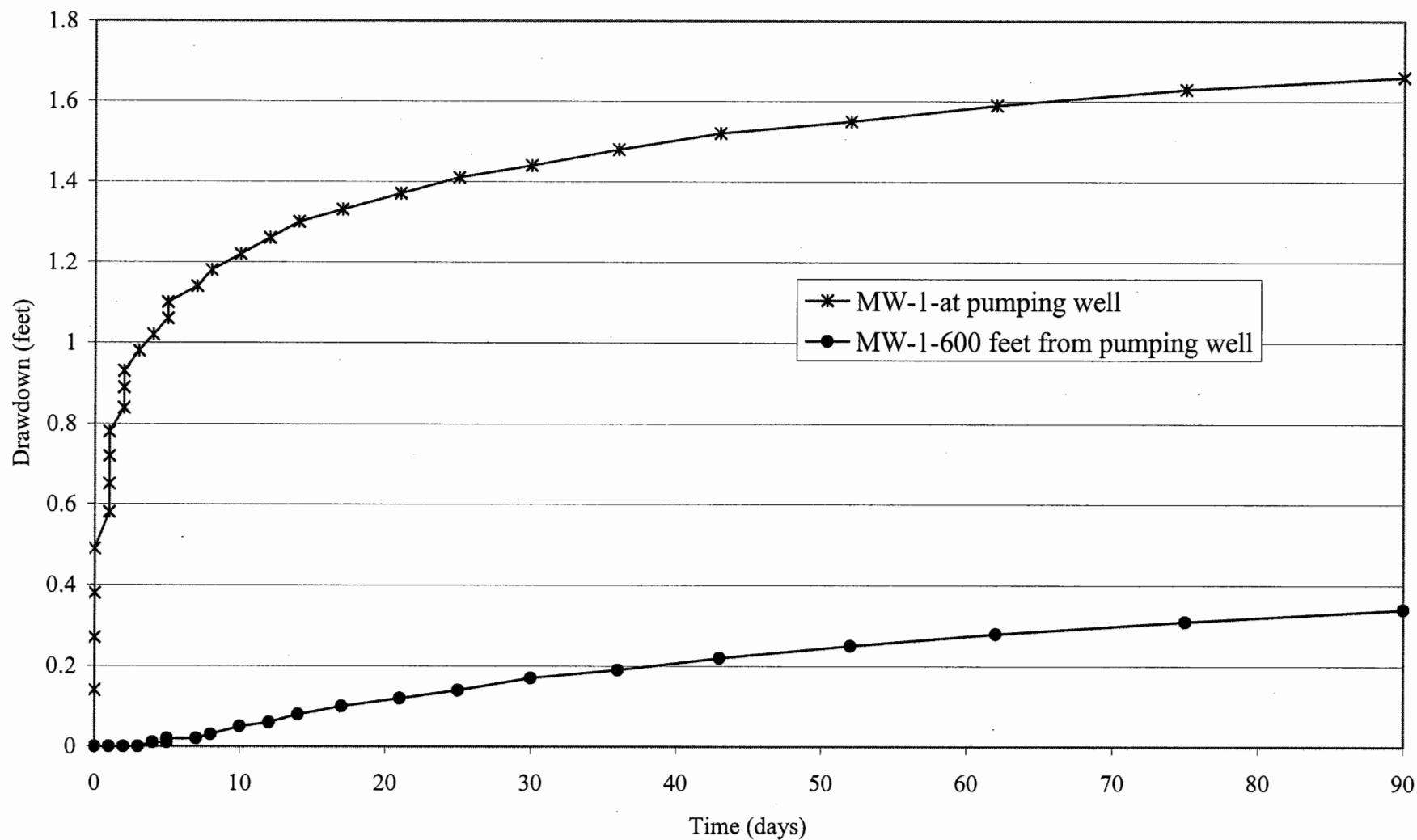


Figure 9. Drawdown Vs. Time at the Pumping Well and at the Property Boundary
(Pumping = 35,000 gpd, K = 10 ft/day, No Recharge)



APPENDIX 10.8

WATER SUPPLY ALTERNATIVES ANALYSIS

WATER SUPPLY ALTERNATIVES ANALYSIS

**FPL West County Energy Center
Palm Beach County, Florida**

February 2005

1.0 Introduction

FPL is proposing to construct two new natural gas-fired combined cycle generating units at the West County Energy Center Site. The site location is described in this SCA in Chapter 2, the proposed generating equipment is described in Chapter 3, and the construction and operational impacts are described in Chapters 4 and 5, respectively.

The conclusion reached in this analysis is that surface water from the L10/L12 canal is the preferred water source for the power plant. The L10/L12 canal will be the primary water source, with a secondary supply (i.e., for low flow conditions and backup) provided by Upper Floridan Aquifer (UFA) wells.

2.0 Project Water Demand and Conservation Measures

In general, the Project has three water demand requirements:

1. Makeup water to replace cooling tower evaporation and blowdown,
2. Process water, which is used primarily to make demineralized water for steam system makeup and air emissions control, and
3. Potable water for use by employees.

A water-use diagram is presented in Section 3.5 of this SCA. The table below summarizes the water demand requirements for the Project (assuming two combined cycle units). The primary source for the cooling tower makeup water will be the L10/L12 Canal. This will also be the source for process water. A secondary/backup source for the cooling towers will be the UFA. When water from the L10/L12 Canal is used, the cooling towers can operate at five cycles of concentration. When the UFA is used, five cycles of concentration would be utilized for shorter durations (e.g., 90 days), due to the salinity of the source water. Potable water supply will be obtained from an onsite surficial aquifer well.

Two, 4 on 1 CC Units	Annual Average (MGD)	Monthly Maximum (MG)	Maximum Daily (MG)
Cooling Tower (L10/L12)	14.56	514.29	16.59
Process Water (L10/L12)	0.64	90.21	2.91
Total Demand (L10/L12)	15.20	604.50	19.5
Cooling Tower (UFA)	14.56	514.29	16.59
Surficial Aquifer (Potable)	0.035	1.09	0.035

Combined cycle technology will be used at the West County Energy Center. With this technology the steam electric generation is only about 40 percent of the total generating capacity. The remaining 60 percent is produced by combustion turbines, which do not use water for evaporative coolers, chillers condenser cooling. Consequently, this technology significantly reduces the requirement for condenser cooling water. Because the combined cycle technology reduces the steam electric portion of the generating

facility, it also reduces the amount of water required to make steam; thus, reducing the requirements for service water. It also provides the highest generation efficiency, with respect to conversion of fuel energy to electricity. This high efficiency minimizes fuel use and air emissions.

The most thermodynamically efficient cooling process for the steam cycle would be a once through cooling system. This type of cooling system, however, has a very high water demand requirement. Closed-cycle cooling systems, such as the cooling towers proposed for the West County Energy Center, significantly reduce the amount of water that must be withdrawn from the environment, and maintain acceptable thermodynamic efficiency. Therefore, the most significant water use for the Project is the makeup water required to replace evaporation and blowdown from the closed-cycle recirculating condenser cooling system.

The required water demand (i.e., cooling tower makeup flow and process water) depends on the source water quality and the cycles of concentration that can be achieved in the cooling tower. Based on available water quality information, FPL estimates that the cycles of concentration could range from 2 to 5, depending on the water source. This will be discussed further below. Furthermore, the cooling towers will be designed and constructed to minimize unnecessary loss of water. This will include the use of high efficiency mist eliminators and the performance of an in-service leak test of the system during commissioning.

The Project will utilize demineralized water for make-up to replace blow down from the Heat Recovery Steam Generators (HRSG), which is necessary to maintain low dissolved solids in the HRSG. The required make-up water to the HRSG will be minimized by selection of materials that minimize the required blow down and by the recovery and reprocessing of water for reuse.

All systems that involve the use of water will be designed and commissioned to minimize water losses. This will include an in-service leak test, inspection or hydro-test to ensure the system is leak tight. After commissioning, procedures will be in place to ensure that the systems are inspected on a regular basis and that a repair program is in place to repair any leaks quickly.

Other features in the plant design will include, when practical:

- Automatic shutoff valves,
- Flow restrictors,
- Low volume sanitary facilities, and
- Low maintenance landscaping design.

The Project will implement an awareness program for both construction and operations employees on water conservation for the facility. The awareness program will educate employees on water conservation methods, techniques and requirements of in-place construction and operation procedures. Procedures for construction will be developed before commencement of construction. Procedures for water conservation during plant

operations will be developed prior to commissioning of the West County Energy Center. Procedures will be reviewed on an annual basis and updated as necessary.

3.0 Potential Project Water Supply Sources

A description of water supplies available in the area is presented in Section 2.3 of this SCA. Potential water supply sources for this Project include the following:

- Ground Water from the Floridan Aquifer and the Surficial Aquifer System,
- Surface Water from the L10/L12 Canal and the L-8, L-13 and C-51 Canals,
- Reclaimed Water, and
- Storm water from the site.

3.1 Ground Water

Ground water resources in the vicinity of the Site are described in Section 2.3 of the SCA. The aquifer that is most economically available is the Floridan Aquifer System, which is divided into Upper and Lower zones. The Upper Floridan Aquifer (UFA) in the area of the site (approximate depth: -750 ft-msl to -1,350 ft-msl) is saline (i.e., by definition chloride concentrations are greater than 250 mg/L). In the UFA, total dissolved solids (TDS) are from 2,000 mg/L to 5,000 mg/L (chloride concentrations from 1,000 mg/l to 2,500 mg/L). Water from this zone can be used for cooling water without significant treatment costs provided the duration of use is limited. Short-term use of the UFA is feasible for up to five cycles of concentration. Significant treatment would be required for process water from this source as a long-term supply.

The Lower Floridan Aquifer (LFA) is much more mineralized, with TDS concentrations from 5,000 mg/l to 10,000 mg/l, and higher. Water from this zone would require significant treatment and the materials of construction in the cooling system would be very costly. Therefore, water from this zone is not considered suitable.

A hydrologic simulation modeling of the UFA was conducted using the MODFLOW model, and local/regional aquifer parameters obtained from the literature. The model was conservatively run without recharge for 90 days at the maximum monthly water demand of 14.56 mgd. The results show that the UFA can provide the required water, for this period of time, without causing harm to existing legal users, the environment or the resource. The modeling report is provided in Appendix 10.7.

The surficial aquifer is much less productive than the Floridan aquifer. Consequently, this aquifer can not provide cooling tower makeup water or process water. It can be used, however, as a supply for potable water. A hydrologic simulation of the surficial aquifer was conducted using the MODFLOW model, and local/regional aquifer parameters obtained from the literature and from onsite monitoring well slug tests. The model was run for steady-state conditions with recharge and for transient conditions without recharge for 90 days at the maximum monthly potable water demand. The results show that the surficial aquifer can provide the required water, without causing harm to existing

legal users, the environment or the resource. The steady-state model shows the area of influence, defined as the area within the 0.1 ft drawdown contour, is confined to the site. The modeling report is provided in Appendix 10.7.

3.2 Surface Water

Surface waters in the vicinity of the site include:

- L10/L12 Canal, and
- L-8, L-13 and C-51 Canals.

These canals are located in the SFWMD Lake Okeechobee Service Area and are part of the regional water supply and flood control water conveyance system managed by the SFWMD. The L10/L12 canal is the nearest major surface water to the Project Area. It runs southeast from Lake Okeechobee and connects to Water Conservation Area 1 and the C-51 canal at Pump Station S-5A, which is located southeast of the site. During wet to normal hydrologic periods, water is discharged through these canals to prevent flooding and maintain storage capacity in Lake Okeechobee. During dry periods, water from Lake Okeechobee is used to augment flows and levels in the canals.

Based on data from USGS Station 02278450, the average historical flow for the L10/L12 canal for the period of record from 1957 to 2003 was approximately 409 cubic feet per second (cfs). Maximum flows in the canal have exceeded 4,000 cfs. Since the L10/L12 canal is part of the SFWMD system, flows and water levels in the canal are controlled by the District: 1) by releasing water from Lake Okeechobee, 2) by water control structures on the West Palm Beach Canal, and 3) by pumping at the S-5A pump station. Consequently, about 40 percent of the time, the historical flow in the L10/L12 canal has been zero or negative (i.e., sometimes the flow is west toward Lake Okeechobee).

The average historical flow in the L10/L12 canal has been about 17 times the average withdrawal rate for the Project, and the maximum historical flow has been 170 times the Project demand. The upstream water source for the L10/L12 canal is Lake Okeechobee, which has a surface area of 740 square miles and receives flow from the entire Kissimmee River Basin in Central Florida. Therefore, if the water is available in Lake Okeechobee, the required Project water demand can be physically supplied by the L10/L12 canal. While Lake Okeechobee is a minimum flows and level water body under a prevention plan, there are no prohibitions in current SFWMD rules on new allocations from the L10/L12 canal or Lake Okeechobee (Letter from Henry Dean, Executive Director, SFWMD, July 13, 2004). The requested use, however, must be consistent with the prevention plan and the SFWMD's Lower East Coast Regional Water Supply Plan (LECRWSP). As discussed in the LECRWSP (SFWMD, May 2000), the relevant Lake Okeechobee water supply planning criterion is as follows:

Water levels should not fall below 11 ft NGVD for more than 80 days duration, more often than once every six years, on average.

The results of the District's 31-year simulation modeling are presented in the LECRWSP. The simulation results show that the above criterion was met for all planning scenarios, even the 2020 Base Case scenario (i.e., the worst case simulation – applying future demands and implementing only currently authorized restoration projects). The 2020 Base Case simulation also shows that Lake Okeechobee levels would be expected to drop below 11 ft about 19 times in 31 years. These results indicate that water availability could become an issue every few years -- if water resource development projects are not implemented as scheduled. The potential restriction periods could be just a few days, or they could last two or three months. Consequently, if the primary water supply for the Project is from the L10/L12 canal, a secondary water supply from the Floridan aquifer, or from storage, is necessary.

Other surface waters in the vicinity of the Project include the L-8 canal located east of the site, the Cross Canal (L-13) that connects the Hillsboro and the West Palm Beach canals, and the West Palm Beach Canal (C-51). While water supplies may be available from these canals, the access points, except for the L8 Canal, are further from the site. Additionally, with the possible exception of the C-51 Canal, the available flows will be less than the L10/L12 Canal. For example, the historical average flow in the L8 Canal is only 34 percent of the flow in the L10/L12 Canal. Water quality in the other nearby canals is expected to be about the same as in the L10/L12 canal, but not significantly different. During drought conditions, when water availability could be limited in the L10/L12 Canal, water supplies from these other canals would also be limited. Therefore, these surface water sources were not considered further, for either primary or secondary supplies.

3.3 Reclaimed Water

Florida Statutes Sections 373.250(1) and 403.064(1), state the following:

The encouragement and promotion of water conservation, and reuse of reclaimed water, as defined by the Department [Florida Department of Environmental Protection], are state objectives and are considered to be in the public interest. The Legislature finds that the reuse of reclaimed water is a critical component of meeting the state's existing and future water supply needs while sustaining natural systems. The Legislature further finds that for those wastewater treatment plants permitted and operated under an approved reuse program by the department, the reclaimed water shall be considered environmentally acceptable and not a threat to public health and safety.

Reclaimed water can be used for a wide variety of purposes including cooling and industrial processes. Detailed rules governing reuse that are fully protective of public health and environmental quality are found in Chapter 62-610 F.A.C.

The Project is located within the jurisdiction of the South Florida Water Management District (SFWMD). Therefore, applications for Consumptive Use Permits are subject to Chapter 40E-2, F.A.C. According to this Rule, the application is subject to review based on the "Basis of Review for Water Use Permit Applications within the South Florida

Water Management District” (August 31, 2003). Furthermore, the Project is located within a SFWMD Critical Water Supply Problem Area.

According to a map published by Palm Beach County Water Utilities Department, the Project is not located within a “Mandatory Reclaimed Service Area”. According to the Basis of Review document, in all areas of the District, excluding Mandatory Reclaimed Water Zones, reclaimed water must be used, unless the applicant demonstrates that such use is not environmentally, technically, or economically feasible.

This section discusses the environmental feasibility, technical feasibility, and economic feasibility of using reclaimed water as a source of cooling water at the FPL West County Energy Center. The following presents the end user criteria for evaluating the feasibility of using reclaimed water, as provided in the Basis of Review document (in italics), followed by a discussion of how this applies to the Project.

Environmental Feasibility

Reclaimed water reuse is considered environmentally feasible if the Department has permitted the reuse facility that will provide the reclaimed water supply and has permitted the use or discharge of the reclaimed water to the receiving water body, if applicable.

According to the ‘2003 Reuse Inventory’ published by the FDEP Division of Water Resource Management, the reuse capacity for Palm Beach County is 62.09 mgd with a reuse flow of 33.32 mgd. Therefore, the available, but uncommitted, reuse supply in Palm Beach County could be 28.77 mgd. The total water required for the Project depends upon the quality of the reuse water and would be at least 15.2 mgd. Since Class I injection wells, which are permitted through the FDEP, will be used to discharge all wastewater from the Project, the discharge of reclaimed water should not be an issue. Therefore, the use of reclaimed water is considered environmentally feasible.

Technical Feasibility

Reclaimed water reuse is considered technically feasible if an uncommitted, adequate supply of reclaimed water is available at the site of the proposed use to meet all or part of the applicant’s water needs. An uncommitted supply of reclaimed water means the average amount of reclaimed water produced during the three lowest-flow months minus the amount of reclaimed water that the reclaimed water provider is contractually obligated to provide to another customer or user. An adequate supply of reclaimed water means a reasonable volume for the use as defined herein. In the event the uncommitted supply of reclaimed water is not adequate to meet the project’s demands, the applicant may request a partial allocation of water from a non-reclaimed water source. However, such partial allocation will not exceed that amount necessary to compensate for the shortfall in uncommitted reclaimed water supply, in light of total project demands calculated pursuant to the Basis of Review.

Available at the project site means the utility has provided the distribution facilities at its cost to the project boundary. In the event distribution lines are not provided at the project boundary, the applicant must then provide an assessment of extending the lines to the project as a part of the economic feasibility analysis.

As discussed above, there may be an adequate supply of reclaimed water available in Palm Beach County. However, the reuse water is not available at the Site. Mr. Richard Nolan of Palm Beach County Utilities Mapping Department stated that the only reclaimed water lines currently available in Palm Beach County are located within the Mandatory Reclaimed Service Area. Mr. Nolan also stated that currently there are no plans to construct reclaimed water lines outside of this Service Area. Furthermore, other water sources are available at the Site to provide partial allocation, as necessary.

The distance from the Site to the intersection of Boynton Beach Boulevard and the Florida Turnpike (the closest intersection with a reuse line) is approximately 22.5 miles. Therefore, at least 22.5 miles of pipeline and the necessary pump stations would have to be constructed to get reclaimed water to the Site. The economic feasibility of extending the lines to the Site is discussed in the following section.

Economic Feasibility

If the applicant asserts that reuse is not economically feasible, then the applicant must provide the District with an assessment of the economic feasibility of use of reclaimed water use. The applicant's economic feasibility analysis must consider all of the following:

- a) Costs associated with purchase of a reclaimed water supply source including: i. pump and distribution costs, ii. storage costs, iii. monthly rates charged for the reclaimed water supply, and iv. costs associated with risk of loss of reclaimed water supply;*
- b) Costs associated with development of an otherwise permittable supply source including: i. well, pump, and distribution; and ii. Operational costs including increased fertilizer costs, where applicable, power costs, pumping, and system operation and maintenance costs;*
- c) Alteration in the rates charged by the permit applicant's business to account for costs associated with using reclaimed water; and*
- d) Other factors affecting the economic feasibility of using reclaimed water as proposed by a permit applicant in light of their particular situation.*

Guidance related to the economic feasibility of reuse water for projects was addresses in the document titled "Guidelines for Preparation of Reuse Feasibility Studies for

Consumptive Use Permit Applicants” prepared by the Reuse Coordinating Committee¹ (November 1996) states the following:

“Any projects which are not within five miles of an existing or proposed reclaimed water source (i.e. pipeline or plant), are solely for potable use, or provide documentation from the nearest reclaimed water provider that reclaimed water will not be available within the permit duration, may not need to submit a reuse feasibility study.”

The Site is located 22.5 miles from the nearest reclaimed water source and there currently are no plans to construct pipelines within 5 miles of the Site. Taking together the great distance to the nearest reuse line and the complications of placing a reuse line through developing urbanized areas, the use of reuse water is economically infeasible for the Project.

3.4 Storm Water Reuse

Stormwater from the Site will be collected in retention basins designed to hold runoff from the 100-year 72-hour storm event. The water that is collected will be pumped back to the plant for reuse as cooling tower make-up. Based on the area of the Site (170 acres), an estimated directly connected impervious area of 50 percent and an annual rainfall of 62.64 inches (plus or minus 50 percent), the annual average onsite stormwater supply should be approximately 0.4 MGD (plus or minus 50 percent).

4.0 Water Supply Alternatives Analysis

4.1 Cooling Water Makeup

There is one primary and one secondary water supply option for the cooling system. Based on the water quality (which minimizes consumptive use) and the supply capacity during normal hydrologic conditions, the preferred primary source is the L10/L12 Canal. However, during drought conditions surface water might not be available for durations up to approximately 3 months. Therefore, a secondary ground water source is proposed for the Project. For this purpose (and as a backup supply), the UFA can provide adequate water, with quality that can be managed by using lower cycles of concentration, but higher consumptive use. In addition, when available, stormwater will be reused as make-up water for the cooling tower.

¹ In order to effectively coordinate the state’s reuse program, the DEP, the PSC, and the five water management districts formed the Reuse Coordinating Committee in 1992. Today, the Department of Health (DOH), the Department of Community Affairs (DCA), and the Florida Department of Agriculture & Consumer Services (DACS) also sit on the committee. The committee meets regularly to coordinate reuse related activities and to promote communication between the member agencies.

4.2 Process Water

Based on the above discussion, there are two feasible process water supply sources; the L10/L12 Canal and the UFA wells. The L10/L12 Canal is the preferred source, because it requires less treatment and will generate less wastewater.

5.0 Conclusions

The conclusions reached from this analysis are:

- Combined cycle technology will be used at the West County Energy Center. This technology reduces steam electric generation to 40 percent of the facility's total generating capacity. This significantly reduces the requirement for condenser cooling water and reduces the amount of water required to make steam (thus reducing the requirements for service water). This technology also provides the highest generation efficiency, with respect to conversion of fuel energy to electricity. The high efficiency minimizes fuel use and air emissions.
- Mechanical draft cooling towers are proposed for steam cycle cooling at the West County Energy Center. Relative to once through cooling systems, closed-cycle wet cooling towers significantly reduce the amount of water that must be withdrawn from the environment and maintain acceptable thermodynamic efficiency.
- The cooling towers will be designed and constructed to minimize unnecessary loss of water, including the use of high efficiency mist eliminators.
- Surface water from the L10/L12 canal is the preferred water source for the power plant. The L10/L12 canal will be the primary water source, with a secondary cooling water supply (i.e., for low flow conditions and backup) provided by Upper Floridan Aquifer wells.
- The L10/L12 Canal is the preferred source for process water, because it requires less treatment and will generate less wastewater. The Project's process water demand is less than 5 percent of the cooling water demand.
- Water quality in the L10/L12 Canal will allow operation of the cooling towers at 5 cycles of concentration, which significantly reduces the Project's water demand.
- The upstream water source for the L10/L12 Canal is Lake Okeechobee. During wet to normal hydrologic periods, water is discharged through this canal to prevent flooding and maintain storage capacity in Lake Okeechobee. During dry periods, water from Lake Okeechobee is used to augment flows and levels in the canal. The average historical flow in the L10/L12 Canal has been about 17 times the average Project withdrawal rate, and the maximum historical flow

has been 170 times the Project demand. If the water is available in Lake Okeechobee, the required Project water demand can be physically supplied by the L10/L12 Canal.

- Lake Okeechobee is a minimum flows and level water body under a SFWMD prevention plan. There are no prohibitions in current SFWMD rules on new allocations from the L10/L12 Canal or Lake Okeechobee. The requested water use will be consistent with the prevention plan and the SFWMD Lower East Coast Regional Water Supply Plan because a secondary groundwater supply for the power plant will be provided to protect surface water supplies during low flow conditions.
- The UFA can provide an adequate secondary or backup water supply, without impacting existing users, the environment or the water resources of the area. The lower water quality in the UFA can be managed for short-term durations. When the UFA is used, five cycles of concentration is the limit, due to the salinity of the water. During low-flow conditions, when instructed to do so by the SFWMD, the Project will use UFA wells for the cooling water supply.
- The potable water supply (35,000 gpd) will be obtained from an onsite surficial aquifer well. This amount of water can be developed without significant impacts to existing users or wetlands.
- When available, storm water will be reused as make-up water for the cooling tower. Captured storm water runoff from the site may provide 0.4 mgd.
- Currently, no reclaimed water supplies are available at the Site. The closest source of reclaimed water would require more than 20 miles of pipeline to service the Project's water needs. It is currently not economically feasible to utilize reuse water at this Site.