

**Environmental Resource Permit Application
for
Section 404 Dredge and Fill Permit**

Treasure Coast Energy Center



Submitted by:

**Florida Municipal Power Agency
April 2005**



**WETLANDS MITIGATION PLAN
PREPARED FOR
U.S. ARMY CORPS OF ENGINEERS**

**TREASURE COAST ENERGY CENTER PROJECT
FLORIDA MUNICIPAL POWER AGENCY**

April 2005

WETLANDS MITIGATION PLAN

The Florida Municipal Power Agency (FMPA) is proposing to construct and operate the Treasure Coast Energy Center (TCEC), a multi-unit, natural gas fired, combined cycle combustion turbine power plant facility on a 68 acre greenfield site near Ft. Pierce in St. Lucie County, FL. Due to proposed unavoidable jurisdictional wetlands impacts, the project is subject to review by the U.S. Army Corps of Engineers (COE) under authority of the federal Clean Water Act – Section 404 permitting program. This mitigation plan has been prepared to describe the anticipated wetlands impacts and proposed mitigation for those impacts.

1.0 EXISTING ENVIRONMENT

Land use and vegetation types at the TCEC site consist primarily of pastureland. Within the pastureland are areas of wet prairie, freshwater marsh, and thickets of Brazilian pepper. The site is currently used to graze cattle. The Florida East Coast Railroad is adjacent on the northwest side of the site, and an FPL transmission line corridor is located in the southern portion of the property.

Table 1 lists the vegetation types that occur onsite. The site was historically most likely pine flatwoods and/or savannah, based on the characteristics of the surrounding vicinity. However, due to past clearing and agricultural activities, the site has been significantly altered from its natural state. The vegetation and wildlife present today reflect the disturbed condition of the site in that the species present are largely those with the ability to tolerate such activities. The vegetation types and Florida Land Use Cover and Classification System (FLUCCS) designations are described below.

Improved Pasture (FLUCCS Code 211)

Improved pasture accounts for about 31.2 acres, or 46 percent, of the site. Furrows from row crops planted in the past can be observed throughout the area. Reportedly, tomatoes were most recently planted. Grasses dominate the vegetation, especially India dropseed (*Sporobolus indicus*), Bermuda grass (*Cynodon dactylon*), and knotgrasses (*Paspalum* spp.).

Wet Prairie (FLUCCS Code 643)

Wet prairie accounts for about 12.5 acres, or 18 percent, of the site. The areas are dominated by grasses, sedges, and flowering forbs. Trees and shrubs are absent except for occasional Brazilian pepper (*Schinus terebinthifolius*), an exotic shrub. Dominant species include Bermuda grass, knotgrasses, carpet grasses (*Axonopus* spp.), smartweed (*Polygonum* spp.), water pennywort (*Hydrocotyle bonariensis*), and red ludwigia (*Ludwigia repens*). The deepest and wettest portions are dominated by pickerelweed (*Pontederia cordata*), while soft rush (*Juncus effusus*) and beakrushes (*Rhynchospora* spp.) are common in areas less inundated.

Table 1. Wetlands at the TCEC Site		
Wetland Area	Size (acres)	Description
A	10.26	Wet prairie; dominated by water pennywort, red ludwigia, and wetland grasses
B	0.51	Freshwater marsh; excavated depression dominated by pickerel weed and surrounded by Brazilian pepper;
C	0.48	Wet prairie; dominated by water pennywort, red ludwigia, and wetland grasses
E	0.53	Wet prairie or marsh dominated by pickerel weed, knotweeds, flat sedges, and beak rushes
F1 and F2	0.18	Drainage ditch
Total Wetland Acres = 11.96		

Brazilian Pepper (FLUCCS Code 422)

Brazilian pepper thickets account for about 17.9 acres, or 26 percent, of the site. The Brazilian pepper is an undesirable non-native species that rapidly colonizes disturbed sites, but is equally aggressive in undisturbed natural areas. The thickets shade out existing vegetation to form nearly monospecific stands. Florida considers the plant a nuisance species. Ground cover in these areas is usually absent.

Emergent/Freshwater Marsh (FLUCCS Code 641)

One small area of freshwater marsh is found in the southern portion of the site and accounts for about 0.5 acre. The apparently manmade circular depression is surrounded by a berm. Pickerelweed dominates the deeper portions of the area. St. John's wort (*Hypericum* spp) and maidencane (*Panicum hemitomom*) are common in the shallower areas of the marsh.

Electrical Transmission Lines/Wet Prairie (FLUCCS Code 832/643)

An FPL electrical transmission line corridor passes through the southern portion of the property. The maintained utility easement is 170 feet wide and occupies about 5.5 acres. This onsite area of the corridor is dominated by the wet prairie community (643).

Ditch (FLUCCS Code 511)

One intermittent ditch parallels the north side of the FPL electrical transmission corridor. The ditch occupies less than 0.5 acre. The ditches are occupied by pickerelweed, water pennywort, smartweed, and maidencane. Brazilian pepper is also common on the upper banks.

Wetlands. Wetlands are defined jointly by the COE and the U.S. Environmental Protection Agency (EPA) as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil condition” (Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS). Wetlands include swamps, marshes, bogs, and similar areas. The COE uses the guidelines provided in the *1987 Wetlands Delineation Manual* to determine the extent of regulated wetlands as authorized under Section 404 of the Clean Water Act. The wetlands regulated by the COE are identified in Table 2 below.

Table 2 Wetlands Size and Jurisdiction at the TCEC Site		
Wetland Area	Size (Acres)	COE Regulated
A	10.26	yes
B	0.51	no (isolated)
C	0.48	no (isolated)
E	0.53	yes
F1	0.08	yes
F2	0.10	no (isolated)
Total Acres	11.96	10.87

Wetlands on the TCEC site were originally delineated by CH2MHill in September 2000 for the Duke Energy Ft. Pierce Generating Station Project. However, since the Duke project was never constructed, site conditions remain essentially unchanged. Black & Veatch, on behalf of FMPA, visited the site in October 2004 to observe and confirm the previous wetland delineations. As requested at the January 19, 2005, pre-application meeting, a Wetland Rapid Assessment Procedure (WRAP) was completed on February 24, 2005, at the site to determine the condition of the existing wetlands and, consequently, the extent of mitigation required by the COE.

The Duke wetland delineation and WRAP sample locations are illustrated on Figure 1. Five of the nine wetlands areas identified in the figure occur on the TCEC site: Wetlands A, B, C, E (east portion), and F. The total extent of wetlands on the site regulated by the COE is 10.87 acres. Under current federal rules, Wetlands B, C, and F2 are considered “isolated” (more than 200 feet from open waters and/or not tributary) and therefore not jurisdictional. The “isolated” determination was confirmed by Mr. Brandon Howard during the February 2005 WRAP field evaluations.

Table 3 provides the individual variable scores and final WRAP score for each wetland. The WRAP score indicates that the wetlands function marginally well.

Table 3. WRAP Scores for All Wetlands						
Variables	A	B	C	E	F1	F2
Wildlife Utilization	1.0	2.0	0.5	1.0	1.5	1.5
Wetland Canopy	NA	NA	NA	NA	NA	NA
Wetland Ground Cover	1.0	2.0	1.0	1.5	1.5	1.5
Habitat Support/Buffer	1.5	1.5	1.5	1.5	1.5	1.5
Field Hydrology	1.2	2.0	1.5	2.0	2.0	2.0
Water Quality Input and Treatment	1.0	1.0	1.0	1.0	1.0	1.0
Sum of Ratings	5.7	8.5	5.5	7	7.5	7.5
Maximum Score Possible (3 x 5 Variables)	15	15	15	15	15	15
Final Score/Wetland	0.38	0.57	0.37	0.47	0.50	0.50

2.0 IMPACT ASSESSMENT

Three regulated wetlands (Wetlands A, E, and F1) are delineated on the TCEC site as described in Section 1 above. Only Wetland A (10.26 acres) will be lost due to TCEC site development. Wetlands E and F1 are ditches at the periphery of the development area and will not be impacted by the project. Since there is no available space on the project site for mitigation, it is the intent of FMPA to provide mitigation by purchasing credits from a wetland mitigation bank in the project area permitted by the Corps sufficient to offset the loss. FMPA anticipates purchasing approximately 3.9 credits (0.38 WRAP score X 10.26 acres = 3.9 credits).

3.0 AVOIDANCE AND MITIGATION OF IMPACTS

FMPA has made significant efforts to avoid and minimize environmental impacts by selecting an appropriate site, and using previously disturbed areas and existing corridors for project development. An alternative analysis (Section 5 below) identified the TCEC site as the preferred site considering both environmental and economic factors. Field surveys conducted to assess current conditions prior to construction indicate that wetlands and sensitive habitats onsite and within the linear facilities corridors are absent or of low quality.

There will be no impacts to threatened or endangered species or critical habitat on the TCEC site; therefore, no mitigation is proposed for these species. Locating the facilities north of Wetlands E and F has avoided additional impacts.

Two electric transmission lines will be constructed as part of the TCEC Unit 1. To minimize environmental impacts and clearing requirements, the transmission lines and natural gas pipeline will be located within or adjacent to existing road, railroad, or transmission line rights-of-way. The land temporarily disrupted as a result of the construction of the transmission lines and pipeline will be restored and maintained as a utility right-of-way. No surface water or wetlands impacts are anticipated due to avoidance measures (transmission structure spans can vary depending on the need or situation; the pipeline can be directional drilled under waters or wetlands) and erosion/sedimentation controls.

4.0 MITIGATION PROPOSAL

FMPA must mitigate for the unavoidable wetlands impacts due to TCEC development. FMPA proposes to purchase the appropriate number of wetland mitigation bank credits from a permitted mitigation bank in the project area to compensate for wetlands impacts subject to Corps jurisdiction. Site development will impact 10.26 acres of low quality herbaceous wetlands (Wetland A) subject to Corps jurisdiction; although final alignments are not available for associated linear facilities, no wetlands impacts are anticipated due to avoidance measures. Based on the WRAP score of Wetland A onsite, FMPA will secure a credit allocation confirmation from a mitigation bank to transfer 3.9 credits in the bank ledger, and execute a mitigation credit purchase and sale agreement with the bank. FMPA will identify the bank, secure the credit allocation, and execute the purchase/sale agreement prior to permit issue.

5.0 ALTERNATIVES ANALYSIS

This alternatives analysis has been prepared to support the issuance of a Clean Water Act-Section 404 Permit for the Treasure Coast Energy Center Unit 1 Project (Unit 1). The alternatives analyzed in this chapter highlight the efforts of FMPA to determine the most appropriate site and technologies, and avoid, minimize, and mitigate environmental impacts during siting, construction, and operational phases of Unit 1 and ultimate site development.

Alternative Generation Technologies and Fuels

In early 2004, FMPA prepared an Integrated Resource Plan (IRP) to determine the schedule of capacity additions which satisfied projected All-Requirements Project (ARP) capacity requirements in the most economical and strategically sound manner.

The IRP identified three different capacity expansion plans as options for satisfying forecast capacity requirements and classified these plans as *Case 1: Combustion Turbines (Capacity Plan)*, *Case 2: Combined Cycle (Natural Gas Plan)*, and *Case 3: Coal and Combined Cycle (Coal Plan)*. Both Cases 2 and 3 identified a 1-on-1 combined cycle with commercial operation in 2008 as a component of the respective capacity expansion plans, and FMPA subsequently decided to move forward with the necessary studies to support construction of such a unit.

The process of selecting natural gas-fired combined cycle technology using advanced combustion turbine generator (CTG) design was a relatively simple decision. Combined cycle technology with natural gas has significant advantages over many other technology/fuel options.

The advantages of higher efficiency, lower cost per megawatt of electricity from resulting lower capital, operation and maintenance costs, and minimal environmental impacts, overwhelmingly support the selected combined cycle, natural gas, oil backup, technology configuration for Unit 1 and future units.

Site Selection Screening

In addition to minimizing environmental impacts, the process of selecting a site for the Treasure Coast Energy Center (TCEC) was driven by several other factors such as: (1) locating in or near FMPA's service territory, (2) locating close to existing power plant-related resources, and (3) locating near a reliable source of cooling water. In the first instance, the TCEC was conceived to provide cost effective power to FMPA customers; therefore, the site selection process focused on the central and southern Florida areas.

In June 2004, FMPA released Black & Veatch to conduct the Site Selection Study. The Study was prepared to address all aspects necessary for FMPA to select a site for the TCEC such that licensing could commence under the Florida Electrical Power Plant Siting Act. Initially, the site selection screening process included consideration of four sites – Kissimmee Utility Authority (KUA)'s Cane Island Power Park site, Ft. Pierce Utilities Authority (FPUA) WWTP site, Lake Worth's Tom G. Smith site, and Vero Beach's Municipal site. An initial screening process was conducted on these four sites, and after discussions between FMPA, these four ARP members, and Black & Veatch, the Lake Worth and Vero Beach sites were eliminated from further consideration, leaving the Cane Island and FPUA WWTP sites for additional study.

The Cane Island site currently consists of three natural gas-fired units (one simple cycle and two combined cycles), each of which is 50 percent owned by FMPA and 50 percent owned by KUA. The site has sufficient land available to support installation of the proposed FMPA 1-on-1 combined cycle, as well as additional units.

The FPUA WWTP site was originally proposed for development by Duke Energy, which subsequently abandoned the project. According to discussions with FPUA, Duke initially proposed the site with the intention of constructing a combined cycle unit, but later modified their plans to instead include only simple cycle units. This was due to the Florida Supreme Court's ruling in the Duke – New Smyrna Need for Power Case which concluded that independent power producers (IPPs) could not qualify as an applicant under the Florida Electrical Power Plant Siting Act without firm power sales contracts. Ultimately, Duke dropped all plans for further development at that site, thereby allowing FMPA to consider the site in its selection process.

Both sites under consideration have access to power plant-related resources, such as fuel, water, and transmission. However, the FPUA site has a decided advantage over Cane Island regarding transmission costs. Although both sites have good access to fuel and water supplies, the FPUA site has immediate access to an existing FPL 230 kV transmission system.

Black & Veatch utilized site-specific assumptions for the TCEC and the FPUA sites to provide the most consistent site evaluations possible to assist FMPA in their selection of the location for the new 1-on-1 combined cycle. The initial step was to develop conceptual designs and cost information for the 1-on-1 combined cycle at each site. The conceptual design consisted of preliminary site arrangements, water mass balances, electrical one-line diagrams, heat balances (for various ambient temperature and duct firing conditions), cycling design issues, offsite facilities (including potable water, cooling water makeup, wastewater disposal, natural gas supply, transmission system interconnections, and fire protection), as well as each site's capability to support future unit additions. Site-specific capital costs, operation and maintenance costs, transmission costs, and natural gas transportation costs were subsequently developed to support the evaluation process.

The primary consideration used to develop a recommendation of the best site for construction of the 1-on-1 combined cycle is project cost. The overall project cost analysis was developed to incorporate the capital cost (including offsite facilities), costs related to transmission system additions and interconnections, wheeling and locational marginal costs, and natural gas transportation costs. All costs were aggregated and considered on a net present value basis, providing FMPA with an economic comparison of developing the 1-on-1 combined cycle unit at either Cane Island or FPUA site. The Site Selection Study ultimately recommended, and FMPA ultimately selected, the FPUA site for the TCEC.

Site Design Alternatives

Alternative technologies and designs were considered by FMPA for each of the following categories as discussed in the paragraphs below:

- Air emission control system alternatives.
- Cooling system alternatives.
- Alternative cooling water sources.
- Biological fouling control alternatives.
- Wastewater treatment/discharge alternatives.
- Sanitary and solid waste disposal alternatives.

Air Emission Control System Alternatives. The PSD air permitting regulations require detailed consideration of alternative means of emissions control on a pollutant-by-pollutant basis. The purpose of this control technology review process is to determine the best means of control that

is reasonably justifiable, or BACT. In summary, the use of advanced combustion technologies, clean fuels, and post-combustion controls will result in very low air emissions.

Alternative Cooling Water Sources. Unit 1 will use a recirculating cooling tower system for plant cooling. The two proposed primary sources of makeup water for the cooling tower are non-potable groundwater from onsite wells and reclaimed effluent from the FPUA municipal treatment system. Well water from the onsite wells will temporarily serve as the makeup water source until the new FPUA municipal wastewater treatment plant goes into service (late 2009). After the FPUA plant goes into service, reclaimed water will be the primary cooling system makeup water source, and well water will serve as an emergency supply.

No alternative heat rejection systems were evaluated due to the availability of groundwater from onsite wells and reclaimed water from the FPUA municipal treatment system. A source of water for once-through cooling is not available at or near the TCEC site.

Biological Fouling Control Alternatives. Periodic biocide treatment of recirculating cooling water is necessary to control biological fouling of condensers, associated piping, and related equipment. Potential biofouling control alternatives include the following:

- Chlorination
- Sodium bromination
- Ozonation
- Ultraviolet radiation
- Mechanical cleaning

Nonchlorine biofouling control alternatives are considered less favorable than the chlorination method primarily due to cost and operational effectiveness. Sodium bromide and ozone as biocides were considered, but involve significantly higher operational costs than chlorine, especially in the treatment of such large water volumes as recirculating cooling water for a power plant. Ultraviolet radiation also involves much higher operational cost and has operation deficiencies, since this alternative is relatively ineffective in treating water with suspended particles. Mechanical cleaning is ineffective in cleaning remote portions of the cooling system equipment and destroying microorganisms suspended in the water. Since a recirculating cooling system with cooling towers is proposed, chlorination will not impact species in any bodies of water. Based on these considerations, these potential alternatives offer no environmental, operational, or cost-effectiveness advantages relative to the chlorination method for biofouling control.

Chlorination using liquid sodium hypochlorite is the method of biocide treatment proposed for the Unit 1 cooling tower. The sodium hypochlorite solution will be contained in a storage tank. Pumps will transfer the solution through diffusers at the cooling tower basin.

Wastewater Treatment/Discharge Alternatives. Unit 1 has been designed to maximize the recycling and reuse of water to minimize both water use and wastewater discharges. FMPA is proposing to return cooling tower blowdown and other small-volume process wastewater streams to the FPUA wastewater treatment plant. Process wastewater will be discharged to the FPUA wastewater pipeline onsite. Cooling tower blowdown will be returned for deep well injection on the FPUA WWTP site. Other potential alternatives for discharges would include the following:

- Discharge to a surface water.
- Zero discharge.

The closest surface water body is Tenmile Creek, which is classified as a Class III surface water. Discharging wastewater to the creek was not considered an environmentally acceptable option for the TCEC. Discharging to this or other surface water bodies of similar size would involve thermal and chemical water quality impacts, and a lengthy pipeline which would add significant capital and operating costs, and additional environmental impacts.

If Unit 1 was designed to have zero discharge, potential environmental concerns with any discharges would be eliminated. The implementation of this zero-discharge alternative would be technically feasible but extremely expensive and more land intensive than the current design. The system would involve additional equipment to concentrate the wastewater discharge to a brine, then to produce a solid material from the brine. The end result would be solid salts, which would require disposal (landfilling). Since this alternative would involve substantial extra costs, both capital and operating, and since a suitable alternative is available, this alternative was not considered further.

Cooling tower blowdown will be the major process wastewater discharge. The cooling tower will be operated with chemical additives to minimize the amount of blowdown needed; however, a blowdown stream will be needed to minimize corrosion and solid deposition on heat transfer surfaces. One potential alternative to discharging cooling tower blowdown to the FPUA municipal wastewater treatment system is to treat the water using a zero liquid discharge (ZLD) treatment system. A typical ZLD treatment system treats cooling tower blowdown using a staged process consisting of pretreatment, reverse osmosis, brine concentrator evaporators, and crystallizers. Most of the wastewater is recovered as high-purity water suitable for reuse in the cooling tower and other processes. Solids, consisting of the brine salts from the crystallizer, would need to be disposed offsite to a licensed landfill. A preliminary estimate indicates the capital cost of such a system sized to treat Unit 1 will be approximately \$20,100,000. In addition, operating costs will be \$4.00 to \$8.00 per 1,000 gallons.

Another alternative is to transfer the wastewater to either an existing regional or new onsite percolation pond. There would be high additional costs associated with constructing a sufficiently large percolation pond. This alternative also presents additional environmental impacts that would require additional modeling, permitting, and monitoring.

Because of the high capital and operating costs and potential environmental impacts, the preferred disposal method is to dispose of the wastewater to the FPUA municipal treatment system.

Other wastewater streams consist of oil/water separator effluent, evaporative cooler blowdown, demineralized water treatment system RO reject, and HRSG blowdown water. The HRSG blowdown will be quenched and reused as cooling tower makeup. Other wastewaters may have high solids content and are typically unsuitable for reuse. Alternatives will involve high costs, similar to those presented in the paragraphs above.

Therefore, evaporative cooler blowdown, demineralized water treatment system RO reject, and oil/water separator discharge will be routed to the wastewater collection system for disposal to the FPUA municipal wastewater treatment plant.

Sanitary and Solid Waste Disposal Systems. No alternative sanitary waste system alternatives were considered due to the small amount of sanitary waste produced at the TCEC and access to the FPUA sewage collection system (wastewater pipeline) available onsite.

There are no solid wastes generated by the Unit 1 combustion process. Normal office and operations trash will be collected in dumpsters onsite for disposal at an approved facility by a licensed contractor. An onsite landfill was not considered.

SECTION A

FOR AGENCY USE ONLY

ACOE Application #
 Date Application Received
 Proposed Project Lat.
 Proposed Project Long.

DEP/WMD Application #
 Date Application Received
 Fee Received \$
 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

PART 2:

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: Not Applicable
 - ☐ 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 Roger Fontes	Name
Title and Company General Manager and CEO, Florida Municipal Power Agency	Title and Company
Address 8553 Commodity Circle	Address
City, State, Zip Orlando, Florida 32819-9002	City, State, Zip
Telephone and Fax Phone 407-355-7767; FAX 407-355-5794	Telephone and Fax
C. AGENT AUTHORIZED TO SECURE PERMIT	D. CONSULTANT (IF DIFFERENT FROM AGENT)
Name J. Michael Soltys	Name
Title and Company Environmental Scientist, Black & Veatch	Title and Company
Address 11401 Lamar	Address
City, State, Zip Overland Park, Kansas 66211	City, State, Zip
Telephone and Fax Phone 913-458-7563; FAX 913-458-2934	Telephone and Fax

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

A. Name of Project, including phase if applicable: Treasure Coast Energy Center - Unit 1

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

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

D. Total area served by the system: 45.9 ac.; _____ ha.

E. Impervious area for which a permit is sought: 7.6 ac.; _____ ha.

F. Volume of water that the system is capable of impounding:
44.23 ac. ft.; _____ m

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

H. Total volume of material to be dredged: 0 yd; 0 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) St. Lucie

Section(s) 31

Township 35 South

Range 40 East

Section(s)

Township

Range

Section(s)

Township

Range

Land Grant name, if applicable: Not Applicable

Tax Parcel Identification Number: Not Applicable

Street Address, Road, or other location: Lot 8, Midway Industrial Park, Phase III North, 4585 Selvitz Road

City, Zip Code, if applicable: Ft. Pierce, FL 34981

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

The Florida Municipal Power Agency (FMPA) proposes to install a combined cycle combustion turbine generating unit (Unit 1) at the Midway Industrial Park near Ft. Pierce. Unit 1 will produce approximately 300 megawatts. FMPA owns the power plant site and will operate the unit. Two 3 mile, 230 kV transmission lines and a 3,700 foot natural gas pipeline are proposed as associated facilities. The scheduled construction start date is August 2006; commercial operation is scheduled for June 2008.

Installation of Unit 1 and other site improvements associated with future units will create impervious areas on the site. FMPA proposes to install a new storm water management system to address full site development. Wetlands impacts will be required. No surface waters, sovereign submerged lands, or critical habitat impacts are anticipated; no protected species or historical/archaeological impacts are anticipated.

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.

January 19, 2005: Site Certification Pre-Application Meeting with Florida Department of Environmental Protection - Southeast District (DEP) and U.S. Army Corps of Engineers, Jacksonville South Permits Branch (Corps); Meeting Location: DEP - SE District Office, W. Palm Beach;

In attendance:

Brandon Howard, Corps; Susan Schumann, FMPA; Laxmana Tallam, DEP; Tim Powell, DEP; Indar Jagnarine, DEP; Tim Gray, DEP; Mike Soltys, Black & Veatch (B&V); Mike Tuttle, B&V; Myron Rollins, B&V; Mike Serafin, B&V.

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
<u>None</u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

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. **See attached Figure A-1 for Plan View.**

- | | |
|--|---|
| 1.
Florida East Coast Railroad Company
1 Malaga Street
P.O. Drawer 1048
Saint Augustine, Florida 32085 | 2.
St. Lucie County
2300 Virginia Avenue
Fort Pierce, Florida 34982 |
| 3.
Midway Properties of St. Lucie
161 North Causeway
New Smyrna, Florida 32169-5300 | 4.
Fort Pierce Utilities Authority
206 South 6 th Street
Fort Pierce, Florida 34950 |
| 5.
Florida Power & Light Company (easement on property)
PO Box 025576
Miami, FL 33102 | 6.
North St. Lucie River Water Control District
Ft. Pierce, FL 34950 |
| 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.

J. Michael Soltys

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

Signature of Applicant/Agent
Environmental Scientist
Black & Veatch

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.

Roger Fontes

Typed/Printed Name of Applicant

Signature of Applicant

Date

General Manager and CEO
Florida Municipal Power Agency

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.

Jim Hay

Typed/Printed Name of Applicant

Signature of Applicant

Date

Project Manager
Florida Municipal Power Agency

SECTION C

Environmental Resource Permit Notice of Receipt of Application

Note: this form does not need to be submitted for noticed general permits.

This information is required in addition to that required in other sections of the application. Please submit five copies of this notice of receipt of application and all attachments with the other required information. Please submit all information on 8 1/2" x 11" paper.

Project Name

County

Owner

Applicant:

Applicant's Address:

1. Indicate the project boundaries on a USGS quadrangle map. Attach a location map showing the boundary of the proposed activity. The map should also contain a north arrow and a graphic scale; show Section(s), Township(s), and Range(s); and must be of sufficient detail to allow a person unfamiliar with the site to find it.
2. Provide the names of all wetlands, or other surface waters that would be dredged, filled, impounded, diverted, drained, or would receive discharge (either directly or indirectly), or would otherwise be impacted by the proposed activity, and specify if they are in an Outstanding Florida Water or Aquatic Preserve:
3. Attach a depiction (plan and section views), which clearly shows the works or other facilities proposed to be constructed. Use multiple sheets, if necessary. Use a scale sufficient to show the location and type of works.
4. Briefly describe the proposed project (such as "construct dock with boat shelter", "replace two existing culverts", "construct surface water management system to serve 150 acre residential development"):
5. Specify the acreage of wetlands or other surface waters, if any, that are proposed to be filled, excavated, or otherwise disturbed or impacted by the proposed activity:

filled ___ ac.; ___ excavated ac.;

other impacts ___ ac.
6. Provide a brief statement describing any proposed mitigation for impacts to wetlands and other surface waters (attach additional sheets if necessary):

FOR AGENCY USE ONLY

Application Name:

Application Number:

Office where the application can be inspected:

Note to Notice recipient: The information in this notice has been submitted by the applicant, and has not been verified by the agency. It may be incorrect, incomplete or may be subject to change.

SECTION E

INFORMATION REQUESTED FOR STANDARD GENERAL, INDIVIDUAL AND CONCEPTUAL ENVIRONMENTAL RESOURCE PERMIT APPLICATIONS NOT RELATED TO A SINGLE FAMILY DWELLING UNIT

Please provide the information requested below if the proposed project requires either a standard general, individual, or conceptual approval environmental resource permit and is not related to an individual, single family dwelling unit, duplex or quadruplex. The information listed below represents the level of information that is usually required to evaluate an application. The level of information required for a specific project will vary depending on the nature and location of the site and the activity proposed. Conceptual approvals generally do not require the same level of detail as a construction permit. However, providing a greater level of detail will reduce the need to submit additional information at a later date. If an item does not apply to your project, proceed to the next item. Please submit all information that is required by the Department on either 8 1/2 in. X 11 in. paper or 11 in. X 17 in. paper. Larger drawings may be submitted to supplement but not replace these smaller drawings.

I. Site Information

- A. Provide a map(s) of the project area and vicinity delineating USDA/SCS soil types.
- B. Provide recent aerials, legible for photo interpretation with a scale of 1" = 400 ft, or more detailed, with project boundaries delineated on the aerial.
- C. Identify the seasonal high water or mean high tide elevation and normal pool or mean low tide elevation for each on site wetland or surface water, including receiving waters into which runoff will be discharged. Include dates, datum, and methods used to determine these elevations.
- D. Identify the wet season high water tables at the locations representative of the entire project site. Include dates, datum, and methods used to determine these elevations.

II. Environmental Considerations

- A. Provide results of any wildlife surveys that have been conducted on the site, and provide any comments pertaining to the project from the Florida Game and Fresh Water Fish Commission and the U.S. Fish and Wildlife Service.
- B. Provide a description of how water quantity, quality, hydroperiod, and habitat will be maintained in on-site wetlands and other surface waters that will be preserved or will remain undisturbed.
- C. Provide a narrative description of any proposed mitigation plans, including purpose, maintenance, monitoring, and construction sequence and techniques, and estimated costs.
- D. Describe how boundaries of wetlands or other surface waters were determined. If there has ever been a jurisdictional declaratory statement, a formal wetland determination, a formal determination, a validated informal determination, or a revalidated jurisdictional determination, provide the identifying number.
- E. Impact Summary Tables:
 - 1. For all projects, complete Tables 1, 2 and 3 as applicable.
 - 2. For docking facilities or other structures constructed over wetlands or other surface waters, provide the information requested in Table 4.
 - 3. For shoreline stabilization projects, provide the information requested in Table 5.

III. Plans

Provide clear, detailed plans for the system including specifications, plan (overhead) views, cross sections (with the locations of the cross sections shown on the corresponding plan view), and profile (longitudinal) views of the proposed project. The plans must be signed and sealed by an appropriate registered professional as required by law. Plans must include a scale and a north arrow. These plans should show the following:

- A. Project area boundary and total land area, including distances and orientation from roads or other land marks;
- B. Existing land use and land cover (acreage and percentages), and on-site natural communities, including wetlands and other surface waters, aquatic communities, and uplands. Use the Florida Land Use Cover & Classification System (FLUCCS)(Level 3) for projects proposed in the South Florida Water Management District, the St. Johns River Water Management District, and the Suwannee River Water Management District and use the National Wetlands Inventory (NWI) for projects proposed in the Southwest Florida Water Management District. Also identify each community with a unique identification number which must be consistent in all exhibits.
- C. The existing topography extending at least 100 feet off the project area, and including adjacent wetlands and other surface waters. All topography shall include the location and a description of known benchmarks, referenced to NGVD. For systems waterward of the mean high water (MHW) or seasonal high water lines, show water depths, referenced to mean low water (MLW) in tidal areas or seasonal low water in non-tidal areas, and list the range between MHW and MLW. For docking facilities, indicate the distance to, location of, and depths of the nearest navigational channel and access routes to the channel.
- D. If the project is in the known flood plain of a stream or other water course, identify the following: 1) the flood plain boundary and approximate flooding elevations; and 2) the 100-year flood elevation and floodplain boundary of any lake, stream or other watercourse located on or adjacent to the site;
- E. The boundaries of wetlands and other surface waters within the project area. Distinguish those wetlands and other surface waters that have been delineated by any binding jurisdictional determination;
- F. Proposed land use, land cover and natural communities (acreage and percentages), including wetlands and other surface waters, undisturbed uplands, aquatic communities, impervious surfaces, and water management areas. Use the same classification system and community identification number used in III (B) above.
- G. Proposed impacts to wetlands and other surface waters, and any proposed connections/outfalls to other surface waters or wetlands;
- H. Proposed buffer zones;
- I. Pre- and post-development drainage patterns and basin boundaries showing the direction of flows, including any off-site runoff being routed through or around the system; and connections between wetlands and other surface waters;
- J. Location of all water management areas with details of size, side slopes, and designed water depths;
- K. Location and details of all water control structures, control elevations, any seasonal water level regulation schedules; and the location and description of benchmarks (minimum of one benchmark per structure);
- L. Location, dimensions and elevations of all proposed structures, including docks, seawalls, utility lines, roads, and buildings;
- M. Location, size, and design capacity of the internal water management facilities;

N. Rights-of-way and easements for the system, including all on-site and off-site areas to be reserved for water management purposes, and rights-of-way and easements for the existing drainage system, if any;

O. Receiving waters or surface water management systems into which runoff from the developed site will be discharged;

P. Location and details of the erosion, sediment and turbidity control measures to be implemented during each phase of construction and all permanent control measures to be implemented in post-development conditions;

Q. Location, grading, design water levels, and planting details of all mitigation areas;

R. Site grading details, including perimeter site grading;

S. Disposal site for any excavated material, including temporary and permanent disposal sites;

T. Dewatering plan details;

U. For marina facilities, locations of any sewage pumpout facilities, fueling facilities, boat repair and maintenance facilities, and fish cleaning stations;

V. Location and description of any nearby existing offsite features which might be affected by the proposed construction or development such as stormwater management ponds, buildings or other structures, wetlands or other surface waters.

W. For phased projects, provide a master development plan.

IV. Construction Schedule and Techniques

Provide a construction schedule, and a description of construction techniques, sequencing and equipment. This information should specifically include the following:

A. Method for installing any pilings or seawall slabs;

B. Schedule of implementation of temporary or permanent erosion and turbidity control measures;

C. For projects that involve dredging or excavation in wetlands or other surface waters, describe the method of excavation, and the type of material to be excavated;

D. For projects that involve fill in wetlands or other surface waters, describe the source and type of fill material to be used. For shoreline stabilization projects that involve the installation of riprap, state how these materials are to be placed, (i.e., individually or with heavy equipment) and whether the rocks will be underlain with filter cloth;

E. If dewatering is required, detail the dewatering proposal including the methods that are proposed to contain the discharge, methods of isolating dewatering areas, and indicate the period dewatering structures will be in place (Note: a consumptive use or water use permit may be required);

F. Methods for transporting equipment and materials to and from the work site. If barges are required for access, provide the low water depths and draft of the fully loaded barge;

G. Demolition plan for any existing structures to be removed; and

H. Identify the schedule and party responsible for completing monitoring, record drawings, and as-built certifications for the project when completed.

V. Drainage Information

A. Provide pre-development and post-development drainage calculations, signed and sealed by an appropriate registered professional, as follows:

1. Runoff characteristics, including area, runoff curve number or runoff coefficient, and time of concentration for each drainage basin;
 2. Water table elevations (normal and seasonal high) including aerial extent and magnitude of any proposed water table draw down;
 3. Receiving water elevations (normal, wet season, design storm);
 4. Design storms used including rainfall depth, duration, frequency, and distribution;
 5. Runoff hydrograph(s) for each drainage basin, for all required design storm event(s);
 6. Stage-storage computations for any area such as a reservoir, close basin, detention area, or channel, used in storage routing;
 7. Stage-discharge computations for any storage areas at a selected control point, such as control structure or natural restriction;
 8. Flood routings through on-site conveyance and storage areas;
 9. Water surface profiles in the primary drainage system for each required design storm event(s);
 10. Runoff peak rates and volumes discharged from the system for each required design storm event(s);
 11. Tail water history and justification (time and elevation); and
 12. Pump specifications and operating curves for range of possible operating conditions (if used in system).
- B. Provide the results of any percolation tests, where appropriate, and soil borings that are representative of the actual site conditions;

C. Provide the acreage, and percentages of the total project, of the following:

1. Impervious surfaces, excluding wetlands;
2. Pervious surfaces (green areas, not including wetlands);
3. Lakes, canals, retention areas, other open water areas; and
4. Wetlands.

D. Provide an engineering analysis of floodplain storage and conveyance (if applicable), including:

1. Hydraulic calculations for all proposed traversing works;
2. Backwater water surface profiles showing upstream impact of traversing works;
3. Location and volume of encroachment within regulated floodplain(s); and

4. Plan for compensating floodplain storage, if necessary, and calculations required for determining minimum building and road flood elevations.

E. Provide an analysis of the water quality treatment system including:

1. A description of the proposed stormwater treatment methodology that addresses the type of treatment, pollution abatement volumes, and recovery analysis; and

2. Construction plans and calculations that address stage-storage and design elevations, which demonstrate compliance with the appropriate water quality treatment criteria.

F. Provide a description of the engineering methodology, assumptions and references for the parameters listed above, and a copy of all such computations, engineering plans, and specifications used to analyze the system. If a computer program is used for the analysis, provide the name of the program, a description of the program, input and output data, two diskette copies, if available, and justification for model selection.

VI. Operation and Maintenance and Legal Documentation

A. Describe the overall maintenance and operation schedule for the proposed system.

B. Identify the entity that will be responsible for operating and maintaining the system in perpetuity if different than the permittee, a draft document enumerating the enforceable affirmative obligations on the entity to properly operate and maintain the system for its expected life, and documentation of the entity's financial responsibility for long-term maintenance. If the proposed operation and maintenance entity is not a property owner's association, provide proof of the existence of an entity, or the future acceptance of the system by an entity which will operate and maintain the system. If a property owner's association is the proposed operation and maintenance entity, provide copies of the articles of incorporation for the association and copies of the declaration, restrictive covenants, deed restrictions, or other operational documents that assign responsibility for the operation and maintenance of the system. Provide information ensuring the continued adequate access to the system for maintenance purposes. Before transfer of the system to the operating entity will be approved, the permittee must document that the transferee will be bound by all terms and conditions of the permit.

C. Provide copies of all proposed conservation easements, storm water management system easements, property owner's association documents, and plats for the property containing the proposed system.

D. Provide indication of how water and waste water service will be supplied. Letters of commitment from off-site suppliers must be included.

E. Provide a copy of the boundary survey and/or legal description and acreage of the total land area of contiguous property owned/controlled by the applicant.

VII. Water Use

A. Will the surface water system be used for water supply, including landscape irrigation, or recreation.

B. If a Consumptive Use or Water Use permit has been issued for the project, state the permit number.

C. If no Consumptive Use or Water Use permit has been issued for the project, indicate if such a permit will be required and when the application for a permit will be submitted.

D. Indicate how any existing wells located within the project site will be utilized or abandoned.

TABLE 1
 Project Impact Summary

WL & SW ID	WL & SW TYPE	WL & SW SIZE (ac.) ON SITE	WL & SW ACRES NOT IMPACTED	PERMANENT IMPACTS TO WL & SW		TEMPORARY IMPACTS TO WL & SW		MITIGATION ID
				IMPACT SIZE (acres)	IMPACT CODE	IMPACT SIZE (acres)	IMPACT CODE	

WL = Wetland; **SW** = Surface water; **ID** = Identification number, letter, etc.

Wetland Type: Use an established wetland classification system and, in the comments section below, indicate which classification system is being used.

Impact Code (Type): D = dredge; F = fill; H = change hydrology; S = shading; C = clearing; O = other. Indicate the final impact if more than one impact type is proposed in a given area. For example, show F only for an area that will first be demucked and then backfilled.

Note: Multiple entries per cell are not allowed, except in the "Mitigation ID" column. Any given acreage of wetland should be listed in one row only, such that the total of all rows equals the project total for a given category (column). For example, if Wetland No. 1 includes multiple wetland types and multiple impact codes are proposed in each type, then each proposed impact in each wetland type should be shown on a separate row, while the size of each wetland type found in Wetland No. 1 should be listed in only one row.

Comments:

TABLE 2
 ON-SITE MITIGATION SUMMARY

MITIGATION ID	CREATION		RESTORATION		ENHANCEMENT		WETLAND PRESERVE		UPLAND PRESERVE		OTHER	
	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE
PROJECT TOTALS:												

CODES (multiple entries per cell not allowed): Target Type or Type = target or existing habitat type from an established wetland classification system or land use classification for non-wetland mitigation

COMMENTS:

TABLE 3
 OFF-SITE MITIGATION SUMMARY

MITIGATION ID	CREATION		RESTORATION		ENHANCEMENT		WETLAND PRESERVE		UPLAND PRESERVE		OTHER	
	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE
PROJECT TOTALS:												

CODES (multiple entries per cell not allowed):

Target Type=target or existing habitat type from an established wetland classification system or land use classification for non-wetland mitigation

TABLE 4
 DOCKING FACILITY SUMMARY

Type of Structure*	Type of Work**	Number of Identical Docks	Length (feet)	Width (feet)	Height (feet)	Total square feet over water	Number of slips
*Dock, Pier, Finger Pier, or other structure (please specify what type) **New, Replaced, Existing (unaltered), Removed, or Altered/Modified				TOTALS:	Existing	Proposed	
				Number of Slips			
				Square Feet over the water			

Use of Structure:

Will the docking facility provide:

Live-aboard Slips? If yes, Number:
 Fueling Facilities: If yes, Number
 Sewage Pump-out Facilities? If yes, Number:
 Other Supplies or Services Required for Boating (excluding refreshments, bait and tackle)
☐ Yes ☐ No

Type of Materials for Decking and Pilings (i.e., CCA, pressure treated wood, plastic, or concrete)

Pilings
 Decking
 Proposed Dock-Plank Spacing (if applicable)

Proposed Size (length and draft), Type, and Number of Boats Expected to Use or Proposed to be Mooring at the facility)

Table 5: SHORELINE STABILIZATION
 IF YOU ARE CONSTRUCTING A SHORELINE STABILIZATION PROJECT, PLEASE PROVIDE THE
 FOLLOWING:

Type of Stabilization Being Done	Length (in feet) of New	Length (in feet) of Replaced	Length (in feet) of Repaired	Length (in feet) of Removed	Slope: H: V:	Width of the Toe (in feet)
Vertical Seawall						
Seawall plus Rip- Rap						
Rip-Rap						
Rip-Rap plus Vegetation						
Other Type of Stabilization Being Done:						

Size of the Rip Rap:

Type of Rip Rap:

COMMENTS:

V. Drainage Information Inserts

#3 During normal conditions the area is dry. During the wet season, stormwater is conveyed to a NSLRWCD Canal 101 or 101 through a system of onsite and offsite existing ditches. During the design storm, the discharge may fill the ditches causing storm water to overflow, but due to the extremely flat area, flood depth will be minimal.

#4 The design storm is 25 year frequency, 72 hour duration storm with a total rainfall of 9.0 inches. The distribution used is from SFWMD.

#5 Runoff hydrographs for each drainage basin from the 25 and 100 year storms are with the computer output within the appendix of the hydrologic analysis.

#11 As discussed on question 3, the flood water depth would be very minimal, therefore the conveyance of the storm water at the discharge location is based on normal depth in the discharge channel.

#e.1. The dry detention volume required for storm water quality treatment is 3.481 acre-ft. In the detention area, 3.501 acre-ft of storage is provided from elevation 17.25 to elevation 16.6. This is drawn down slowly through a V-notch weir, which is sized to discharge less than ½ inch of the detention volume in a 24 hour period.

#e.2. Required storm water quality and quantity volumes and discharges are development within the Hydrologic analysis calculation set. The detention area and discharge structure developed in the calculation set is sized to control and convey these storm water discharges.

#F HEC-1 and HEC-2 were developed by the Army Corp of Engineers and are commonly used for hydrograph generation, flood routing, and the generation of water surface profiles.

All calculations, engineering plans, and specifications are included.

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.

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

Table E-3
Plant Species Observed at the Treasure Coast Energy Center Site

Species ¹	Wetland Status ²	Growth Form ³	Wetland		Upland	
			Shrub Zone	Open	Shrub Zone	Open
<i>Andropogon virginicus</i> Broomsedge	FAC-	H				x
<i>Asimina reticulata</i> Reticulate Pawpaw	FACU	S				x
<i>Aster subulatus</i> Annual Salt Marsh Aster	OBL	H		x		
<i>Axonopus</i> sp. Carpetgrass	FACW-	G		x		
<i>Baccharis halimifolia</i> Eastern False-willow	FAC	S	x			
<i>Bidens</i> sp. Beggars-tick	FACW-	H		x		
<i>Carex</i> sp. Sedge	FAC	H		x		
<i>Cenchrus insertus</i> Coast Sandspur	NL	H				x
<i>Cirsium horridulum</i> Yellow Thistle	FAC+	H				x
<i>Commelina erecta</i> Day-flower	NL	H		x	x	x
<i>Cynodon dactylon</i> Bermudagrass	FACU	H				x
<i>Cyperus ligularis</i> Pond Nutsedge	FACW	H		x		x
<i>Cyperus polystachyos</i> Many-spike Nutsedge	FACW	H		x		
<i>Cyperus surinamensis</i> Nutsedge	FACW	H		x		x
<i>Cyperus virens</i> Green Nutsedge	FACW	H		x		
<i>Dactyloctenium aegyptium</i> Crowfoot	NL	H				x
<i>Digitaria ciliaris</i> Southern Crabgrass	NL	H				x

Table E-3 (Continued)
Plant Species Observed at the Treasure Coast Energy Center Site

Species ¹	Wetland Status ²	Growth Form ³	Wetland		Upland	
			Shrub Zone	Open	Shrub Zone	Open
<i>Echinochola crusgalli</i> Barnyardgrass	FACW-	H		x		x
<i>Eleusine indica</i> India Goosegrass	FACU	H				x
<i>Eupatorium capillifolium</i> Small Dog-fennel Thoroughwort	FACU	H		x		x
<i>Euthamia minor</i> Slender Fragrant Goldenrod	FAC	H				x
<i>Hydrocotyle bonariensis</i> Coastal Plain Penny-wort	FACW	H		x		x
<i>Hypericum</i> sp. St. Johns-wort	FAC	H		x		x
<i>Hypericum fasciculatum</i> St. Johns-wort	FACW+	S		x		
<i>Imperata brasiliensis</i> Cogongrass	NL	H		x		
<i>Juncus effusus</i> Soft Rush	FACW+	H		x		
<i>Lemna</i> sp. Duckweed	OBL	H	x	x		
<i>Ludwigia palustris</i> Marsh Seedbox	OBL	H		x		
<i>Ludwigia peruviana</i> Peruvian Seedbox	OBL	H		x	x	
<i>Micranthemum umbrosum</i> Shade Mudflower	OBL	H		x		
<i>Panicum rigidulum</i> Red-top Panicgrass	FACW	H		x		x
<i>Phyla nodiflora</i> Common Frog-fruit	FACW	H		x		x
<i>Polygonum hydropiperoides</i> Swamp Smartweed	OBL	H		x		
<i>Pontederia cordata</i> Pickerelweed	OBL	H		x		
<i>Rhynchospora</i> sp. Beaksedge	>FAC	H		x		

Table E-3 (Continued)
Plant Species Observed at the Treasure Coast Energy Center Site

Species ¹	Wetland Status ²	Growth Form ³	Wetland		Upland	
			Shrub Zone	Open	Shrub Zone	Open
<i>Sabal palmetto</i> Palmetto	FACU+	H		x		x
<i>Sagittaria lancifolia</i> Lance-leaf Arrowhead		H		x		
<i>Schinus terebinthifolius</i> Brazilian Pepper	FACU	S	x		x	
<i>Serenoa repens</i> Saw Palmetto	FACU	S	x		x	
<i>Setaria geniculata</i> Knotroot Bristlegrass	FAC	H				x
<i>Solidago canadensis</i> Canada Goldenrod	FACU	H				x
<i>Sporobolus indicus</i> West Indian Dropseed	FACU+	H		x		x
<i>Thelypteris cf. kunthii</i> Fern	FAC	H	x			
<i>Toxicodendron radicans</i> Poison Ivy	FAC	V	x		x	
1 Reed, P.B., Jr. 1988. <i>National List of Plant Species that Occur in Wetlands: Southeast (Region 2)</i>. U.S. Fish Wildl. Serv. Biol. Rep. 88 (26.2). 124 pp. 2 From Reed (1988): OBL = Obligate; FACW = Facultative Wetland Plant; FAC = Facultative Wetland Plant; FACU = Facultative Upland Plant; UPL = Upland Plant; NL = Not Listed (and considered upland). 3 T = tree; S = shrub; V = Vine; H = Herb.						

Attachment ERP Section C.2

Three wetlands regulated by the Corps are delineated on the TCEC site. Figure C-2 shows the wetland areas onsite.

Wetlands Size, Jurisdiction, and Impacts at the TCEC Site			
Wetland Area	Size (Acres)	Corps Regulated	Acres Impacted
A	10.26	yes	10.26
B	0.51	no (isolated)	0.0
C	0.48	no (isolated)	0.0
E	0.53	yes	0.0
F1	0.08	yes	0.0
F2	0.10	no (isolated)	0.0
Total Acres	11.96	10.87	10.26

Wetland A will be lost due to TCEC site development. Wetlands B and C will be impacted; however, they are considered isolated, and therefore not regulated by the Corps under current federal law. Wetlands E and F are ditches at the periphery of the site and will not be impacted by the project. Since there is no available space on the project site for mitigation, it is the intent of FMPPA to provide mitigation by purchasing wetland credits sufficient to offset the loss from a wetland mitigation bank accredited by the Corps.

Since mitigation banking is the proposed alternative for wetlands mitigation, FMPPA completed a Wetlands Rapid Assessment Procedure (WRAP) to evaluate the conditions of the existing wetlands. The WRAP study methods and results are attached to this ERP application.

No measuring or monitoring programs are proposed since the loss of ecological resources is considered negligible and will be offset by purchasing wetland mitigation bank credits.

Wetland A: wet prairie; Wetland B: freshwater marsh (isolated); Wetland C: wet prairie (isolated); and Wetland F1: drainage ditch. None are listed as an Outstanding Florida Water or Aquatic Preserve. The storm water detention pond is equipped with a weir so that overflow will be discharged through a weir and will sheet flow into the drainage

ditch (Wetland F1) located south of the property boundary. No wetlands impacts are proposed due to transmission line or natural gas pipeline construction or operation.

Attachment ERP Section C.3

A Site Arrangement drawing (138859-CSTA-S1001) indicating the site plan and storm water detention area is included as Figure C-3. Additional plan, section, and detail views are provided on the grading and drainage drawings included as Figures C-4 through C-11 (Drawings 138859-CSTF-S3000 through S3006, and 138859-CSTF-S3050).

Attachment ERP Section C.6

FMPA proposes to mitigate impacts to 10.26 acres of jurisdictional wetlands on the TCEC site by purchasing mitigation bank credits. A Wetlands Rapid Assessment Procedure (WRAP) has been completed to evaluate the onsite wetlands and assist in determining mitigation requirements. The WRAP report is included herein. The proposed Mitigation Plan follows the WRAP report. The Mitigation Plan includes a description of the existing environment, avoidance and minimization efforts, the mitigation proposal, and an alternatives analysis.

Attachment ERP Section E-I.C

The seasonal high water elevation is 15.7 feet. The detention basin discharges to the south to the existing wetland area (Wetland E) in the southwest corner of the site. The discharge structure of the detention basin is designed for the 25 year, 72 hour event peak flow. The discharge structure will also safely pass the 100 year, 72 hour storm event without overtopping the detention basin perimeter berms. No physical impacts to Wetland E are proposed; no water quality or quantity impacts are anticipated.

Attachment ERP Section E-II.B

0.53 acre of wet prairie and 0.18 acre of drainage ditch will remain undisturbed during construction. The stormwater management system will provide the required treatment of discharges; the post-development runoff rate will not exceed the pre-development rate.

Attachment ERP Section E-II.D

Wetlands on the TCEC site were originally delineated by CH2MHill in September 2000 for the Duke Energy Ft. Pierce Generating Station Project. However, since the Duke project was never constructed, site conditions remain essentially unchanged. Black & Veatch, on behalf of FMFA, visited the site in October 2004 to observe and confirm the previous wetland delineations.

Attachment ERP Section E-III.M

All storm water system facilities are located onsite as indicated in the calculation set and Drawings 138859-CSTF-S3000, S3001, S3002, S3003, S3004, S3005, S3006, and S3050; 138859-CSTE-S3101 and S3150; and 138859-CSTF-S3800 and S3900. The storm water collection system will consist of ditches, drainage structures, and a site runoff detention basin. This system will function as a storm water quality and quantity treatment facility. The quality treatment of runoff will be accomplished through detention. Storm water ditches will run on the north and south side of the power block. The substation area and the southern half of the power block will be graded to drain to the ditch on the south side of the power block. The area surrounding the cooling towers and the north half of the power block will drain to the north ditch. Each of these ditches will drain west, northwest discharging into the detention basin on the west side of the property. The area north of the cooling towers may be used for construction laydown/staging. This stormwater will also be routed to the ditch on the north side of the power block.

Attachment ERP Section E-III.N

No new easements or titles will be required from any governmental agency for the TCEC Unit 1 facilities. However, right-of-way use authorizations will be required from FPL, the Florida Turnpike Authority, the Florida Department of Transportation, North St. Lucie River Water Control District, St. Lucie County, and Port St. Lucie to install the 2.6 and 2.8 mile transmission lines and natural gas pipeline between the site and these interconnection points either in existing rights-of-way or in new rights-of-way directly adjacent to those existing facilities. A right-of-way use authorization may also be required from the FEC Railroad to install the rail spur connection to the site if FMPA or the EPC contractor elect to construct the spur during Unit 1 or future unit construction. No significant changes to these easements or right-of-way will be necessary due to Unit 1 facilities.

Attachment ERP Section E-III.O

The area associated with the power block and construction lay-down/staging area consists of approximately 7.6 acres of impervious area, 36.1 acres of aggregate area, and 1.0 acre of grass. These areas will drain into a new storm water detention basin designed for the 25 year, 72 hour rainfall event. The pre-development curve number (CN) was estimated to be 64.5, with a pre-development time of concentration of 1.474 hours, resulting in a time lag of 0.884 hour. The post-development CN and time of concentration were estimated to be 86.7 and 0.445 hour, respectively. The post-development time lag is estimated at 0.267 hour. The curve numbers and times of concentration were determined using the methods outlined in the U.S. Department of Agriculture, Soil Conservation Service, *Urban Hydrology for Small Watersheds*, Technical Release 55, Washington D.C., June 1986.

The storm water collection system will consist of ditches, drainage structures, and a site runoff detention basin. This system will function as a storm water quality and quantity treatment facility. The quality treatment of runoff will be accomplished through detention to reduce the total suspended solid concentrated in the water column.

The discharge structure of the detention basin is designed for the 25 year, 72 hour event peak flow. The discharge structure will also safely pass the 100 year, 72 hour storm event without overtopping the detention basin perimeter berms. The structure includes the V-notch bleeder weir at elevation 17.25 and a 20 foot long sharp-crested weir at elevation 17.6. The storm water detention basin and discharge structure are sized to meet the design criteria outlined in the paragraphs below. Storm water enters the detention basin

through direct precipitation and from ditches conveying runoff from the energy center and construction staging/lay-down areas.

The surface water management and storage of surface waters system will be designed in accordance with the regulations and requirements of Chapter 40E-4, F.A.C., the SFWMD's *Environmental Resource Permit Information Manual Volume IV*, and the FDEP's *The Florida Manual--A Guide to Sound Land and Water Management Land Development*. Areas subject to potential contamination of stormwater runoff will be designed for zero discharge.

The surface water management system at the site is designed to maintain the existing drainage patterns wherever possible. The existing drainage patterns generally flow to the northwest to the ditch located parallel to the FEC Railroad.

The surface water management system for the developed areas of the TCEC will be designed to ensure that the post-development peak discharge will not exceed that of the pre-development peak discharge at the project site boundary.

The following design criteria are specified in the SFWMD Permit Manual:

- Design Storm: 25 year, 72 hour.
- Rainfall frequencies obtained from the SFWMD Permit Manual are as follows:
 - 10 year, 24 hour--5.5 inches.
 - 10 year, 72 hour--8.2 inches.
 - 25 year, 24 hour--6.4 inches.
 - 25 year, 72 hour--9.0 inches.
 - 100 year, 72 hour--10.0 inches.
- Rainfall Distribution: SFWMD 72 Hour Synthetic Storm Distribution.
- Outlet structures:
 - Emergency spillways are designed to pass the 100 year recurrence interval storm event.

The pre-development peak discharge in response to the 25 year, 72 hour storm event is estimated at 89 cfs. The post-development peak discharge in response to the 25 year, 72 hour storm event is estimated at 72 cfs. The detention basin overflow will discharge to a weir and into Wetland F1. A 20 foot wide concrete lined channel is provided downstream of the discharge structure to spread the discharge and prevent erosion.

Attachment ERP Section E-III.P

Erosion and sediment control measures will be installed as necessary during construction to control sediment disposition. The primary destination of construction runoff will be to the site runoff basin (detention area). The runoff basin will provide reduction of suspended solids load through detention. Before construction begins, silt fence or other appropriate control measures will be installed around the perimeter of construction areas. Diversion ditches will be equipped with straw bale dikes to aid in minimizing the amount of sediments flowing into the onsite runoff basin and offsite. Construction accessways and parking areas will be surfaced with aggregate to provide a stabilized subgrade. Erosion control measures will also include minimizing fugitive dust through periodic spraying of water on dirt access roads and/or construction areas.

Attachment ERP Section E-IV

- Install erosion and sediment controls.
- Rough grade construction areas.
- Construct storm water system; stabilize (fill) required areas.
- Install major foundations.
- Install turbine, equipment, and utilities.
- Finish road/impervious areas.
- Final grading/stabilization.

Attachment ERP Section E-VI.A

The storm water management system will be visually inspected at a minimum weekly and after any rainfall event that exceeds one-half inch during project construction and operation. Repairs and maintenance will be completed on an as-needed basis.



DR. RALPH E. BROOKS

ENVIRONMENTAL COORDINATOR / PROJECT MANAGER

*Wetlands Analysis
Delineation and Mitigation*

*Threatened and Endangered
Species Studies*

*Vegetation Identification,
Analysis and Assessment*

Feasibility Studies

*Environmental Impact
Assessment*

*Biological Assessment
and Evaluation*

*National Environmental
Policy Act (NEPA)
Compliance*

*Federal Energy Regulatory
Commission (FERC)
Compliance*

Dr. Brooks is assigned to the Environmental, Health & Safety Section of Black & Veatch. He has 14 years of experience with the firm in managing and coordinating environmental studies or permitting processes to assure compliance with applicable federal, state or local environmental regulations, especially Clean Water Act permitting (wetlands), FERC and NEPA compliance, the Endangered Species Act, and the National Historic Preservation Act. Dr. Brooks often assists in the conducting environmental studies as he has extensive training and more than 20 years of professional experience in the areas of wetlands, threatened and endangered species, plant ecology, wetlands, botany, and environmental permitting prior to joining Black & Veatch. He has experience in planning public use, interpretive, and recreational facilities; siting and permitting facilities such as water intakes, pipelines, roads, and various structures; and working with habitat improvement projects, including bank stabilization and riparian and wetland habitat enhancement. In addition, he has designed and implemented monitoring activities associated with environmental assessments and mitigation plans as needed to meet project requirements. Dr. Brooks is an experienced client to agency consultant that has had the added benefit of nearly 20 years of employment with regulatory agencies. He has provided testimony as an expert witness on several occasions.

Since joining Black & Veatch, Dr. Brooks has provided biological and permitting expertise for siting studies, field surveys, report and permit preparation, and agency consultation for permitting a wide range of infrastructure projects throughout the United States. Dr. Brooks has coordinated and/or assisted in the preparation of environmental assessments and conducted numerous natural resources studies (vegetation and habitat assessments, wetlands, protected species) on projects throughout the United States, including Florida. These activities have been associated with domestic and overseas site-specific projects (e.g., landfills, water supply reservoirs) and linear facilities (fiber optic cables, transmission lines, gas pipelines, water pipelines and roadways). Dr. Brooks is well versed botanically and ecologically throughout Florida since he has spent considerable time in the state for research he conducted while on staff at the University of Kansas and on projects after joining Black & Veatch.

Education

B.A., Biology, Kansas State Teachers College, 1972

M.A., Biology/Botany, University of Kansas, 1974

Ph.D., Botany, University of Kansas, 1989

Certification

Wetland Delineation Specialist (WTI, Seattle)

Total Years Experience: 28

Joined B&V: 1991

Professional Associations

- American Society of Plant Taxonomists
- Great Plains Flora Association
- Society of Wetland Scientists
- North American Flora Association

Recent Project Experience

Comprehensive Everglades Recovery Project, Everglade Agricultural Area Reservoir, South Florida Water Management District and US Army Corps of Engineers, Okeechobee, Florida, 2005 Technical director for environmental permitting and studies for the construction of a new 160,000 acre reservoir that captures storm water runoff from Lake Okeechobee and neighboring lands and is sent to re-hydrate the Everglades. A levee/dam 27-miles in circumference is to be constructed, existing canals modified and new pump stations constructed.

Brandy Branch Combustion Turbine Project, Jacksonville Electric Authority Baldwin, Florida, 1999. Wetland Scientist. Identifying and delineating wetlands, conducting wildlife and protected species surveys, surveying protected trees, preparing a mitigation plan to meet local, state, and federal permitting requirements. Black & Veatch was also responsible for agency coordination and consultations and the overall permitting of the power plant.



St. John's River Transmission Line, Wetland Delineation, Orlando Utilities Commission, Orlando, Florida, 2005

Wetland Scientist. Conducted wetland delineation and prepared documents to support Corps of Engineers Clean Water Act Section 404 wetland permitting. Study area was a 19-mile long transmission corridor located east of Orlando.

Cane Island Power Park, Kissimmee Utility Authority, Kissimmee, Florida, 1993-2003. *Wetland Scientist.* Various state and federal compliance activities for wetlands permitting at the power plant or along associated transmission lines, including delineation, mitigation planning and monitoring, assessment, protected species surveys and vegetation assessments.

Regional Reservoir Project, Tampa Bay Water Authority, Tampa, Florida, 2000. *Wetland Scientist.* A technical and feasibility review of a wetland mitigation plan prepared to compensate for the loss of over 2000 acres of freshwater wetland in Hillsborough County, Florida. Recommendations for alterations were made and incorporated into the plan.

Cypress Energy Project, Cypress Energy Partners, Okeechobee, Florida, 1992 *Environmental Coordinator, Wetland Scientist.* Preparation of environmental permitting and Florida Site Certification Application for 1000 MW coal-fired power generation facility. A wetland delineation was performed on the entire 3,000 acre greenfield site. Similar studies were made for 75 miles of new transmission line and railroad track construction. Work also included joint state and federal permit preparation and agency consultation as well as other environmental studies.

Eastside Transmission Project, City of Lakeland, Florida, 1996

Wetland Scientist. Conducted wetland delineation and prepared permit for wetlands impacts from 2 miles of 59 kV transmission line construction. A Joint Application for Environmental Resources Permit was prepared for the client.

Mainstreet Transmission Corridor, City of Lakeland, Florida, 1996

Wetland Scientist. Surveyed the transmission corridor for federal, state, and water management district regulated wetlands and protected plants. Prepared joint wetlands permit for all agencies.

NE Lakeland Transmission Project, City of Lakeland, Florida, 1996

Wetland Scientist. Conducted a transmission line corridor survey for federal, state, and water management district wetlands and protected plants. Prepared a report of results and aided in permit preparation and mitigation of wetland losses.

Cane Island Power Generation Project, Kissimmee Utilities Authority, 1992

Wetland Scientist. Conducted wetland delineation and prepared documents to support Corps of Engineers and Florida joint wetland permit application.



DR. RALPH E. BROOKS

ENVIRONMENTAL COORDINATOR / PROJECT MANAGER

Indian River Generating Station Permitting, Titusville, Florida, 2000.

Wetland Scientist. Reliant Energy retained B&V to assist with wetland permitting issues. An offsite wetland delineation for property adjacent to the Indian River Plant was performed. The use of GIS technology was employed to produce the wetland delineation needed for a Consumptive Use Permit

☒ Existing Conditions ☒ Check one ☐ Proposed Conditions

(WRAP)

* The value of WQI is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

$$(1+1)/2 = 1$$

Field Notes:

Wildlife Utilization (WU)	Minimal; lacking good food resources; heavily grazed; poor habitat
Wetland Canopy (OIS)	NA
Wetland Ground Cover (GC)	Poor species diversity. Monocultures (or close) of <i>Arundo donax</i> , <i>Sagittaria</i> , and <i>Potamogeton</i> . Much peat/mud.
Habitat Support / Buffer	Buffer a 60/40 mix of Brazilian pepper & pasture. Less than 300' wide (est. 40-160'). Pasture of planked/introduced/adventive grasses and forbs.
Field Hydrology (HYD)	Enough to support hydroic plant growth but surely affected by ditching, canals, etc. in vicinity. Ground wet but not saturated
WQ Input & Treatment (WQ)	Site is mostly improved pasture w/lot surface flow thru swales and other low areas. Surrounding vicinity industrial park, light industry, railroad ROW, residential

☒ Existing Conditions ☐ Proposed Conditions

(WRAP)

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Field Notes

Wildlife Utilization (WU)	Minimal; limited food resources; poor habitat; heavily grazed
Wetland Canopy (OC)	NA
Wetland Ground Cover (GC)	Poor species diversity. Near monocultures of hydroic species like <i>Pachyrhizos</i> .
Habitat Support / Buffer	Buffer 40-160'; maybe more. Mostly Brazilian pepper thicket and improved pasture providing minimal food + habitat/shelter resources.
Field Hydrology (HYD)	Supports hydroic plant growth. Apparently saturated.
WQ Input & Treatment (WQ)	Site is improved pasture but modified surface flow ~ swales, canals etc. Surround area industrial park, railroad ROW, light industry and residential.

☒ Existing Conditions ☒ Check one ☐ Proposed Conditions

(WRAP)

* The value of WG is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Field Notes

Wildlife Utilization (WU)	Minimal; limited food resources; heavily grazed; poor habitat
Wetland Canopy (OS)	NA
Wetland Ground Cover (GC)	Poor species diversity. Monoculture <i>Axonopus</i> and/or <i>Imperata</i> .
Habitat Support / Buffer	Buffer 40-150'. Mix of Brazilian pepper and improved pasture. Neither good food or shelter resource
Field Hydrology (HYD)	Hydric vegetation but soil only moist.
WQ Input & Treatment (WQ)	Improved pasture area overall with modified surface drainage; swales, canals. Surrounding land use light industry, residential, railroad ROW

Wetland Rapid Assessment Procedure

☒ Existing Conditions ☐ Proposed Conditions

(WRAP)

Application Number

N/A

Project Name

TCEC

Date

Evaluator

JMS/REB

Wetland Type

C- WET PRAIRIE

Land Use

PASTURE

FLUCCS Code

643

Description: Wet Prairie

Wetland Acreage

0.48

Isolated
(COE)

Wildlife Utilization (WU)

0.5

Wetland Canopy (O/S)

N/A

Wetland Ground Cover (GC)

1.0

Habitat Support / Buffer

Buffer type (Score) X (% of area) = Sub Totals

211 1.5 50 .75

422 1.5 50 .75

TOTAL 1.5

Field Hydrology (HYD)

1.5

WQ Input & Treatment (WQ)*

1.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Land use Category (LU)

Land use Category (Score) X (% of area) = Sub Totals

Imp Past. 1 100 1

(LU) TOTAL 1.0

Pretreatment Category (PT)

Pretreatment Category (Score) X (% of area) = Sub Totals

Swales/Buffer 1 100 1

(PT) TOTAL 1.0

WRAP Score

0.37

Field Notes:

Wildlife Utilization (WU)

Heavily grazed area by livestock; no food resources, no habitat

Wetland Canopy (O/S)

NA

Wetland Ground Cover (GC)

Dense mats of *Axonopus*. Species mostly nuisance or introduced

Habitat Support / Buffer

Brazilian pepper and improved pasture surrounding. 50-150' deep. Limited habitat quality

Field Hydrology (HYD)

Moist soil and hydroic plants. Probably dries completely during summer months except after hard rain.

WQ Input & Treatment (WQ)

Same as A

☒ Existing Conditions ☒ Check one ☐ Proposed Conditions

(WRAP)

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment category then dividing by 2

Field Notes:

Wildlife Utilization (WU)	low, no evidence of tracks/feet
Wetland Canopy (O/S)	N/A
Wetland Ground Cover (GC)	mono - pickleweed
Habitat Support / Buffer	1.5 Transition lepper / low qual. wetland, open, heavily grazed, poor species composition and diversity
Field Hydrology (HYD)	ditch, moist to saturated soil, hydro vegetation
WQ Input & Treatment (WQ)	swales/ditches; resident water area east, light industry North, west, north. Railroad ROW to W. and road.

Wetlands Rapid Assessment Procedure
Treasure Coast Energy Center Project
Florida Municipal Power Agency

March 2005

Prepared by
Black & Veatch

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Wetlands Rapid Assessment Procedure (WRAP) Treasure Coast Energy Center Project

1.0 Introduction

The Florida Municipal Power Agency (FMPA) proposes to construct and operate a new power generation facility in eastern St. Lucie County, Florida, near Ft. Pierce. The power generation facility, to be known as the Treasure Coast Energy Center (TCEC), is a combined cycle combustion turbine facility burning natural gas as the primary fuel. The power plant is to be constructed on a land area of approximately 68 acres.

During the agency consultation phase of this TCEC project, the Florida Department of Environmental Protection (FDEP) and the U.S. Army Corps of Engineers (Corps) requested a WRAP study be performed at the site to evaluate the condition of the existing wetlands. The results of the WRAP study will be used to develop a wetlands mitigation proposal. The methods and results of the WRAP study are presented below. Table 1-1 indicates the wetlands under each agency's jurisdiction.

Table 1-1			
Wetlands Size and Jurisdiction at the TCEC Site			
Wetland Area	Size (Acres)	COE Regulated	FDEP Regulated
A	10.26	yes	yes
B	0.51	no (isolated)	yes
C	0.48	no (isolated)	yes
E	0.53	yes	yes
F1	0.08	yes	yes
F2	0.10	no (isolated)	yes
Total Acres		10.87	11.96

2.0 Environmental Setting

The project location and site boundaries for the TCEC facility are illustrated on Figure 1-1. A recent aerial photograph of the site is provided on Figure 1-2. The current environmental setting at the proposed site is discussed in the following sections.

2.1 Location

The site proposed for the power generation facility is located in St. Lucie County approximately 3 miles southwest of Ft. Pierce, in the south half of Section 31 of Township 35 South, Range 40 East. The land is part of the Midway Industrial Park (Phase III North, Lot 8).

2.2 Climate

The prevailing subtropical marine climate of the Florida southeastern coastal region results from the influence of the warm waters of the Atlantic Ocean. The Project is located near the southeast coast of Florida about 5 miles inland from the Atlantic Ocean. This region is strongly influenced by this maritime location. Long, warm, humid summers and short, mild winters prevail. Because of the southerly location and marine influences, this area has a climate characterized by small annual and diurnal temperature variations. The temperature variation from season to season is slight, with warm, humid summers and mild winters. Temperatures around 80° F occur during the summer months. The hottest month is July, with a mean monthly temperature of 81.7° F. Subfreezing temperatures rarely occur (i.e., about 1 day per year) and subzero temperatures have never been recorded. January is the coldest month with a mean monthly temperature of 63.0° F. Rainfall is moderate to heavy during the summer and light during the winter. Precipitation is highest during the summer and into the fall months. The average annual rainfall in this region is approximately 52 inches. Winds are of moderate speed and blow predominantly from the east to southeast during the spring, summer, and fall months. During the winter months, the predominant direction is from the northwest. (United States Department of Commerce, 2003.)

2.3 Topography

The proposed power generation site occupies approximately 68 acres of relatively flat improved pasture. Small areas of mixed shrub and brush, wet prairie, and freshwater marsh are also present. Surface drainage leaves the site to the west, south, and east via wetlands or ditches connected to canals north and south of the site.

2.4 Soils

Soils in the vicinity of the project area are predominantly sandy, including Ankona Sand, Lawnwood Sand, Tantile Sand, and Oldsmar Sand (Watts and Stankey, 1980). Each of these soils usually forms nearly level ground (0 to 2 percent slopes), is somewhat to very poorly drained, and has dark, weakly cemented subsoil. The soils were formed in marine sandy and loamy sediments and are characteristic of soils found in pine flatwoods in the region. Oldsmar and Tantile Sands are usually associated with depressions in flatwoods and can have standing surface water for much of the year. The water table in Ankona and Lawnwood Sands is generally within 10 inches of the surface for 1 to 4 months each year, but never more than about 40 inches below the surface.

2.5 Vegetation

Based on the type of soils present in the project vicinity and historical aerial photography from the region, the historical vegetation on the site was most likely pine flatwoods. The site was used to cultivate tomatoes at least 10 years ago, but since that time, the area has been modified to grassland that is used today as improved pasture for cattle.

The improved pasture is dominated by India dropseed (*Sporobolus indicus*) and Bermuda grass (*Cynodon dactylon*). Broomsedge (*Andropogon virginicus*) is widely scattered and, in general, the number of herbaceous forbs present appears low. The small, low growing shrub reticulate-leaved pawpaw (*Asimina reticulate*) is scattered in some areas of the pasture.

Brazilian pepper (*Schinus terebinthifolius*) occurs in dense thickets and rows in many areas of the site. Ground cover in these areas is for the most part lacking.

The wet prairies are dominated by carpet grass (*Axonopus* sp.), water pennywort (*Hydrocotyle bonariensis*), and nutsedge (*Cyperus* sp). Pickerelweed (*Pontederia cordata*) becomes nearly a monoculture in the wettest areas. Species observed on the project site are listed in Appendix A.

The cultivation of row crops and more recent conversion of the land to pasture have severely altered the quality and composition of the plant communities that once occurred in this area.

3.0 Wetland Rapid Assessment Procedure

The current condition of the existing site wetlands was rated using the South Florida Water Management District *Wetland Rapid Assessment Procedure* (Miller and Gunsalus, 1999).

3.1 Methods

Following is a description of the methods used to evaluate the wetlands at the project site.

3.1.1 Desktop Evaluation

Prior to conducting fieldwork, the project site was located on topographic maps and aerial photography and plotted on a site arrangement drawing. Developmental encroachment, adjacent natural areas, plant communities, roads, and other features that could potentially isolate or impact the project site were identified. In addition, potential sampling areas within the existing wetlands were selected.

3.1.2 Field Evaluation

A pedestrian survey was conducted on February 24 and 25, 2005, to evaluate the existing wetlands. Evaluations were conducted at the selected sampling points as shown on Figure 3-1. Five of the six standard WRAP variables were evaluated and included the following:

- Wildlife utilization.
- Wetland vegetative ground cover.

- Adjacent upland/wetland buffer.
- Field indicators of wetland hydrology.
- Water quality input and treatment systems.

The variable “*wetland overstory/shrub canopy*” was not evaluated since none was present on the project site wetlands. Data for each of the sampling points were recorded on WRAP Data Forms that are included in Appendix C. The score of the wetlands relative function (WRAP score) was determined based on these data.

The WRAP field evaluations were conducted by Dr. Ralph Brooks, Botanist, Black & Veatch, and Mike Soltys, Biologist, Black & Veatch, on February 24, 2005. Their résumés are included in Appendix E. Mr. Brandon Howard, a wetlands regulator for the U.S. Army Corps of Engineers, Jacksonville District, Palm Beach Gardens Regulatory Office, conducted a field evaluation of the findings with Black & Veatch staff on February 25, 2005.

3.1.3 Scoring for WRAP Variables

Scoring of the WRAP variables was based on discussions of each variable at each sample location. Following each variable is a set of descriptions and corresponding score points. Each wetland was evaluated against the set of descriptions and assigned the point value corresponding to the most appropriate description. The scores range from 0 to 3 in increments of 0.5 for each variable. A score of 3 is interpreted as the best a wetland can function, and a score of 0 is a system that is severely impacted and is exhibiting negligible attributes of typical wetland functions. After the system has been scored for each variable, the scores are totaled and divided by the total of the maximum score for all variables. The final rating score for each wetland (or sample point) is expressed numerically with a number between 0 and 1.

One to three sampling points were used to evaluate each of the wetlands at the project site: three points in A; one point in B, C, and E; and, two points in F. The number of sampling points was low due to the small size and homogeneous nature of the wetlands. The final rating score for each multiple-sample wetland is an average of all sample points considered for that particular wetland.

3.2 Results

WRAP scores for the wetlands varied from 0.37 (C) to 0.57 (B). Table 3-1 provides the individual variable scores and final WRAP score for each wetland. The WRAP score indicates that the wetlands function marginally well. However, if the cattle were removed from the site and the wetlands were allowed to develop in normal succession, functions could possibly improve. A discussion of the variables scored and existing wetlands conditions is presented below.

Table 3-1 WRAP Scores for All Wetlands						
Variables	A	B	C	E	F1	F2
Wildlife Utilization	1.0	2.0	0.5	1.0	1.5	1.5
Wetland Canopy	NA	NA	NA	NA	NA	NA
Wetland Ground Cover	1.0	2.0	1.0	1.5	1.5	1.5
Habitat Support/Buffer	1.5	1.5	1.5	1.5	1.5	1.5
Field Hydrology	1.2	2.0	1.5	2.0	2.0	2.0
Water Quality Input and Treatment	1.0	1.0	1.0	1.0	1.0	1.0
Sum of Ratings	5.7	8.5	5.5	7	7.5	7.5
Maximum Score Possible (3.0 x No. of Variables)	15	15	15	15	15	15
Final Score/Wetland	0.38	0.57	0.37	0.47	0.50	0.50

3.2.1 Wildlife Utilization

The site wetlands exhibit rather little evidence of wildlife utilization, with a score of 0.5 for C and 1.0 for A. Little evidence of wildlife was observed during field studies except for tracks of white-tailed deer, possibly raccoon, and great blue heron in Wetland B, giving it the highest score with 2.0. The remainder of the site is heavily grazed by cattle, which probably deters some wildlife from using the site. During these studies, a garter snake, box turtle, black vultures, and cattle egrets were the only wildlife observed. Representatives of common aquatic macroinvertebrates present in the vicinity of the wetlands include dragonflies, leaf beetles, mosquitoes, and horseflies. The adjacent upland/buffer provides limited foraging or protective cover areas for most of the wildlife species. Human disturbance of the site is considerable, as rows are still visible in the landscape from the cultivation of tomatoes at least 10 years ago. Drainage canals and ditches have also altered surface water flow. Wildlife species observed on the project property are listed in Appendix B.

3.2.2 Wetland Overstory/Shrub Canopy

No forested or shrub dominated wetlands are present on the project site. Therefore, this variable was not applicable to this WRAP procedure.

3.2.3 Wetland Vegetative Ground Cover

Ground cover in the wetlands, while hydric in nature, was largely composed of undesirable plant species. This accounts for A and C receiving a rating of 1.0. Water pennyroyal was especially common. Lowest areas were generally a monoculture of pickerelweed and slightly elevated areas supported a dominance of carpetgrass (*Axonopus* sp.) and cogongrass (*Imperata* spp). Several species of rush (*Juncus* spp.) and nutsedge (*Cyperus* spp.) were present, but there appeared to be an overall lack of diversity in the numbers of sedges,

grasses, and forbs present. Wetland B received a 2.0 rating since it supported a slightly larger number of obligate wetland species. Plant species observed on the project site are listed in Appendix A.

3.2.4 Adjacent Upland/Wetland Buffer

The adjacent upland/wetland buffer averages 50 to 150 feet, but is generally dominated by introduced or otherwise undesirable species. In most instances, the buffers are alternately solid thickets of Brazilian pepper and upland improved pasture dominated by Indian dropseed and broomsedge. Consequently, all of the wetlands received a buffer score of 1.5. Plant species observed in the uplands and thickets are listed in Appendix A.

3.2.5 Field Hydrology

Wetland scores for hydrology varied from 1.2 to 2.0 in the wetlands. The hydrology of the existing wetlands is adequate to maintain a viable wetland system, but has been significantly affected by agricultural practices, ditching, and irrigation canals in adjacent areas. During the WRAP evaluation, the wetlands were relatively dry, but these same areas have been observed with as much as a foot of standing water during wet periods (during recent hurricanes).

3.2.6 Water Quality Input and Treatment

The water quality rating for the surface water flowing into the subject wetlands from the adjacent properties was scored a 1.0 for all wetlands. This was calculated based on a land use score of 1.0 for improved pasture and a pretreatment score of 1.0 rating, since as grass swales and vegetated buffer strips account for the control and filtering of most surface waters on the site.

4.0 Summary

A WRAP study was conducted on the TCEC site to assess the functional quality of the existing wetlands. Wetlands that will be impacted by TCEC project development include Wetlands A, B, and C. The FDEP regulates all site wetlands; the Corps regulates only Wetlands A, E, and F1 (Wetlands B, C, and F2 are considered “isolated”). Final WRAP scores for these wetlands are presented below:

Wetland A	0.38
Wetland B	0.57
Wetland C	0.37
Wetland E	0.47
Wetland F1	0.50
Wetland F2	0.50

5.0 References

- Miller, R. E. and B. E. Gunsalus. 1999. *Wetland Rapid Assessment Procedure (WRAP)*, Ed. 2. Natural Resource Management Division, Regulation Department, South Florida Water Management District, Technical Publication REG-001, August 1999.
- United States Department of Commerce. Local Climatological Data – Annual Summary with Comparative Data – Vero Beach, Florida (VRB, WBAN: 12843). National Climatic Center; Asheville, North Carolina. 2003. (Period of record: 1974 – 2003).
- Watts, F. C. and D. L. Stankey. 1980. *Soil Survey of St. Lucie County, Florida*, U.S. Department of Agriculture, Soil Conservation Service, August 1980.

Appendix A

Plant Species Observed

Plant Species Observed at the Treasure Coast Energy Center Site

Species ¹	Wetland Status ²	Growth Form ³	Wetland		Upland	
			Shrub Zone	Open	Shrub Zone	Open
<i>Andropogon virginicus</i> Broomsedge	FAC-	H				x
<i>Asimina reticulate</i> Reticulate Pawpaw	FACU	S				x
<i>Aster subulatus</i> Annual Salt Marsh Aster	OBL	H		x		
<i>Axonopus</i> sp. Carpetgrass	FACW-	G		x		
<i>Baccharis halimifolia</i> Eastern False-willow	FAC	S	x			
<i>Bidens</i> sp. Beggars-tick	FACW-	H		x		
<i>Carex</i> sp. Sedge	FAC	H		x		
<i>Cenchrus insertus</i> Coast Sandspur	NL	H				x
<i>Cirsium horridulum</i> Yellow Thistle	FAC+	H				x
<i>Commelina erecta</i> Day-flower	NL	H		x	x	x
<i>Cynodon dactylon</i> Bermudagrass	FACU	H				x
<i>Cyperus ligularis</i> Pond Nutsedge	FACW	H		x		x
<i>Cyperus polystachyos</i> Many-spike Nutsedge	FACW	H		x		
<i>Cyperus surinamensis</i> Nutsedge	FACW	H		x		x
<i>Cyperus virens</i> Green Nutsedge	FACW	H		x		
<i>Dactyloctenium aegypticum</i> Crowfoot	NL	H				x
<i>Digitaria ciliaris</i> Southern Crabgrass	NL	H				x

Species ¹	Wetland Status ²	Growth Form ³	Wetland		Upland	
			Shrub Zone	Open	Shrub Zone	Open
<i>Echinochola crusgalli</i> Barnyardgrass	FACW-	H		x		x
<i>Eleusine indica</i> India Goosegrass	FACU	H				x
<i>Eupatorium capillifolium</i> Small Dog-fennel Thoroughwort	FACU	H		x		x
<i>Euthamia minor</i> Slender Fragrant Goldenrod	FAC	H				x
<i>Hydrocotyle bonariensis</i> Coastal Plain Penny-wort	FACW	H		x		x
<i>Hypericum</i> sp. St. Johns-wort	FAC	H		x		x
<i>Hypericum fasciculatum</i> St. Johns-wort	FACW+	S		x		
<i>Imperata brasiliensis</i> Cogongrass	NL	H		x		
<i>Juncus effusus</i> Soft Rush	FACW+	H		x		
<i>Lemna</i> sp. Duckweed	OBL	H	x	x		
<i>Ludwigia palustris</i> Marsh Seedbox	OBL	H		x		
<i>Ludwigia peruviana</i> Peruvian Seedbox	OBL	H		x	x	
<i>Micranthemum umbrosum</i> Shade Mudflower	OBL	H		x		
<i>Panicum rigidulum</i> Red-top Panicgrass	FACW	H		x		x
<i>Phyla nodiflora</i> Common Frog-fruit	FACW	H		x		x
<i>Polygonum hydropiperoides</i> Swamp Smartweed	OBL	H		x		
<i>Pontederia cordata</i> Pickeralweed	OBL	H		x		
<i>Rhynchospora</i> sp. Beaksedge	>FAC	H		x		

Species ¹	Wetland Status ²	Growth Form ³	Wetland		Upland	
			Shrub Zone	Open	Shrub Zone	Open
<i>Sabal palmetto</i> Palmetto	FACU+	H		x		x
<i>Sagittaria lancifolia</i> Lance-leaf Arrowhead		H		x		
<i>Schinus terebinthifolius</i> Brazilian Pepper	FACU	S	x		x	
<i>Serenoa repens</i> Saw Palmetto	FACU	S	x		x	
<i>Setaria geniculata</i> Knotroot Bristlegrass	FAC	H				x
<i>Solidago canadensis</i> Canada Goldenrod	FACU	H				x
<i>Sporobolus indicus</i> West Indian Dropseed	FACU+	H		x		x
<i>Thelypteris cf. kunthii</i> Fern	FAC	H	x			
<i>Toxicodendron radicans</i> Poison Ivy	FAC	V	x		x	

1 Reed, P.B., Jr. 1988. *National List of Plant Species that Occur in Wetlands: Southeast (Region 2)*. U.S. Fish Wildl. Serv. Biol. Rep. 88 (26.2). 124 pp.

2 From Reed (1988): OBL = Obligate; FACW = Facultative Wetland Plant; FAC = Facultative Wetland Plant; FACU = Facultative Upland Plant; UPL = Upland Plant; NL = Not Listed (and considered upland).

3 T = tree; S = shrub; V = Vine; H = Herb.

Appendix B

Wildlife Observed

Wildlife Observed at the Treasure Coast Energy Center Site¹

Common Name	Scientific Name
Reptiles and Amphibians	
Box Turtle	<i>Terrapene carolina</i>
Black Racer	<i>Couber constrictor</i>
Coachwhip	<i>Masticophis flagellum</i>
Racerunner	<i>Cnemidophorus sexlineatus</i>
Yellow Rat Snake	<i>Elaphe obsoleta</i>
Cricket frog	<i>Acris gryllus</i>
Little Grass Frog	<i>Limnaoedus ocularis</i>
Southern Chorus Frog	<i>Pseudacris nigrita</i>
Birds	
Blackbird, Red-winged	<i>Agelaius phoeniceus</i>
Bluejay	<i>Cyanocitta cristata</i>
Crane, Sandhill	<i>Grus Canadensis</i>
Dove, Mourning	<i>Zenaida macroura</i>
Egret, Cattle	<i>Bubulcus ibis</i>
Harrier, Northern	<i>Circus cyaneus</i>
Hawk, Red-tailed	<i>Buteo jamaicensis</i>
Killdeer	<i>Charadrius vociferous</i>
Meadowlark, Eastern	<i>Sturnella magna</i>
Robin	<i>Turdus migratorius</i>
Vulture, Black	<i>Coragyps atratus</i>
Vulture, Turkey	<i>Cathartes aura</i>
Warbler, Yellow-rumped	<i>Dendroica petchia</i>
Mammals	
Eastern Cottontail	<i>Sylvilagus floridanus</i>

¹ Based on October 2004 and February 2005 field observations by Black & Veatch and listing by CH2MHill in FDEP Environmental Resource Permit for Duke Energy Fort Pierce Generating Station, October 3, 1995.

Appendix C

WRAP Data Sheets

Appendix D

Wetland Photographs



TCEC Site, February 24, 2005

Wetland A, Sample Location A-3



TCEC Site, February 24, 2005

Wetland A, Sample Location A-2



TCEC Site, February 24, 2005

Wetland A, Sample Location A-1



TCEC Site, February 24, 2005

Wetland B



TCEC Site, February 24, 2005

Wetland B



TCEC Site, February 24, 2005

Wetland C



TCEC Site, February 24, 2005

Wetland E



TCEC Site, February 24, 2005

Wetland F, Sample Location F-1



TCEC Site, February 24, 2005

Wetland F, Sample Location F-2

Appendix E

Résumés



Environmental Project Manager

*Environmental Impact
Assessment/Mitigation*

NEPA Compliance

Site Certification

*Clean Water Act
Permitting*

HEP Studies

WRAP Studies

Education

Bachelors, Biology, William
Jewell College, 1976

Masters, Biology, University of
Missouri at Kansas City, 1985

Total Years Experience

28

Joined B&V

1977

Professional Associations

American Meteorological
Society – Kansas City Chapter

Missouri Native Plant Society

Missouri Prairie Foundation

Language Capabilities

English

Mr. Soltys is an environmental scientist/project manager assigned to the Environmental Health and Safety Services Section in the Consulting Energy Services Department. His primary responsibilities involve the coordination and management of project environmental and permitting activities, including environmental resource and impact analyses for power generation projects, resource development projects, linear facility projects, and siting studies. These analyses are used in environmental assessments, impact statements, mitigation plans, permit applications, and siting applications in support of project licensing tasks.

Representative Project Experience

Stock Island Power Plant, FMPA, Florida, 2004-2005

Licensing Manager. Directed field and technical efforts to permit the addition of Unit 4 at the Stock Island facility in Key West, FL. Unit 4 is a 40 megawatt simple cycle combustion turbine unit. The unit is currently under review by federal, state, and local agencies. Unit 4 installation at the site will require a Standard Environmental Resource permit due to expansion of the stormwater detention area.

Martin, Manatee, and Turkey Point Power Stations, FP&L, Florida, 2003-2005.

Compliance Coordinator. Directed compliance efforts for new unit additions at each of these generating stations. Site Certification Orders and Conditions of Certification were issued for each facility by the Florida Department of Environmental Protection. An Environmental Control Program and Plan were prepared to assure that construction and startup activities conformed to good environmental practices and the conditions of certification.

Stanton Energy Center, Orlando Utilities Commission, Florida, 2001-2004

Site Certification Coordinator/Compliance Manager. Directed field and technical efforts to prepare a supplemental site certification application as required under the Florida Power Plant Siting Act for a new 630 MW combined cycle combustion turbine unit (Unit A) at OUC's Stanton facility near Orlando, FL. Provided written and oral testimony at the certification hearing, and directed preparation of other supporting testimonies. Attended the Certification and Siting Board hearings. Directed certification compliance audit activities on behalf of OUC during Unit A construction.

Brandy Branch Generating Station, JEA, Florida, 1999-2002

Licensing Manager/Site Certification Coordinator. Directed field and technical efforts to permit the initial development and subsequent conversion of the Brandy Branch facility near Jacksonville, FL. The initial development was a 3-unit, 500 MW simple cycle combustion turbine facility successfully permitted through federal, state, and local agencies, which included Individual Section 404 and Environmental Resource permits. JEA proposed to convert two of the simple cycle units to combined cycle operation in 2000. The conversion required submittal of a site certification application under the Florida Power Plant Siting Act for the converted 600 MW combined cycle unit. Attended and provided written testimony at the certification hearing, and directed preparation of other supporting testimonies.



Osceola County Generating Station, Reliant Energy, Florida, 1999-2002

Licensing Manager. Directed field and technical efforts to permit the development of the Osceola County facility near Holopaw, FL. The facility is a 3-unit, 500 MW simple cycle combustion turbine facility successfully permitted through individual federal, state, and local agencies, which included Individual Section 404 and Environmental Resource permits. A Wetlands Rapid Assessment Procedure (WRAP) was completed on existing wetlands and proposed conservation easement wetlands. Directed permit compliance activities on behalf of Reliant during facility construction.

Cane Island Power Park, Kissimmee Utility Authority, Florida, 1993-2004

Licensing Manager/Site Certification Coordinator/Compliance Coordinator. Directed field and technical efforts to permit the initial development and subsequent certification of the Cane Island facility near Kissimmee, FL. The initial development was a 2-unit, 160 MW simple and combined cycle combustion turbine facility successfully permitted through individual federal, state, and local agencies which included Individual Section 404 and Environmental Resource permits. KUA proposed a new 250 MW combined cycle unit (Unit 3) in 1998 which required submittal of a site certification application under the Florida Power Plant Siting Act. KUA elected to certify all units and associated facilities onsite in conjunction with the Unit 3 certification. Attended and provided support at the land use, certification, and Siting Board hearings. Directed preparation of a 20 year habitat management plan. Also assigned as Compliance Coordinator to monitor and direct activities required for compliance with the original permits, subsequent Site Certification Order/Conditions of Certification during construction of Unit 3, and associated site plans.

Hansel Generating Station, Kissimmee Utility Authority, Florida, 2000-2004

Site Plan Coordinator. Directed efforts to obtain a Generic Permit for Stormwater Discharge from Industrial Activity, and prepare the Stormwater Pollution Prevention Plan and Integrated Contingency Plan for this 73 MW combustion turbine and diesel generator facility in Kissimmee, FL. The Integrated Contingency Plan was recently updated in response to EPA's new regulations. Provided annual refresher training in 2002 and 2003 for facility staff as required by the Stormwater Pollution Prevention Plan and Integrated Contingency Plan. Currently preparing plans, documents, and an exemption request to install an oil/water separator onsite to treat stormwaters prior to offsite discharge.



FLORIDA DEPARTMENT OF STATE

Glenda E. Hood

Secretary of State

DIVISION OF HISTORICAL RESOURCES

Mr. J. Michael Soltys
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, Kansas 66211

March 29, 2005

Re: DHR No. 2005-2514/ Received by DHR: March 10, 2005
Project: Treasure Coast Energy Center
B & V Project No. 138859
St. Lucie County

Dear Mr. Soltys:

Our office received and reviewed the above referenced project in accordance with Section 106 of the *National Historic Preservation Act* of 1996, as amended in 1992, Chapters 267 and 403, *Florida Statutes*, Florida's Coastal Management Program, and implementing state regulations, for possible impact to historic properties listed, or eligible for listing, in the *National Register of Historic Places*, or otherwise of historical, architectural or archaeological value. The State Historic Preservation Officer is to advise and assist state and federal agencies when identifying historic properties, assessing effects upon them, and considering alternatives to avoid or minimize adverse effects.

Our review of the Florida Master Site File indicates that no significant archaeological or historical resources are recorded within the project areas. Furthermore, because of the location and/or nature of the projects it is unlikely that any such sites will be affected

If there are any questions concerning our comments or recommendations, please contact Neal Engel, Historic Sites Specialist, by phone at (850)245-6371, or by electronic mail at nengel@dos.state.fl.us. We appreciate your continued interest in protecting Florida's historic properties.

Sincerely,

Frederick Gaske, Director and
State Historic Preservation Office

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

☐ Director's Office
(850) 245-6300 • FAX: 245-6436

☐ Archaeological Research
(850) 245-6444 • FAX: 245-6436

☒ Historic Preservation
(850) 245-6333 • FAX: 245-6437

☐ Historical Museums
(850) 245-6400 • FAX: 245-6433

☐ Southeast Regional Office
(954) 467-4990 • FAX: 467-4991

☐ Northeast Regional Office
(904) 825-5045 • FAX: 825-5044

☐ Central Florida Regional Office
(813) 272-3843 • FAX: 272-2340

South Florida Water Management District Dewatering Permit Application

The dewatering design will be completed during the detailed design phase and will be submitted post-certification and prior to construction.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

TABLE A Description of Wells

Well Name or Number						
Map Designation						
Existing or Proposed						
Date of Proposed Construction						
Date Installed if Existing						
Diameter (in)						
Total Depth (ft)						
Cased Depth (ft)						
Screened Interval (ft)						
Pumped or Flowing						
Pump Type (see Instructions)						
Pump Intake Depth (ft bls)						
Pump or Flow Capacity (GPM)						
Working Valve if Artesian (yes, no or not applicable)						
Status (see Instructions)						
Purpose (see Instructions)						
Elevation of the Wellhead (ft NGVD - see Instructions)						
Water Use Accounting Method (see Instructions)						
Date Last Calibrated (ATTACH calibration report)						
Planar Coordinates (if known - see instructions)						
Section / Township / Range						

Instructions for Completing TABLE A, Description of Wells

Please provide the following information about the well, if known or if applicable:

Well Name or Number: *This is your designation of the well; if we contact you about the well, this is how you would refer to it.*

Map Designation: *This is how you have labeled the well on the map you submitted. This may be the same as Well Name or Number, but does not necessarily have to be.*

Existing or Proposed: *If the well is proposed enter the date of expected operation. If it is an existing well, enter the date it was installed if you know it.*

Diameter: *Outside diameter of the well casing.*

Total Depth: *Total length in feet between the land surface and the bottom of the well.*

Cased Depth: *The length in feet from land surface to the bottom of the well casing.*

Screened Interval: *The distance in feet below land surface to the top and bottom of the well screen if the well is so equipped.*

Pumped or Flowing: *Does the well produce water as a result of natural artesian flow, or is it pumped?*

Pump Type: *This is the type of pump that has been installed for your well. Typical choices are:*

centrifugal	diesel turbine	axial flow	windmill
submersible	jet	suction	other (specify)
electric turbine	hydraulic	portable	

Pump Intake Depth: *Location of the pump depth in feet below land surface. The pump may be on the surface or down inside the well.*

Pump or Flow Capacity: *The amount of water the pump can produce in gallons per minute (GPM).*

Working Valve: *If the well is artesian; does it have a working valve to control the flow?*

Status: *Typical choices are:*

- Primary
- Secondary (Ex: a production well that is rotated)
- Standby (Ex: used for freeze protection or emergency)
- Monitor
- Injection (Ex: Air Conditioning, pool heat exchange, etc.; sometimes used only periodically)
- Recharge (Ex: same as above)

Purpose: *This is what the water will be used for. Typical choices are:*

Dairy	Irrigation	Air Conditioning	Swimming Pool Heating
Monitor	Aquaculture	Freeze Protection	Irrigation/Lake Recharge
Livestock	Bottled Water	Mining/Dewatering	Aquifer Storage and Recovery
Industrial	Other (specify)	Public Water Supply	Aquifer Remediation and Recovery

Elevation of the Wellhead: *This is the elevation of the top of the finished well at the ground surface.*

Flow Measurement Method: *Section 4.1, Basis of Review for Water Use Permit Applications, requires all permittees with a **maximum monthly use of greater than 3 million gallons** to equip each existing water withdrawal facility with an authorized operating water use accounting system and a report of its calibration to be sent to the District. Describe how you measure the amount of water produced by the well.*

Date Last Calibrated: *When was the flow measurement method last calibrated? ATTACH the calibration report.*

Planar coordinates: *The Florida State Plane System (Planar Coordinates), should be submitted if you have a land survey which identifies the location of the well in terms of those measurements. If you do not know what these are, it is not necessary to include them.*

Section / Township / Range: *The section, township and range in which the well is located.*

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

MINING/DEWATERING PERMIT APPLICATION (RC-1A, RC-1W, RC-1G)

For all DEWATERING Water Uses for Mining or Construction

General and Specific Authority, Chapter 373, State Statutes, 40E-2 and 40E-20 Florida Administrative Code and Basis of Review, Vol III, South Florida Water Management District.

A. GENERAL INFORMATION

1. *Name of Owner, Responsible Entity, etc.*

Name: Florida Municipal Power Agency **Project Name:** Treasure Coast Energy Center

Address: 8553 Commodity Circle

City: Orlando **County:** Orange **State:** Florida **ZIP:** 32819-9002

Phone: 407-355-7767 **Cell Phone:** Not Applicable **Fax:** 407-355-5794 **E-mail:** Not Available

2. *Proof of Ownership is required, in the form of a Deed, tax certificate, lease, or Articles of Incorporation*

ATTACH Proof of Ownership to this Form

3. *Name of Engineer, Contractor or Other.*

Name: **Firm:** Florida Municipal Power Agency

Address: 8553 Commodity Circle

City: Orlando **County:** Orange **State:** Florida **ZIP:** 32819-9002

Phone: 407-355-7767 **Cell Phone:** Not Applicable **Fax:** 407-355-5794

4. *Is this a New Permit* ☒ *Renewal/Modification* ☐ **Permit No.:**

5. *Will this Permit be a General Permit (short-term dewatering; Chapter 40E-20.302 F.A.C.)* ☒
or an Individual Permit ☐

6. *Has a Surface Water Management Permit or Environmental Resource Permit from the District been issued for this Project?* **Permit No.:** No permit issued for this project.

or has a Surface Water Management Permit or Environmental Resource Permit from the District been applied for?

Application No.: No permit issued for this project.

7. *What are the: Total number of days for the Project:* Approximately 90 days for excavation.

Total Pumpage (gallons per day) for the Project: 1.5 million **Maximum gpd pumpage** 2,000,000

8. *To process this Application, a fee of \$500 for a General and between \$1,800.00 and \$4,000.00 for an Individual Permit is required (see Chapter 40E-1.607, F.A.C.).*

ATTACH Application fee to this Form

9. *Please Identify any Staff member you have discussed this Application with:*

B. LOCATION OF THE PROPERTY

1. *General Location of the Property/Project*

County: St. Lucie **City:** Ft. Pierce

Section 31 Township 35S Range 40E (or Land Grant Name)

2. *Please submit: Location Map, (8 1/2 x 11), showing location of the project in relation to major roads.*

ATTACH Location Map to this Form

3. *An aerial photograph of the entire project site is required.*

ATTACH an aerial photograph

C. PROJECT DESCRIPTION (if more room is needed attach additional pages)

1. **Describe the mining/dewatering operation:**

Dewatering will be done within an area of about 900 by 250 feet to enable construction of Treasure Coast Energy Center Unit 1. Dewatering will be by a well point system, with flow estimate of 1.5 to 2.0 million gallons per day.

Dewatering water will be routed through hay bales and silt fences and stored in the onsite stormwater detention pond.

2. **Describe the method of excavation:** Clearing and grubbing, large earth moving equipment

3. **What is the maximum elevation of excavation:** 12 feet below ground surface

4. **What is the maximum elevation of dewatering:** 4 feet

5. **Describe the areas that will be mined/dewatered. Indicate if there are several sections/phases:**

The approximately 900 by 400 foot area for construction of Unit 1 will be dewatered in one contiguous operation. The entire construction site will be dewatered to allow filling and stabilization of the site before construction and placement of piping, electrical trenches, sumps, and foundations.

6. **Describe the method of dewatering (Pumps, wellpoints, etc.):** Well Points

ATTACH Table A (for wells) and/or Table B (for pumps) to this Form

7. Provide calculations to show how flow volumes were derived. What is the Maximum day and Average day pumpage, in gallons per minute, for each section/phase.

ATTACH Calculations (on a separate sheet) to this Form

sfwmd.gov

D. DEWATERING WATER DISCHARGE (if more room is needed attach additional pages)

1. **Describe and indicate for each section/phase, where dewatering water will be discharged or stored:**
Water from dewatering operations will be discharged to and stored in a stormwater pond onsite after passing through hay bales and silt fences.
 2. **Will all dewatering water be retained on site? Yes** The Applicant must demonstrate if it is not feasible to retain water on-site and provide information as described in Section 2.5.2 (4) of the Basis of Review.
- ATTACH, if needed, feasibility report and all supporting information (Section 2.5.2 (4) B.O.R.)**
3. **Describe any methods that will be utilized (settling tanks, berms, turbidity screens, recharge trenches, etc.) in order to protect sensitive areas from dewatering discharge:** Discharge will pass through hay bales and silt fences en route to storage in the stormwater pond.
 4. **Identify all wetland or sensitive areas on or adjacent to the project or which may be impacted by the project:** The majority of wetlands on the site (11.25 acres) will be dewatered and permanently lost; however, they are not high quality wetlands due to past agricultural disturbance of the site. FMPA proposes to purchase mitigation bank credits to off set impact to wetland.
 5. *Note: It may be necessary to provide modeling to provide reasonable assurances that there are no harm to wetland areas due to the project's withdrawals or discharges.*

E. POLLUTION AND CONTAMINATION

1. **Describe and locate all sources of contamination or pollution and the location of the nearest saline water. Please refer to the attached pages for contamination and pollution information. The Atlantic Ocean is the nearest saline water body and is approximately 5 miles east of the site.**
Note: It may be necessary to provide modeling to provide reasonable assurances that there are no adverse impacts due to the proposed withdrawals or discharges.

F. SITE PLANS AND PHASE INVENTORY

1. **Provide a Plan View:** The Plan view should show the site in relation to adjacent roads/canals/open water, property boundaries, sections/phases to be dewatered, discharge areas, wells, wellpoint systems, pumps, areas of discharge, contamination areas, retention or settling tanks, etc. and all wetland or sensitive areas as well as protective devices such as berms, turbidity screens, recharge trenches, etc. and the location of any monitoring points or wells, etc.
2. **Provide a Profile View:** The Profile view should show cross-sections across the areas to be dewatered and indicate the maximum depth of excavation, maximum depth of dewatering, water table elevation, land surface elevation, berm elevation, recharge trenches and wetland areas.
3. **If more than one phase of dewatering is proposed, provide, in a spread sheet format, an Inventory of Dewatering Phases.** The Inventory should include the phase, start date, number of days for dewatering, maximum day gpm, average day gpm and total pumpage for the phase.

ATTACH Plan View, Profile View and Phase Inventory (if needed) to this Form

G. ATTACHMENTS

1. Please make sure you have included the following attachments with your Application:

☒	Proof of Ownership	☒	Location Map
☒	Plan View	☐	Profile View
☒	Table A for wells	☐	Table B for pumps
☐	Pumpage Calculations	☐	Phase Inventory (if necessary)
☐	Application Fee (see Form XXXX)	☒	Aerial Photograph
☐	Feasibility report and supporting information for off-site discharge (if needed)		

F. CERTIFICATION

**WETLANDS MITIGATION PLAN
PREPARED FOR
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**TREASURE COAST ENERGY CENTER PROJECT
FLORIDA MUNICIPAL POWER AGENCY**

April 2005

WETLANDS MITIGATION PLAN

The Florida Municipal Power Agency (FMPA) is proposing to construct and operate the Treasure Coast Energy Center (TCEC), a multi-unit, natural gas fired, combined cycle combustion turbine power plant facility on a 68 acre greenfield site near Ft. Pierce in St. Lucie County, FL. The steam generating component of the initial unit, Unit 1, will subject the project to review under the Florida Electrical Power Plant Siting Act, which addresses all state and local requirements. In addition, due to unavoidable jurisdictional wetlands impacts, the project is also subject to review by the Florida Department of Environmental Protection (FDEP) under authority of Chapter 373, F.S., and Chapter 62, F.A.C. This mitigation plan has been prepared to describe the anticipated wetlands impacts and proposed mitigation for those impacts.

Existing Environment

Land use and vegetation types at the TCEC site consist primarily of pastureland. Within the pastureland are areas of wet prairie, freshwater marsh, and thickets of Brazilian pepper. The site is currently used to graze cattle. The Florida East Coast Railroad is adjacent on the northwest side of the site, and an FPL transmission line corridor is located in the southern portion of the property.

Table 1 lists the vegetation types that occur onsite. The site was historically most likely pine flatwoods and/or savannah, based on the characteristics of the surrounding vicinity. However, due to past clearing and agricultural activities, the site has been significantly altered from its natural state. The vegetation and wildlife present today reflect the disturbed condition of the site in that the species present are largely those with the ability to tolerate such activities. The vegetation types and Florida Land Use Cover and Classification System (FLUCCS) designations are described below.

Improved Pasture (FLUCCS Code 211)

Improved pasture accounts for about 31.2 acres, or 46 percent, of the site. Furrows from row crops planted in the past can be observed throughout the area. Reportedly, tomatoes were most recently planted. Grasses dominate the vegetation, especially India dropseed (*Sporobolus indicus*), Bermuda grass (*Cynodon dactylon*), and knotgrasses (*Paspalum* spp.).

Wet Prairie (FLUCCS Code 643)

Wet prairie accounts for about 12.5 acres, or 18 percent, of the site. The areas are dominated by grasses, sedges, and flowering forbs. Trees and shrubs are absent except for occasional Brazilian pepper (*Schinus terebinthifolius*), an exotic shrub. Dominant species include Bermuda grass, knotgrasses, carpet grasses (*Axonopus* spp.), smartweed (*Polygonum* spp.), water pennywort (*Hydrocotyle bonariensis*), and red ludwigia (*Ludwigia repens*). The

deepest and wettest portions are dominated by pickerelweed (*Pontederia cordata*), while soft rush (*Juncus effusus*) and beakrushes (*Rhynchospora* spp.) are common in areas less inundated.

Table 1. Wetlands at the TCEC Site		
Wetland Area	Size (acres)	Description
A	10.26	Wet prairie; dominated by water pennywort, red ludwigia, and wetland grasses
B	0.51	Freshwater marsh; excavated depression dominated by pickerel weed and surrounded by Brazilian pepper;
C	0.48	Wet prairie; dominated by water pennywort, red ludwigia, and wetland grasses
E	0.53	Wet prairie or marsh dominated by pickerel weed, knotweeds, flat sedges, and beak rushes
F	0.18	Drainage ditch
Total Wetland Acres = 11.96		

Brazilian Pepper (FLUCCS Code 422)

Brazilian pepper thickets account for about 17.9 acres, or 26 percent, of the site. The Brazilian pepper is an undesirable non-native species that rapidly colonizes disturbed sites, but is equally aggressive in undisturbed natural areas. The thickets shade out existing vegetation to form nearly monospecific stands. Florida considers the plant a nuisance species. Ground cover in these areas is usually absent.

Emergent/Freshwater Marsh (FLUCCS Code 641)

One small area of freshwater marsh is found in the southern portion of the site and accounts for about 0.5 acre. The apparently manmade circular depression is surrounded by a berm. Pickerelweed dominates the deeper portions of the area. St. John's wort (*Hypericum* spp) and maidencane (*Panicum hemitomon*) are common in the shallower areas of the marsh.

Electrical Transmission Lines/Wet Prairie (FLUCCS Code 832/643)

An FPL electrical transmission line corridor passes through the southern portion of the property. The maintained utility easement is 170 feet wide and occupies about 5.5 acres. This onsite area of the corridor is dominated by the wet prairie community (643).

Ditch (FLUCCS Code 511)

One intermittent ditch parallels the north side of the FPL electrical transmission corridor. The ditch occupies less than 0.5 acre. The ditches are occupied by pickerel weed, water pennywort, smartweed, and maidencane. Brazilian pepper is also common on the upper banks.

Wetlands. In accordance with Subsection 373.019(17), F.S., wetlands are defined as follows. “Wetlands means those areas that are inundated or saturated by surface water or ground water at a frequency and a duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils. Soils present in wetlands generally are classified as hydric or alluvial, or possess characteristics that are associated with reducing soil conditions. The prevalent vegetation in wetlands generally consists of facultative and obligate hydrophytic macrophytes that are typically adapted to areas having soil conditions as described above. These species, due to morphological, physiological, or reproductive adaptations, have the ability to grow, reproduce or persist in aquatic environments or anaerobic soil conditions. Florida wetlands generally include swamps, marshes, bayheads, bogs, cypress domes and strands, sloughs, wet prairies, riverine swamps and marshes, mangrove swamps and other similar areas. Florida wetlands generally do not include longleaf or slash pine flatwoods with an understory dominated by saw palmetto.” The State of Florida uses *The Florida Wetlands Delineation Manual* (FDEP, 1995) to determine wetland boundaries pursuant to Chapter 62-343.0040 F.A.C. The wetlands regulated by FDEP are identified in Table 2 below.

Table 2 Wetlands Size and Jurisdiction at the TCEC Site		
Wetland Area	Size (Acres)	FDEP Regulated
A	10.26	yes
B	0.51	yes
C	0.48	yes
E	0.53	yes
F1	0.08	yes
F2	0.10	yes
Total Acres	11.96	11.96

Wetlands on the TCEC site were originally delineated by CH2MHill in September 2000 for the Duke Energy Ft. Pierce Generating Station Project. However, since the Duke project was never constructed, site conditions remain essentially unchanged. Black & Veatch, on behalf of

FMFA, visited the site in October 2004 to observe and confirm the previous wetland delineations.

The Duke wetland delineation and WRAP sample locations are illustrated on Figure 1. Five of the nine wetlands areas identified in the figure occur on the TCEC site: Wetlands A, B, C, E (east portion), and F. The total extent of wetlands on the site regulated by the FDEP is 11.96 acres. No impacts are anticipated to Wetlands E and F. None of the wetlands on the site are adjacent to or within 200 feet of waters of the US. The FDEP is expected to require mitigation for the 11.25 acres of wetlands that will be impacted.

A Wetland Rapid Assessment Procedure (WRAP) was completed on February 24, 2005, to determine the condition of the existing wetlands and, consequently, the extent of mitigation required by FDEP.

Table 3 provides the individual variable scores and final WRAP score for each wetland. The WRAP score indicates that the wetlands function marginally well.

Table 3. WRAP Scores for All Wetlands						
Variables	A	B	C	E	F1	F2
Wildlife Utilization	1.0	2.0	0.5	1.0	1.5	1.5
Wetland Canopy	NA	NA	NA	NA	NA	NA
Wetland Ground Cover	1.0	2.0	1.0	1.5	1.5	1.5
Habitat Support/Buffer	1.5	1.5	1.5	1.5	1.5	1.5
Field Hydrology	1.2	2.0	1.5	2.0	2.0	2.0
Water Quality Input and Treatment	1.0	1.0	1.0	1.0	1.0	1.0
Sum of Ratings	5.7	8.5	5.5	7	7.5	7.5
Maximum Score Possible (3.0 x 5 Variables)	15	15	15	15	15	15
Final Score/Wetland	0.38	0.57	0.37	0.47	0.50	0.50

Avoidance and Mitigation of Impacts

FMFA has made significant efforts to avoid and minimize environmental impacts by selecting an appropriate site, and using previously disturbed areas and existing corridors for project development. Field surveys conducted to assess current conditions prior to construction indicate that wetlands and sensitive habitats onsite and within the linear facilities corridors are of low quality or nonexistent.

There will be no impacts to threatened or endangered species or critical habitat on the TCEC site; therefore, no mitigation is proposed for these species. Wetlands A, B, and C (11.25 acres) will be unavoidably lost due to site development. Locating the facilities north of Wetlands E and F has avoided additional impacts. Since there is no available space or good opportunity on

the TCEC site for mitigation, it is the intent of FMPA to provide mitigation by purchasing wetland bank credits from a wetland mitigation bank accredited by the COE sufficient to offset the wetlands loss. A WRAP study was performed to assist in determining mitigation requirements. The WRAP report is included with the Environmental Resource Permit Application in Section 10.1 of the Site Certification Application.

Two electric transmission lines will be constructed as part of the TCEC Unit 1. To minimize environmental impacts and clearing requirements, the transmission lines will be located within or adjacent to existing road and transmission line rights-of-way. The land temporarily disrupted as a result of the construction of the electric transmission lines will be restored to pre-construction conditions. No surface water, wetlands, or sovereign submerged lands impacts are anticipated due to avoidance (transmission structures spans can vary depending on the need or situation) and erosion/sedimentation controls.

The potable water supply pipeline and the natural gas supply pipeline construction will likely be located adjacent to existing utility and transportation easements. The potable water supply interconnection will be constructed either aerial or below the North St. Lucie River Water Control District Canal No. 102 to avoid impacts to the canal, and then follow an existing FPUA wastewater pipeline easement to the TCEC site. The natural gas pipeline will be adjacent to or within the FEC Railroad corridor its' entire length from the FGT main near the Florida Turnpike to the site, but must also cross Canal 102, which will most likely be by directional bore. The land temporarily disrupted as a result of the potable water and natural gas pipeline construction will be restored to pre-construction conditions. No surface water, wetlands, or sovereign submerged lands impacts are anticipated due to avoidance (directional bores or aerial crossings) and erosion/sedimentation controls.

Mitigation Proposal

FMPA must mitigate for the unavoidable wetlands impacts due to TCEC development. FMPA proposes to purchase the appropriate number of wetland mitigation bank credits from an approved mitigation bank to compensate for wetlands impacts subject to FDEP jurisdiction. Site development will impact 11.25 acres of low quality herbaceous wetlands (Wetlands A, B, and C) subject to COE jurisdiction; although final alignments are not available for associated linear facilities, no wetlands impacts are anticipated due to avoidance measures. Based on the WRAP scores of the impacted wetlands onsite, FMPA will secure a credit allocation confirmation from an approved mitigation bank to transfer 6.6 credits $[(0.38 \text{ score} \times 10.26 \text{ ac}) + (0.57 \text{ score} \times 0.51 \text{ ac}) + (0.37 \text{ score} \times 0.48 \text{ ac}) \times 1.5 = 6.55]$ in the bank ledger, and execute a mitigation credit purchase and sale agreement with the bank. FMPA will identify the bank, secure the credit allocation, and execute the purchase/sale agreement prior to Site Certification.

SECTION A

FOR AGENCY USE ONLY

ACOE Application #
 Date Application Received
 Proposed Project Lat.
 Proposed Project Long.

DEP/WMD Application #
 Date Application Received
 Fee Received \$
 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

PART 2:

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: Not Applicable
 - ☐ Alteration of a system
 - ☐ Abandonment of a system
 - ☐ Removal of a system
 - ☐ Extension of permit duration
 - ☐ Construction of additional phases 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 Roger Fontes	Name
Title and Company General Manager and CEO, Florida Municipal Power Agency	Title and Company
Address 8553 Commodity Circle	Address
City, State, Zip Orlando, Florida 32819-9002	City, State, Zip
Telephone and Fax Phone 407-355-7767; FAX 407-355-5794	Telephone and Fax
C. AGENT AUTHORIZED TO SECURE PERMIT	D. CONSULTANT (IF DIFFERENT FROM AGENT)
Name Mike Soltys	Name
Title and Company Environmental Scientist, Black & Veatch	Title and Company
Address 11401 Lamar	Address
City, State, Zip Overland Park, Kansas 66211	City, State, Zip
Telephone and Fax Phone 913-458-7563; FAX 913-458-2934	Telephone and Fax

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

A. Name of Project, including phase if applicable: Treasure Coast Energy Center Project - Unit 1

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

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

D. Total area served by the system: 45.9 ac.; _____ ha.

E. Impervious area for which a permit is sought: 7.6 ac.; _____ ha.

F. Volume of water that the system is capable of impounding:
44.23 ac. ft.; _____ m

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

H. Total volume of material to be dredged: 0 yd; 0 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) St. Lucie

Section(s) 31

Township 35 South

Range 40 East

Section(s)

Township

Range

Section(s)

Township

Range

Land Grant name, if applicable: Not Applicable

Tax Parcel Identification Number: Not Applicable

Street Address Road or other location: Midway Industrial Park, Lot 8, Phase III, 4585 Selvitz Road

City, Zip Code, if applicable: Ft. Pierce, FL 34981

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

The Florida Municipal Power Agency (FMPA) proposes to install a combined cycle combustion turbine generating unit (Unit 1) at the Midway Industrial Park near Ft. Pierce. Unit 1 will produce approximately 300 megawatts. FMPA owns the power plant site and will operate the unit. The scheduled construction start date is August 2006; commercial operation is scheduled for June 2008.

Installation of Unit 1 and other site improvements associated with future units will create impervious areas on the site. FMPA proposes to install a new stormwater management system to address full site development. Wetlands impacts will be required. No surface waters, sovereign submerged lands, or critical habitat impacts are anticipated; no protected species or historical/archeological impacts are anticipated.

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.

January 19, 2005: Site Certification Pre-Application Meeting, Florida Department of Environmental Protection (DEP) and U.S. Army Corps of Engineers, Jacksonville District (USACE); Meeting Location: Dept. of Environmental Protection Office, W. Palm Beach; In attendance: Susan Schumann, Florida Municipal Power Agency; Laxmana Tallam, DEP; Tim Powell, DEP; Indar Jagnarine, DEP; Tim Gray, DEP; Brandon Howard, USACE; Mike Soltys, Black & Veatch (B&V); Mike Tuttle, B&V; Myron Rollins, B&V; Mike Serafin, B&V.

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
<u>None</u>	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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. See attached Figure A-1 for Plan View.

- | | |
|--|---|
| 1.
Florida East Coast Railroad Company
1 Malaga Street
P.O. Drawer 1048
Saint Augustine, Florida 32085 | 2.
St. Lucie County
2300 Virginia Avenue
Fort Pierce, Florida 34982 |
| 3.
Midway Properties of St. Lucie
161 North Causeway
New Smyrna, Florida 32169-5300 | 4.
Fort Pierce Utilities Authority
206 South 6 th Street
Fort Pierce, Florida 34950 |
| 5.
Florida Power & Light Company (easement on property)
PO Box 025576
Miami, FL 33102 | 6.
North St. Lucie River Water Control District
Ft. Pierce, FL 34950 |
| 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.

J. Michael Soltys

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

Signature of Applicant/Agent
Environmental Scientist
Black & Veatch
(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.

Roger Fontes

Typed/Printed Name of Applicant

Signature of Applicant

Date

General Manager and CEO
Florida Municipal Power Agency
(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.

Jim Hay

Typed/Printed Name of Applicant

Signature of Applicant

Date

Project Manager
Florida Municipal Power Agency
(Corporate Title if applicable)

SECTION C

Environmental Resource Permit Notice of Receipt of Application

Note: this form does not need to be submitted for noticed general permits.

This information is required in addition to that required in other sections of the application. Please submit five copies of this notice of receipt of application and all attachments with the other required information. Please submit all information on 8 1/2" x 11" paper.

Project Name

County

Owner

Applicant:

Applicant's Address:

1. Indicate the project boundaries on a USGS quadrangle map. Attach a location map showing the boundary of the proposed activity. The map should also contain a north arrow and a graphic scale; show Section(s), Township(s), and Range(s); and must be of sufficient detail to allow a person unfamiliar with the site to find it.
2. Provide the names of all wetlands, or other surface waters that would be dredged, filled, impounded, diverted, drained, or would receive discharge (either directly or indirectly), or would otherwise be impacted by the proposed activity, and specify if they are in an Outstanding Florida Water or Aquatic Preserve:
3. Attach a depiction (plan and section views), which clearly shows the works or other facilities proposed to be constructed. Use multiple sheets, if necessary. Use a scale sufficient to show the location and type of works.
4. Briefly describe the proposed project (such as "construct dock with boat shelter", "replace two existing culverts", "construct surface water management system to serve 150 acre residential development"):
5. Specify the acreage of wetlands or other surface waters, if any, that are proposed to be filled, excavated, or otherwise disturbed or impacted by the proposed activity:

filled ___ ac.; ___ excavated ac.;

other impacts ___ ac.
6. Provide a brief statement describing any proposed mitigation for impacts to wetlands and other surface waters (attach additional sheets if necessary):

FOR AGENCY USE ONLY

Application Name:

Application Number:

Office where the application can be inspected:

Note to Notice recipient: The information in this notice has been submitted by the applicant, and has not been verified by the agency. It may be incorrect, incomplete or may be subject to change.

SECTION E

INFORMATION REQUESTED FOR STANDARD GENERAL, INDIVIDUAL AND CONCEPTUAL ENVIRONMENTAL RESOURCE PERMIT APPLICATIONS NOT RELATED TO A SINGLE FAMILY DWELLING UNIT

Please provide the information requested below if the proposed project requires either a standard general, individual, or conceptual approval environmental resource permit and is not related to an individual, single family dwelling unit, duplex or quadruplex. The information listed below represents the level of information that is usually required to evaluate an application. The level of information required for a specific project will vary depending on the nature and location of the site and the activity proposed. Conceptual approvals generally do not require the same level of detail as a construction permit. However, providing a greater level of detail will reduce the need to submit additional information at a later date. If an item does not apply to your project, proceed to the next item. Please submit all information that is required by the Department on either 8 1/2 in. X 11 in. paper or 11 in. X 17 in. paper. Larger drawings may be submitted to supplement but not replace these smaller drawings.

I. Site Information

- A. Provide a map(s) of the project area and vicinity delineating USDA/SCS soil types.
- B. Provide recent aerials, legible for photo interpretation with a scale of 1" = 400 ft, or more detailed, with project boundaries delineated on the aerial.
- C. Identify the seasonal high water or mean high tide elevation and normal pool or mean low tide elevation for each on site wetland or surface water, including receiving waters into which runoff will be discharged. Include dates, datum, and methods used to determine these elevations.
- D. Identify the wet season high water tables at the locations representative of the entire project site. Include dates, datum, and methods used to determine these elevations.

II. Environmental Considerations

- A. Provide results of any wildlife surveys that have been conducted on the site, and provide any comments pertaining to the project from the Florida Game and Fresh Water Fish Commission and the U.S. Fish and Wildlife Service.
- B. Provide a description of how water quantity, quality, hydroperiod, and habitat will be maintained in on-site wetlands and other surface waters that will be preserved or will remain undisturbed.
- C. Provide a narrative description of any proposed mitigation plans, including purpose, maintenance, monitoring, and construction sequence and techniques, and estimated costs.
- D. Describe how boundaries of wetlands or other surface waters were determined. If there has ever been a jurisdictional declaratory statement, a formal wetland determination, a formal determination, a validated informal determination, or a revalidated jurisdictional determination, provide the identifying number.
- E. Impact Summary Tables:
 - 1. For all projects, complete Tables 1, 2 and 3 as applicable.
 - 2. For docking facilities or other structures constructed over wetlands or other surface waters, provide the information requested in Table 4.
 - 3. For shoreline stabilization projects, provide the information requested in Table 5.

III. Plans

Provide clear, detailed plans for the system including specifications, plan (overhead) views, cross sections (with the locations of the cross sections shown on the corresponding plan view), and profile (longitudinal) views of the proposed project. The plans must be signed and sealed by an appropriate registered professional as required by law. Plans must include a scale and a north arrow. These plans should show the following:

A. Project area boundary and total land area, including distances and orientation from roads or other land marks;

B. Existing land use and land cover (acreage and percentages), and on-site natural communities, including wetlands and other surface waters, aquatic communities, and uplands. Use the Florida Land Use Cover & Classification System (FLUCCS)(Level 3) for projects proposed in the South Florida Water Management District, the St. Johns River Water Management District, and the Suwannee River Water Management District and use the National Wetlands Inventory (NWI) for projects proposed in the Southwest Florida Water Management District. Also identify each community with a unique identification number which must be consistent in all exhibits.

C. The existing topography extending at least 100 feet off the project area, and including adjacent wetlands and other surface waters. All topography shall include the location and a description of known benchmarks, referenced to NGVD. For systems waterward of the mean high water (MHW) or seasonal high water lines, show water depths, referenced to mean low water (MLW) in tidal areas or seasonal low water in non-tidal areas, and list the range between MHW and MLW. For docking facilities, indicate the distance to, location of, and depths of the nearest navigational channel and access routes to the channel.

D. If the project is in the known flood plain of a stream or other water course, identify the following: 1) the flood plain boundary and approximate flooding elevations; and 2) the 100-year flood elevation and floodplain boundary of any lake, stream or other watercourse located on or adjacent to the site;

E. The boundaries of wetlands and other surface waters within the project area. Distinguish those wetlands and other surface waters that have been delineated by any binding jurisdictional determination;

F. Proposed land use, land cover and natural communities (acreage and percentages), including wetlands and other surface waters, undisturbed uplands, aquatic communities, impervious surfaces, and water management areas. Use the same classification system and community identification number used in III (B) above.

G. Proposed impacts to wetlands and other surface waters, and any proposed connections/outfalls to other surface waters or wetlands;

H. Proposed buffer zones;

I. Pre- and post-development drainage patterns and basin boundaries showing the direction of flows, including any off-site runoff being routed through or around the system; and connections between wetlands and other surface waters;

J. Location of all water management areas with details of size, side slopes, and designed water depths;

K. Location and details of all water control structures, control elevations, any seasonal water level regulation schedules; and the location and description of benchmarks (minimum of one benchmark per structure);

L. Location, dimensions and elevations of all proposed structures, including docks, seawalls, utility lines, roads, and buildings;

M. Location, size, and design capacity of the internal water management facilities;

N. Rights-of-way and easements for the system, including all on-site and off-site areas to be reserved for water management purposes, and rights-of-way and easements for the existing drainage system, if any;

O. Receiving waters or surface water management systems into which runoff from the developed site will be discharged;

P. Location and details of the erosion, sediment and turbidity control measures to be implemented during each phase of construction and all permanent control measures to be implemented in post-development conditions;

Q. Location, grading, design water levels, and planting details of all mitigation areas;

R. Site grading details, including perimeter site grading;

S. Disposal site for any excavated material, including temporary and permanent disposal sites;

T. Dewatering plan details;

U. For marina facilities, locations of any sewage pumpout facilities, fueling facilities, boat repair and maintenance facilities, and fish cleaning stations;

V. Location and description of any nearby existing offsite features which might be affected by the proposed construction or development such as stormwater management ponds, buildings or other structures, wetlands or other surface waters.

W. For phased projects, provide a master development plan.

IV. Construction Schedule and Techniques

Provide a construction schedule, and a description of construction techniques, sequencing and equipment. This information should specifically include the following:

A. Method for installing any pilings or seawall slabs;

B. Schedule of implementation of temporary or permanent erosion and turbidity control measures;

C. For projects that involve dredging or excavation in wetlands or other surface waters, describe the method of excavation, and the type of material to be excavated;

D. For projects that involve fill in wetlands or other surface waters, describe the source and type of fill material to be used. For shoreline stabilization projects that involve the installation of riprap, state how these materials are to be placed, (i.e., individually or with heavy equipment) and whether the rocks will be underlain with filter cloth;

E. If dewatering is required, detail the dewatering proposal including the methods that are proposed to contain the discharge, methods of isolating dewatering areas, and indicate the period dewatering structures will be in place (Note: a consumptive use or water use permit may be required);

F. Methods for transporting equipment and materials to and from the work site. If barges are required for access, provide the low water depths and draft of the fully loaded barge;

G. Demolition plan for any existing structures to be removed; and

H. Identify the schedule and party responsible for completing monitoring, record drawings, and as-built certifications for the project when completed.

V. Drainage Information

A. Provide pre-development and post-development drainage calculations, signed and sealed by an appropriate registered professional, as follows:

1. Runoff characteristics, including area, runoff curve number or runoff coefficient, and time of concentration for each drainage basin;
 2. Water table elevations (normal and seasonal high) including aerial extent and magnitude of any proposed water table draw down;
 3. Receiving water elevations (normal, wet season, design storm);
 4. Design storms used including rainfall depth, duration, frequency, and distribution;
 5. Runoff hydrograph(s) for each drainage basin, for all required design storm event(s);
 6. Stage-storage computations for any area such as a reservoir, close basin, detention area, or channel, used in storage routing;
 7. Stage-discharge computations for any storage areas at a selected control point, such as control structure or natural restriction;
 8. Flood routings through on-site conveyance and storage areas;
 9. Water surface profiles in the primary drainage system for each required design storm event(s);
 10. Runoff peak rates and volumes discharged from the system for each required design storm event(s);
 11. Tail water history and justification (time and elevation); and
 12. Pump specifications and operating curves for range of possible operating conditions (if used in system).
- B. Provide the results of any percolation tests, where appropriate, and soil borings that are representative of the actual site conditions;

C. Provide the acreage, and percentages of the total project, of the following:

1. Impervious surfaces, excluding wetlands;
2. Pervious surfaces (green areas, not including wetlands);
3. Lakes, canals, retention areas, other open water areas; and
4. Wetlands.

D. Provide an engineering analysis of floodplain storage and conveyance (if applicable), including:

1. Hydraulic calculations for all proposed traversing works;
2. Backwater water surface profiles showing upstream impact of traversing works;
3. Location and volume of encroachment within regulated floodplain(s); and

4. Plan for compensating floodplain storage, if necessary, and calculations required for determining minimum building and road flood elevations.

E. Provide an analysis of the water quality treatment system including:

1. A description of the proposed stormwater treatment methodology that addresses the type of treatment, pollution abatement volumes, and recovery analysis; and

2. Construction plans and calculations that address stage-storage and design elevations, which demonstrate compliance with the appropriate water quality treatment criteria.

F. Provide a description of the engineering methodology, assumptions and references for the parameters listed above, and a copy of all such computations, engineering plans, and specifications used to analyze the system. If a computer program is used for the analysis, provide the name of the program, a description of the program, input and output data, two diskette copies, if available, and justification for model selection.

VI. Operation and Maintenance and Legal Documentation

A. Describe the overall maintenance and operation schedule for the proposed system.

B. Identify the entity that will be responsible for operating and maintaining the system in perpetuity if different than the permittee, a draft document enumerating the enforceable affirmative obligations on the entity to properly operate and maintain the system for its expected life, and documentation of the entity's financial responsibility for long-term maintenance. If the proposed operation and maintenance entity is not a property owner's association, provide proof of the existence of an entity, or the future acceptance of the system by an entity which will operate and maintain the system. If a property owner's association is the proposed operation and maintenance entity, provide copies of the articles of incorporation for the association and copies of the declaration, restrictive covenants, deed restrictions, or other operational documents that assign responsibility for the operation and maintenance of the system. Provide information ensuring the continued adequate access to the system for maintenance purposes. Before transfer of the system to the operating entity will be approved, the permittee must document that the transferee will be bound by all terms and conditions of the permit.

C. Provide copies of all proposed conservation easements, storm water management system easements, property owner's association documents, and plats for the property containing the proposed system.

D. Provide indication of how water and waste water service will be supplied. Letters of commitment from off-site suppliers must be included.

E. Provide a copy of the boundary survey and/or legal description and acreage of the total land area of contiguous property owned/controlled by the applicant.

VII. Water Use

A. Will the surface water system be used for water supply, including landscape irrigation, or recreation.

B. If a Consumptive Use or Water Use permit has been issued for the project, state the permit number.

C. If no Consumptive Use or Water Use permit has been issued for the project, indicate if such a permit will be required and when the application for a permit will be submitted.

D. Indicate how any existing wells located within the project site will be utilized or abandoned.

TABLE 1
 Project Impact Summary

WL & SW ID	WL & SW TYPE	WL & SW SIZE (ac.) ON SITE	WL & SW ACRES NOT IMPACTED	PERMANENT IMPACTS TO WL & SW		TEMPORARY IMPACTS TO WL & SW		MITIGATION ID
				IMPACT SIZE (acres)	IMPACT CODE	IMPACT SIZE (acres)	IMPACT CODE	

WL = Wetland; **SW** = Surface water; **ID** = Identification number, letter, etc.

Wetland Type: Use an established wetland classification system and, in the comments section below, indicate which classification system is being used.

Impact Code (Type): D = dredge; F = fill; H = change hydrology; S = shading; C = clearing; O = other. Indicate the final impact if more than one impact type is proposed in a given area. For example, show F only for an area that will first be demucked and then backfilled.

Note: Multiple entries per cell are not allowed, except in the "Mitigation ID" column. Any given acreage of wetland should be listed in one row only, such that the total of all rows equals the project total for a given category (column). For example, if Wetland No. 1 includes multiple wetland types and multiple impact codes are proposed in each type, then each proposed impact in each wetland type should be shown on a separate row, while the size of each wetland type found in Wetland No. 1 should be listed in only one row.

Comments:

TABLE 2
 ON-SITE MITIGATION SUMMARY

MITIGATION ID	CREATION		RESTORATION		ENHANCEMENT		WETLAND PRESERVE		UPLAND PRESERVE		OTHER	
	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE
PROJECT TOTALS:												

CODES (multiple entries per cell not allowed): Target Type or Type = target or existing habitat type from an established wetland classification system or land use classification for non-wetland mitigation

COMMENTS:

TABLE 3
 OFF-SITE MITIGATION SUMMARY

MITIGATION ID	CREATION		RESTORATION		ENHANCEMENT		WETLAND PRESERVE		UPLAND PRESERVE		OTHER	
	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE	AREA	TARGET TYPE
PROJECT TOTALS:												

CODES (multiple entries per cell not allowed):

Target Type=target or existing habitat type from an established wetland classification system or land use classification for non-wetland mitigation

TABLE 4
 DOCKING FACILITY SUMMARY

DOCKING TICKET SUMMARY							
Type of Structure*	Type of Work**	Number of Identical Docks	Length (feet)	Width (feet)	Height (feet)	Total square feet over water	Number of slips
*Dock, Pier, Finger Pier, or other structure (please specify what type) **New, Replaced, Existing (unaltered), Removed, or Altered/Modified			TOTALS:		Existing		Proposed
			Number of Slips				
			Square Feet over the water				

Use of Structure:

Will the docking facility provide:

Live-aboard Slips? If yes, Number:

Fueling Facilities: If yes, Number

Sewage Pump-out Facilities? If yes, Number:

Other Supplies or Services Required for Boating (excluding refreshments, bait and tackle)

☐ Yes ☐ No

Type of Materials for Decking and Pilings (i.e., CCA, pressure treated wood, plastic, or concrete)

Pilings

Decking

Proposed Dock-Plank Spacing (if applicable)

Proposed Size (length and draft), Type, and Number of Boats Expected to Use or Proposed to be Mooring at the facility)

Table 5: SHORELINE STABILIZATION
 IF YOU ARE CONSTRUCTING A SHORELINE STABILIZATION PROJECT, PLEASE PROVIDE THE
 FOLLOWING:

Type of Stabilization Being Done	Length (in feet) of New	Length (in feet) of Replaced	Length (in feet) of Repaired	Length (in feet) of Removed	Slope: H: V:	Width of the Toe (in feet)
Vertical Seawall						
Seawall plus Rip- Rap						
Rip-Rap						
Rip-Rap plus Vegetation						
Other Type of Stabilization Being Done:						

Size of the Rip Rap:

Type of Rip Rap:

COMMENTS:

V. Drainage Information Inserts

#3 During normal conditions the area is dry. During the wet season, stormwater is conveyed to a NSLRWCD Canal 101 or 101 through a system of onsite and offsite existing ditches. During the design storm, the discharge may fill the ditches causing storm water to overflow, but due to the extremely flat area, flood depth will be minimal.

#4 The design storm is 25 year frequency, 72 hour duration storm with a total rainfall of 9.0 inches. The distribution used is from SFWMD.

#5 Runoff hydrographs for each drainage basin from the 25 and 100 year storms are with the computer output within the appendix of the hydrologic analysis.

#11 As discussed on question 3, the flood water depth would be very minimal, therefore the conveyance of the storm water at the discharge location is based on normal depth in the discharge channel.

#e.1. The dry detention volume required for storm water quality treatment is 3.481 acre-ft. In the detention area, 3.501 acre-ft of storage is provided from elevation 17.25 to elevation 16.6. This is drawn down slowly through a V-notch weir, which is sized to discharge less than ½ inch of the detention volume in a 24 hour period.

#e.2. Required storm water quality and quantity volumes and discharges are development within the Hydrologic analysis calculation set. The detention area and discharge structure developed in the calculation set is sized to control and convey these storm water discharges.

#F HEC-1 and HEC-2 were developed by the Army Corp of Engineers and are commonly used for hydrograph generation, flood routing, and the generation of water surface profiles.

All calculations, engineering plans, and specifications are included.

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.

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

Table E-3
Plant Species Observed at the Treasure Coast Energy Center Site

Species ¹	Wetland Status ²	Growth Form ³	Wetland		Upland	
			Shrub Zone	Open	Shrub Zone	Open
<i>Andropogon virginicus</i> Broomsedge	FAC-	H				x
<i>Asimina reticulata</i> Reticulate Pawpaw	FACU	S				x
<i>Aster subulatus</i> Annual Salt Marsh Aster	OBL	H		x		
<i>Axonopus</i> sp. Carpetgrass	FACW-	G		x		
<i>Baccharis halimifolia</i> Eastern False-willow	FAC	S	x			
<i>Bidens</i> sp. Beggars-tick	FACW-	H		x		
<i>Carex</i> sp. Sedge	FAC	H		x		
<i>Cenchrus insertus</i> Coast Sandspur	NL	H				x
<i>Cirsium horridulum</i> Yellow Thistle	FAC+	H				x
<i>Commelina erecta</i> Day-flower	NL	H		x	x	x
<i>Cynodon dactylon</i> Bermudagrass	FACU	H				x
<i>Cyperus ligularis</i> Pond Nutsedge	FACW	H		x		x
<i>Cyperus polystachyos</i> Many-spike Nutsedge	FACW	H		x		
<i>Cyperus surinamensis</i> Nutsedge	FACW	H		x		x
<i>Cyperus virens</i> Green Nutsedge	FACW	H		x		
<i>Dactyloctenium aegyptium</i> Crowfoot	NL	H				x
<i>Digitaria ciliaris</i> Southern Crabgrass	NL	H				x

Table E-3 (Continued)
Plant Species Observed at the Treasure Coast Energy Center Site

Species ¹	Wetland Status ²	Growth Form ³	Wetland		Upland	
			Shrub Zone	Open	Shrub Zone	Open
<i>Echinochola crusgalli</i> Barnyardgrass	FACW-	H		x		x
<i>Eleusine indica</i> India Goosegrass	FACU	H				x
<i>Eupatorium capillifolium</i> Small Dog-fennel Thoroughwort	FACU	H		x		x
<i>Euthamia minor</i> Slender Fragrant Goldenrod	FAC	H				x
<i>Hydrocotyle bonariensis</i> Coastal Plain Penny-wort	FACW	H		x		x
<i>Hypericum</i> sp. St. Johns-wort	FAC	H		x		x
<i>Hypericum fasciculatum</i> St. Johns-wort	FACW+	S		x		
<i>Imperata brasiliensis</i> Cogongrass	NL	H		x		
<i>Juncus effusus</i> Soft Rush	FACW+	H		x		
<i>Lemna</i> sp. Duckweed	OBL	H	x	x		
<i>Ludwigia palustris</i> Marsh Seedbox	OBL	H		x		
<i>Ludwigia peruviana</i> Peruvian Seedbox	OBL	H		x	x	
<i>Micranthemum umbrosum</i> Shade Mudflower	OBL	H		x		
<i>Panicum rigidulum</i> Red-top Panicgrass	FACW	H		x		x
<i>Phyla nodiflora</i> Common Frog-fruit	FACW	H		x		x
<i>Polygonum hydropiperoides</i> Swamp Smartweed	OBL	H		x		
<i>Pontederia cordata</i> Pickerelweed	OBL	H		x		
<i>Rhynchospora</i> sp. Beaksedge	>FAC	H		x		

Table E-3 (Continued)
Plant Species Observed at the Treasure Coast Energy Center Site

Species ¹	Wetland Status ²	Growth Form ³	Wetland		Upland	
			Shrub Zone	Open	Shrub Zone	Open
<i>Sabal palmetto</i> Palmetto	FACU+	H		x		x
<i>Sagittaria lancifolia</i> Lance-leaf Arrowhead		H		x		
<i>Schinus terebinthifolius</i> Brazilian Pepper	FACU	S	x		x	
<i>Serenoa repens</i> Saw Palmetto	FACU	S	x		x	
<i>Setaria geniculata</i> Knotroot Bristlegrass	FAC	H				x
<i>Solidago canadensis</i> Canada Goldenrod	FACU	H				x
<i>Sporobolus indicus</i> West Indian Dropseed	FACU+	H		x		x
<i>Thelypteris cf. kunthii</i> Fern	FAC	H	x			
<i>Toxicodendron radicans</i> Poison Ivy	FAC	V	x		x	
1 Reed, P.B., Jr. 1988. <i>National List of Plant Species that Occur in Wetlands: Southeast (Region 2)</i>. U.S. Fish Wildl. Serv. Biol. Rep. 88 (26.2). 124 pp. 2 From Reed (1988): OBL = Obligate; FACW = Facultative Wetland Plant; FAC = Facultative Wetland Plant; FACU = Facultative Upland Plant; UPL = Upland Plant; NL = Not Listed (and considered upland). 3 T = tree; S = shrub; V = Vine; H = Herb.						

Attachment ERP Section C.2

Wetland A: wet prairie; Wetland B: freshwater marsh; Wetland C: wet prairie; Wetland E: wet prairie; Wetland F: drainage ditch. The storm water detention basin is equipped with a weir so that if overflow occurs it will be diverted through a weir and will sheet flow into the drainage ditch (Wetland F) located south of the property boundary. None are listed as an Outstanding Florida Water or Aquatic Preserve.

Attachment ERP Section C.3

A Site Arrangement drawing (138859-CSTA-S1001) indicating the site plan and storm water detention basin is included. Additional plan and section views are provided on the grading and drainage drawings following the Site Arrangement on Drawings 138859-CSTF-S3000 through S3006 for system plan, and 138859-CSTF-S3050 for sections and details. These drawings are included as Figure 2.1-9 in Section 2 and Figures 3.8-1 through 3.8-11 in Section 3 of the SCA.

Attachment ERP Section C.6

FMPA proposes to mitigate impacts to 11.25 acres of wetlands on the TCEC site by mitigation banking. A Wetlands Rapid Assessment Procedure (WRAP) has been completed to evaluate the onsite wetlands and assist in determining mitigation requirements. The WRAP report is included herein.

Significant efforts have been made to avoid and minimize environmental impacts by selecting an appropriate site, previously disturbed areas, and existing corridors for project development. An alternative analysis identified the TCEC site as the preferred site considering both environmental and economic factors. Field surveys conducted to assess current conditions prior to construction indicate that wetlands and sensitive habitats onsite and within the linear facilities corridors are of low quality or nonexistent.

There are no anticipated adverse impacts to threatened or endangered species or critical habitat on the TCEC site or associated corridors; therefore, no mitigation is proposed for these species. Three low quality wetlands (Wetlands A, B, and C; 11.25 acres total) will be unavoidably lost due to site development. However, 0.8 acre of impact has been avoided by locating the facilities north of a wetland ditch and wet prairie. Since there is no available space or good opportunity on the TCEC site for mitigation, it is the intent of FMPA to provide mitigation by purchasing sufficient wetland bank credits from a mitigation bank accredited by the FDEP to offset the wetland loss.

Two electric transmission lines and the natural gas supply pipeline will be constructed as part of the TCEC Unit 1. To minimize environmental impacts and clearing requirements, the transmission lines and pipeline will be located within or adjacent to existing road, railroad, or transmission line rights-of-way. The land disrupted as a result of the construction of the electric transmission lines will be restored to preconstruction conditions. No wetlands impacts are anticipated within these routes.

The potable water supply pipeline construction will likely be located entirely within the Midway Industrial Park boundaries. The potable water supply interconnection will be constructed either aerial or under the North St. Lucie River Water Control District Canal No. 102 to avoid potential impacts to the canal, and then follow an existing FPUA wastewater pipeline easement to the TCEC site. The land disrupted as a result of the potable water pipeline will be restored to preconstruction conditions.

Attachment ERP Section E-I.C

The seasonal high water elevation is 15.7 feet. The detention area discharges to the south to the existing wetland area in the southwest corner of the site. The discharge structure of the detention basin is designed for the 25 year, 72 hour event peak flow. The discharge structure will also safely pass the 100 year, 72 hour storm event without overtopping the detention area perimeter berms.

Attachment ERP Section E-II.B

0.53 acre of wet prairie and 0.18 acre of drainage ditch will remain undisturbed during construction. The stormwater management system will provide the required treatment of discharges; the post-development runoff rate will not exceed the pre-development rate.

Attachment ERP Section E-II.D

Wetlands were defined using *The Florida Wetlands Delineation Manual* (FDEP, 1995). Wetlands on the TCEC site were originally delineated by CH2MHill in September 2000 for the Duke Energy Ft. Pierce Generating Station Project. However, since the Duke project was never constructed, site conditions remain essentially unchanged. Black & Veatch, on behalf of FMPA, visited the site in October 2004 to observe and confirm the previous wetland delineations.

Attachment ERP Section E-III.M

All storm water system facilities are located onsite as indicated in the calculation set and Drawings 138859-CSTF-S3000, S3001, S3002, S3003, S3004, S3005, S3006, and S3050; 138859-CSTE-S3101 and S3150; and 138859-CSTF-S3800 and S3900, included in Section 3.8 of the SCA. The stormwater collection system will consist of ditches, drainage structures, and a site runoff detention basin. This system will function as a storm water quality and quantity treatment facility. The quality treatment of runoff will be accomplished through detention. Storm water ditches will run on the north and south side of the power block. The substation area and the southern half of the power block will be graded to drain to the ditch on the south side of the power block. The area surrounding the cooling towers and the north half of the power block will drain to the north ditch. Each of these ditches will drain west, northwest discharging into the detention area on the west side of the property. The area north of the cooling towers may be used for construction laydown/staging. This stormwater will also be routed to the ditch on the north side of the power block.

Attachment ERP Section E-III.N

No new easements or titles will be required from any governmental agency for the TCEC Unit 1 facilities. However, right-of-way use authorizations will be required from FPL, the Florida Turnpike Authority, the Florida Department of Transportation, North St. Lucie River Water Control District, St. Lucie County, and Port St. Lucie to install the 2.6 and 2.8 mile transmission lines and natural gas pipeline between the site and these interconnection points either in existing rights-of-way or in new rights-of-way directly adjacent to those existing facilities. A right-of-way use authorization may also be required from the FEC Railroad to install the rail spur connection to the site if FMPPA or the EPC contractor elect to construct the spur during Unit 1 or future unit construction. No significant changes to these easements or rights-of-way will be necessary due to Unit 1 facilities. No wetlands impacts are anticipated.

Attachment ERP Section E-III.O

The area associated with the power block and construction lay-down/staging area consists of approximately 7.6 acres of impervious area, 36.1 acres of aggregate area, and 1.0 acre of grass. These areas will drain into a new storm water detention area designed for the 25 year, 72 hour rainfall event. The pre-development curve number (CN) was estimated to be 64.5, with a pre-development time of concentration of 1.474 hours, resulting in a time lag of 0.884 hour. The post-development CN and time of concentration were estimated to be 86.7 and 0.445 hour, respectively. The post-development time lag is estimated at 0.267 hour. The curve numbers and times of concentration were determined using the methods outlined in the Soil Conservation Service TR-55 manual.

The storm water collection system will consist of ditches, drainage structures, and a site runoff detention basin. This system will function as a storm water quality and quantity treatment facility. The quality treatment of runoff will be accomplished through detention in the site detention basin to reduce the total suspended solid concentrated in the water column.

The discharge structure of the detention basin is designed for the 25 year, 72 hour event peak flow. The discharge structure will also safely pass the 100 year, 72 hour storm event without overtopping the detention basin perimeter berms. The structure includes the V-notch bleeder weir at elevation 17.25 and a 20-foot long sharp-crested weir at elevation

17.6. The storm water detention area and discharge structure are sized to meet the design criteria outlined in Subsection 3.8.3 of the SCA. Storm water enters the detention basin through direct precipitation and from ditches conveying runoff from the energy center and construction staging/lay-down areas.

The pre-development peak discharge in response to the 25 year, 72 hour storm event is estimated at 89 cfs. The post-development peak discharge in response to the 25 year, 72 hour storm event is estimated at 72 cfs. The detention basin discharges to the south, in the area of an existing wetland (Wetland E). A 20-foot wide concrete lined channel is provided downstream of the discharge structure to spread the discharge and prevent erosion.

Attachment ERP Section E-III.P

Erosion and sediment control measures will be installed as necessary during construction to control sediment disposition. The primary destination of construction runoff will be to the site runoff basin (detention area). The runoff basin will provide reduction of suspended solids load through detention. Before construction begins, silt fence or other appropriate control measures will be installed around the perimeter of construction areas. Figure 3.8-11 of the SCA shows silt fence details. Diversion ditches will be equipped with straw bale dikes to aid in minimizing the amount of sediments flowing into the onsite runoff basin and offsite (refer to Figure 3.8-11 for typical detail). Construction accessways and parking areas will be surfaced with aggregate to provide a stabilized subgrade. Erosion control measures will also include minimizing fugitive dust through periodic spraying of water.

Attachment ERP Section E-IV

- Install erosion and sediment controls
- Rough grade construction areas
- Construct storm water system; stabilize (fill) required areas
- Install major foundations
- Install turbine, equipment, and utilities
- Finish road/ impervious areas
- Final grading/stabilization

Attachment ERP Section E-VI.A

The storm water management system will be visually inspected at a minimum weekly and after any rainfall event that exceeds one-half inch during project construction and operation. Repairs and maintenance will be completed on an as-needed basis.



NOTICE OF INTENT TO USE MULTI-SECTOR GENERIC PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY (RULE 62-621.300(5), F.A.C.)

This form is to be completed and submitted to the Department before use of the Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity (MSGP) provided in Rule 62-621.300(5), F.A.C. The type of facility or activity that qualifies for use of this generic permit, the conditions of the permit, and additional requirements to request coverage are specified in Rule 62-621.300(5)(a), F.A.C. Note that additional requirements for requesting coverage include submittal of the applicable generic permit fee pursuant to Rule 62-4.050, F.A.C. You should familiarize yourself with the generic permit and the attached instructions before completing this form. **Please print or type information in the appropriate areas below.**

I. IDENTIFICATION NUMBER:

Facility ID _____

II. APPLICANT INFORMATION:

A. Operator Name:			
B. Address:			
C. City:		D. State:	E. Zip Code:
F. Operator Status:	G. Responsible Authority:		
	H. Phone No.:		

III. FACILITY LOCATION INFORMATION:

A. Facility Name:			
B. Street Address:			
C. City:		D. State:	E. Zip Code:
F. County:	G. Latitude:	Longitude:	
H. Is the facility located on Indian lands? ☐ Yes ☐ No		I. Water Management District:	
J. Facility Contact:			K. Phone No.:

IV. FACILITY ACTIVITY INFORMATION:

A. SIC or Designated Activity Code(s)		Primary:		Secondary:			
B. Monitoring code (1, 2, 3, or 4):		C. Will construction be conducted for stormwater controls? ☐ Yes ☐ No					
D. Other Existing Permits		ERP No.:		Wastewater Permit No.:		Other (specify):	

V. DISCHARGE INFORMATION

A. MS4 Operator Name:							
B. Discharge Location(s):							
Outfall No.	Latitude			Longitude			Receiving Water Name
	Deg.	Min.	Sec.	Deg.	Min.	Sec.	

VI. CERTIFICATION¹:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and Official Title (Type or Print):
--

Signature: _____

Date Signed: _____

¹ Signatory requirements are contained in Rule 62-620.305, F.A.C.

INSTRUCTIONS – DEP FORM 62-621.300(5)(b)
NOTICE OF INTENT (NOI) TO USE MULTI-SECTOR GENERIC PERMIT FOR STORMWATER
DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY (MSGP)

Who Must File an NOI:

Federal law at 40 CFR Part 122 prohibits point source discharges of stormwater associated with industrial activity to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit. Under the State of Florida's delegated authority to administer the NPDES program, operators that have stormwater discharge associated with industrial activity to surface waters of the State must file for and obtain either coverage under an appropriate generic permit contained in Chapter 62-621, Florida Administrative Code (F.A.C.), or an individual permit issued pursuant to Chapter 62-620, F.A.C.

Where to File NOI:

NOIs for coverage under this generic permit must be sent to the following address:

NPDES Stormwater Notices Center, MS #2510
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Part I – Identification Number

Enter the facility's DEP identification number (generic permit coverage number) if known. If an ID number has not yet been assigned to this facility, leave this item blank.

Part II – Applicant Information

Item A.: Provide the legal name of the person, firm, public organization, or any other entity that operates the facility described in this application. The operator of the facility is the legal entity which controls the facility's operation rather than the plant or site manager. The name of the operator may or may not be the same as the name of the facility.

Items B. – E.: Provide the complete mailing address of the facility operator, including city, state, and zip code.

Item F.: Enter the appropriate one letter code from the list below to indicate the legal status of the operator of the facility:

F = Federal; S = State; P = Private; M = Public (other than federal or state); O = Other

Items G. – H.: Provide the name and telephone number (including area code) of the person authorized to submit this application on behalf of the facility operator. This should be the same person as indicated in the certification in Part VI.

Part III – Facility Location Information

Items A. – E.: Enter the facility's official or legal name and complete street address, including city, state, and zip code. Do not provide a P.O. Box number as the street address.

Item F.: Enter the county in which the facility is located.

Item G.: Enter the latitude and longitude of the approximate center of the facility.

Item H.: Indicate whether the facility is located on Indian lands.

Item I.: Enter the appropriate five or six letter code from the list below to indicate the Water Management District the facility is located within:

NFWMD = Northwest Florida Water Management District
SRWMD = Suwannee River Water Management District
SFWMD = South Florida Water Management District
SWFWMD = Southwest Florida Water Management District
SJRWMD = St. John's River Water Management District

Items J. – K.: Give the name, title, and telephone number (including area code) of the person who is thoroughly familiar with the operation of the facility, with the facts reported in this application, and who can be contacted by the Department if necessary.

Part IV – Facility Activity Information:

Item A.: List, in descending order of significance, up to two 4-digit standard industrial classification (SIC) codes that best describe the principal products or services provided at the facility identified in Part III. For industrial activities defined in 40 CFR 122.26(b)(14)(i)-(xi) that do not have SIC codes that accurately describe the principal products produced or services provided, use the appropriate two letter code from the list below:

- HZ = Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under subtitle C of RCRA. [40 CFR 122.26(b)(14)(iv)]
- LF = Landfills, land application sites, and open dumps that receive or have received any industrial wastes, including those that are subject to regulation under subtitle D of RCRA. [40 CFR 122.26(b)(14)(v)]
- SE = Steam electric power generating facilities, including coal handling sites. [40 CFR 122.26(b)(14)(vii)]
- TW = Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage. [40 CFR 122.26(b)(14)(ix)]

Item B.: Enter the appropriate 1-digit monitoring code for the facility from the list below. The monitoring requirements for the facility are contained in the MSGP.

- 1 = Not subject to monitoring requirements under the conditions of the permit.
2 = Subject to monitoring requirements and required to submit data.
3 = Subject to monitoring requirements but not required to submit data.
4 = Subject to monitoring requirements but submitting certification for monitoring exclusion.

Item C.: Indicate whether any construction will be conducted to install or develop stormwater controls..

Item D.: Provide the permit number for any existing state, federal, or local environmental permit(s) issued to the facility, including any environmental resource permit (ERP) issued by DEP or the Water Management District; any DEP wastewater facility permit; and, any EPA-issued NPDES permit.

Part V – Discharge Information

Item A.: If the facility discharges stormwater associated with industrial activity to a municipal separate storm sewer system (MS4), enter the name of the operator of the MS4 (e.g., municipality name, county name), and in Item B of this Part enter “MS4” as the outfall number and indicate the receiving water of the discharge from the MS4. (See Chapter 62-624, F.A.C., for the definition of an MS4.)

Item B.: If the facility discharges stormwater associated with industrial activity directly to receiving water(s), list each outfall; the receiving water of each outfall; and, the latitude and longitude of each outfall if available.

Part VI – Certification

Type or print the name and official title of the person signing the certification. Sign and date the certification.

Section 403.161, F.S., provides severe penalties for submitting false information on this application (NOI) or any reports or records required by a permit. There are both civil and criminal penalties, in addition to the revocation of permit coverage for submitting false information.

Rule 62-620.305, F.A.C., requires that the application (NOI) and any reports required by the permit to be signed as follows:

- A. For a corporation, by a responsible corporate officer as described in Rule 62-620.305, F.A.C.;
- B. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or,
- C. For a municipality, state, federal or other public facility, by a principal executive officer or elected official.



NOTICE OF INTENT TO USE GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES (RULE 62-621.300(4), F.A.C.)

This Notice of Intent (NOI) form is to be completed and submitted to the Department before use of the Generic Permit for Stormwater Discharge From Large and Small Construction Activities provided in Rule 62-621.300(4), F.A.C. The type of project or activity that qualifies for use of the generic permit, the conditions of the permit, and additional requirements to request coverage are specified in the generic permit document [DEP Document 62-621.300(4)(a)]. **The appropriate generic permit fee, as specified in Rule 62-4.050(4)(d), F.A.C., shall be submitted with this NOI in order to obtain permit coverage. Permit coverage will not be granted without submittal of the appropriate generic permit fee.** You should familiarize yourself with the generic permit document and the attached instructions before completing this NOI form. **Please print or type information in the appropriate areas below.**

I. IDENTIFICATION NUMBER: Project ID ____

II. APPLICANT INFORMATION:

A. Operator Name: Florida Municipal Power Agency (FMPA)		
B. Address: 8553 Commodity Circle		
C. City: Orlando	D. State: FL	E. Zip Code: 32819-9002
F. Operator Status: M	G. Responsible Authority: Roger Fontes, General Manager, FMPA	
	H. Phone No.: 407-355-7767	

III. PROJECT/SITE LOCATION INFORMATION:

A. Project Name: Treasure Coast Energy Center Project – Unit 1		
B. Project Address/Location: 4585 Selvitz Road, Lot 8		
C. City: Ft. Pierce	D. State: FL	E. Zip Code: 34981
F. County: St. Lucie	G. Latitude: 27° 23' 02" North	Longitude: 80° 22' 39" West
H. Is the site located on Indian lands? ☐ Yes ☒ No		I. Water Management District: SFWMD
J. Project Contact: Jim Hay, Project Manager, FMPA		K. Phone No.: 407-355-7767

IV. PROJECT/SITE ACTIVITY INFORMATION:

A. Indicate whether Large or Small Construction (check only one):	☒ Large Construction (Project will disturb five or more acres of land.)	☐ Small Construction (Project will disturb one or more acres but less than five acres of land.)
B. Approximate total area of land disturbance from commencement through completion of construction: 69 acres		
C. SWPPP Location	☐ Address in Part II above ☒ Address in Part III above ☐ Other address (specify below)	
D. SWPPP Address: See Part III above		
E. City: See Part III above	F. State:	G. Zip Code:
H. Construction Period	Start Date: 08/09/06 Completion Date: 06/02/08	

V. DISCHARGE INFORMATION

A. MS4 Operator Name (if applicable): Not Applicable
B. Receiving Water Name: Onsite wetland via site stormwater management system

VI. CERTIFICATION¹:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and Official Title (Type or Print):
Roger Fontes, General Manager, Florida Municipal Power Agency

Signature: _____

Date Signed: _____

¹ Signatory requirements are contained in Rule 62-620.305, F.A.C.

INSTRUCTIONS – DEP FORM 62-621.300(4)(b)
**NOTICE OF INTENT (NOI) TO USE GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE
AND SMALL CONSTRUCTION ACTIVITIES**

Who Must File an NOI:

Federal law at 40 CFR Part 122 prohibits the point source discharge of pollutants, including the discharge of stormwater associated with large construction activities as defined at 40 CFR 122.26(b)(14)(x) or small construction activities as defined at 40 CFR 122.26(b)(15), to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit. Under the State of Florida's authority to administer the NPDES stormwater program at 403.0885, F.S., operators that have stormwater discharge associated with large or small construction activities to surface waters of the State, including through a Municipal Separate Storm Sewer System (MS4), must obtain coverage either under a generic permit issued pursuant to Chapter 62-621, F.A.C., or an individual permit issued pursuant to Chapter 62-620, F.A.C.

Where to File NOI:

NOIs for coverage under this generic permit must be sent to the following address:

NPDES Stormwater Notices Center, MS #2510
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Permit Fee:

Permit fees for large and small construction activities to be covered under the generic permit are specified in Rule 62-4.050(4)(d), F.A.C. The appropriate generic permit fee (either for large or small construction activities) must be submitted along with the completed NOI in order to obtain coverage under the generic permit. **Generic permit coverage will not be granted without payment of the appropriate permit fee.**

The permit fee shall be paid by either check or money order made payable to: "Florida Department of Environmental Protection"

Part I – Identification Number

Enter the project's DEP identification number (generic permit coverage number) if known. If an ID number has not yet been assigned to this project (i.e., if this is a new project), leave this item blank.

Part II – Applicant Information

Item A.: Provide the legal name of the person, firm, contractor, public organization, or other legal entity that owns or operates the construction activity described in this NOI. The operator is the legal entity that has authority to control those activities at the project necessary to ensure compliance with the terms and conditions of the generic permit.

Items B. – E.: Provide the complete mailing address of the operator, including city, state, and zip code.

Item F.: Enter the appropriate one letter code from the list below to indicate the legal status of the operator:

F = Federal; S = State; P = Private; M = Public (other than federal or state); O = Other

Items G. – H.: Provide the name and telephone number (including area code) of the person authorized to submit this NOI on behalf of the operator (e.g., Jane Smith, President of Smith Construction Company on behalf of the operator, Smith Construction Company; John Doe, Public Works Director on behalf of the operator, City of Townsville; etc.). This should be the same person as indicated in the certification in Part VI.

Part III – Project/Site Location Information

Items A. – E.: Enter the official or legal name and complete street address, including city, state, and zip code of the project. Do not provide a P.O. Box number as the street address. If it lacks a street address, describe the project site location (e.g., intersection of State Road 1 and Smith Street).

Item F.: Enter the county in which the project is located.

Item G.: Enter the latitude and longitude, **in degrees-minutes-seconds format**, of the approximate center of the project.

Item H.: Indicate whether the project is located on Indian lands.

Item I.: Enter the appropriate five or six letter code from the list below to indicate the Water Management District the project is located within:

NFWFMD = Northwest Florida Water Management District
SRWMD = Suwannee River Water Management District
SFWMD = South Florida Water Management District
SWFWMD = Southwest Florida Water Management District
SJRWMD = St. John's River Water Management District

Items J. – K.: Give the name, title, and telephone number (including area code) of the project contact person. The project contact is the person who is thoroughly familiar with the project, with the facts reported in this NOI, and who can be contacted by the Department if necessary.

Part IV – Project/Site Activity Information:

Item A.: Check the appropriate box to indicate whether the project involves large construction activity or small construction activity. **Check one box only.**

“Large Construction Activity” means construction activity that results in the disturbance of five (5) or more acres of total land area. Large construction activity also includes the disturbance of less than five acres of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb five acres or more.

“Small Construction Activity” means construction activity that results in the disturbance of equal to or greater than one (1) acre and less than five (5) acres of total land area. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than one acre and less than five acres.

Item B.: Provide the approximate total area of land disturbance in acres that the project will involve from commencement of construction through completion.

Items C. - G.: Indicate the location where the Stormwater Pollution Prevention Plan (SWPPP) can be viewed. Provide the address where the SWPPP can be viewed if other than as provided in Parts II or III of the NOI. **Note that to be eligible for coverage under the generic permit, the SWPPP must have been prepared prior to filing this NOI.**

Item H.: Enter the estimated construction start and completion dates in the MM/DD/YY format.

Part V – Discharge Information

Item A.: If stormwater from the project discharges to a municipal separate storm sewer system (MS4), enter the name of the operator of the MS4 (e.g., City of Tallahassee MS4, Orange County MS4, FDOT MS4, etc.). If stormwater from the project does not discharge to an MS4 but rather discharges to surface waters of the State, leave this item blank or indicate “N/A” and skip to Item B of this part. **Please note that if the project discharges stormwater to an MS4, you must provide the MS4 operator with a copy of the completed NOI.**

Item B.: If the project discharges stormwater to surface waters of the State, and not to an MS4, enter the name of the receiving water body to which the stormwater is discharged. Please provide the first named water body to which the stormwater from the project is discharged (e.g., Cypress Creek, Tampa Bay, unnamed ditch to St. Johns River, Tate’s Hell Swamp, etc.).

Part VI – Certification

Type or print the name and official title of the person signing the certification. Please note that this should be the same person as indicated in Item II.G. as the Responsible Authority. Sign and date the certification.

Section 403.161, F.S., provides severe penalties for submitting false information on this application (NOI) or any reports or records required by a permit. There are both civil and criminal penalties, in addition to the revocation of permit coverage for submitting false information.

Rule 62-620.305, F.A.C., requires that the NOI and any reports required by the permit to be signed as follows:

- A. For a corporation, by a responsible corporate officer as described in Rule 62-620.305, F.A.C.;
- B. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or,
- C. For a municipality, state, federal or other public facility, by a principal executive officer or elected official.

DEP Form 62-621.300(5)(b)
Notice of Intent
to Use Multi-Sector Generic Permit
For Storm Water Discharge Associated With
Industrial Activity

The Treasure Coast Energy Center (TCEC) Unit 1 storm water runoff from uncontaminated areas will be diverted into the storm water detention area. Storm water from areas of the site where the potential exists for the runoff to be contaminated will be diverted to the facility's oil/water separator. The effluent from the oil/water separator will be conveyed to the Fort Pierce Utility Authority's Mainland Wastewater Treatment Plant that will be constructed adjacent to the TCEC site on the north. There will be no storm water discharge from the TCEC site to a surface water body.

FMPA will prepare and implement a Storm Water Pollution Prevention Plan for industrial operations prior to commissioning Unit 1.



WASTEWATER FACILITY OR ACTIVITY PERMIT APPLICATION FORM 1 GENERAL INFORMATION

This form must be completed by all persons applying for a permit for a wastewater facility or activity under Chapter 62-620, F.A.C..
See Form 1 to determine which other application forms you will need.



WASTEWATER FACILITY OR ACTIVITY PERMIT APPLICATION FORM 1 GENERAL INFORMATION

I IDENTIFICATION NUMBER:

Facility ID _____

II CHARACTERISTICS:

INSTRUCTIONS: Complete the questions below to determine whether you need to submit any permit application forms to the Department of Environmental Protection. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the blank in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements. See Section B of the instructions. See also, Section C of the instructions for definitions of the terms used here.

SPECIFIC QUESTIONS	YES	NO	FORM ATTACHED
A. Is this facility a domestic wastewater facility which results in a discharge to surface or ground waters?		X	
B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters?		X	
C. Does or will this facility (other than those describe in A. or B.) discharge process wastewater, or non-process wastewater regulated by effluent guidelines or new source performance standards, to surface waters?		X	
D. Does or will this facility (other than those described in A. or B.) discharge process wastewater to ground waters?		X	
E. Does or will this facility discharge non-process wastewater, not regulated by effluent guidelines or new source performance standards, to surface waters?		X	
F. Does or will this facility discharge non-process wastewater to ground waters?		X	
G. Does or will this facility discharge stormwater associated with industrial activity to surface waters?		X	
H. Is this facility a non-discharging/closed loop recycle system?		X	

III NAME OF FACILITY: (40 characters and spaces)

Treasure Coast Energy Center

Facility ID _____

IV FACILITY CONTACT: (A. 30 characters and spaces)

A. Name and Title (Last, first, & title)	B. Phone (area code & no.)
Jim Hay, Project Manager	407-355-7767

V FACILITY MAILING ADDRESS: (A. 30 characters and spaces; B. 25 characters and spaces)

A. Street or P.O. Box: 8553 Commodity Circle		
B. City or Town: Orlando	State: FL	Zip Code: 32819

VI FACILITY LOCATION: (A. 30 characters and spaces; B. 24 characters and spaces; C. 3 spaces (if known); D. 25 characters and spaces; E. 2 spaces; F. 9 spaces)

A. Street, Route or Other Specific Identifier: 4585 Selvitz Road, Lot 8, Phase III		
B. County Name: St. Lucie	C. County Code (if known): N/A	
D. City or Town: Ft. Pierce	E. State: FL	F. Zip Code: 34981

VII SIC CODES: (4-digit, in order of priority)

1. Code #: 4911	(Specify) Electric Serv	2. Code #: N/A	(Specify) N/A
3. Code #: N/A	(Specify) N/A	4. Code #: N/A	(Specify) N/A

VIII OPERATOR INFORMATION: (A. 40 characters and spaces; B. 1 character; C. 1 character (if other, specify); D. 12 characters; E. 30 characters and spaces; F. 25 characters and spaces; G. 2 characters; H. 9 characters)

A. Name: Florida Municipal Power Agency		B. Is the name in VIII A. the owner? ☒ Yes ☐ No	
C. Status of Operator: F = Federal; S = State; P = Private; O = Other; M = Public (other than F or S)	(code) M	(specify) Joint Agency	D. Phone No.: 407-355-7767
E. Street or P. O. Box: 8553 Commodity Circle			
F. City or Town: Orlando		G. State: FL	H. Zip Code: 32819

IX INDIAN LAND: Is the facility located on Indian lands?

☐ Yes

☒ No

X EXISTING ENVIRONMENTAL PERMITS:

A. NPDES Permit No.	B. UIC Permit No.	C. Other (specify)	D. Other (specify)
Not Applicable	Not Applicable	Not Applicable	Not Applicable

XI MAP: Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII NATURE OF BUSINESS (provide a brief description)

FMPA proposes to install a 300 MW (nominal) combined cycle combustion turbine generating unit (Unit1) at a site (Lot 8) of the Midway Industrial Park – Phase III North in Ft. Pierce, Florida. Natural gas will be the primary fuel; ultra-low sulfur No. 2 fuel oil will be the backup fuel. All process and sanitary wastewaters will be returned to the FPUA wastewater system for treatment and disposal.

XIII CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, 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.

Roger Fontes

A. Name (type or print)

B. Signature

General Manager and CEO, FMPA

Official Title (type or print)

C. Date Signed



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ENERGY • WATER • INFORMATION • GOVERNMENT

Florida Municipal Power Agency
Treasure Coast Energy Center

B&V Project 138859
B&V File 32.3000
March 9, 2005

Mr. Chuck Collins
Regional Director
Florida Fish and Wildlife Conservation Commission
8535 Northlake Boulevard
West Palm Beach, Florida 33412

Subject: Treasure Coast Energy Center
Project Review

Dear Mr. Collins:

The Florida Municipal Power Agency (FMPA) proposes to construct a new nominal 300 megawatt combined cycle combustion turbine unit (Unit 1) at 4585 Selvitz Road, Lot 8, near Ft. Pierce, Florida. The proposed site is located in the Midway Industrial Park Phase III-North. The scheduled construction start date is August 2006; the scheduled commercial operation date is June 2008. Black & Veatch has been contracted to assist FMPA with Unit 1 design and permitting.

The 68-acre Treasure Coast Energy Center site is located in the southwest quarter of Section 31, Township 35 South, Range 40 East in St. Lucie County. A project location map and aerial photo are enclosed for your information. The project site is zoned "utility" while the immediate project area is zoned "IH" for heavy industry. The site is currently used as pasture and includes 11 acres of low quality herbaceous wetlands. Black & Veatch has conducted environmental surveys at the site, and considers the site low in vegetation and wildlife species diversity with minimal potential for protected species. Please be assured that Unit 1 will be designed and permitted in accordance with all applicable federal, state, and local regulations, including review under the Florida Electrical Power Plant Siting Act.

The Florida Natural Areas Inventory had previously provided a review of this site through CH2MHill in correspondence dated March 2, 2000. At that time, Duke Energy was exploring the possibility of constructing a power station on the same piece of property, but ultimately abandoned the project. The March 2, 2000 correspondence indicates one Element Occurrence Record (EOCODE 270440002) within one mile of the site. The Element Occurrence Record indicates the species is the Sherman's Fox Squirrel which prefers mature pine-oak communities of the sandhills. This habitat type does not exist on the proposed site.

Two transmission lines, a natural gas pipeline, and a potable water pipeline will be required to support the operation of the Treasure Coast Energy Center. One transmission line will extend for 2.6 miles beginning at the site and following Glades Cutoff Road southwest to Interstate 95, where it will interconnect to an existing Florida Power and Light (FP&L) transmission line. The second transmission line will extend west from the site approximately 2 miles before turning south to the FP&L Midway Substation. This transmission line will be located adjacent to an existing FP&L transmission line right-of-way. The length of this transmission line will be 2.8 miles.

FFWCC
Mr. Collins

B&V Project 138859
March 9, 2005

Florida Gas Transmission (FGT) will deliver natural gas to the site boundary. Several FGT natural gas mainlines are located approximately 3,000 feet southwest of the site near the Florida Turnpike. The proposed natural gas pipeline route will likely be adjacent to the south side of the Florida East Coast Railroad corridor.

The Ft. Pierce Utilities Authority will construct the potable water interconnection by crossing the North St. Lucie River Water Control District's Canal 102 and following an existing City wastewater pipeline right-of-way to the site.

On behalf of FMPA, Black & Veatch requests the Fish and Wildlife Conservation Commission review the proposed project site and associated corridors for significant ecological and wildlife resources located within 5 miles of the project site. Black & Veatch requests a written response for the project record.

If you have any questions during your review, please contact me at (913) 458-7563 or soltysjm@bv.com.

Very truly yours,

BLACK & VEATCH CORPORATION



J. Michael Soltys
Site Certification Coordinator

Enclosures

cc: Susan Schumann, FMPA
Stanley Armbruster/File



ENERGY • WATER • INFORMATION • GOVERNMENT

Florida Municipal Power Agency
Treasure Coast Energy Center

B&V Project 138859
B&V File 31.2000
March 9, 2005

Mr. Jay Slack, Field Supervisor
U.S. Fish and Wildlife Service
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

Subject: Treasure Coast Energy Center
Project Review

Dear Mr. Slack:

The Florida Municipal Power Agency (FMPA) proposes to construct a new nominal 300 megawatt combined cycle combustion turbine unit (Unit 1) at 4585 Selvitz Road, Lot 8, near Ft. Pierce, Florida. The proposed site is located in the Midway Industrial Park Phase III-North. The scheduled construction start date is August 2006; the scheduled commercial operation date is May 2008. Black & Veatch has been contracted to assist FMPA with Unit 1 design and permitting.

The 68-acre Treasure Coast Energy Center site is located in the southwest quarter of Section 31, Township 35 South, Range 40 East in St. Lucie County. A project location map and aerial photo are enclosed for your information. The project site is zoned "utility" while the immediate project area is zoned IH for heavy industry. The site is currently used as pasture and includes 11 acres of low quality herbaceous wetlands. Black & Veatch has conducted environmental surveys at the site, and considers the site low in vegetation and wildlife species diversity with minimal potential for protected species. Please be assured that Unit 1 will be designed and permitted in accordance with all applicable federal, state, and local regulations, including review under the Florida Electrical Power Plant Siting Act.

Two transmission lines, a natural gas pipeline, and a potable water pipeline will be required to support the operation of the Treasure Coast Energy Center. One transmission line will extend for 2.6 miles beginning at the site and following Glades Cutoff Road southwest to Interstate 95, where it will interconnect to an existing Florida Power and Light (FP&L) transmission line. The second transmission line will extend west from the site approximately 2 miles before turning south to the FP&L Midway Substation. This transmission line will be located adjacent to an existing FP&L transmission line right-of-way. The length of this transmission line will be 2.8 miles.

Florida Gas Transmission (FGT) will deliver natural gas to the site boundary. Several FGT natural gas mainlines are located approximately 3,700 feet southwest of the site near the Florida Turnpike. The proposed natural gas pipeline route will likely be adjacent to the south side of the Florida East Coast Railroad corridor.

USFWS
Mr. Slack

B&V Project 138859
March 9, 2005

The Ft. Pierce Utilities Authority will construct the potable water interconnection by crossing the North St. Lucie River Water Control District's Canal 102 and following an existing City wastewater pipeline right-of-way to the site.

On behalf of FMPA, and in compliance with the *Endangered Species Act*, Black & Veatch requests the Service review the proposed project site and associated corridors for significant ecological and wildlife resources located within 5 miles of the project site. Black & Veatch requests a written response for the project record.

If you have any questions during your review, please contact me at (913) 458-7563 or soltysjm@bv.com.

Very truly yours,

BLACK & VEATCH CORPORATION



J. Michael Soltys
Site Certification Coordinator

Enclosures

cc: Susan Schumann, FMPA
Stanley Armbruster/File

Attachment 6

Geotechnical Results

Excerpted from *Draft Report, Geotechnical Investigation, St. Lucie Generating Station, Fort Pierce, Florida*. Sept. 2000. Prepared for Duke/Fluor Daniel, Inc., by Tolunay-Wong Engineers, Inc. Project No. 00-339.

Source: Duke Energy Fort Pierce Generating Station "Environmental Resource Permit/Authorization to Use Sovereign Submerged Lands/Federal Drudge and Fill Permit," October 2000.

EXECUTIVE SUMMARY

This draft report describes the geotechnical study for the proposed simple cycle St. Lucie Generating Station near Fort Pierce, Florida.

The project will include moderately heavy movement-sensitive combustion turbine generators, sensitive moderate to lightly-loaded structures, and less sensitive miscellaneous equipment, pipe racks, pumps, power transmission lines and steel storage tanks. We understand that the power generating equipment weighs approximately 2,900 kips each. Typical supporting foundation dimensions are approximately 20 ft by 124 ft. The rotating equipment operating at about 3,600 rpm is not expected to impose large unbalanced forces as compared to low speed reciprocating engines.

The site is currently a relatively flat open low grassy field with wetland areas to the east, west and south of the project boundaries. There are few small trees within the proposed storage tank area. Ground surface elevation ranges between about El. 16.2 ft to about El. 18.2 ft. We understand that the proposed final plant grade will be about El. 17 ft. There will be excavation up to about 8 ft in depth for the stormwater infiltration pond, sumps and underground utility lines and ducts.

The subsurface conditions were investigated by drilling 9 test borings to depths of 6 to 80 ft, performing 13 cone penetrometer soundings to depths of 30 to 80 ft, excavating 12 test pits to depths of 6 to 10 ft, conducting 1 percolation test and 4 infiltration tests, installing 2 piezometers to depths of 20 and 25 ft, performing one downhole seismic cone survey and two electrical resistivity geophysical surveys at selected locations across the project area. Laboratory tests were conducted on selected soil samples from the test borings and test pits. The field and laboratory test data provided the basis for our geotechnical engineering recommendations; the results are summarized below.

The soil stratigraphy primarily consists of interbedded layers of fine sands, silty fine sands, sandy silts, and to a lesser extent, clayey sands. The layer thicknesses generally vary from about 1 ft to 15 ft. The soils to depths of approximately 25 ft below existing grade are variable with significant loose zones. The soils below depths of about 25 ft to 30 ft are denser with layers of slight cementation and shells fragments.

The groundwater depth ranges from 0.4 ft to 3.8 ft below existing grade, with an average of about 2 ft.

Site preparation should include stripping to remove top soils, and root grubbing of the small trees within the storage tank area. The depth of stripping is estimated to be on the order of 10 in. The stripped soils should not be reused for general fill in areas to support pavements, equipment or

structures. After stripping, the exposed subgrade should be compacted with several passes of a vibratory roller, followed by fill placement to reach final grade.

The exposed subgrade soils are expected to be predominantly fine sands, silty sands and sandy silts. These sandy soils are susceptible to loss of strength when saturated and are easily deformed by traffic. Subgrade stabilization could be used for reducing weather delays during construction and for reducing the base thicknesses. In Florida, it is common practice to stabilize sandy subgrade soils with limerock to add cohesion to the granular soil to improve trafficability.

Sensitive equipment or structures which impose moderate to heavy static and vibratory foundation loads should be supported on deep foundations (i.e., auger cast piles) or on soils which have been improved to depths of about 25 ft below existing grade. Applicable soil improvement options (i.e., dynamic compaction, vibroflotation, and vibroreplacement) are discussed in the text.

Lightly loaded equipment or structures which can tolerate settlement can be supported on shallow foundations or mats. Shallow foundations or mats should be underlain by at least 3 ft of recompacted on-site soils or compacted fill.

Excavations for underground lines, sumps and other structures will encounter loose sands and shallow groundwater. Temporary cut slopes in these types of soils will be relatively flat and dewatering will be required. For these reasons, it is likely that sheetpiles or similar retention systems will be required for underground excavations. The retention systems should be used in conjunction with dewatering.

Considering the variations of the electrical resistivity and pH, the shallow soils at the energy facility site generally have high potential for corrosion of unprotected steel. On the basis of soil sulfate concentration data, the shallow soils at the energy facility site generally have mild to moderate potential for attacking concrete.

1. INTRODUCTION

Duke/Fluor Daniel, Inc., (DFD) retained Tolunay-Wong Engineers, Inc. (TWEI) to perform a geotechnical study for the proposed simple cycle St. Lucie Generation Station. The site is located about 4.5 miles west of Fort Pierce, Florida, and bounds to the west with the existing Florida East Coast railroad and County Road 709 and to the east with County Road 6118. The site general location is shown on Figure 1. An aerial photograph showing the project area is shown on Figure 2.

The site is currently a relatively flat open low grassy field with wetland areas to the east, west and south of the project boundaries. There are few small trees within the proposed storage tank area. Photos of the site are shown on Figure 3. Ground surface elevation ranges between about El. 16.2 ft to about El. 18.2 ft. We understand that the proposed final plant grade will be about El. 17 ft, resulting in minimum site earthwork. There will be excavation up to about 5 ft in depth for the stormwater infiltration pond and miscellaneous utilities after final grading is completed.

The proposed generating station will include the installation of eight combustion turbine generators, control/administration and equipment storage buildings, water treatment equipment, storage tanks, transformers, underground sumps and utilities, takeoff towers, storm water detention pond, transmission poles, road and parking areas, electrical substations, and other miscellaneous structures associated to power plants. Flexible (asphalt) pavements will be used for roads and parking areas.

Relevant typical foundation sizes and loads as follows:

- Eight combustion turbine generators (CTG) with a total weight (equipment plus foundation) of approximately 2,900 kips each, and foundation dimensions of approximately 20 ft by 124 ft. The mat thickness generally ranges between 4 to 6 ft. The turbines are located in the vicinity of CPT Soundings B-4, B-5, B-6, B-8 and B-9, and Borings B-3 and B-7;
- Various single story buildings with slab loads from 100 to 250 psf, and column loads up to 10 kips;
- Steel storage tanks of varying heights and diameters up to 67 ft in diameter and 48 ft in height. The tanks are located in the vicinity of CPT Soundings B-10, B-15, B-16 and Boring B-14. Preliminary sizes of the tanks are as follows:

- Nox Water Tanks: 67 ft diameter by 48 ft tall

- Fogging Water Tank: 41 ft diameter by 32 ft tall
 - Fire Water/Service Water Tank: 31 feet diameter by 30 ft tall
 - Four Fuel Storage Tanks: 52 ft diameter by 40 ft tall
-
- 21 to 22-ft diameter stacks with a net weight about 350 to 400 kips and significant overturning moments and lateral loads. The stacks are located next to the CTG units (i.e., vicinity of PCPT soundings B-5, B-6, and B-9 and Borings B-3 and B-7);
 - Proposed blowdown water and clear well/backwash water sumps located near the generator and stack foundations will be up to 8 ft deep;
 - Flexible (asphalt concrete) pavements will be used for principal and secondary roads, as well as for parking areas. These pavements will be designed for the furnished Traffic Index of 6;
 - A shallow (about 5-ft deep) stormwater infiltration pond will be located in the vicinity of Test Pits TP-11 and TP-12. This pond will be constructed primarily by shallow cuts and fills; fill heights are expected to range up to 3 to 4 ft for the perimeter dikes.

2. SCOPE OF STUDY

The purposes of the geotechnical study were to investigate the soil and groundwater conditions and to interpret this data to develop geotechnical design and construction guidelines for the proposed generating station. The study included field exploration to obtain subsurface information and to secure representative geotechnical soil samples, laboratory testing to measure selected soil engineering properties, and geotechnical analyses to develop soil design criteria and foundation recommendations. Information developed as part of the study includes:

- Generalized stratigraphic soil and groundwater data,
- Limited geological and seismic review of available information of the project area,
- Soil parameters to establish foundation design criteria,
- Recommendations for site preparation and soil improvement,
- Evaluation of earthwork factors,
- Field soil infiltration,
- Soil improvement recommendations,
- Bearing capacity and settlement estimates for shallow foundations,
- Foundation recommendations with design criteria for compressive, pullout, and lateral loads for deep foundations,
- Dynamic soil properties of foundation soils,
- Dynamic single pile stiffness and damping coefficients,
- Earth pressure coefficients for deep excavations, and
- Asphalt pavement sections.

Environmental assessments, recommendations for access roads outside the area covered by the boring layout, and site-specific fault studies were outside the scope of the work of this study. An assessment of the dynamic shear modulus for mat design or the dynamic single pile stiffness and damping coefficients will be presented in a separate report once a decision of using soil improvement or deep foundations supporting the CTG unit is made by the DFD design team.

3. FIELD EXPLORATION AND LABORATORY TESTING

3.1 General

The field work for the energy facility site was performed during the periods of July 24 through August 1, 2000. The field exploration consisted of the following activities.

- Drilling, logging and sampling nine test borings (Borings B-3, B-7, B-14, PZ-2, PZ-7, E-1, E-2, E-4 and E-5) to depths ranging from 6 ft to 80 ft;
- Excavating, logging and sampling twelve backhoe test pits (TP-1 through TP-12) to depths of about 6 to 10 ft;
- Performing one seismic piezocone survey (S-6) in PCPT sounding B-6 to a depth of 80 ft, and thirteen PCPT soundings (B-1, B-2, B-4, B-5, B-6, B-8 through B-13, B-15, B-16) to depths of 30 ft to 80 ft;
- Conducting 2 electrical resistivity surveys (ER-2-NS/EW and ER-TP-7-NS/EW) to depths of 200 ft at locations of Boring B-2 and Test Pit TP-7, respectively;
- Conducting four infiltration tests (E-1, E-2, E-4 and E-5) to depths of 6 to 10 ft;
- Installing two piezometers (PZ-2 and PZ-7) at Boring B-2 and Test Pit TP-7 locations to depths of 20 ft and 25 ft, respectively;
- Conducting one percolation test (TP-2) for on-site sewage disposal (leach field) design.

The locations of the test borings, test pits, down-hole survey and CPT soundings, electrical resistivity surveys, infiltration and percolation tests were furnished by Duke/Fluor Daniel. The exploration points were surveyed and staked by Hartman & Associates, Inc. Drilling and sampling using truck-mounted equipment was done by Professional Service Industries, Inc. (PSI). Test pit excavation using a backhoe was performed by Final Grade Excavation, Inc.; the same backhoe was used to perform limited clearing of isolated wooded areas within the tank farm. The seismic CPT and PCPT soundings were performed by Gregg In Situ, Inc. The electrical resistivity surveys were performed by SDII Global Corporation. A TWEI representative was present to coordinate the field activities and to log the boreholes and test pits.

3.2 Test Borings

Nine test borings (Borings B-3, B-7, B-14, PZ-2, PZ-7, E-1, E-2, E-4 and E-5) were drilled to depths of 6 to 80 ft at selected locations within the project area. The boring depths, UTM coordinates, and ground surface elevations at the boring locations are presented on Table 3-1. The locations of the test borings are shown on Figure 3.

Table 3-1
Boring, PCPT Sounding, Test Pit and Infiltration Test Locations and Depths

Boring / PCPT Sounding / Test Pit No.	Completed Depth (ft)	UTM Coordinates (ft)*		Ground Surface Elevation (ft)
		Northing	Easting	
B-1 (PCPT)	30	1,109,065.96	702,201.29	17.18
B-2 (PCPT)	30	1,108,705.39	702,051.46	17.09
B-3 (Boring)	70	1,109,664.81	702,312.84	17.16
B-4 (PCPT)	80	1,109,572.08	702,203.82	17.09
B-5 (PCPT)	70	1,109,457.92	702,222.53	16.05
B-6/S-6 (PCPT Sounding / Seismic Downhole Survey)	80	1,109,264.10	702,147.86	16.67
B-7 (Boring)	80	1,109,115.04	702,079.72	16.44
B-8 (PCPT)	80	1,109,044.53	701,987.43	16.58
B-9 (PCPT)	70	1,108,912.49	701,996.78	16.81
B-10 (PCPT)	50	1,108,773.32	701,877.12	17.66
B-11 (PCPT)	30	1,109,721.29	702,151.84	16.84
B-12 (PCPT)	30	1,109,348.15	702,004.33	16.01
B-13 (PCPT)	30	1,108,974.07	701,848.97	16.56
B-14 (Boring)	30	1,108,867.25	701,804.92	16.42
B-15 (PCPT)	40	1,109,730.32	702,008.87	16.43
B-16 (PCPT)	40	1,109,818.31	701,819.99	16.94
PZ-2 (Boring)	20	1,108,705.39	702,051.46	17.09
PZ-7 (Boring)	25	1,109,708.83	701,877.75	16.27
E-1 (Boring/Infiltration Test)	6	1,108,719.97	701,511.90	16.53
E-2 (Boring/Infiltration Test)	6	1,109,209.99	701,708.79	15.64
E-4 (Boring/Infiltration Test)	6	1,109,145.72	703,185.36	17.42
E-5 (Boring/Infiltration Test)	10	1,108,622.19	703,021.18	16.65
TP-1 (Test Pit)	6	1,109,573.74	702,514.91	16.73
TP-2 (Test Pit)	6	1,109,199.97	702,359.36	16.42
TP-3 (Test Pit)	6	1,108,719.89	702,160.76	17.27
TP-4 (Test Pit)	6	1,108,642.17	702,016.08	18.26
TP-5 (Test Pit)	8	1,109,610.91	702,112.82	16.22
TP-6 (Test Pit)	6	1,109,176.86	701,933.28	16.24
TP-7 (Test Pit)	6	1,109,708.83	701,877.75	16.27
TP-8 (Test Pit)	6	1,109,852.03	701,725.16	16.88
TP-9 (Test Pit)	8	1,108,317.69	701,842.31	18.09

Boring / PCPT Sounding / Test Pit No.	Completed Depth (ft)	UTM Coordinates (ft)*		Ground Surface Elevation (ft)
TP-10 (Test Pit)	8	1,108,527.81	702,080.30	17.89
TP-11 (Test Pit)	8	1,109,057.54	703,151.60	17.65
TP-12 (Test Pit)	10	1,108,723.79	703,147.33	16.99

*Referenced to Florida State Plane Grid East Zone, North America Datum 1927 Coordinate System

3.3 Drilling Methods

The field operations were performed in general accordance with *Standard Practice for Soil Investigation and Sampling by Auger Borings* (American Society for Testing and Materials [ASTM] D 1452). The soil borings were drilled with a truck-mounted rig and were dry augured to boring termination depths of 2.5 to 10 ft in an attempt to measure the groundwater level. Soil samples were generally obtained at continuous 3-ft intervals to the 15-ft depth, and 5-ft intervals thereafter. All cuttings and liquids from drilling operations were placed on the ground adjacent to the boring locations. All borings were backfilled to the ground surface with a cement-bentonite grout mixture at drilling completion.

3.4 Soil Sampling

Cohesionless and semi-cohesionless soil samples were generally obtained by driving a 2-inch-diameter, split barrel sampler. The sampler was driven 18 inches by a 140-pound hammer falling about 30 inches in general accordance with the *Standard Method for Penetration Test and Split-Barrel Sampling of Soils* (ASTM D 1586). The field engineer/technician recorded the number of blows required to drive the sampler through three consecutive 6-inch sampling intervals. The sum of the blows required to penetrate the final 12 inches is the Standard Penetration Test (SPT) "N" value. The samples obtained from the split-barrel sampler were visually classified and placed in a glass jars with screw-top caps for transport to the laboratory. The relative density of the soils sampled with the SPT sampler was inferred from the "N" blowcount values. The SPT data are presented on the borings logs in Appendix A.

Five selected soil samples (5 and 45-ft depth in Boring B-3, 5-ft depth in Boring B-14, 6-ft depth in Boring PZ-2, and 8-ft depth in Boring PZ-7) were recovered in the test borings by hydraulically pushing a 3-inch-diameter, thin-walled Shelby tube a distance of about 24 inches. The field sampling procedure was conducted in accordance with the *Standard Practice for Thin-Walled Tube Sampling of Soils* (ASTM D 1587). The field technician visually classified the recovered soils, and obtained a penetration resistance measurement of the recovered soils using a calibrated hand penetrometer. The Shelby tubes were kept in the tubes and sealed to minimize the potential for losing soil moisture, and transported to our soil laboratory in Houston. The sample locations and field test data are shown on the boring logs in Appendix A.

3.5 Test Pits

Twelve test pits (TP-1 through TP-12) were excavated at selected locations within the energy facility using a backhoe to depths of about 6 to 10 ft. . The locations of the test pits are shown on Figures 3 and 4. The test pit depths, coordinates, and ground surface elevations at the test pit locations are presented on Table 3-1. The open test pits were backfilled and tamped with the backhoe bucket after logging.

3.6 Boring and Test Pit Logs

Our interpretations of general soil and groundwater conditions at the boring and test pit locations are included on the boring and test pit logs. The interpretations of the soil types throughout the boring depth and the locations of strata changes were based on the visual classifications obtained during field sampling and during laboratory testing, based on ASTM D 2488, *Description and Identification of Soils*. The boring logs include the type and interval depth for each sample along with the corresponding penetration resistance and SPT data for soils. The project boring and test pit logs, and key to the terms and symbols used on the logs are presented in Appendix A.

3.7 Piezocone Penetrometer Testing

3.7.1 PCPT Soundings

Thirteen piezocone penetrometer (PCPT) soundings (B-1, B-2, B-4, B-5, B-6, B-8 through B-13, B-15, B-16) to depths of 30 ft to 80 ft were performed by Gregg In-Situ using a 25-ton CPT capacity truck-mounted unit. The PCPT sounding uses the weight of the truck as a reaction mass to push a calibrated cone-mounted steel rod into the ground. The PCPT data was obtained by pushing a series of cylindrical rods, with an instrumented probe at the base, into the soil at a constant rate of 2 cm/sec. The probe consists of a cone tip, a side-friction sleeve, and a porous stone elements. An sketch of the Gregg In-Situ cone used in the field investigation is shown on Figure 5. Continuous measurements of penetrations resistance at the cone tip, friction on the cone sleeve and porewater pressure buildup are recorded during penetration. After test completion, the results were saved on computer diskettes for further data reduction in the office.

The generalized classification chart utilized for data reduction of the test results is shown on Figure 6. The chart uses the measured cone bearing q_c and friction ratio R_f (measured sleeve friction f_s divided by the measured cone bearing q_c) to estimate the soil type. Detailed plots of each PCPT sounding are included in Appendix B.

3.7.2 Porewater Dissipation Test

A porewater dissipation test was performed at a selected 11.8 ft depth in soundings B-4. The test results are included in Appendix C. Based on the correlations between the time that takes to dissipate 50 percent of the excess pore water pressure in several the porewater dissipation tests and the horizontal coefficient of permeability (k_h) proposed by Robertson, et al. (1992), we estimated the horizontal coefficient of permeability. The estimated horizontal permeability for the sandy silt material is presented in Table 3-2. Higher permeabilities (about 10^{-2} to 10^{-3} cm/sec) are expected for fine sands and silty sands.

Table 3-2
Interpreted Horizontal Coefficient of Permeability

PCPT Sounding	Depth	Soil Type*	t_{50}	k_h
B-4	11.8 ft	Sandy Silt	0.25 min	10^{-3} to 10^{-4} cm/sec

*As interpreted by Gregg In-Situ

3.7.3 CPT Test Completion

After completing field operations, each PCPT sounding hole was backfilled with cement-bentonite grout. The holes were grouted from the bottom up using a tremie pipe. When grout returned to the surface, the tremie pipe was removed and the sounding hole was topped-off with grout.

3.7.4 Seismic Cone Penetrometer Testing

The low strain dynamic soil properties were measured by means of a seismic cone penetrometer survey S-6 at the location of sounding B-6 to a depth of 80 ft. In this method, shear wave velocities are determined by measuring the travel time of a shear wave, generated by a source located at the ground surface, to a geophone built into the cone.

Shear waves are transmitted into the ground by striking a wooden block with a sledge hammer. The wooden block is coupled tightly with the ground using the weight of the cone truck. By striking the side of the block, horizontally-polarized stress waves (shear waves) are generated at the ground surface and travel through the soil to the seismic cone. The hammer strike causing the initiation of a stress wave is recorded by a "trigger" (accelerometer) mechanism attached to the block. The stress wave is recorded and waveform arrival time is determined. The shear wave velocities are calculated using the measured travel times and distances to the seismic cone. The processed seismic cone penetrometer test results are presented as a plot of shear wave velocities versus depth in Figure 7, and in tabular form in Appendix B.

3.8 Field Electrical Resistivity Tests

Soil resistivity data (ER-2 NS and EW, ER-TP-7 NS and EW) was acquired on July 26, 2000, by SDII Global Corporation, under subcontract to TWEI, in general accordance with ASTM G57-95a *Standard Method for Field Measurement of the Soil Resistivity Using the Wenner Four-Electrode Method* in the vicinity of Boring B-2 and Test Pit TP-7 locations, respectively. Vertical electrical soundings were performed in two perpendicular directions (north-south [NS] and east-west [E-W]) using electrode spacings ('a' spacing) of 2.5, 5, 7.5, 10, 15, 20, 30, 50, 75, 100 and 200 ft.

The geophysical instrument used at this site was an ABEM 300C digital soil resistivity Meter. Of the several variations of resistivity methods used, most include a current being introduced into the earth through electrodes pushed into the surface soil to a depth of six inches. The resistance of the material to current flow is obtained by measuring the potential drop between two electrodes that are positioned within the field of the current electrodes. For a given current flow, the potential drop across the surface will vary with, and be proportional to, the resistance of the material to current flow.

After all the data were acquired the data was processed for the earth's normal field of adjustments, terrain corrections, and filtering to discriminate against extraneous interference. The processed resistivity data for the survey lines are included in tabular form in Appendix D.

3.9 Water-Level Measurements

The project borings were initially dry augured to depths of 2.5 to 10 ft to explore for free water conditions. A summary of the groundwater level measurements is presented in Table 3-3.

Table 3-3
Groundwater Level Measurements During Drilling

Boring No.	Depth of Dry Augered	Depth to Free Water During Dry Auger Drilling (Elevation)	End-of-Day or Next-Day Groundwater Level Reading (Elevation)
B-3	3.5 ft	3.5 ft (El. 13.6 ft)	1.2 ft (El. 15.9 ft)
B-7	2.5 ft	2.0 ft (El. 14.4 ft)	1.2 ft (El. 15.2 ft)
B-14	3.5 ft	3.5 ft (El. 12.9 ft)	2.0 ft (El. 14.4 ft)
E-1	6.0 ft	4.0 ft (El. 12.5 ft)	0.9 ft (El. 15.6 ft)
E-2	6.0 ft	2.0 ft (El. 13.6 ft)	0.4 ft (El. 15.2 ft)
E-4	6.0 ft	4.0 ft (El. 13.4 ft)	2.5 ft (El. 14.9 ft)
E-5	10.0 ft	4.0 ft (El. 12.6 ft)	3.0 ft (El. 13.6 ft)
PZ-2*	3.5 ft	2.0 ft (El. 15.0 ft)	3.8 ft (El. 13.2 ft)
PZ-7*	3.5 ft	2.0 ft (El. 14.2 ft)	1.5 ft (El. 14.7 ft)

*Piezometer installed at this location

Table 3-4
Summary of the Infiltration Test Results

Test No.	d (ft)	H ₂ (ft)	D ₂ (ft)	Q (gpm)	K (ft ³ /sec/ft ² -ft head)
E-1	0.50	0.90	5.10	0.73	0.000192
E-2	0.50	0.45	5.55	0.50	0.000266
E-4	0.50	2.50	3.50	0.70	0.000080
E-5	0.50	3.00	7.00	1.12	0.000061

3.12 Field Percolation Test

As part of the scope of work, one field percolation test, PT-2, was performed in the vicinity of Boring B-2 to measure the percolation rate of the natural shallow soil for leach field design. The location of the percolation test is shown on Figure 3. The percolation test consisted in augering a 9 in. diameter and 36 in. deep diameter hole. Free seepage was encountered at a depth of about 2.5 ft, and the hole started to caved in. After the overnight soaking period, the water level and the bottom of the hole were at depths of about 1.2 ft and 1.3 ft from the ground surface, respectively. Water was then added to completely fill the hole and water level drop versus time measurements were taken every 5 minutes up to a period of 50 minutes. A summary of the percolation test data and computed percolation rate in minutes/inch based on the 10-min. to 50-min. reading readings are presented in Figure 8. Based on the sieve and hydrometer tests performed in soil samples recovered from the bottom of the holes, the results of the percolation test PT-2 are representative of the surficial fine sand to with some silt soils encountered to a depth of 3 ft.

It is our understanding after talking with Mr. James Duncan with St. Lucie County Health Department (561-462-3800) that the county does not use field percolation test information for leach field design. The county is guided by the USDA Soil Conservation Service soil texture and a site visit by a registered county inspector.

A soil texture classification of the soil recovered from the percolation test PT-2 location to at a depth of 1 to 2 ft was performed following the USDA Soil Classification methodology, and the results are presented in Table 3-5 below.

Table 3-5
Soil Texture Classification as per USDA Soil Classification

Percolation Test	Depth	Soil Description	% Sand	% Silt	% Clay
TP-2	1-2 ft	Poorly graded fine sand with silt	94	4	0.8

Based on the results disclosed in table 3-4, the USDA soil textural classification corresponds to sand to loamy sand (Group Ib).

3.13 Laboratory Testing

Laboratory tests were performed on selected soil samples to measure physical and engineering properties of the recovered samples. The type of laboratory tests performed are presented in Table 3-6 below.

Table 3-6
Laboratory Testing Program

Type of Test	Testing Method
Natural Water Content	ASTM D 2216
Liquid and Plastic Limits	ASTM D 4318
Unconfined Compression	ASTM D 2166
Calcium Carbonate Content	ASTM D 4373
Organic Content	ASTM D 2974
Laboratory Thermal Conductivity	ASTM D 5334
Material Passing Sieve No. 200	ASTM D 422
Grain Size Sieve and Hydrometer Analysis	ASTM D 422
Dry Unit Weight	-
Standard Proctor Compaction Test	ASTM D 698
CBR	ASTM D 1883-73
Lime and Fly Ash Soil Stabilization	-
pH	SW846-9045
Sulfate Content	EPA300
Chloride Content	EPA300

Undrained shear strengths of selected undisturbed cohesive soil samples recovered from the 45 ft depth in Boring B-3 and 5 ft depth in Boring B-14 were measured by unconfined compression tests. The results of the unconfined compression tests from the undisturbed soil samples are presented in the boring logs and included in Appendix F.

A California Bearing Ratio (CBR) test was performed on a composite bulk soil sample from the upper 4 ft from Boring B-14. The measured CBR was 11.1%. The optimum moisture content and maximum dry density of the composite soil sample soils were 12.5% and 108.5 pcf, respectively. The CBR data and companion modified Proctor compaction test data are included in Appendix F. In order to evaluate the shallow on-site soil response to soil stabilization with lime and fly ash, a second CBR test was performed in the same soil sample stabilized with about 2% lime and 2% fly ash per dry weight, and tested after a 96-hour curing period; the measured CBR value was 18.2%. The CBR test results are included in Appendix F.

Layers of dark gray and black fine sand and silty fine sand (also named "sensitive fines" in the PCPT soundings), about 3 to 4 ft thick, were encountered throughout most of the site at depths of about 1 to 3 ft below existing grade, and a depth of about 23 ft in Boring B-3 location, at the 18.5-ft depth in Boring B-7 location, and at the 23-ft depth in PCPT sounding B-6 and B-9 locations. Based on visual inspection, it appeared that the dark gray to black coloration was associated with the presence of organic material. Organic contents were measured on selected samples of the dark gray to black fine sand. The organic contents results are summarized in Table 3-7.

Table 3-7
Summary of the Organic Content Test Results

Boring	Depth	Soil Description	Organic Content (%)
B-3	3.5	Dark brown clayey fine sand	1.8
	23.5	Dark gray to black fine sand	0.5
B-7	3.5	Dark gray to black fine sand	1.4
B-14	0.5	Dark gray to black fine sand	1.2
PZ-7	3.5	Dark gray to black fine sand	2.7
E-2	2.5	Dark gray to black fine sand	1.4

Based on the measured organic contents of less than 3% will, the organic content in these soils will have minimal impact on soil engineering concerns such as bearing capacity, settlement and workability. However, the measured pH in these soils ranged from 3.5 to 6.33, indicative of acidic to moderately acidic nature and high corrosion potential for unprotected steel in direct contact with soil.

Calcium carbonate contents were measured in selected soil samples to determine the primary nature (siliceous versus calcareous) of the on-site soil. A summary of the carbonate contents are presented in Table 3-8.

Table 3-8
Summary of the Carbonate Content Test Results

Boring	Depth	Soil Description	Carbonate Content (%)
B-3	28.5	Fine sand with shell fragments	18
	43.5	Fine sand with numerous shell fragments	48
	48.5	Silty fine sand with numerous shell fragments	26
	63.5	Fine sand with shell fragments	13
B-7	38.5	Fine sand with numerous shell fragments	32
	63.5	Fine sand with numerous shell fragments	28

Based on close visual soil description, it is our opinion that the results of the carbonate contents presented in Table 3-8 are the result of the shells fragments embedded in the soil matrix rather than the calcareous nature of the sandy soils. The presence of shell intrusions will have minimal difference in the soil mechanics behavior as compared to siliceous sands. In general, carbonate contents of less than 50% are considered not to cause significant impact.

Two laboratory thermal conductivity tests were performed on selected undisturbed soil samples recovered from the 5-ft depth in Borings B-3 and B-14. The test results are included in Appendix F, and are summarized in Table 3-9 below.

Table 3-9
Measured Soil Thermal Conductivity Test Results

Boring	Depth (ft)	Soil Description	Natural Moisture Content (%)	Thermal Conductivity (Watt/m-°C)
B-3	5	Clayey Fine Sand	18	2.978
B-14	5	Very Sandy Clay to Clayey Sand	17	2.888

Chemical tests consisting of soil pH, ion concentration sulfates and chlorides were performed on samples recovered from selected depths from Borings B-3 (3.5 and 23.5 ft), PZ-2 (3.5 and 18.5 ft) and PZ-7 (12.5 ft). The results of the chemical tests are presented in Section 6.15 - *Soil Corrosion Potential*.

The results of the other laboratory tests are included on the boring logs in Appendix A.

4. SURFACE AND SUBSURFACE CONDITIONS

4.1 Surface Conditions

The site is primarily a relatively flat open low grassy field with wetland areas to the east, west and south of the project boundaries; there are few small trees within the proposed storage tank area. Top soil cover varies from 8 to 12 in., with an average of 10 in. . Ground surface elevation ranges between about El. 16.2 ft to about El. 18.2 ft.

4.2 Site Geology

An assessment of regional geology was conducted by a review of geologic literature concentrating on geologic map of the State of Florida and St. Lucie County.

The Florida peninsula and adjacent continental shelf occupies the Florida Plateau. The highest elevation in the state are in the central highlands, coincident with a long-standing geological feature, the peninsula arch, which runs down the center of the state. The Florida Plateau is generally composed of a thick section of mostly undeformed carbonate rocks. This carbonate platform that has been developing since the late Triassic opening of the North Atlantic (about 180 MA). The underlying igneous and metamorphic "basement" rocks are Jurassic and older.

The surficial deposits in south Florida are young in geological terms (less than 6 million years). Most formed around 120,000 years ago (Pleistocene) during an interglacial period when the sea level was about 25 ft higher. Most of the surficial features are related to depositional environments formed this latter sea level high stand. These environments are reflected by several different geological units (formations) generally of about the same age.

According to the geologic map of the St. Lucie County (1993) the surficial soils at the site belong to the Anastasia Formation, underlain by the Miami Formation. The Anastasia Formation soils generally consist of "unlithified fossiliferous sands and variably lithified coquina of shells and sands."

4.3 Regional Seismicity

There have been no earthquake activity reported in historic time within the site vicinity. We are not aware of known surface movement occurrences, active faulting crossing the site, or reported

sinkhole occurrences near the site; however, an exploration to verify the possible locations of faults and sinkholes within the plant site area would require drilling and electrical logging of several deep (i.e., 300-ft deep) borings which was beyond the scope of this study.

According to the 1997 Unified Building Code (UBC), Figures 16-2, the proposed site is within seismic Zone 0. According to Table 16-J-Soil Profile Types- and based on the measured weighed shear wave velocity average for the upper 80 ft of 936 fps from the seismic downhole test, the soil profile may be classified as S_D .

According to the ASCE (American Society of Civil Engineers) 7-95 Code, Map 9-1 and 9-2, the seismic A_v and A_a coefficients for the site are less than 0.05. According to Table 9.1.4.2 – Soil Profile Type Classification, the Soil Profile may be classified as Type D.

Re-evaluation of the type of soil profile is needed for both codes if soil improvement of the upper loose soil is performed and new soil dynamics properties are measured.

4.4 Soil Stratigraphy

Based on the soil conditions disclosed by the soil borings, PCPT soundings and test pits, the soil stratigraphy primarily consists of interbedded layers of fine sands, silty fine sands, sandy silts, and to a lesser extent, clayey sands. The layer thicknesses generally vary from about 1 ft to 15 ft. The upper about 25 to 30 ft are generally in loose to medium dense conditions. The soils below the about 25 to 30 ft are denser and disclosed layers with slight cementation and shells fragments. Borings B-3, B-7 and B-14 disclosed an about 2 to 5 ft thick cohesive soft to firm layer at depths of 45 ft, 42 ft and 5 ft below existing grade, respectively.

A sub-surface cross section A-A' encompassing Borings B-3 and B-7 and PCPT soundings B-4, B-5, B-6, B-8, B-9 and B-10 is shown on Figure 9; the locations of subsurface cross sections A-A' is also shown on Figure 3. Soil type interpretation from the cone data was in general agreement with the soil classification in the boring and test pit logs.

The borings, PCPT soundings, and shallow test pits indicate subsurface conditions at the specific locations and depths penetrated and do not necessarily reflect strata variations that may exist between boring locations. Detailed descriptions of the soils encountered are shown on the test boring, PCPT sounding and test pit logs in Appendices A and B.

4.5 Soil Properties

We measured SPT "N" blow counts generally between 4 to 13 to depths of about 20 to 25 ft indicative of loose to medium dense soil conditions, and blow counts of 25 to 40 below those depths indicative of medium dense to dense soil conditions. The CPT cone resistance data generally agrees with the measured SPT data. Measured CPT cone resistance in the upper 20 to

25 ft generally ranged from about 25 to 50 tsf, and measured more than about 150 tsf below those depths. Fines contents ranged from about 2 to 22%.

Measured undrained shear strengths from unconfined compression tests of selected cohesive soil samples recovered from the 45-ft depth in Boring B-3 and 5-ft depth in Boring B-14 resulted in values of 460 psf and 612 psf, indicative of soft to firm consistencies. Total unit weights were 115 and 125 pcf.

4.6 Groundwater Observations

Based on the groundwater measurements taken during drilling and piezometer installation reports, the groundwater may located at about El. 13.1 ft to 15.9 ft (about 0.4 ft to 3.8 ft below existing grade).

Depending on when the project is constructed, the groundwater conditions observed in late July may not be representative of groundwater conditions during construction. However, the presence of the nearby wetlands may be an indication of shallow groundwater all year long.

Because of the sandy nature and relatively low fines contents of the on-site soils, it is our opinion that the shallow groundwater will impact construction activities. Excavations below groundwater (i.e., utilities, pits, etc.) will require significant dewatering to maintain the excavation stability.

LOG OF BORING B-2

PROJECT: St. Lucie Generation Station
Fort Pierce, Florida

CLIENT: Duke/Florida Daniel
Sugar Land, Texas

DEPTH (ft)	SAMPLE TYPE	SYMBOL/USCS	COORDINATES: N 1,109,664.81 ft E 702,312.84 ft SURFACE ELEVATION: 17.16 ft	DRILLING METHOD: Dry Augered: 0 ft to 3.5 ft Wash Bored: 3.5 ft to 70 ft	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST (blows/in)	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psf)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
MATERIAL DESCRIPTION															
0	X		Loose gray & dark gray SILTY FINE SAND (SM), w/ fine roots & organics to 6"			4								2	
	X		Very loose dark gray to black FINE SAND (SP), w/ organics												
5	X		Loose dark brown CLAYEY FINE SAND (SC)			9	18							13 14	OC PH TH
	X		Loose brown CLAYEY SILTY SAND (SM-SC)												
10	X					9								16	
	X		Medium dense brown & gray FINE SAND (SP)			12	23								
15	X		Loose light gray & gray SILTY FINE SAND (SM)			5								15	
	X		-gray & tan below 18.5'			8								12	
20	X														
25	X		Very loose dark gray to black FINE SAND (SP)			3								10	OC PH
	X														
30	X		-dense, gray w/ shell fragments below 28.5'			30									CC
	X														
35	X					39								6	

COMPLETION DEPTH:
DATE BORING STARTED:
DATE BORING COMPLETED:
ENGINEER/GEOLOGIST:
PROJECT NO.:

70 ft
7/26/00
7/26/00
J. Hebert
00-339

REMARKS: Boring backfilled with cement-bentonite grout after end-of-day water level reading. OC = Organic content (%). CC = Carbonate content (%). TH = Thermal conductivity. CH = pH, sulfates & chlorides.

TOLUNAY-WONG ENGINEERS, INC.



LOG OF BORING B-2

PROJECT: St. Lucie Generati. Station
Fort Pierce, Florida

CLIENT: Duke/Fl. Daniel
Sugar Land, Texas

DEPTH (ft)	SAMPLE TYPE	SYMBOL/USCS	COORDINATES: N 1,109,664.81 ft E 702,312.84 ft SURFACE ELEVATION: 17.16 ft	DRILLING METHOD: Dry Augered: 0 ft to 3.5 ft Wash Bored: 3.5 ft to 70 ft	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psf)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
MATERIAL DESCRIPTION															
40	X		-very dense below 38.5'			52									
45	X		-medium dense w/ numerous shell fragments below 43.5'			12									CC
45			Soft to firm gray SILTY CLAY (CL) & NUMEROUS SHELL FRAGMENTS	(P)0.75			44	73			0.46	4.9			
50	X		Loose gray SILTY FINE SAND (SM) & NUMEROUS SHELL FRAGMENTS			6									CC
55	X		Medium dense light gray FINE SAND (SP), w/ slightly cemented sand inclusions			28	18								
60	X		Medium dense light gray FINE SANDY SILT (ML), w/ cemented sand intrusions			12	31								
65	X		Medium dense light gray FINE SAND (SP), w/ sandstone intrusions -w/ shell fragments below 63.5'			25									CC
70	X					27									

COMPLETION DEPTH:
DATE BORING STARTED:
DATE BORING COMPLETED:
ENGINEER/GEOLOGIST:
PROJECT NO.:

70 ft
7/26/00
7/26/00
J. Hebert
00-339

REMARKS: Boring backfilled with cement-bentonite grout after end-of-day
water level reading. OC = Organic content (%). CC = Carbonate
content (%). TH = Thermal conductivity. CH = pH, sulfates & chlorides.

TOLUNAY-WONG ENGINEERS, INC.



LOG OF BORING B-7

PROJECT: St. Lucie Generation Station
Fort Pierce, Florida

CLIENT: Duke/Flu Daniel
Sugar Land, Texas

DEPTH (ft)	SAMPLE TYPE	SYMBOL/USCS	COORDINATES: N 1,109,115.04 ft E 702,079.72 ft SURFACE ELEVATION: 16.44 ft	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psf)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
			DRILLING METHOD: Dry Augered: 0 ft to 2.5 ft Wash Bored: 2.5 ft to 80 ft											
MATERIAL DESCRIPTION														
0	X		Loose gray & dark gray SILTY FINE SAND (SM), w/ fine roots & organics to 6"		4								2	OC
	X		Loose dark gray to black FINE SAND (SP), w/ organics		10								5	
5	X		Medium dense gray & tan SILTY FINE SAND (SM)		12								17	
10	X		Medium dense SILTY CLAYEY FINE SAND (SC)		11								26	
15	X		Medium dense gray & tan FINE SAND (SP)		13	23								
			-gray below 15'										9	
20	X		-very loose, dark gray to black below 18.5'		3	24								
25	X		-very dense, gray, w/ shell fragments below 23.5'		59								6	
30	X		-dense below 28.5'		30	24								
35	X		-dense below 28.5'		41	26								

COMPLETION DEPTH: 80 ft
DATE BORING STARTED: 7/25/00
DATE BORING COMPLETED: 7/25/00
ENGINEER/GEOLOGIST: J. Hebert
PROJECT NO.: 00-339

REMARKS: Boring backfilled with cement-bentonite grout after end-of-day water level reading. OC = Organic content (%). CC = Carbonate content (%).

TOLUNAY-WONG ENGINEERS, INC.



LOG OF BORING B-7

PROJECT: St. Lucie Generating Station
Fort Pierce, Florida

CLIENT: Duke/Florida Daniel
Sugar Land, Texas

DEPTH (ft)	SAMPLE TYPE	SYMBOL/USCS	COORDINATES: N 1,109,115.04 ft E 702,079.72 ft SURFACE ELEVATION: 16.44 ft	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psf)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
			DRILLING METHOD: Dry Augered: 0 ft to 2.5 ft Wash Bored: 2.5 ft to 80 ft											
			MATERIAL DESCRIPTION											
40	X		-medium dense, fine to medium, w/ cemented sand intrusions & numerous shell fragments below 38.5'		23									CC
45	X		Firm gray SANDY CLAY (CL) & NUMEROUS SHELL FRAGMENTS		7	31								
50	X		Medium dense gray FINE SAND (SP) & NUMEROUS SHELL FRAGMENTS		12									
55	X		Medium dense light gray FINE SAND (SP)		27	27								
60	X		Loose light gray FINE SANDY SILT (ML)		7								76	
65	X		qense tan & white FINE SAND (SP), w/ cemented sand intrusions & numerous shell fragments		41									CC
70	X		-medium dense to dense, w/ shell fragments below 68.5'		30									

COMPLETION DEPTH:
DATE BORING STARTED:
DATE BORING COMPLETED:
ENGINEER/GEOLOGIST:
PROJECT NO.:

80 ft
7/25/00
7/25/00
J. Hebert
00-339

REMARKS: Boring backfilled with cement-bentonite grout after end-of-day water level reading. OC = Organic content (%). CC = Carbonate content (%).

TOLUNAY-WONG



ENGINEERS, INC.

LOG OF BORING B-7

PROJECT: St. Lucie Generating Station
Fort Pierce, Florida

CLIENT: Duke/Fluc Janiel
Sugar Land, Texas

DEPTH (ft)	SAMPLE TYPE	SYMBOL/USCS	COORDINATES: N 1,109,115.04 ft E 702,079.72 ft SURFACE ELEVATION: 16.44 ft	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
			DRILLING METHOD: Dry Augered: 0 ft to 2.5 ft Wash Bored: 2.5 ft to 80 ft											
MATERIAL DESCRIPTION														
														
75	X		Dense light gray SILTY FINE SAND (SM)		36	20								
80	X		Medium dense light gray FINE SAND (SP) & SHELL		21	19								
			Bottom @ 80'											
85														
90														
95														
100														
105														

COMPLETION DEPTH:
DATE BORING STARTED:
DATE BORING COMPLETED:
ENGINEER/GEOLOGIST:
PROJECT NO.:

80 ft
7/25/00
7/25/00
J. Hebert
00-339

REMARKS: Boring backfilled with cement-bentonite grout after end-of-day
water level reading. OC = Organic content (%). CC = Carbonate
content (%).

TOLUNAY-WONG



ENGINEERS, INC.

LOG OF BORING B-14

PROJECT: St. Lucie Generating Station
Fort Pierce, Florida

CLIENT: Duke/Fl. Daniel
Sugar Land, Texas

DEPTH (ft)	SAMPLE TYPE	SYMBOL/USCS	COORDINATES: N 1,108,867.25 ft E 701,804.92 ft SURFACE ELEVATION: 16.42 ft	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psf)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
			DRILLING METHOD: Dry Augered: 0 ft to 3.5 ft Wash Bored: 3.5 ft to 30 ft											
MATERIAL DESCRIPTION														
0	X		Loose dark gray & gray SILTY FINE SAND (SM), w/ fine roots & organics to 8"		5								5	
			Loose dark gray to black FINE SAND (SP), w/ organics											
			-medium dense, dark gray below 3.5'		14									5
5	X		Firm gray & tan VERY SANDY CLAY to CLAYEY SAND (CL-SC)	(P)2.0		17	119			0.612	1.6		11	TH
			Gray SILTY FINE SAND (SM)											
			-medium dense below 9.5'		17								15	
	X		Medium dense gray FINE SAND (SP)		12	22								
15			Loose light gray SILTY FINE SAND (SM-SP)		7								10	
			-w/ organics inclusions below 18.5'		5									
			-medium dense w/ shell fragments below 23.5'		28									
25	X		Dense gray WELL GRADED SAND (SW), w/ some silt		34								5	
30			Bottom @ 30'											
35														

COMPLETION DEPTH: 30 ft
DATE BORING STARTED: 7/27/00
DATE BORING COMPLETED: 7/27/00
ENGINEER/GEOLOGIST: J. Hebert
PROJECT NO.: 00-339

REMARKS: Boring backfilled with cement-bentonite grout after end-of-day water level reading.
TH = Thermal conductivity.

TOLUNAY-WONG ENGINEERS, INC.



LOG OF BORING P- 2

PROJECT: St. Lucie Generating Station
Fort Pierce, Florida

CLIENT: Duke/Fluor Daniel
Sugar Land, Texas

DEPTH (ft)	SAMPLE TYPE	SYMBOL/USCS	COORDINATES: N 1,108,705.39 ft E 702,051.46 ft SURFACE ELEVATION: 17.09 ft	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psf)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
			DRILLING METHOD: Dry Augered: 0 ft to 3.5 ft Wash Bored: 3.5 ft to 20 ft											
MATERIAL DESCRIPTION														
0	X		Loose gray & dark gray SILTY FINE SAND (SM), w/ fine roots & organics to 6"		7								4	
	X		Loose dark gray & tan FINE SAND (SP), w/ organics											
5	X		Medium dense dark gray to black SILTY FINE SAND (SM), w/ organics		16	20								CH
	X		Gray FINE TO MEDIUM SAND (SP)			18	108							
10	X		Medium dense light gray & tan SILTY FINE SAND (SM)		13	21								
	X		-gray & tan below 12.5'		12								16	
15	X		Very loose tan & gray FINE SAND (SP)		2	26								
	X		-gray, fine to medium below 18.5'		2	25								CH
20			Bottom @ 20'											
25														
30														
35														

COMPLETION DEPTH: 20 ft
DATE BORING STARTED: 7/27/00
DATE BORING COMPLETED: 7/27/00
ENGINEER/GEOLOGIST: J. Hebert
PROJECT NO.: 00-339

REMARKS: Piezometer PZ-2 installed in borehole after completion of sampling.
CH = pH, sulfates & chlorides

TOLUNAY-WONG ENGINEERS, INC.



LOG OF BORING PZ-7

PROJECT: St. Lucie Generating Station
Fort Pierce, Florida

CLIENT: Duke/Flu. Daniel
Sugar Land, Texas

DEPTH (ft)	SAMPLE TYPE	SYMBOL/USCS	COORDINATES: N 1,109,708.83 ft E 701,877.75 ft SURFACE ELEVATION: 16.27 ft DRILLING METHOD: Dry Augered: 0 ft to 3.5 ft Wash Bored: 3.5 ft to 25 ft	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psf)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
MATERIAL DESCRIPTION														
0	X		Dark gray & gray SILTY FINE to MEDIUM SAND (SM), w/ fine roots & organics to 8"		1								3	
	X		Very loose dark gray to black FINE SAND (SP), w/ organics											
	X		- medium dense below 3.5 ft		14	21								OC
5	X													
	X		Loose to medium dense light gray SILTY FINE SAND (SM)		10								17	
10	X		* Attempt to obtain undisturbed sample @ 10-12 ft No Recovery											
	X		- loose & gray below 12.5 ft		7								15	CH
15	X													
	X		Loose tan & gray FINE SAND (SP)		9	25								
	X		-very loose gray & light gray below 18.5'		2								6	
20	X													
	X		-medium dense, gray, w/ shell fragments below 23.5'		24	27								
25	X		Bottom @ 25'											
30														
35														

COMPLETION DEPTH:
DATE BORING STARTED:
DATE BORING COMPLETED:
ENGINEER/GEOLOGIST:
PROJECT NO.:

25 ft
7/27/00
7/27/00
J. Hebert
00-339

REMARKS: Piezometer PZ-7 installed in borehole after completion of sampling.
OC = Organic content (%). CH = pH, sulfates & chlorides

TOLUNAY-WONG



ENGINEERS, INC.

LOG OF BORING E-1

PROJECT: St. Lucie Generati. Station
Fort Pierce, Florida

CLIENT: Duke/Flt Daniel
Sugar Land, Texas

DEPTH (ft)	SAMPLE TYPE	SYMBOL/USCS	COORDINATES: N 1,108,719.97 ft E 701,511.90 ft SURFACE ELEVATION: 16.53 ft DRILLING METHOD: Dry Augered: 0 ft to 6 ft Wash Bored: to	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
			MATERIAL DESCRIPTION											
0	X		Loose tan & black SILTY FINE TO MEDIUM SAND (SM), w/ fine roots & organics to 4"		5	19								
	X		Loose dark gray to black FINE SAND (SP), w/ organics		10	25								
	X		-loose to medium dense below 2.5'											
5	X		Medium dense gray to black CLAYEY SAND (SC)		18	17								
			Bottom @ 6'											
10														
15														
20														
25														
30														
35														

COMPLETION DEPTH:
DATE BORING STARTED:
DATE BORING COMPLETED:
ENGINEER/GEOLOGIST:
PROJECT NO.:

6 ft
7/25/00
7/25/00
J. Hebert
00-339

REMARKS: Infiltration test E-1 performed in boring. Water level measurements taken in cased hole next day.

TOLUNAY-WONG ENGINEERS, INC.



LOG OF BORING E-2

PROJECT: St. Lucie Generating Station
Fort Pierce, Florida

CLIENT: Duke/Floor Daniel
Sugar Land, Texas

DEPTH (ft)	SAMPLE TYPE SYMBOL/USCS	COORDINATES: N 1,109,209.99 ft E 701,708.79 ft SURFACE ELEVATION: 15.64 ft DRILLING METHOD: Dry Augered: 0 ft to 6.0 ft Wash Bored: to	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0													
	X	Loose tan & dark gray SILTY FINE SAND (SM), w/ fine roots & organics		5	22								
	X	Loose dark gray to black FINE SAND (SP), w/ organics		9	21								OC
5	X	-medium dense, brown & tan below 4.5 ft		14	17								
		Bottom @ 6'											
10													
15													
20													
25													
30													
35													

COMPLETION DEPTH:
DATE BORING STARTED:
DATE BORING COMPLETED:
ENGINEER/GEOLOGIST:
PROJECT NO.:

6 ft
7/25/00
7/25/00
J. Hebert
00-339

REMARKS: Infiltration test E-2 performed in Boring. Water level measurements
taken in cased hole next day.
OC = Organic content (%).

TOLUNAY-WONG



ENGINEERS, INC.

LOG OF BORING E-4

PROJECT: St. Lucie Generating Station
Fort Pierce, Florida

CLIENT: Duke/Fl. Daniel
Sugar Land, Texas

DEPTH (ft)	SAMPLE TYPE	SYMBOL/USCS	COORDINATES: N 1,109,145.72 ft E 703,185.36 ft SURFACE ELEVATION: 17.42 ft DRILLING METHOD: Dry Augered: 0 to 6 Wash Bored: to	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Loose dark gray & light gray SILTY FINE SAND (SM), w/ fine roots & organics		5	10								
			Loose dark gray to black FINE SAND (SP), w/ organics		8	18								
5			- loose to medium dense, brown, tan & light gray below 4.5'		10	18								
			Bottom @ 6'											
10														
15														
20														
25														
30														
35														

COMPLETION DEPTH:
DATE BORING STARTED:
DATE BORING COMPLETED:
ENGINEER/GEOLOGIST:
PROJECT NO.:

6 ft
7/24/00
7/24/00
J. Hebert
00-339

REMARKS: Infiltration test E-4 performed in boring. Water level measurements taken in cased hole next day.

TOLUNAY-WONG



ENGINEERS, INC.

LOG OF BORING E-5

PROJECT: St. Lucie Generating Station
Fort Pierce, Florida

CLIENT: Duke/Fior Daniel
Sugar Land, Texas

DEPTH (ft)	SAMPLE TYPE	SYMBOL/USCS	COORDINATES: N 1,108,622.19 ft E 703,021.18 ft SURFACE ELEVATION: 16.65 ft DRILLING METHOD: Dry Augered: 0 ft to 10 ft Wash Bored: to	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST (blows/ft)	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psf)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Loose dark gray & light gray SILTY FINE SAND (SM), w/ fine roots & organics		5	10								
			Loose gray to black FINE SAND (SP), w/ organics		18	17								
			medium dense, brown, black & tan below 2.5 ft		10	17								
5			Loose to medium dense brown, light gray & gray CLAYEY SAND (SC), w/ sandy clay pockets & organics			20								
			Gray FINE SAND (SP)			21								
10			Bottom @ 10'											
15														
20														
25														
30														
35														

COMPLETION DEPTH: 10 ft
DATE BORING STARTED: 7/24/00
DATE BORING COMPLETED: 7/24/00
ENGINEER/GEOLOGIST: J. Hebert
PROJECT NO.: 00-339

REMARKS: Infiltration test E-5 performed in boring. Water level measurements taken in cased hole next day.



Table 1
Groundwater Analytical Summary

Fort Pierce Utilities Authority
Omega Site
St. Lucie County, Florida

June 2004

Detectable Analytes	GCTL	GP-1	GP-2	GP-3	GP-4	GP-5	MW-1	MW-2
Total Recoverable Petroleum Hydrocarbons								
TRPH (ug/L)	5000	NA	NA	NA	390 i	NA	350 i	300 i
Total Metals								
Barium (mg/L)	2	NA	NA	NA	NA	NA	0.018	0.013
Chromium (mg/L)	0.1	NA	NA	NA	NA	NA	0.0021 V	0.0044 V
Lead (mg/L)	0.015	NA	NA	NA	NA	NA	0.0016 i	0.0013 i
Dissolved Metals								
Arsenic (mg/L)	0.05*	0.0071 i	0.0082 i	BDL	BDL	BDL	NA	NA
Barium (mg/L)	2*	0.083	0.18	0.15	0.16	0.05	NA	NA
Beryllium (mg/L)	0.004*	NA	NA	NA	NA	0.0012	NA	NA
Chromium (mg/L)	0.1*	0.052	0.1	0.076	0.093	0.036	NA	NA
Copper (mg/L)	1**	0.0081 i	0.028 i	0.018 i	NA	BDL	NA	NA
Iron (mg/L)	0.3**	NA	NA	NA	NA	9.4	NA	NA
Lead (mg/L)	0.015*	0.019	0.059	0.031	0.038	0.011	NA	NA
Mercury (mg/L)	0.002*	0.000032 i	0.00023	0.00028	0.00022	BDL	NA	NA
Nickel (mg/L)	0.1*	NA	NA	NA	NA	0.0088 i	NA	NA
Sodium (mg/L)	160*	NA	NA	NA	NA	23	NA	NA
Zinc (mg/L)	5**	NA	NA	NA	NA	0.018 i	NA	NA
Semi-Volatile Organic Compounds								
1-Methylnaphthalene (ug/L)	20	NA	NA	NA	0.18 i	BDL	BDL	BDL
2-Methylnaphthalene (ug/L)	20	NA	NA	NA	0.20 i	BDL	BDL	BDL
Volatile Aromatic Hydrocarbons								
Acetone (ug/L)	700	NA	NA	NA	BDL	18	BDL	BDL
Chlorinated Pesticides								
4,4'-DDT (ug/L)	0.1	BDL	BDL	0.074	NA	NA	NA	NA
Herbicides								
No Analytes Detected	BDL	BDL	BDL	BDL	NA	NA	NA	NA
Organophosphorous Pesticides								
No Analytes Detected	BDL	BDL	BDL	BDL	NA	NA	NA	NA
PCBs								
No Analytes Detected	BDL	BDL	BDL	BDL	NA	NA	NA	NA
Miscellaneous Analytes								
Ammonia (mg/L)	2.8	0.25	0.69	1.6	NA	0.36	NA	NA
Nitrate+Nitrite (mg/L)	10*	0.029	0.039 i	0.18	NA	0.034	NA	NA
Total Chlorides (mg/L)	250**	NA	NA	NA	NA	37	NA	NA
Total Kjeldahl Nitrogen (mg/L)	Not Listed	2.5	BDL	5	NA	0.87	NA	NA
Total Nitrogen (mg/L)	Not Listed	2.6	BDL	5.2	NA	0.91	NA	NA
Total Dissolved Solids (mg/L)	500**	NA	NA	NA	NA	410	NA	NA

GCTL = Groundwater Cleanup Target Level, Chapter 62-777, FAC

TRPH = Total Recoverable Petroleum Hydrocarbons

mg/L = Milligrams per liter

ug/L = Micrograms per liter

i = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

BDL = Below laboratory analytical detection limits

NA = Not Analyzed

Values in **Bold** exceed the GCTL value

* Primary standard as provided in Chapter 62-550, FAC

** Secondary standard as provided in Chapter 62-550, FAC

Table 2
Soil Analytical Summary
Fort Pierce Utilities Authority
Omega Site
St. Lucie County, Florida
June 2004

Detectable Analytes	Residential SCTL	Commercial SCTL	Leachability SCTL	S-1	S-2	S-3	S-4	S-5	S-6	BK-1	BK-2
Chlorinated Pesticides											
No Analytes Detected				BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
Herbicides											
No Analytes Detected				BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
Organophosphorous/Pesticides											
No Analytes Detected				BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
Miscellaneous Analytes											
Ammonia (mg/kg)	550	3,700	570	4.4	3.5	1.8	4.3	3.2	4.5	NA	NA
Nitrate-Nitrite (mg/kg)	127,800	180,000	***	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
Total Kjeldahl Nitrogen (mg/kg)	Not Listed	Not Listed	Not Listed	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
Total Nitrogen (mg/kg)	Not Listed	Not Listed	Not Listed	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
PCBs											
No Analytes Detected				BDL	BDL	BDL	BDL	BDL	BDL	NA	NA
Total Metals											
Arsenic (mg/kg)	0.8	3.7	29	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Barium (mg/kg)	110	87,000	1,600	0.480	0.510	0.330	0.600	0.240	0.440	0.600	0.170
Cadmium (mg/kg)	75	1,300	8	0.020	0.011	0.0046	0.032	0.011	0.014	0.014	BDL
Chromium (mg/kg)	210	4,200	38	1.100	0.480	0.16 V	3.400	0.410	0.650	0.830	0.18 V
Copper (mg/kg)	110	76,000	***	2.500	0.881	0.441	6.400	1.500	1.600	NA	NA
Lead (mg/kg)	400	920	***	0.730	0.550	0.490	0.760	0.330	0.480	0.430	0.16 V
Mercury (mg/kg)	3.4	28	2.1	0.00261	BDL	0.00151	0.00101	BDL	0.0301	0.006	0.0010 V
Selenium (mg/kg)	390	10,000	15	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Silver (mg/kg)	390	8,100	17	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

TRPH = Total Recoverable Petroleum Hydrocarbons

ug/Kg = Micrograms per Kilogram

SCTL = Soil Cleanup Target Levels, Chapter 62-777, FAC

BDL = Below laboratory analytical detection limits

NA = Not Analyzed

I = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

*** Leachability values may be derived using the SPLP Test to calculate site-specific SCTLs or may be determined using TCLP in the event oily wastes are present

Values in Bold exceed one or more applicable SCTLs



LEGEND

- EXISTING MONITORING WELL LOCATION
- GROUNDWATER SAMPLE LOCATION
- SOIL SAMPLE LOCATION



**Kinley-Horn
and Associates, Inc.**

ENGINEERING, PLANNING AND ENVIRONMENTAL CONSULTANTS
8711 PERIMETER PARK BLVD, SUITE 4
JACKSONVILLE, FLORIDA 32218
(904) 998-2084

2003 AERIAL PHOTOGRAPH

FORT PIERCE UTILITIES AUTHORITY
ST. LUCIE COUNTY, FLORIDA
OMEGA SITE

JOB NO.

047510001.1201

SCALE:

AS NOTED

FIGURE

1



**Advanced
Environmental Laboratories, Inc.**

6601 Southpoint Parkway
Jacksonville, Florida 32216
(904) 363-9350
FAX (904) 363-9354

Client: Kimley-Horn and Associates, Inc.

Project Name: FPUA

Project Number:

Report No.: J042820

Date Sampled: 5/11/04

Date Received: 5/12/04 08:45

Date Reported: 5/25/04

Attention: Troy Mayhew

Phone Number: 904-998-2084

Address: 8711 Perimeter Park Blvd, Suite 4

Jacksonville, FL 32216

Project Description

The analytical results for the samples contained in this report were submitted for analysis as outlined by the Chain of Custody.

Project Name: FPUA

Approved By:

?

Paul Gunsaulies

Paul Gunsaulies, Project Manager

If you have any questions, the above named should be contacted.

Advanced Environmental Laboratories certifies that the test results in this report meet all requirements of the NELAC standards, unless notated otherwise in the body of the report.

42 + 8 COC

Total Number of Pages =

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Lab Code: J042820-01
Client Sample ID: GP-1
Site:
Matrix: Water

Date/Time Sampled: 5/11/04 11:30
Shipping Method: Client drop off
Sampled By: Troy Mayhew
Sampling Method: G

Chlorinated Pesticides

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
4,4'-DDD	20	0.0080	0.16	0.16	ug/L	U	SW8081A		J
4,4'-DDE	20	0.016	0.32	0.32	ug/L	U	SW8081A		J
4,4'-DDT	20	0.013	0.26	0.26	ug/L	U	SW8081A		J
Aldrin	20	0.0050	0.10	0.10	ug/L	U , J4	SW8081A		J
Alpha-BHC	20	0.0080	0.12	0.12	ug/L	U , J4	SW8081A		J
Beta-BHC	20	0.0050	0.10	0.10	ug/L	U , J4	SW8081A		J
Chlordane	20	0.20	3.9	3.9	ug/L	U	SW8081A		J
Delta-BHC	20	0.017	0.34	0.34	ug/L	U , J4	SW8081A		J
Dieldrin	20	0.0090	0.18	0.18	ug/L	U	SW8081A		J
Endosulfan I	20	0.016	0.32	0.32	ug/L	U	SW8081A		J
Endosulfan II	20	0.013	0.26	0.26	ug/L	U	SW8081A		J
Endosulfan Sulfate	20	0.0060	0.12	0.12	ug/L	U	SW8081A		J
Endrin	20	0.014	0.28	0.28	ug/L	U	SW8081A		J
Endrin Aldehyde	20	0.012	0.24	0.24	ug/L	U	SW8081A		J
Gamma-BHC (Lindane)	20	0.0060	0.12	0.12	ug/L	U	SW8081A		J
Heptachlor	20	0.0090	0.18	0.18	ug/L	U	SW8081A		J
Heptachlor Epoxide	20	0.013	0.26	0.26	ug/L	U	SW8081A		J
Methoxychlor	20	0.014	0.28	0.28	ug/L	U	SW8081A		J
Toxaphene	20	0.070	1.4	1.4	ug/L	U	SW8081A		J

Dissolved Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic, dissolved	1	0.0070	0.0070	0.0071	mg/L	i , Q	SW6010B		J
Barium, dissolved	1	0.0025	0.0025	0.083	mg/L	Q	SW6010B		J
Cadmium, dissolved	1	0.00021	0.00021	0.00021	mg/L	U , Q	SW6010B		J
Chromium, dissolved	1	0.00016	0.00016	0.052	mg/L	Q	SW6010B		J
Copper, dissolved	1	0.0071	0.0071	0.0081	mg/L	i , Q	SW6010B		J
Lead, dissolved	1	0.00092	0.00092	0.019	mg/L	Q	SW6010B		J
Selenium, dissolved	1	0.0058	0.0058	0.0058	mg/L	U , Q	SW6010B		J
Silver, dissolved	1	0.0019	0.0019	0.0019	mg/L	U , Q	SW6010B		J

Dissolved Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury, dissolved	1	0.000014	0.000014	0.000032	mg/L	i , Q	SW7470A		J

Miscellaneous Analytes

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Ammonia (as N)	1	0.026	0.026	0.25	mg/L		E350.1		T
Nitrate + Nitrite (as N)	1	0.027	0.027	0.029	mg/L	i	SM4500NO3-F		J
Total Kjeldahl Nitrogen (as N)	10	0.048	0.48	2.5	mg/L		E351.2		T
Total Nitrogen	1	0.048	0.048	2.6	mg/L		calculation		T

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.
Project Name: FPUA

Report No.: J042820
Date/Time Received: 5/12/04 08:45

PCBs

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
PCB-1016	20	0.098	2.0	2.0	ug/L	U	SW8082		J
PCB-1221	20	0.31	6.2	6.2	ug/L	U	SW8082		J
PCB-1232	20	0.20	4.0	4.0	ug/L	U	SW8082		J
PCB-1242	20	0.083	1.7	1.7	ug/L	U	SW8082		J
PCB-1248	20	0.054	1.1	1.1	ug/L	U	SW8082		J
PCB-1254	20	0.089	1.8	1.8	ug/L	U	SW8082		J
PCB-1260	20	0.11	2.3	2.3	ug/L	U	SW8082		J

Surrogates:	Control Limits	% Recovery	Qual.	Method	Prep Method
Decachlorobiphenyl	15 - 147	14	J4	SW8081A	SW3510C
Tetrachloro-m-xylene	15 - 147	62		SW8081A	SW3510C
Decachlorobiphenyl	15 - 147	14	J4	SW8082	SW3510C
Tetrachloro-m-xylene	15 - 147	62		SW8082	SW3510C

- i The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J4 The sample matrix interfered with the ability to make an accurate determination.
Q Sample held beyond the acceptable hold time.
U The compound was analyzed for but not detected.
J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)
T DOH certification #E84589 (AEL-Tampa)

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.
Project Name: FPUA

Report No.: J042820
Date/Time Received: 5/12/04 08:45

Lab Code: J042820-02
Client Sample ID: GP-2
Site:
Matrix: Water

Date/Time Sampled: 5/11/04 19:30
Shipping Method: Client drop off
Sampled By: Troy Mayhew
Sampling Method: G

Chlorinated Pesticides

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
4,4'-DDD	10	0.0080	0.080	0.080	ug/L	U	SW8081A		J
4,4'-DDE	10	0.016	0.16	0.16	ug/L	U	SW8081A		J
4,4'-DDT	10	0.013	0.13	0.13	ug/L	U	SW8081A		J
Aldrin	10	0.0050	0.050	0.050	ug/L	U	SW8081A		J
Alpha-BHC	10	0.0060	0.060	0.060	ug/L	U	SW8081A		J
Beta-BHC	10	0.0050	0.050	0.050	ug/L	U	SW8081A		J
Chlordane	10	0.20	2.0	2.0	ug/L	U	SW8081A		J
Delta-BHC	10	0.017	0.17	0.17	ug/L	U	SW8081A		J
Dieldrin	10	0.0090	0.090	0.090	ug/L	U	SW8081A		J
Endosulfan I	10	0.016	0.16	0.16	ug/L	U	SW8081A		J
Endosulfan II	10	0.013	0.13	0.13	ug/L	U	SW8081A		J
Endosulfan Sulfate	10	0.0060	0.060	0.060	ug/L	U	SW8081A		J
Endrin	10	0.014	0.14	0.14	ug/L	U	SW8081A		J
Endrin Aldehyde	10	0.012	0.12	0.12	ug/L	U	SW8081A		J
Gamma-BHC (Lindane)	10	0.0060	0.060	0.060	ug/L	U	SW8081A		J
Heptachlor	10	0.0090	0.090	0.090	ug/L	U	SW8081A		J
Heptachlor Epoxide	10	0.013	0.13	0.13	ug/L	U	SW8081A		J
Methoxychlor	10	0.014	0.14	0.14	ug/L	U	SW8081A		J
Toxaphene	10	0.070	0.70	0.70	ug/L	U	SW8081A		J

Dissolved Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic, dissolved	1	0.0070	0.0070	0.0082	mg/L	i , Q	SW6010B		J
Barium, dissolved	1	0.0025	0.0025	0.18	mg/L	, Q	SW6010B		J
Cadmium, dissolved	1	0.00021	0.00021	0.00021	mg/L	U , Q	SW6010B		J
Chromium, dissolved	1	0.00016	0.00016	0.10	mg/L	, Q	SW6010B		J
Copper, dissolved	1	0.0071	0.0071	0.028	mg/L	i , Q	SW6010B		J
Lead, dissolved	1	0.00092	0.00092	0.059	mg/L	, Q	SW6010B		J
Selenium, dissolved	1	0.0058	0.0058	0.0058	mg/L	U , Q	SW6010B		J
Silver, dissolved	1	0.0019	0.0019	0.0019	mg/L	U , Q	SW6010B		J

Dissolved Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury, dissolved	1	0.000014	0.000014	0.00023	mg/L	, Q	SW7470A		J

Miscellaneous Analytes

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Ammonia (as N)	1	0.026	0.026	0.69	mg/L		E350.1		T
Nitrate + Nitrite (as N)	1	0.027	0.027	0.039	mg/L	i	SM4500NO3-F		J
Total Kjeldahl Nitrogen (as N)	20	0.048	0.97	0.97	mg/L	U	E351.2		T
Total Nitrogen	1	0.048	0.048	0.048	mg/L	U	calculation		T

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.
Project Name: FPUA

Report No.: J042820
Date/Time Received: 5/12/04 08:45

PCBs

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
PCB-1016	10	0.098	0.98	0.98	ug/L	U	SW8082		J
PCB-1221	10	0.31	3.1	3.1	ug/L	U	SW8082		J
PCB-1232	10	0.20	2.0	2.0	ug/L	U	SW8082		J
PCB-1242	10	0.083	0.83	0.83	ug/L	U	SW8082		J
PCB-1248	10	0.054	0.54	0.54	ug/L	U	SW8082		J
PCB-1254	10	0.089	0.89	0.89	ug/L	U	SW8082		J
PCB-1260	10	0.11	1.1	1.1	ug/L	U	SW8082		J

Surrogates:	Control Limits	% Recovery	Qual.	Method	Prep Method
Decachlorobiphenyl	15 - 147	21		SW8081A	SW3510C
Tetrachloro-m-xylene	15 - 147	71		SW8081A	SW3510C
Decachlorobiphenyl	15 - 147	21		SW8082	SW3510C
Tetrachloro-m-xylene	15 - 147	71		SW8082	SW3510C

i The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
Q Sample held beyond the acceptable hold time.
U The compound was analyzed for but not detected.
J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)
T DOH certification #E84589 (AEL-Tampa)

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.
Project Name: FPUA

Report No.: J042820
Date/Time Received: 5/12/04 08:45

Lab Code: J042820-03
Client Sample ID: GP-3
Site:
Matrix: Water

Date/Time Sampled: 5/11/04 17:00
Shipping Method: Client drop off
Sampled By: Troy Mayhew
Sampling Method: G

Chlorinated Pesticides

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
4,4'-DDD	1	0.0080	0.0080	0.0080	ug/L	U	SW8081A		J
4,4'-DDE	1	0.016	0.016	0.016	ug/L	U	SW8081A		J
4,4'-DDT	1	0.013	0.013	0.074	ug/L	N2	SW8081A		J
Aldrin	1	0.0050	0.0050	0.0050	ug/L	U	SW8081A		J
Alpha-BHC	1	0.0060	0.0060	0.0060	ug/L	U	SW8081A		J
Beta-BHC	1	0.0050	0.0050	0.0050	ug/L	U	SW8081A		J
Chlordane	1	0.20	0.20	0.20	ug/L	U	SW8081A		J
Delta-BHC	1	0.017	0.017	0.017	ug/L	U	SW8081A		J
Dieldrin	1	0.0090	0.0090	0.0090	ug/L	U	SW8081A		J
Endosulfan I	1	0.016	0.016	0.016	ug/L	U	SW8081A		J
Endosulfan II	1	0.013	0.013	0.013	ug/L	U	SW8081A		J
Endosulfan Sulfate	1	0.0060	0.0060	0.0060	ug/L	U	SW8081A		J
Endrin	1	0.014	0.014	0.014	ug/L	U	SW8081A		J
Endrin Aldehyde	1	0.012	0.012	0.012	ug/L	U	SW8081A		J
Gamma-BHC (Lindane)	1	0.0060	0.0060	0.0060	ug/L	U	SW8081A		J
Heptachlor	1	0.0090	0.0090	0.0090	ug/L	U	SW8081A		J
Heptachlor Epoxide	1	0.013	0.013	0.013	ug/L	U	SW8081A		J
Methoxychlor	1	0.014	0.014	0.014	ug/L	U	SW8081A		J
Toxaphene	1	0.070	0.070	0.070	ug/L	U	SW8081A		J

Dissolved Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic, dissolved	1	0.0070	0.0070	0.0070	mg/L	U, Q	SW6010B		J
Barium, dissolved	1	0.0025	0.0025	0.15	mg/L	Q	SW6010B		J
Cadmium, dissolved	1	0.00021	0.00021	0.00021	mg/L	U, Q	SW6010B		J
Chromium, dissolved	1	0.00016	0.00016	0.076	mg/L	Q	SW6010B		J
Copper, dissolved	1	0.0071	0.0071	0.018	mg/L	i, Q	SW6010B		J
Lead, dissolved	1	0.00092	0.00092	0.031	mg/L	Q	SW6010B		J
Selenium, dissolved	1	0.0058	0.0058	0.0058	mg/L	U, Q	SW6010B		J
Silver, dissolved	1	0.0019	0.0019	0.0019	mg/L	U, Q	SW6010B		J

Dissolved Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury, dissolved	1	0.000014	0.000014	0.00028	mg/L	Q	SW7470A		J

Miscellaneous Analytes

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Ammonia (as N)	1	0.026	0.026	1.6	mg/L		E350.1		T
Nitrate + Nitrite (as N)	1	0.027	0.027	0.18	mg/L		SM4500NO3-F		J
Total Kjeldahl Nitrogen (as N)	20	0.048	0.97	5.0	mg/L		E351.2		T
Total Nitrogen	1	0.048	0.048	5.2	mg/L		calculation		T

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.
Project Name: FPUA

Report No.: J042820
Date/Time Received: 5/12/04 08:45

PCBs

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
PCB-1016	1	0.098	0.098	0.098	ug/L	U	SW8082		J
PCB-1221	1	0.31	0.31	0.31	ug/L	U	SW8082		J
PCB-1232	1	0.20	0.20	0.20	ug/L	U	SW8082		J
PCB-1242	1	0.083	0.083	0.083	ug/L	U	SW8082		J
PCB-1248	1	0.054	0.054	0.054	ug/L	U	SW8082		J
PCB-1254	1	0.089	0.089	0.089	ug/L	U	SW8082		J
PCB-1260	1	0.11	0.11	0.11	ug/L	U	SW8082		J

Surrogates:	Control Limits	% Recovery	Qual.	Method	Prep Method
Decachlorobiphenyl	15 - 147	17		SW8081A	SW3510C
Tetrachloro-m-xylene	15 - 147	51		SW8081A	SW3510C
Decachlorobiphenyl	15 - 147	17		SW8082	SW3510C
Tetrachloro-m-xylene	15 - 147	51		SW8082	SW3510C

- i The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- N2 Presumptive evidence of presence of material, there is an indication that the analyte is present, but quality control requirements for confirmation were not met (RPD was too high)
- Q Sample held beyond the acceptable hold time.
- U The compound was analyzed for but not detected.
- J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)
- T DOH certification #E84589 (AEL-Tampa)

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Lab Code: J042820-04

Date/Time Sampled: 5/11/04 15:30

Client Sample ID: GP-4

Shipping Method: Client drop off

Site:

Sampled By: Troy Mayhew

Matrix: Water

Sampling Method: G

Dissolved Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic, dissolved	1	0.0070	0.0070	0.0070	mg/L	U, Q	SW6010B		J
Barium, dissolved	1	0.0025	0.0025	0.16	mg/L	, Q	SW6010B		J
Cadmium, dissolved	1	0.00021	0.00021	0.00021	mg/L	U, Q	SW6010B		J
Chromium, dissolved	1	0.00016	0.00016	0.093	mg/L	, Q	SW6010B		J
Lead, dissolved	1	0.00092	0.00092	0.038	mg/L	, Q	SW6010B		J
Selenium, dissolved	1	0.0058	0.0058	0.0058	mg/L	U, Q	SW6010B		J
Silver, dissolved	1	0.0019	0.0019	0.0019	mg/L	U, Q	SW6010B		J

Dissolved Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury, dissolved	1	0.000014	0.000014	0.00022	mg/L	, Q	SW7470A		J

Florida Petroleum Range Organics

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Total PHS	1	280	280	390	ug/L	i	FL-PRO		J

Polynuclear Aromatic Hydrocarbons

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
1-Methylnaphthalene	1	0.12	0.12	0.18	ug/L	i	SW8270C-SIM		J
2-Methylnaphthalene	1	0.18	0.18	0.20	ug/L	i	SW8270C-SIM		J
Acenaphthene	1	0.13	0.13	0.13	ug/L	U	SW8270C-SIM		J
Acenaphthylene	1	0.13	0.13	0.13	ug/L	U	SW8270C-SIM		J
Anthracene	1	0.080	0.080	0.080	ug/L	U	SW8270C-SIM		J
Benzo(a)anthracene	1	0.11	0.11	0.11	ug/L	U	SW8270C-SIM		J
Benzo(a)pyrene	1	0.094	0.094	0.094	ug/L	U	SW8270C-SIM		J
Benzo(b)fluoranthene	1	0.081	0.081	0.081	ug/L	U	SW8270C-SIM		J
Benzo(g,h,i)perylene	1	0.092	0.092	0.092	ug/L	U	SW8270C-SIM		J
Benzo(k)fluoranthene	1	0.082	0.082	0.082	ug/L	U	SW8270C-SIM		J
Chrysene	1	0.060	0.060	0.060	ug/L	U	SW8270C-SIM		J
Dibenz(a,h)anthracene	1	0.10	0.10	0.10	ug/L	U	SW8270C-SIM		J
Fluoranthene	1	0.084	0.084	0.084	ug/L	U	SW8270C-SIM		J
Fluorene	1	0.10	0.10	0.10	ug/L	U	SW8270C-SIM		J
Indeno(1,2,3-cd)pyrene	1	0.15	0.15	0.15	ug/L	U	SW8270C-SIM		J
Naphthalene	1	0.15	0.15	0.15	ug/L	U	SW8270C-SIM		J
Phenanthrene	1	0.10	0.10	0.10	ug/L	U	SW8270C-SIM		J
Pyrene	1	0.12	0.12	0.12	ug/L	U	SW8270C-SIM		J

Volatile Aromatic Hydrocarbons

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Benzene	1	0.30	0.30	0.30	ug/L	U	SW8260B		J
Ethylbenzene	1	0.27	0.27	0.27	ug/L	U	SW8260B		J
m&p-Xylenes	1	0.61	0.61	0.61	ug/L	U	SW8260B		J
Methyl-tert-butyl Ether	1	0.31	0.31	0.31	ug/L	U	SW8260B		J
o-Xylene	1	0.25	0.25	0.25	ug/L	U	SW8260B		J

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Toluene	1	0.29	0.29	0.29	ug/L	U	SW8260B	J
Surrogates:	Control Limits	% Recovery	Qual.	Method	Prep Method			
Nonatricontane	42 - 193	70		FL-PRO	SW3510C			
Ortho-Terphenyl	82 - 142	50	J4	FL-PRO	SW3510C			
1,2-Dichloroethane-d4	80 - 120	106		SW8260B	SW5030B			
4-Bromofluorobenzene	86 - 115	110		SW8260B	SW5030B			
Toluene d(8)	88 - 110	102		SW8260B	SW5030B			
Decafluorobiphenyl	55 - 108	90		SW8270C-SIM	SW3510C			

i The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

J4 The sample matrix interfered with the ability to make an accurate determination.

Q Sample held beyond the acceptable hold time.

U The compound was analyzed for but not detected.

J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.
Project Name: FPUA

Report No.: J042820
Date/Time Received: 5/12/04 08:45

Lab Code: J042820-05
Client Sample ID: MW-1
Site:
Matrix: Water

Date/Time Sampled: 5/11/04 10:00
Shipping Method: Client drop off
Sampled By: Troy Mayhew
Sampling Method: G

Florida Petroleum Range Organics

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Total PHS	1	280	280	350	ug/L	i	FL-PRO		J

Polynuclear Aromatic Hydrocarbons

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
1-Methylnaphthalene	1	0.12	0.12	0.12	ug/L	U	SW8270C-SIM		J
2-Methylnaphthalene	1	0.18	0.18	0.18	ug/L	U	SW8270C-SIM		J
Acenaphthene	1	0.13	0.13	0.13	ug/L	U	SW8270C-SIM		J
Acenaphthylene	1	0.13	0.13	0.13	ug/L	U	SW8270C-SIM		J
Anthracene	1	0.080	0.080	0.080	ug/L	U	SW8270C-SIM		J
Benzo(a)anthracene	1	0.11	0.11	0.11	ug/L	U	SW8270C-SIM		J
Benzo(a)pyrene	1	0.094	0.094	0.094	ug/L	U	SW8270C-SIM		J
Benzo(b)fluoranthene	1	0.081	0.081	0.081	ug/L	U	SW8270C-SIM		J
Benzo(g,h,i)perylene	1	0.092	0.092	0.092	ug/L	U	SW8270C-SIM		J
Benzo(k)fluoranthene	1	0.082	0.082	0.082	ug/L	U	SW8270C-SIM		J
Chrysene	1	0.060	0.060	0.060	ug/L	U	SW8270C-SIM		J
Dibenz(a,h)anthracene	1	0.10	0.10	0.10	ug/L	U	SW8270C-SIM		J
Fluoranthene	1	0.084	0.084	0.084	ug/L	U	SW8270C-SIM		J
Fluorene	1	0.10	0.10	0.10	ug/L	U	SW8270C-SIM		J
Indeno(1,2,3-cd)pyrene	1	0.15	0.15	0.15	ug/L	U	SW8270C-SIM		J
Naphthalene	1	0.15	0.15	0.15	ug/L	U	SW8270C-SIM		J
Phenanthrene	1	0.10	0.10	0.10	ug/L	U	SW8270C-SIM		J
Pyrene	1	0.12	0.12	0.12	ug/L	U	SW8270C-SIM		J

Total Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic	1	0.0070	0.0070	0.0070	mg/L	U	SW6010B		J
Barium	1	0.0025	0.0025	0.018	mg/L		SW6010B		J
Cadmium	1	0.00021	0.00021	0.00021	mg/L	U	SW6010B		J
Chromium	1	0.00016	0.00016	0.0021	mg/L	V	SW6010B		J
Lead	1	0.00092	0.00092	0.0016	mg/L	i	SW6010B		J
Selenium	1	0.0058	0.0058	0.0058	mg/L	U	SW6010B		J
Silver	1	0.0019	0.0019	0.0019	mg/L	U	SW6010B		J

Total Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury	1	0.000014	0.000014	0.000014	mg/L	U	SW7470A		J

Volatile Aromatic Hydrocarbons

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Benzene	1	0.30	0.30	0.30	ug/L	U	SW8260B		J
Ethylbenzene	1	0.27	0.27	0.27	ug/L	U	SW8260B		J
m&p-Xylenes	1	0.61	0.61	0.61	ug/L	U	SW8260B		J
Methyl-tert-butyl Ether	1	0.31	0.31	0.31	ug/L	U	SW8260B		J
o-Xylene	1	0.25	0.25	0.25	ug/L	U	SW8260B		J

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Toluene	1	0.29	0.29	0.29	ug/L	U	SW8260B	J
Surrogates:	Control Limits	% Recovery	Qual.	Method	Prep Method			
Nonatricontane	42 - 193	99		FL-PRO	SW3510C			
Ortho-Terphenyl	82 - 142	96		FL-PRO	SW3510C			
1,2-Dichloroethane-d4	80 - 120	106		SW8260B	SW5030B			
4-Bromofluorobenzene	86 - 115	108		SW8260B	SW5030B			
Toluene d(8)	88 - 110	102		SW8260B	SW5030B			
Decafluorobiphenyl	55 - 108	69		SW8270C-SIM	SW3510C			

i The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

U The compound was analyzed for but not detected.

V Indicates that the analyte was detected in both the sample and the associated method blank.

J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.
Project Name: FPUA

Report No.: J042820
Date/Time Received: 5/12/04 08:45

Lab Code: J042820-06
Client Sample ID: MW-2
Site:
Matrix: Water

Date/Time Sampled: 5/11/04 14:30
Shipping Method: Client drop off
Sampled By: Troy Mayhew
Sampling Method: G

Florida Petroleum Range Organics

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Total PHS	1	280	280	300	ug/L	i	FL-PRO		J

Polynuclear Aromatic Hydrocarbons

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
1-Methylnaphthalene	1	0.12	0.12	0.12	ug/L	U	SW8270C-SIM		J
2-Methylnaphthalene	1	0.18	0.18	0.18	ug/L	U	SW8270C-SIM		J
Acenaphthene	1	0.13	0.13	0.13	ug/L	U	SW8270C-SIM		J
Acenaphthylene	1	0.13	0.13	0.13	ug/L	U	SW8270C-SIM		J
Anthracene	1	0.080	0.080	0.080	ug/L	U	SW8270C-SIM		J
Benzo(a)anthracene	1	0.11	0.11	0.11	ug/L	U	SW8270C-SIM		J
Benzo(a)pyrene	1	0.094	0.094	0.094	ug/L	U	SW8270C-SIM		J
Benzo(b)fluoranthene	1	0.081	0.081	0.081	ug/L	U	SW8270C-SIM		J
Benzo(g,h,i)perylene	1	0.092	0.092	0.092	ug/L	U	SW8270C-SIM		J
Benzo(k)fluoranthene	1	0.082	0.082	0.082	ug/L	U	SW8270C-SIM		J
Chrysene	1	0.060	0.060	0.060	ug/L	U	SW8270C-SIM		J
Dibenz(a,h)anthracene	1	0.10	0.10	0.10	ug/L	U	SW8270C-SIM		J
Fluoranthene	1	0.084	0.084	0.084	ug/L	U	SW8270C-SIM		J
Fluorene	1	0.10	0.10	0.10	ug/L	U	SW8270C-SIM		J
Indeno(1,2,3-cd)pyrene	1	0.15	0.15	0.15	ug/L	U	SW8270C-SIM		J
Naphthalene	1	0.15	0.15	0.15	ug/L	U	SW8270C-SIM		J
Phenanthrene	1	0.10	0.10	0.10	ug/L	U	SW8270C-SIM		J
Pyrene	1	0.12	0.12	0.12	ug/L	U	SW8270C-SIM		J

Total Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic	1	0.0070	0.0070	0.0070	mg/L	U	SW6010B		J
Barium	1	0.0025	0.0025	0.013	mg/L		SW6010B		J
Cadmium	1	0.00021	0.00021	0.00021	mg/L	U	SW6010B		J
Chromium	1	0.00016	0.00016	0.0044	mg/L	V	SW6010B		J
Lead	1	0.00092	0.00092	0.0013	mg/L	i	SW6010B		J
Selenium	1	0.0058	0.0058	0.0058	mg/L	U	SW6010B		J
Silver	1	0.0019	0.0019	0.0019	mg/L	U	SW6010B		J

Total Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury	1	0.000014	0.000014	0.000014	mg/L	U	SW7470A		J

Volatile Aromatic Hydrocarbons

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Benzene	1	0.30	0.30	0.30	ug/L	U	SW8260B		J
Ethylbenzene	1	0.27	0.27	0.27	ug/L	U	SW8260B		J
m&p-Xylenes	1	0.61	0.61	0.61	ug/L	U	SW8260B		J
Methyl-tert-butyl Ether	1	0.31	0.31	0.31	ug/L	U	SW8260B		J
o-Xylene	1	0.25	0.25	0.25	ug/L	U	SW8260B		J

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Toluene	1	0.29	0.29	0.29	ug/L	U	SW8260B	J
Surrogates:	Control Limits	% Recovery	Qual.	Method	Prep Method			
Nonatricontane	42 - 193	115		FL-PRO	SW3510C			
Ortho-Terphenyl	82 - 142	114		FL-PRO	SW3510C			
1,2-Dichloroethane-d4	80 - 120	110		SW8260B	SW5030B			
4-Bromofluorobenzene	86 - 115	110		SW8260B	SW5030B			
Toluene d(8)	88 - 110	102		SW8260B	SW5030B			
Decafluorobiphenyl	55 - 108	64		SW8270C-SIM	SW3510C			

i The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

U The compound was analyzed for but not detected.

V Indicates that the analyte was detected in both the sample and the associated method blank.

J DOH certification #E82574 (AEL-IAX) (FL NELAC certification)

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.
Project Name: FPUA

Report No.: J042820
Date/Time Received: 5/12/04 08:45

Lab Code: J042820-07
Client Sample ID: GP-5
Site:
Matrix: Water

Date/Time Sampled: 5/11/04 18:00
Shipping Method: Client drop off
Sampled By: Troy Mayhew
Sampling Method: G

Dissolved Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic, dissolved	1	0.0070	0.0070	0.0070	mg/L	U , Q	SW6010B		J
Barium, dissolved	1	0.0025	0.0025	0.050	mg/L	, Q	SW6010B		J
Beryllium, dissolved	1	0.000027	0.000027	0.0012	mg/L	, Q	SW6010B		J
Cadmium, dissolved	1	0.00021	0.00021	0.00021	mg/L	U , Q	SW6010B		J
Chromium, dissolved	1	0.00016	0.00016	0.036	mg/L	, Q	SW6010B		J
Copper, dissolved	1	0.0071	0.0071	0.0071	mg/L	U , Q	SW6010B		J
Iron, dissolved	1	0.016	0.016	9.4	mg/L	, Q	SW6010B		J
Lead, dissolved	1	0.00092	0.00092	0.011	mg/L	, Q	SW6010B		J
Nickel, dissolved	1	0.0026	0.0026	0.0088	mg/L	i , Q	SW6010B		J
Selenium, dissolved	1	0.0058	0.0058	0.0058	mg/L	U , Q	SW6010B		J
Silver, dissolved	1	0.0019	0.0019	0.0019	mg/L	U , Q	SW6010B		J
Sodium, dissolved	1	0.0084	0.0084	23	mg/L	, Q	SW6010B		J
Zinc, Dissolved	1	0.0072	0.0072	0.018	mg/L	i , Q	SW6010B		J

Dissolved Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury, dissolved	1	0.000014	0.000014	0.000014	mg/L	U , Q	SW7470A		J

Dissolved Metals (Sb)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Antimony, Dissolved	1	0.0051	0.0051	0.0051	mg/L	U , Q	SW6010B		J

Dissolved Metals (Tl)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Thallium, dissolved	1	0.00098	0.00098	0.00098	mg/L	U , Q	SW7841	J4	J

Miscellaneous Analytes

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Ammonia (as N)	1	0.026	0.026	0.36	mg/L		E350.1		T
Nitrate + Nitrite (as N)	1	0.027	0.027	0.034	mg/L	i	SM4500NO3-F		J
Total Chlorides	1	0.50	0.50	37	mg/L		E325.2		J
Total Kjeldahl Nitrogen (as N)	5	0.048	0.24	0.87	mg/L	i	E351.2		T
Total Nitrogen	1	0.048	0.048	0.91	mg/L		calculation		T

Semi-Volatile Organic Compounds

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
1,2,4,5-Tetrachlorobenzene	1	2.5	2.5	2.5	ug/L	U	SW8270C		J
1,2,4-Trichlorobenzene	1	2.7	2.7	2.7	ug/L	U	SW8270C		J
1,2-Dichlorobenzene	1	2.9	2.9	2.9	ug/L	U	SW8270C		J
1,2-Diphenylhydrazine	1	0.94	0.94	0.94	ug/L	U	SW8270C		J
1,3-Dichlorobenzene	1	3.0	3.0	3.0	ug/L	U	SW8270C		J
1,4-Dichlorobenzene	1	2.9	2.9	2.9	ug/L	U	SW8270C		J
1-Methylnaphthalene	1	1.5	1.5	1.5	ug/L	U	SW8270C		J
1-Naphthylamine	1	0.98	0.98	0.98	ug/L	U	SW8270C		J

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

2,3,4,6-Tetrachlorophenol	1	3.0	3.0	3.0	ug/L	U	SW8270C	J
2,4,5-Trichlorophenol	1	3.5	3.5	3.5	ug/L	U	SW8270C	J
2,4,6-Trichlorophenol	1	2.2	2.2	2.2	ug/L	U	SW8270C	J
2,4-Dichlorophenol	1	2.2	2.2	2.2	ug/L	U	SW8270C	J
2,4-Dimethylphenol	1	1.9	1.9	1.9	ug/L	U	SW8270C	J
2,4-Dinitrophenol	1	4.6	4.6	4.6	ug/L	U	SW8270C	J
2,4-Dinitrotoluene	1	0.94	0.94	0.94	ug/L	U	SW8270C	J
2,6-Dinitrotoluene	1	2.1	2.1	2.1	ug/L	U	SW8270C	J
2-Chloronaphthalene	1	2.0	2.0	2.0	ug/L	U	SW8270C	J
2-Chlorophenol	1	2.7	2.7	2.7	ug/L	U	SW8270C	J
2-Methylnaphthalene	1	1.2	1.2	1.2	ug/L	U	SW8270C	J
2-Methylphenol	1	2.3	2.3	2.3	ug/L	U	SW8270C	J
2-Naphthylamine	1	1.3	1.3	1.3	ug/L	U	SW8270C	J
2-Nitroaniline	1	0.78	0.78	0.78	ug/L	U	SW8270C	J
2-Nitrophenol	1	3.0	3.0	3.0	ug/L	U	SW8270C	J
2-Picoline	1	1.8	1.8	1.8	ug/L	U	SW8270C	J
3,3'-Dichlorobenzidine	1	1.0	1.0	1.0	ug/L	U	SW8270C	J
3-Methylcholanthrene	1	1.3	1.3	1.3	ug/L	U	SW8270C	J
3-Nitroaniline	1	1.5	1.5	1.5	ug/L	U	SW8270C	J
4,6-Dinitro-2-methylphenol	1	3.7	3.7	3.7	ug/L	U	SW8270C	J
4-Aminobiphenyl	1	1.2	1.2	1.2	ug/L	U	SW8270C	J
4-Bromophenyl phenyl ether	1	2.3	2.3	2.3	ug/L	U	SW8270C	J
4-Chloro-3-methylphenol	1	2.6	2.6	2.6	ug/L	U	SW8270C	J
4-Chloroaniline	1	1.4	1.4	1.4	ug/L	U	SW8270C	J
4-Chlorophenyl Phenyl Ether	1	2.8	2.8	2.8	ug/L	U	SW8270C	J
4-Nitroaniline	1	0.63	0.63	0.63	ug/L	U	SW8270C	J
4-Nitrophenol	1	1.7	1.7	1.7	ug/L	U	SW8270C	J
7,12-Dimethylbenz(a)anthracene	1	1.3	1.3	1.3	ug/L	U	SW8270C	J
a,a-Dimethylphenethylamine	1	0.80	0.80	0.80	ug/L	U	SW8270C	J
Acenaphthene	1	1.7	1.7	1.7	ug/L	U	SW8270C	J
Acenaphthylene	1	1.6	1.6	1.6	ug/L	U	SW8270C	J
Acetophenone	1	0.86	0.86	0.86	ug/L	U	SW8270C	J
Aniline	1	1.5	1.5	1.5	ug/L	U	SW8270C	J
Anthracene	1	1.3	1.3	1.3	ug/L	U	SW8270C	J
Benzidine	1	0.84	0.84	0.84	ug/L	U	SW8270C	J
Benzo(a)anthracene	1	1.4	1.4	1.4	ug/L	U	SW8270C	J
Benzo(a)pyrene	1	1.1	1.1	1.1	ug/L	U	SW8270C	J
Benzo(b)fluoranthene	1	1.5	1.5	1.5	ug/L	U	SW8270C	J
Benzo(g,h,i)perylene	1	1.1	1.1	1.1	ug/L	U	SW8270C	J
Benzo(k)fluoranthene	1	1.8	1.8	1.8	ug/L	U	SW8270C	J
Benzoic Acid	1	2.1	2.1	2.1	ug/L	U	SW8270C	J
Benzyl Alcohol	1	1.4	1.4	1.4	ug/L	U	SW8270C	J
Benzyl Butyl Phthalate	1	0.87	0.87	0.87	ug/L	U	SW8270C	J
Bis(2-chloroethoxy)methane	1	2.4	2.4	2.4	ug/L	U	SW8270C	J
Bis(2-chloroethyl) Ether	1	1.3	1.3	1.3	ug/L	U	SW8270C	J
Bis(2-chloroisopropyl) Ether	1	2.0	2.0	2.0	ug/L	U	SW8270C	J
Bis(2-ethylhexyl)phthalate	1	0.74	0.74	0.74	ug/L	U	SW8270C	J
Chrysene	1	1.7	1.7	1.7	ug/L	U	SW8270C	J
Di-n-butyl Phthalate	1	0.75	0.75	0.75	ug/L	U	SW8270C	J
Di-n-octyl Phthalate	1	0.82	0.82	0.82	ug/L	U	SW8270C	J
Dibenz(a,h)anthracene	1	1.2	1.2	1.2	ug/L	U	SW8270C	J
Dibenzofuran	1	1.4	1.4	1.4	ug/L	U	SW8270C	J
Diethyl Phthalate	1	1.4	1.4	1.4	ug/L	U	SW8270C	J
Dimethyl Phthalate	1	1.3	1.3	1.3	ug/L	U	SW8270C	J

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Ethyl Methanesulfonate	1	1.2	1.2	1.2	ug/L	U	SW8270C	J
Fluoranthene	1	1.6	1.6	1.6	ug/L	U	SW8270C	J
Fluorene	1	1.5	1.5	1.5	ug/L	U	SW8270C	J
Hexachlorobenzene	1	1.8	1.8	1.8	ug/L	U	SW8270C	J
Hexachlorobutadiene	1	2.1	2.1	2.1	ug/L	U	SW8270C	J
Hexachlorocyclopentadiene	1	0.92	0.92	0.92	ug/L	U	SW8270C	J
Hexachloroethane	1	2.8	2.8	2.8	ug/L	U	SW8270C	J
Indeno(1,2,3-cd)pyrene	1	1.6	1.6	1.6	ug/L	U	SW8270C	J
Isophorone	1	1.3	1.3	1.3	ug/L	U	SW8270C	J
Methyl Methanesulfonate	1	1.3	1.3	1.3	ug/L	U	SW8270C	J
N-Nitroso-di-n-butylamine	1	1.7	1.7	1.7	ug/L	U	SW8270C	J
N-Nitroso-di-n-propylamine	1	1.5	1.5	1.5	ug/L	U	SW8270C	J
N-Nitrosodimethylamine	1	1.5	1.5	1.5	ug/L	U	SW8270C	J
N-Nitrosodiphenylamine	1	1.7	1.7	1.7	ug/L	U	SW8270C	J
N-Nitrosopiperidine	1	1.5	1.5	1.5	ug/L	U	SW8270C	J
Naphthalene	1	1.6	1.6	1.6	ug/L	U	SW8270C	J
Nitrobenzene	1	1.0	1.0	1.0	ug/L	U	SW8270C	J
p-Dimethylaminoazobenzene	1	0.82	0.82	0.82	ug/L	U	SW8270C	J
Pentachlorobenzene	1	2.7	2.7	2.7	ug/L	U	SW8270C	J
Pentachloronitrobenzene	1	2.8	2.8	2.8	ug/L	U	SW8270C	J
Pentachlorophenol	1	3.2	3.2	3.2	ug/L	U	SW8270C	J
Phenacetin	1	1.2	1.2	1.2	ug/L	U	SW8270C	J
Phenanthrene	1	1.4	1.4	1.4	ug/L	U	SW8270C	J
Phenol	1	1.4	1.4	1.4	ug/L	U	SW8270C	J
Pronamide	1	1.2	1.2	1.2	ug/L	U	SW8270C	J
Pyrene	1	0.88	0.88	0.88	ug/L	U	SW8270C	J

TDS

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Total Dissolved Solids	1	10	10	410	mg/L		E160.1		J

Volatile Organic Compounds

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
1,1,1,2-Tetrachloroethane	1	0.27	0.27	0.27	ug/L	U	SW8260B		J
1,1,1-Trichloroethane	1	0.33	0.33	0.33	ug/L	U	SW8260B		J
1,1,2,2-Tetrachloroethane	1	0.19	0.19	0.19	ug/L	U	SW8260B		J
1,1,2-Trichloroethane	1	0.34	0.34	0.34	ug/L	U	SW8260B		J
1,1-Dichloroethane	1	0.36	0.36	0.36	ug/L	U	SW8260B		J
1,1-Dichloroethene	1	0.50	0.50	0.50	ug/L	U	SW8260B		J
1,1-Dichloropropene	1	0.39	0.39	0.39	ug/L	U	SW8260B		J
1,2,3-Trichlorobenzene	1	0.30	0.30	0.30	ug/L	U	SW8260B		J
1,2,3-Trichloropropane	1	0.33	0.33	0.33	ug/L	U	SW8260B		J
1,2,4-Trichlorobenzene	1	0.30	0.30	0.30	ug/L	U	SW8260B		J
1,2,4-Trimethylbenzene	1	0.26	0.26	0.26	ug/L	U	SW8260B		J
1,2-Dibromo-3-chloropropane	1	0.55	0.55	0.55	ug/L	U	SW8260B		J
1,2-Dibromoethane	1	0.20	0.20	0.20	ug/L	U	SW8260B		J
1,2-Dichlorobenzene	1	0.28	0.28	0.28	ug/L	U	SW8260B		J
1,2-Dichloroethane	1	0.36	0.36	0.36	ug/L	U	SW8260B		J
1,2-Dichloropropane	1	0.30	0.30	0.30	ug/L	U	SW8260B		J
1,3,5-Trimethylbenzene	1	0.29	0.29	0.29	ug/L	U	SW8260B		J
1,3-Dichlorobenzene	1	0.26	0.26	0.26	ug/L	U	SW8260B		J
1,3-Dichloropropane	1	0.26	0.26	0.26	ug/L	U	SW8260B		J
1,4-Dichlorobenzene	1	0.30	0.30	0.30	ug/L	U	SW8260B		J

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

2,2-Dichloropropane	1	0.39	0.39	0.39	ug/L	U	SW8260B	J
2-Chloroethyl Vinyl Ether	1	0.35	0.35	0.35	ug/L	U	SW8260B	J
2-Chlorotoluene	1	0.29	0.29	0.29	ug/L	U	SW8260B	J
2-Hexanone (MBK)	1	0.27	0.27	0.27	ug/L	U	SW8260B	J
4-Chlorotoluene	1	0.27	0.27	0.27	ug/L	U	SW8260B	J
4-Methyl-2-pentanone (MIBK)	1	0.35	0.35	0.35	ug/L	U	SW8260B	J
Acetone	1	0.71	0.71	18	ug/L		SW8260B	AIC J
Acrolein	1	2.8	2.8	2.8	ug/L	U	SW8260B	AIC J
Acrylonitrile	1	1.6	1.6	1.6	ug/L	U	SW8260B	J
Benzene	1	0.30	0.30	0.30	ug/L	U	SW8260B	J
Bromobenzene	1	0.22	0.22	0.22	ug/L	U	SW8260B	J
Bromochloromethane	1	0.39	0.39	0.39	ug/L	U	SW8260B	J
Bromodichloromethane	1	0.29	0.29	0.29	ug/L	U	SW8260B	J
Bromoform	1	0.25	0.25	0.25	ug/L	U	SW8260B	J
Bromomethane	1	0.47	0.47	0.47	ug/L	U	SW8260B	J
Carbon Disulfide	1	0.41	0.41	0.41	ug/L	U	SW8260B	J
Carbon Tetrachloride	1	0.39	0.39	0.39	ug/L	U	SW8260B	J
Chlorobenzene	1	0.31	0.31	0.31	ug/L	U	SW8260B	J
Chloroethane	1	0.62	0.62	0.62	ug/L	U	SW8260B	J
Chloroform	1	0.41	0.41	0.41	ug/L	U	SW8260B	J
Chloromethane	1	0.43	0.43	0.43	ug/L	U	SW8260B	J
Cis-1,2-dichloroethene	1	0.33	0.33	0.33	ug/L	U	SW8260B	J
Cis-1,3-dichloropropene	1	0.27	0.27	0.27	ug/L	U	SW8260B	J
Dibromochloromethane	1	0.25	0.25	0.25	ug/L	U	SW8260B	J
Dibromomethane	1	0.34	0.34	0.34	ug/L	U	SW8260B	J
Dichlorodifluoromethane	1	0.51	0.51	0.51	ug/L	U	SW8260B	J
Ethylbenzene	1	0.27	0.27	0.27	ug/L	U	SW8260B	J
Hexachlorobutadiene	1	0.59	0.59	0.59	ug/L	U	SW8260B	J
Iodomethane	1	0.40	0.40	0.40	ug/L	U	SW8260B	AIC J
Isopropylbenzene	1	0.26	0.26	0.26	ug/L	U	SW8260B	J
m&p-Xylenes	1	0.61	0.61	0.61	ug/L	U	SW8260B	J
Methyl ethyl ketone	1	0.25	0.25	0.25	ug/L	U	SW8260B	J
Methyl-tert-butyl Ether	1	0.31	0.31	0.31	ug/L	U	SW8260B	J
Methylene Chloride	1	0.21	0.21	0.21	ug/L	U	SW8260B	J
N-butylbenzene	1	0.27	0.27	0.27	ug/L	U	SW8260B	J
N-propylbenzene	1	0.25	0.25	0.25	ug/L	U	SW8260B	J
o-Xylene	1	0.25	0.25	0.25	ug/L	U	SW8260B	J
Sec-butylbenzene	1	0.27	0.27	0.27	ug/L	U	SW8260B	J
Styrene	1	0.25	0.25	0.25	ug/L	U	SW8260B	AIC J
Tert-butylbenzene	1	0.29	0.29	0.29	ug/L	U	SW8260B	J
Tetrachloroethane	1	0.43	0.43	0.43	ug/L	U	SW8260B	J
Toluene	1	0.29	0.29	0.29	ug/L	U	SW8260B	J
Trans-1,2-dichloroethene	1	0.50	0.50	0.50	ug/L	U	SW8260B	J
Trans-1,3-dichloropropene	1	0.25	0.25	0.25	ug/L	U	SW8260B	J
Trichloroethene	1	0.43	0.43	0.43	ug/L	U	SW8260B	J
Trichlorofluoromethane	1	0.50	0.50	0.50	ug/L	U	SW8260B	J
Vinyl Acetate	1	0.31	0.31	0.31	ug/L	U	SW8260B	J
Vinyl Chloride	1	0.49	0.49	0.49	ug/L	U	SW8260B	J

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Surrogates:	Control Limits	% Recovery	Qual.	Method	Prep Method
1,2-Dichloroethane-d4	80 - 120	108		SW8260B	SW5030B
4-Bromofluorobenzene	86 - 115	110		SW8260B	SW5030B
Toluene d(8)	88 - 110	104		SW8260B	SW5030B
2,4,6-Tribromophenol	15 - 112	74		SW8270C	SW3510C
2-Fluorobiphenyl	20 - 119	88		SW8270C	SW3510C
2-Fluorophenol	20 - 119	40		SW8270C	SW3510C
Nitrobenzene d5	23 - 120	98		SW8270C	SW3510C
p-Terphenyl-d14	18 - 137	86		SW8270C	SW3510C
Phenol-d6	18 - 121	26		SW8270C	SW3510C

AIC Alternate initial calibration criteria used (mean RSD <15%)

i The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

J4 The sample matrix interfered with the ability to make an accurate determination.

Q Sample held beyond the acceptable hold time.

U The compound was analyzed for but not detected.

J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)

T DOH certification #E84589 (AEL-Tampa)

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.
Project Name: FPUA

Report No.: J042820
Date/Time Received: 5/12/04 08:45

Lab Code: J042820-08
Client Sample ID: S-1
Site:
Matrix: Soil

Date/Time Sampled: 5/11/04 10:30
Shipping Method: Client drop off
Sampled By: Troy Mayhew
Sampling Method: C

Chlorinated Pesticides

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
4,4'-DDD	1	0.37	0.39	0.39	ug/kg	U	SW8081A		J
4,4'-DDE	1	0.34	0.35	0.35	ug/kg	U	SW8081A		J
4,4'-DDT	1	1.4	1.5	1.5	ug/kg	U	SW8081A		J
Aldrin	1	0.53	0.55	0.55	ug/kg	U	SW8081A		J
Alpha-BHC	1	0.94	0.98	0.98	ug/kg	U	SW8081A		J
Beta-BHC	1	0.71	0.74	0.74	ug/kg	U	SW8081A		J
Chlordane	1	17	18	18	ug/kg	U	SW8081A		J
Delta-BHC	1	0.75	0.79	0.79	ug/kg	U	SW8081A		J
Dieldrin	1	0.47	0.49	0.49	ug/kg	U	SW8081A		J
Endosulfan I	1	0.40	0.41	0.41	ug/kg	U	SW8081A		J
Endosulfan II	1	0.51	0.53	0.53	ug/kg	U	SW8081A		J
Endosulfan Sulfate	1	0.78	0.82	0.82	ug/kg	U	SW8081A		J
Endrin	1	0.52	0.54	0.54	ug/kg	U	SW8081A		J
Endrin Aldehyde	1	0.85	0.89	0.89	ug/kg	U	SW8081A		J
Gamma-BHC (Lindane)	1	0.81	0.85	0.85	ug/kg	U	SW8081A		J
Heptachlor	1	1.2	1.2	1.2	ug/kg	U	SW8081A		J
Heptachlor Epoxide	1	0.43	0.45	0.45	ug/kg	U	SW8081A		J
Methoxychlor	1	0.98	1.0	1.0	ug/kg	U	SW8081A		J
Toxaphene	1	19	20	20	ug/kg	U	SW8081A		J

Miscellaneous Analytes

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
% Moisture	1	0.10	0.10	4.3	%		SM2540G		J
Ammonia (as N)	10	0.026	0.26	4.4	mg/kg		E350.1		T ^A
Nitrate + Nitrite (as N)	50	0.027	1.4	1.4	mg/Kg	U	SM4500NO3-F		T
Total Kjeldahl Nitrogen (as N)	2500	0.048	120	120	mg/kg	U	E351.2		T
Total Nitrogen	1	0.048	0.048	0.048	mg/Kg	U	calculation		T ^A

PCBs

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
PCB-1016	1	9.5	9.9	9.9	ug/kg	U	SW8082		J
PCB-1221	1	2.4	2.5	2.5	ug/kg	U	SW8082		J
PCB-1232	1	5.8	6.1	6.1	ug/kg	U	SW8082		J
PCB-1242	1	7.0	7.3	7.3	ug/kg	U	SW8082		J
PCB-1248	1	4.2	4.4	4.4	ug/kg	U	SW8082		J
PCB-1254	1	2.8	2.9	2.9	ug/kg	U	SW8082		J
PCB-1260	1	2.0	2.1	2.1	ug/kg	U	SW8082		J

Total Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic	1	0.17	0.18	0.18	mg/Kg	U	SW6010B		J
Barium	1	0.028	0.029	0.48	mg/Kg		SW6010B		J
Cadmium	1	0.0020	0.0021	0.020	mg/Kg		SW6010B		J
Chromium	1	0.018	0.019	1.1	mg/Kg		SW6010B		J

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Copper	1	0.25	0.26	2.5	mg/Kg		SW6010B	J
Lead	1	0.033	0.034	0.73	mg/Kg		SW6010B	J
Selenium	1	0.18	0.19	0.19	mg/Kg	U	SW6010B	J
Silver	1	0.038	0.040	0.040	mg/Kg	U	SW6010B	J

Total Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury	1	0.00068	0.00071	0.0026	mg/Kg	i	SW7470A		J

Surrogates:	Control Limits	% Recovery	Qual.	Method	Prep Method
Decachlorobiphenyl	30 - 120	89		SW8081A	SW3550B
Tetrachloro-m-xylene	30 - 120	111		SW8081A	SW3550B
Decachlorobiphenyl	15 - 147	89		SW8082	SW3550B
Tetrachloro-m-xylene	15 - 147	111		SW8082	SW3550B

i The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

U The compound was analyzed for but not detected.

T^A Analysis performed by AEL Tampa, no certification.

J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)

T DOH certification #E84589 (AEL-Tampa)

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Lab Code: J042820-09

Date/Time Sampled: 5/11/04 19:30

Client Sample ID: S-2

Shipping Method: Client drop off

Site:

Sampled By: Troy Mayhew

Matrix: Soil

Sampling Method: C

Chlorinated Pesticides

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
4,4'-DDD	1	0.37	0.41	0.41	ug/kg	U	SW8081A		J
4,4'-DDE	1	0.34	0.37	0.37	ug/kg	U	SW8081A		J
4,4'-DDT	1	1.4	1.6	1.6	ug/kg	U	SW8081A		J
Aldrin	1	0.53	0.58	0.58	ug/kg	U	SW8081A		J
Alpha-BHC	1	0.94	1.0	1.0	ug/kg	U	SW8081A		J
Beta-BHC	1	0.71	0.78	0.78	ug/kg	U	SW8081A		J
Chlordane	1	17	18	18	ug/kg	U	SW8081A		J
Delta-BHC	1	0.75	0.82	0.82	ug/kg	U	SW8081A		J
Dieldrin	1	0.47	0.51	0.51	ug/kg	U	SW8081A		J
Endosulfan I	1	0.40	0.43	0.43	ug/kg	U	SW8081A		J
Endosulfan II	1	0.51	0.55	0.55	ug/kg	U	SW8081A		J
Endosulfan Sulfate	1	0.78	0.85	0.85	ug/kg	U	SW8081A		J
Endrin	1	0.52	0.57	0.57	ug/kg	U	SW8081A		J
Endrin Aldehyde	1	0.85	0.93	0.93	ug/kg	U	SW8081A		J
Gamma-BHC (Lindane)	1	0.81	0.89	0.89	ug/kg	U	SW8081A		J
Heptachlor	1	1.2	1.3	1.3	ug/kg	U	SW8081A		J
Heptachlor Epoxide	1	0.43	0.47	0.47	ug/kg	U	SW8081A		J
Methoxychlor	1	0.98	1.1	1.1	ug/kg	U	SW8081A		J
Toxaphene	1	19	21	21	ug/kg	U	SW8081A		J

Miscellaneous Analytes

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
% Moisture	1	0.10	0.10	8.6	%		SM2540G		J
Ammonia (as N)	10	0.026	0.26	3.5	mg/kg		E350.1		T ^A
Nitrate + Nitrite (as N)	50	0.027	1.4	1.4	mg/Kg	U	SM4500NO3-F		T
Total Kjeldahl Nitrogen (as N)	2500	0.048	120	120	mg/kg	U	E351.2		T
Total Nitrogen	1	0.048	0.048	0.048	mg/Kg	U	calculation		T ^A

PCBs

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
PCB-1016	1	9.5	10	10	ug/kg	U	SW8082		J
PCB-1221	1	2.4	2.6	2.6	ug/kg	U	SW8082		J
PCB-1232	1	5.8	6.4	6.4	ug/kg	U	SW8082		J
PCB-1242	1	7.0	7.6	7.6	ug/kg	U	SW8082		J
PCB-1248	1	4.2	4.6	4.6	ug/kg	U	SW8082		J
PCB-1254	1	2.8	3.0	3.0	ug/kg	U	SW8082		J
PCB-1260	1	2.0	2.2	2.2	ug/kg	U	SW8082		J

Total Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic	1	0.17	0.19	0.19	mg/Kg	U	SW6010B		J
Barium	1	0.028	0.031	0.51	mg/Kg		SW6010B		J
Cadmium	1	0.0020	0.0022	0.011	mg/Kg		SW6010B		J
Chromium	1	0.018	0.020	0.48	mg/Kg		SW6010B		J

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Copper	1	0.25	0.27	0.88	mg/Kg	i	SW6010B	J
Lead	1	0.033	0.036	0.55	mg/Kg		SW6010B	J
Selenium	1	0.18	0.20	0.20	mg/Kg	U	SW6010B	J
Silver	1	0.038	0.042	0.042	mg/Kg	U	SW6010B	J

Total Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury	1	0.00068	0.00074	0.00074	mg/Kg	U	SW7470A		J

Surrogates:	Control Limits	% Recovery	Qual.	Method	Prep Method
Decachlorobiphenyl	30 - 120	90		SW8081A	SW3550B
Tetrachloro-m-xylene	30 - 120	107		SW8081A	SW3550B
Decachlorobiphenyl	15 - 147	90		SW8082	SW3550B
Tetrachloro-m-xylene	15 - 147	107		SW8082	SW3550B

i The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

U The compound was analyzed for but not detected.

T^A Analysis performed by AEL Tampa, no certification.

J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)

T DOH certification #E84589 (AEL-Tampa)

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Lab Code: J042820-10

Date/Time Sampled: 5/11/04 15:00

Client Sample ID: S-3

Shipping Method: Client drop off

Site:

Sampled By: Troy Mayhew

Matrix: Soil

Sampling Method: C

Chlorinated Pesticides

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
4,4'-DDD	1	0.37	0.38	0.38	ug/kg	U	SW8081A		J
4,4'-DDE	1	0.34	0.35	0.35	ug/kg	U	SW8081A		J
4,4'-DDT	1	1.4	1.5	1.5	ug/kg	U	SW8081A		J
Aldrin	1	0.53	0.54	0.54	ug/kg	U	SW8081A		J
Alpha-BHC	1	0.94	0.96	0.96	ug/kg	U	SW8081A		J
Beta-BHC	1	0.71	0.73	0.73	ug/kg	U	SW8081A		J
Chlordane	1	17	17	17	ug/kg	U	SW8081A		J
Delta-BHC	1	0.75	0.77	0.77	ug/kg	U	SW8081A		J
Dieldrin	1	0.47	0.48	0.48	ug/kg	U	SW8081A		J
Endosulfan I	1	0.40	0.41	0.41	ug/kg	U	SW8081A		J
Endosulfan II	1	0.51	0.52	0.52	ug/kg	U	SW8081A		J
Endosulfan Sulfate	1	0.78	0.80	0.80	ug/kg	U, J4	SW8081A		J
Endrin	1	0.52	0.54	0.54	ug/kg	U	SW8081A		J
Endrin Aldehyde	1	0.85	0.88	0.88	ug/kg	U	SW8081A		J
Gamma-BHC (Lindane)	1	0.81	0.83	0.83	ug/kg	U	SW8081A		J
Heptachlor	1	1.2	1.2	1.2	ug/kg	U	SW8081A		J
Heptachlor Epoxide	1	0.43	0.44	0.44	ug/kg	U	SW8081A		J
Methoxychlor	1	0.98	1.0	1.0	ug/kg	U, J4	SW8081A		J
Toxaphene	1	19	20	20	ug/kg	U	SW8081A		J

Miscellaneous Analytes

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
% Moisture	1	0.10	0.10	2.7	%		SM2540G		J
Ammonia (as N)	10	0.026	0.26	1.6	mg/kg		E350.1		T ^A
Nitrate + Nitrite (as N)	50	0.027	1.4	1.4	mg/Kg	U	SM4500NO3-F		T
Total Kjeldahl Nitrogen (as N)	2500	0.048	120	120	mg/kg	U	E351.2		T
Total Nitrogen	1	0.048	0.048	0.048	mg/Kg	U	calculation		T ^A

PCBs

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
PCB-1016	1	9.5	9.8	9.8	ug/kg	U	SW8082		J
PCB-1221	1	2.4	2.4	2.4	ug/kg	U	SW8082		J
PCB-1232	1	5.8	6.0	6.0	ug/kg	U	SW8082		J
PCB-1242	1	7.0	7.2	7.2	ug/kg	U	SW8082		J
PCB-1248	1	4.2	4.4	4.4	ug/kg	U	SW8082		J
PCB-1254	1	2.8	2.9	2.9	ug/kg	U	SW8082		J
PCB-1260	1	2.0	2.1	2.1	ug/kg	U	SW8082		J

Total Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic	1	0.17	0.17	0.17	mg/Kg	U	SW6010B		J
Barium	1	0.028	0.029	0.33	mg/Kg		SW6010B		J
Cadmium	1	0.0020	0.0021	0.0046	mg/Kg	i	SW6010B		J
Chromium	1	0.018	0.019	0.16	mg/Kg	, V	SW6010B		J

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Copper	1	0.25	0.26	0.44	mg/Kg	i	SW6010B	J
Lead	1	0.033	0.034	0.49	mg/Kg		SW6010B	J
Selenium	1	0.18	0.19	0.19	mg/Kg	U	SW6010B	J
Silver	1	0.038	0.039	0.039	mg/Kg	U	SW6010B	J

Total Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury	1	0.00068	0.00070	0.0015	mg/Kg	i	SW7470A		J

Surrogates:	Control Limits	% Recovery	Qual.	Method	Prep Method
Decachlorobiphenyl	30 - 120	102		SW8081A	SW3550B
Tetrachloro-m-xylene	30 - 120	118		SW8081A	SW3550B
Decachlorobiphenyl	15 - 147	102		SW8082	SW3550B
Tetrachloro-m-xylene	15 - 147	118		SW8082	SW3550B

- i The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J4 The sample matrix interfered with the ability to make an accurate determination.
- U The compound was analyzed for but not detected.
- V Indicates that the analyte was detected in both the sample and the associated method blank.
- T^ Analysis performed by AEL Tampa, no certification.
- J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)
- T DOH certification #E84589 (AEL-Tampa)

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Lab Code: J042820-11

Date/Time Sampled: 5/11/04 14:00

Client Sample ID: S-4

Shipping Method: Client drop off

Site:

Sampled By: Troy Mayhew

Matrix: Soil

Sampling Method: C

Chlorinated Pesticides

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
4,4'-DDD	1	0.37	0.38	0.38	ug/kg	U	SW8081A		J
4,4'-DDE	1	0.34	0.34	0.34	ug/kg	U	SW8081A		J
4,4'-DDT	1	1.4	1.5	1.5	ug/kg	U	SW8081A		J
Aldrin	1	0.53	0.54	0.54	ug/kg	U	SW8081A		J
Alpha-BHC	1	0.94	0.96	0.96	ug/kg	U	SW8081A		J
Beta-BHC	1	0.71	0.73	0.73	ug/kg	U	SW8081A		J
Chlordane	1	17	17	17	ug/kg	U	SW8081A		J
Delta-BHC	1	0.75	0.77	0.77	ug/kg	U	SW8081A		J
Dieldrin	1	0.47	0.47	0.47	ug/kg	U	SW8081A		J
Endosulfan I	1	0.40	0.40	0.40	ug/kg	U	SW8081A		J
Endosulfan II	1	0.51	0.52	0.52	ug/kg	U	SW8081A		J
Endosulfan Sulfate	1	0.78	0.80	0.80	ug/kg	U	SW8081A		J
Endrin	1	0.52	0.53	0.53	ug/kg	U	SW8081A		J
Endrin Aldehyde	1	0.85	0.87	0.87	ug/kg	U	SW8081A		J
Gamma-BHC (Lindane)	1	0.81	0.83	0.83	ug/kg	U	SW8081A		J
Heptachlor	1	1.2	1.2	1.2	ug/kg	U	SW8081A		J
Heptachlor Epoxide	1	0.43	0.44	0.44	ug/kg	U	SW8081A		J
Methoxychlor	1	0.98	1.0	1.0	ug/kg	U	SW8081A		J
Toxaphene	1	19	20	20	ug/kg	U	SW8081A		J

Miscellaneous Analytes

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
% Moisture	1	0.10	0.10	1.9	%		SM2540G		J
Ammonia (as N)	10	0.026	0.26	4.3	mg/kg		E350.1		T ^a
Nitrate + Nitrite (as N)	50	0.027	1.4	1.4	mg/Kg	U	SM4500NO3-F		T
Total Kjeldahl Nitrogen (as N)	2500	0.048	120	120	mg/kg	U	E351.2		T
Total Nitrogen	1	0.048	0.048	0.048	mg/Kg	U	calculation		T ^a

PCBs

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
PCB-1016	1	9.5	9.7	9.7	ug/kg	U	SW8082		J
PCB-1221	1	2.4	2.4	2.4	ug/kg	U	SW8082		J
PCB-1232	1	5.8	5.9	5.9	ug/kg	U	SW8082		J
PCB-1242	1	7.0	7.1	7.1	ug/kg	U	SW8082		J
PCB-1248	1	4.2	4.3	4.3	ug/kg	U	SW8082		J
PCB-1254	1	2.8	2.8	2.8	ug/kg	U	SW8082		J
PCB-1260	1	2.0	2.0	2.0	ug/kg	U	SW8082		J

Total Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic	1	0.17	0.17	0.17	mg/Kg	U	SW6010B		J
Barium	1	0.028	0.029	0.60	mg/Kg		SW6010B		J
Cadmium	1	0.0020	0.0020	0.032	mg/Kg		SW6010B		J
Chromium	1	0.018	0.018	3.4	mg/Kg		SW6010B		J

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Copper	1	0.25	0.25	5.4	mg/Kg		SW6010B	J
Lead	1	0.033	0.034	0.76	mg/Kg		SW6010B	J
Selenium	1	0.18	0.18	0.18	mg/Kg	U	SW6010B	J
Silver	1	0.038	0.039	0.039	mg/Kg	U	SW6010B	J

Total Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury	1	0.00068	0.00069	0.0010	mg/Kg	i	SW7470A		J

Surrogates:	Control Limits	% Recovery	Qual.	Method	Prep Method
Decachlorobiphenyl	30 - 120	78		SW8081A	SW3550B
Tetrachloro-m-xylene	30 - 120	68		SW8081A	SW3550B
Decachlorobiphenyl	15 - 147	78		SW8082	SW3550B
Tetrachloro-m-xylene	15 - 147	68		SW8082	SW3550B

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

U The compound was analyzed for but not detected.

T^A Analysis performed by AEL Tampa, no certification.

J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)

T DOH certification #E84589 (AEL-Tampa)

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Lab Code: J042820-12

Date/Time Sampled: 5/11/04 16:30

Client Sample ID: S-5

Shipping Method: Client drop off

Site:

Sampled By: Troy Mayhew

Matrix: Soil

Sampling Method: C

Chlorinated Pesticides

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
4,4'-DDD	1	0.37	0.38	0.38	ug/kg	U	SW8081A		J
4,4'-DDE	1	0.34	0.34	0.34	ug/kg	U	SW8081A		J
4,4'-DDT	1	1.4	1.5	1.5	ug/kg	U	SW8081A		J
Aldrin	1	0.53	0.54	0.54	ug/kg	U	SW8081A		J
Alpha-BHC	1	0.94	0.96	0.96	ug/kg	U	SW8081A		J
Beta-BHC	1	0.71	0.73	0.73	ug/kg	U	SW8081A		J
Chlordane	1	17	17	17	ug/kg	U	SW8081A		J
Delta-BHC	1	0.75	0.77	0.77	ug/kg	U	SW8081A		J
Dieldrin	1	0.47	0.47	0.47	ug/kg	U	SW8081A		J
Endosulfan I	1	0.40	0.40	0.40	ug/kg	U	SW8081A		J
Endosulfan II	1	0.51	0.52	0.52	ug/kg	U	SW8081A		J
Endosulfan Sulfate	1	0.78	0.80	0.80	ug/kg	U	SW8081A		J
Endrin	1	0.52	0.53	0.53	ug/kg	U	SW8081A		J
Endrin Aldehyde	1	0.85	0.87	0.87	ug/kg	U	SW8081A		J
Gamma-BHC (Lindane)	1	0.81	0.83	0.83	ug/kg	U	SW8081A		J
Heptachlor	1	1.2	1.2	1.2	ug/kg	U	SW8081A		J
Heptachlor Epoxide	1	0.43	0.44	0.44	ug/kg	U	SW8081A		J
Methoxychlor	1	0.98	1.0	1.0	ug/kg	U	SW8081A		J
Toxaphene	1	19	20	20	ug/kg	U	SW8081A		J

Miscellaneous Analytes

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
% Moisture	1	0.10	0.10	2.0	%		SM2540G		J
Ammonia (as N)	10	0.026	0.26	3.2	mg/kg		E350.1		T ^A
Nitrate + Nitrite (as N)	50	0.027	1.4	1.4	mg/Kg	U	SM4500NO3-F		T
Total Kjeldahl Nitrogen (as N)	2500	0.048	120	120	mg/kg	U	E351.2		T
Total Nitrogen	1	0.048	0.048	0.048	mg/Kg	U	calculation		T ^A

PCBs

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
PCB-1016	1	9.5	9.7	9.7	ug/kg	U	SW8082		J
PCB-1221	1	2.4	2.4	2.4	ug/kg	U	SW8082		J
PCB-1232	1	5.8	5.9	5.9	ug/kg	U	SW8082		J
PCB-1242	1	7.0	7.1	7.1	ug/kg	U	SW8082		J
PCB-1248	1	4.2	4.3	4.3	ug/kg	U	SW8082		J
PCB-1254	1	2.8	2.8	2.8	ug/kg	U	SW8082		J
PCB-1260	1	2.0	2.0	2.0	ug/kg	U	SW8082		J

Total Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic	1	0.17	0.17	0.17	mg/Kg	U	SW6010B		J
Barium	1	0.028	0.029	0.24	mg/Kg		SW6010B		J
Cadmium	1	0.0020	0.0020	0.011	mg/Kg		SW6010B		J
Chromium	1	0.018	0.018	0.41	mg/Kg		SW6010B		J

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Copper	1	0.25	0.26	1.5	mg/Kg		SW6010B	J
Lead	1	0.033	0.034	0.33	mg/Kg	V	SW6010B	J
Selenium	1	0.18	0.18	0.18	mg/Kg	U	SW6010B	J
Silver	1	0.038	0.039	0.039	mg/Kg	U	SW6010B	J

Total Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury	1	0.00068	0.00069	0.00069	mg/Kg	U	SW7470A		J

Surrogates:	Control Limits	% Recovery	Qual.	Method	Prep Method
Decachlorobiphenyl	30 - 120	88		SW8081A	SW3550B
Tetrachloro-m-xylene	30 - 120	95		SW8081A	SW3550B
Decachlorobiphenyl	15 - 147	88		SW8082	SW3550B
Tetrachloro-m-xylene	15 - 147	95		SW8082	SW3550B

U The compound was analyzed for but not detected.

V Indicates that the analyte was detected in both the sample and the associated method blank.

T* Analysis performed by AEL Tampa, no certification.

J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)

T DOH certification #E84589 (AEL-Tampa)

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.
Project Name: FPUA

Report No.: J042820
Date/Time Received: 5/12/04 08:45

Lab Code: J042820-13
Client Sample ID: S-6
Site:
Matrix: Soil

Date/Time Sampled: 5/11/04 17:00
Shipping Method: Client drop off
Sampled By: Troy Mayhew
Sampling Method: C

Chlorinated Pesticides

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
4,4'-DDD	1	0.37	0.49	0.49	ug/kg	U	SW8081A		J
4,4'-DDE	1	0.34	0.44	0.44	ug/kg	U	SW8081A		J
4,4'-DDT	1	1.4	1.9	1.9	ug/kg	U	SW8081A		J
Aldrin	1	0.53	0.69	0.69	ug/kg	U	SW8081A		J
Alpha-BHC	1	0.94	1.2	1.2	ug/kg	U	SW8081A		J
Beta-BHC	1	0.71	0.93	0.93	ug/kg	U	SW8081A		J
Chlordane	1	17	22	22	ug/kg	U	SW8081A		J
Delta-BHC	1	0.75	0.98	0.98	ug/kg	U	SW8081A		J
Dieldrin	1	0.47	0.61	0.61	ug/kg	U	SW8081A		J
Endosulfan I	1	0.40	0.52	0.52	ug/kg	U	SW8081A		J
Endosulfan II	1	0.51	0.66	0.66	ug/kg	U	SW8081A		J
Endosulfan Sulfate	1	0.78	1.0	1.0	ug/kg	U	SW8081A		J
Endrin	1	0.52	0.68	0.68	ug/kg	U	SW8081A		J
Endrin Aldehyde	1	0.85	1.1	1.1	ug/kg	U	SW8081A		J
Gamma-BHC (Lindane)	1	0.81	1.1	1.1	ug/kg	U	SW8081A		J
Heptachlor	1	1.2	1.5	1.5	ug/kg	U	SW8081A		J
Heptachlor Epoxide	1	0.43	0.56	0.56	ug/kg	U	SW8081A		J
Methoxychlor	1	0.98	1.3	1.3	ug/kg	U	SW8081A		J
Toxaphene	1	19	25	25	ug/kg	U	SW8081A		J

Miscellaneous Analytes

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
% Moisture	1	0.10	0.10	24	%		SM2540G		J
Ammonia (as N)	10	0.026	0.26	4.5	mg/kg		E350.1		T ^A
Nitrate + Nitrite (as N)	50	0.027	1.4	1.4	mg/Kg	U	SM4500NO3-F		T
Total Kjeldahl Nitrogen (as N)	2500	0.048	120	120	mg/kg	U	E351.2		T
Total Nitrogen	1	0.048	0.048	0.048	mg/Kg	U	calculation		T ^A

PCBs

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
PCB-1016	1	9.5	12	12	ug/kg	U	SW8082		J
PCB-1221	1	2.4	3.1	3.1	ug/kg	U	SW8082		J
PCB-1232	1	5.8	7.6	7.6	ug/kg	U	SW8082		J
PCB-1242	1	7.0	9.1	9.1	ug/kg	U	SW8082		J
PCB-1248	1	4.2	5.6	5.6	ug/kg	U	SW8082		J
PCB-1254	1	2.8	3.6	3.6	ug/kg	U	SW8082		J
PCB-1260	1	2.0	2.6	2.6	ug/kg	U	SW8082		J

Total Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic	1	0.17	0.22	0.22	mg/Kg	U	SW6010B		J
Barium	1	0.028	0.037	0.44	mg/Kg		SW6010B		J
Cadmium	1	0.0020	0.0026	0.011	mg/Kg		SW6010B		J
Chromium	1	0.018	0.024	0.65	mg/Kg		SW6010B		J

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Copper	1	0.25	0.33	1.6	mg/Kg		SW6010B	J
Lead	1	0.033	0.043	0.48	mg/Kg		SW6010B	J
Selenium	1	0.18	0.24	0.24	mg/Kg	U	SW6010B	J
Silver	1	0.038	0.050	0.050	mg/Kg	U	SW6010B	J

Total Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury	1	0.00068	0.00089	0.0030	mg/Kg	i	SW7470A		J

Surrogates:	Control Limits	% Recovery	Qual.	Method	Prep Method
Decachlorobiphenyl	30 - 120	81		SW8081A	SW3550B
Tetrachloro-m-xylene	30 - 120	96		SW8081A	SW3550B
Decachlorobiphenyl	15 - 147	81		SW8082	SW3550B
Tetrachloro-m-xylene	15 - 147	92		SW8082	SW3550B

- i The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
 U The compound was analyzed for but not detected.
 TA Analysis performed by AEL Tampa, no certification.
 J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)
 T DOH certification #E84589 (AEL-Tampa)

Lab Code: J042820-14

Date/Time Sampled: 5/11/04 14:30

Client Sample ID: BK-1

Shipping Method: Client drop off

Site:

Sampled By: Troy Mayhew

Matrix: Soil

Sampling Method: C

Miscellaneous Analytes

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
% Moisture	1	0.10	0.10	1.7	%		SM2540G		J

Total Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic	1	0.17	0.17	0.17	mg/Kg	U	SW6010B		J
Barium	1	0.028	0.028	0.60	mg/Kg		SW6010B		J
Cadmium	1	0.0020	0.0020	0.014	mg/Kg		SW6010B		J
Chromium	1	0.018	0.018	0.93	mg/Kg		SW6010B		J
Lead	1	0.033	0.034	0.43	mg/Kg		SW6010B		J
Selenium	1	0.18	0.18	0.18	mg/Kg	U	SW6010B		J
Silver	1	0.038	0.039	0.039	mg/Kg	U	SW6010B		J

Total Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury	1	0.00068	0.00069	0.0060	mg/Kg		SW7470A		J

- U The compound was analyzed for but not detected.
 J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)

Advanced Environmental Laboratories, Inc.
Analytical Report

Client: Kimley-Horn and Associates, Inc.
Project Name: FPUA

Report No.: J042820
Date/Time Received: 5/12/04 08:45

Lab Code: J042820-15
Client Sample ID: BK-2
Site:
Matrix: Soil

Date/Time Sampled: 5/11/04 16:00
Shipping Method: Client drop off
Sampled By: Troy Mayhew
Sampling Method: C

Miscellaneous Analytes

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
% Moisture	1	0.10	0.10	1.5	%		SM2540G		J

Total Metals

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Arsenic	1	0.17	0.17	0.17	mg/Kg	U	SW6010B		J
Barium	1	0.028	0.028	0.17	mg/Kg		SW6010B		J
Cadmium	1	0.0020	0.0020	0.0020	mg/Kg	U	SW6010B		J
Chromium	1	0.018	0.018	0.18	mg/Kg	, V	SW6010B		J
Lead	1	0.033	0.034	0.16	mg/Kg	, V	SW6010B		J
Selenium	1	0.18	0.18	0.18	mg/Kg	U	SW6010B		J
Silver	1	0.038	0.039	0.039	mg/Kg	U	SW6010B		J

Total Metals (Hg)

Analytes:	Dilution	MDL	Adjusted Reporting Limit	Results	Units	Qualifier(s)	Method	Parameter Comment	Lab
Mercury	1	0.00068	0.00069	0.0010	mg/Kg	i	SW7470A		J

- i The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
U The compound was analyzed for but not detected.
V Indicates that the analyte was detected in both the sample and the associated method blank.
J DOH certification #E82574 (AEL-JAX) (FL NELAC certification)

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.
Project Name: FPUA

Report No.: J042820
Date/Time Received: 5/12/04 08:45

Sample Cross Reference Information

Lab Code: J042820-01
Client Sample Number: GP-1

Site:
Matrix: Water

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
Ammonia (as N)	E350.1	NONE	wct051404nh3-3	5/14/04 13:30	SS		
Chlorinated Pesticides	SW8081A	SW3510C	sv051904c-pp	5/19/04 14:51	MP	sv051804-pp	5/18/04 10:30:00
Dissolved Metals	SW6010B	SW3005A	M051304-3010-1	5/17/04 13:26	KC	M051304-3010-1	5/13/04 07:25:00
Dissolved Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04 08:56	TP	M051904-HG-1	5/19/04 04:30:00
Herbicides	SW8151A	NONE					
Nitrate + Nitrite (as N)	SM4500NO3-F	NONE	WCJ-051304-N	5/13/04 14:45	KDC		
Organophosphorus Pesticides	SW8141A	SW3510C					
PCBs	SW8082	SW3510C	sv051904c-pp	5/19/04 14:51	MP	sv051804-pp	5/18/04 10:30:00
Total Kjeldahl Nitrogen (as N)	E351.2	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpkn	5/14/04
Total Nitrogen	calculation	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpkn	5/14/04

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Lab Code: J042820-02
Client Sample Number: GP-2

Site:
Matrix: Water

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
Ammonia (as N)	E350.1	NONE	wct051404nh3-3	5/14/04 13:30	SS		
Chlorinated Pesticides	SW8081A	SW3510C	sv051904c-pp	5/19/04 14:51	MP	sv051804-pp	5/18/04 10:30:00
Dissolved Metals	SW6010B	SW3005A	M051304-3010-1	5/17/04 13:26	KC	M051304-3010-1	5/13/04 07:25:00
Dissolved Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04 08:56	TP	M051904-HG-1	5/19/04 04:30:00
Herbicides	SW8151A	NONE					
Nitrate + Nitrite (as N)	SM4500NO3-F	NONE	WCJ-051304-N	5/13/04 14:45	KDC		
Organophosphorus Pesticides	SW8141A	SW3510C					
PCBs	SW8082	SW3510C	sv051904c-pp	5/19/04 14:51	MP	sv051804-pp	5/18/04 10:30:00
Total Kjeldahl Nitrogen (as N)	E351.2	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpkn	5/14/04
Total Nitrogen	calculation	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpkn	5/14/04

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Lab Code: J042820-03
Client Sample Number: GP-3

Site:
Matrix: Water

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
Ammonia (as N)	E350.1	NONE	wct051404nh3-3	5/14/04 13:30	SS		
Chlorinated Pesticides	SW8081A	SW3510C	sv051904c-pp	5/19/04 14:51	MP	sv051804-pp	5/18/04 10:30:00
Dissolved Metals	SW6010B	SW3005A	M051304-3010-1	5/17/04 13:26	KC	M051304-3010-1	5/13/04 07:25:00
Dissolved Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04 08:56	TP	M051904-HG-1	5/19/04 04:30:00
Herbicides	SW8151A	NONE					
Nitrate + Nitrite (as N)	SM4500NO3-F	NONE	WCJ-051304-N	5/13/04 14:45	KDC		
Organophosphorus Pesticides	SW8141A	SW3510C					
PCBs	SW8082	SW3510C	sv051904c-pp	5/19/04 14:51	MP	sv051804-pp	5/18/04 10:30:00
Total Kjeldahl Nitrogen (as N)	E351.2	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpkn	5/14/04
Total Nitrogen	calculation	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpkn	5/14/04

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Lab Code: J042820-04
Client Sample Number: GP-4

Site:
Matrix: Water

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
Dissolved Metals	SW6010B	SW3005A	M051304-3010-1	5/17/04 13:26	KC	M051304-3010-1	5/13/04 07:25:00
Dissolved Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04 08:56	TP	M051904-HG-1	5/19/04 04:30:00
Florida Petroleum Range Organics	FL-PRO	SW3510C	sv052404b-fp	5/21/04 12:11	MM	sv051804-fpw	5/18/04 17:30:00
Polynuclear Aromatic Hydrocarbons	SW8270C-SIM	SW3510C	sv051404i	5/14/04 10:10	KB	sv051204-pah	5/12/04 17:30:00
Volatile Aromatic Hydrocarbons	SW8260B	SW5030B	V051304A	5/13/04 10:38	BB	V051304A	5/13/04 10:38:00

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Lab Code: J042820-05

Site:

Client Sample Number: MW-1

Matrix: Water

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
Florida Petroleum Range Organics	FL-PRO	SW3510C	sv052404b-fp	5/21/04 12:11	MM	sv051804-fpw	5/18/04 17:30:00
Polynuclear Aromatic Hydrocarbons	SW8270C-SIM	SW3510C	sv051404i	5/14/04 10:10	KB	sv051204-pah	5/12/04 17:30:00
Total Metals	SW6010B	SW3010A	M051304-3010-1	5/17/04 13:26	KC	M051304-3010-1	5/13/04 07:25:00
Total Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04 08:56	TP	M051904-HG-1	5/19/04 04:30:00
Volatile Aromatic Hydrocarbons	SW8260B	SW5030B	V051304A	5/13/04 10:38	BB	V051304A	5/13/04 10:38:00

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Lab Code: J042820-06

Site:

Client Sample Number: MW-2

Matrix: Water

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
Florida Petroleum Range Organics	FL-PRO	SW3510C	sv052404b-fp	5/21/04 12:11	MM	sv051804-fpw	5/18/04 17:30:00
Polynuclear Aromatic Hydrocarbons	SW8270C-SIM	SW3510C	sv051404i	5/14/04 10:10	KB	sv051204-pah	5/12/04 17:30:00
Total Metals	SW6010B	SW3010A	M051304-3010-1	5/17/04 13:26	KC	M051304-3010-1	5/13/04 07:25:00
Total Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04 08:56	TP	M051904-HG-1	5/19/04 04:30:00
Volatile Aromatic Hydrocarbons	SW8260B	SW5030B	V051304A	5/13/04 10:38	BB	V051304A	5/13/04 10:38:00

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Lab Code: J042820-07

Site:

Client Sample Number: GP-5

Matrix: Water

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
Ammonia (as N)	E350.1	NONE	wct051404nh3-3	5/14/04 13:30	SS		
Dissolved Metals	SW6010B	SW3010A	M051304-3010-1	5/17/04 13:26	KC	M051304-3010-1	5/13/04 07:25:00
Dissolved Metals	SW6010B	SW3005A	M051304-3010-1	5/17/04 13:26	KC	M051304-3010-1	5/13/04 07:25:00
Dissolved Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04 08:56	TP	M051904-HG-1	5/19/04 04:30:00
Dissolved Metals (Sb)	SW6010B	SW3005A	M051304-3010-1	5/17/04 13:26	KC	M051304-3010-1	5/13/04 07:25:00
Dissolved Metals (Ti)	SW7841	SW3005A	M051704-3020-1	5/20/04 15:56	CDC	M051704-3020-1	5/17/04 07:39:00
Nitrate + Nitrite (as N)	SM4500NO3-F	NONE	WCJ-051304-N	5/13/04 14:45	KDC		
Semi-Volatile Organic Compounds	SW8270C	SW3510C	SV052004L	5/20/04 16:38	JA	sv051504-bna	5/15/04 09:00:00
TDS	E160.1	NONE	WCJ-051304-TDS	5/13/04 13:30	AA		
Total Chlorides	E325.2	NONE	WCJ-051804-CL	5/18/04 10:16	KDC		
Total Kjeldahl Nitrogen (as N)	E351.2	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpikn	5/14/04
Total Nitrogen	calculation	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpikn	5/14/04
Volatile Organic Compounds	SW8260B	SW5030B	V051304A	5/13/04 10:38	BB	V051304A	5/13/04 10:38:00

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Lab Code: J042820-08

Site:

Client Sample Number: S-1

Matrix: Soil

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
% Moisture	SM2540G	NONE	WCJ-051404-M	5/14/04 12:30	CR		
Ammonia (as N)	E350.1	NONE	wct051404nh3-3	5/14/04 13:30	SS		
Chlorinated Pesticides	SW8081A	SW3550B	sv051304c-pp	5/13/04 13:47	MP	sv051204-pp	5/12/04 13:30:00
Herbicides	SW8151	NONE					
Nitrate + Nitrite (as N)	SM4500NO3-F	NONE	WCT051804NO3	5/18/04 11:29	AJ		
Organophosphorus Pesticides	SW8141A	SW3550B					
PCBs	SW8082	SW3550B	sv051304c-pp	5/13/04 13:47	MP	sv051204-pp	5/12/04 13:30:00
Total Kjeldahl Nitrogen (as N)	E351.2	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpikn	5/14/04
Total Metals	SW6010B	SW3050B	M051404-3050-1	5/19/04 12:25	KC	M051404-3050-1	5/14/04 04:30:00
Total Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04 08:56	TP	M051904-HG-1	5/19/04 04:30:00
Total Nitrogen	calculation	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpikn	5/14/04

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Lab Code: J042820-09

Site:

Client Sample Number: S-2

Matrix: Soil

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
% Moisture	SM2540G	NONE	WCJ-051404-M	5/14/04 12:30	CR		
Ammonia (as N)	E350.1	NONE	wct051404nh3-3	5/14/04 13:30	SS		
Chlorinated Pesticides	SW8081A	SW3550B	sv051304c-pp	5/13/04 13:47	MP	sv051204-pp	5/12/04 13:30:00
Herbicides	SW8151	NONE					
Nitrate + Nitrite (as N)	SM4500NO3-F	NONE	WCT051804NO3	5/18/04 11:29	AJ		
Organophosphorus Pesticides	SW8141A	SW3550B					
PCBs	SW8082	SW3550B	sv051304c-pp	5/13/04 13:47	MP	sv051204-pp	5/12/04 13:30:00
Total Kjeldahl Nitrogen (as N)	E351.2	NONE	WCT051704TKN1	5/17/04 13:54	AJ	pb051404tpkn	5/14/04
Total Metals	SW6010B	SW3050B	M051404-3050-1	5/19/04 12:25	KC	M051404-3050-1	5/14/04 04:30:00
Total Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04 08:56	TP	M051904-HG-1	5/19/04 04:30:00
Total Nitrogen	calculation	NONE	WCT051704TKN1	5/17/04 13:54	AJ	pb051404tpkn	5/14/04

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Lab Code: J042820-10

Site:

Client Sample Number: S-3

Matrix: Soil

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
% Moisture	SM2540G	NONE	WCJ-051404-M	5/14/04 12:30	CR		
Ammonia (as N)	E350.1	NONE	wct051404nh3-3	5/14/04 13:30	SS		
Chlorinated Pesticides	SW8081A	SW3550B	sv051304c-pp	5/13/04 13:47	MP	sv051204-pp	5/12/04 13:30:00
Herbicides	SW8151	NONE					
Nitrate + Nitrite (as N)	SM4500NO3-F	NONE	WCT051804NO3	5/18/04 11:29	AJ		
Organophosphorus Pesticides	SW8141A	SW3550B					
PCBs	SW8082	SW3550B	sv051304c-pp	5/13/04 13:47	MP	sv051204-pp	5/12/04 13:30:00
Total Kjeldahl Nitrogen (as N)	E351.2	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpkn	5/14/04
Total Metals	SW6010B	SW3050B	M051404-3050-1	5/19/04 12:25	KC	M051404-3050-1	5/14/04 04:30:00
Total Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04 08:56	TP	M051904-HG-1	5/19/04 04:30:00
Total Nitrogen	calculation	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpkn	5/14/04

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Lab Code: J042820-11

Site:

Client Sample Number: S-4

Matrix: Soil

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
% Moisture	SM2540G	NONE	WCJ-051404-M	5/14/04 12:30	CR		
Ammonia (as N)	E350.1	NONE	wct051404nh3-3	5/14/04 13:30	SS		
Chlorinated Pesticides	SW8081A	SW3550B	sv051304c-pp	5/13/04 13:47	MP	sv051204-pp	5/12/04 13:30:00
Herbicides	SW8151	NONE					
Nitrate + Nitrite (as N)	SM4500NO3-F	NONE	WCT051804NO3	5/18/04 11:29	AJ		
Organophosphorus Pesticides	SW8141A	SW3550B					
PCBs	SW8082	SW3550B	sv051304c-pp	5/13/04 13:47	MP	sv051204-pp	5/12/04 13:30:00
Total Kjeldahl Nitrogen (as N)	E351.2	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpkn	5/14/04
Total Metals	SW6010B	SW3050B	M051404-3050-1	5/19/04 12:25	KC	M051404-3050-1	5/14/04 04:30:00
Total Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04 08:56	TP	M051904-HG-1	5/19/04 04:30:00
Total Nitrogen	calculation	NONE	WCT051704TKN2	5/17/04 14:17	AJ	pb051404tpkn	5/14/04

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Lab Code: J042820-12

Site:

Client Sample Number: S-5

Matrix: Soil

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
% Moisture	SM2540G	NONE	WCJ-051404-M	5/14/04 12:30	CR		
Ammonia (as N)	E350.1	NONE	wct051404nh3-3	5/14/04 13:30	SS		
Chlorinated Pesticides	SW8081A	SW3550B	sv051304c-pp	5/13/04 13:47	MP	sv051204-pp	5/12/04 13:30:00
Herbicides	SW8151	NONE					
Nitrate + Nitrite (as N)	SM4500NO3-F	NONE	WCT051804NO3	5/18/04 11:29	AJ		
Organophosphorus Pesticides	SW8141A	SW3550B					
PCBs	SW8082	SW3550B	sv051304c-pp	5/13/04 13:47	MP	sv051204-pp	5/12/04 13:30:00

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Total Kjeldahl Nitrogen (as N)	E351.2	NONE	WCT051704TKN2	5/17/04	14:17	AJ	pb051404tpkn	5/14/04
Total Metals	SW6010B	SW3050B	M051404-3050-1	5/19/04	12:25	KC	M051404-3050-1	5/14/04 04:30:00
Total Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04	08:56	TP	M051904-HG-1	5/19/04 04:30:00
Total Nitrogen	calculation	NONE	WCT051704TKN2	5/17/04	14:17	AJ	pb051404tpkn	5/14/04

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Lab Code: J042820-13

Site:

Client Sample Number: S-6

Matrix: Soil

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
% Moisture	SM2540G	NONE	WCJ-051404-M	5/14/04	12:30	CR	
Ammonia (as N)	E350.1	NONE	wct051404nh3-3	5/14/04	13:30	SS	
Chlorinated Pesticides	SW8081A	SW3550B	sv051304o-pp	5/13/04	13:47	MP	sv051204-pp 5/12/04 13:30:00
Herbicides	SW8151	NONE					
Nitrate + Nitrite (as N)	SM4500NO3-F	NONE	WCT051804NO3	5/18/04	11:29	AJ	
Organophosphorus Pesticides	SW8141A	SW3550B					
PCBs	SW8082	SW3550B	sv051304o-pp	5/13/04	13:47	MP	sv051204-pp 5/12/04 13:30:00
Total Kjeldahl Nitrogen (as N)	E351.2	NONE	WCT051704TKN2	5/17/04	14:17	AJ	pb051404tpkn 5/14/04
Total Metals	SW6010B	SW3050B	M051404-3050-1	5/19/04	12:25	KC	M051404-3050-1 5/14/04 04:30:00
Total Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04	08:56	TP	M051904-HG-1 5/19/04 04:30:00
Total Nitrogen	calculation	NONE	WCT051704TKN2	5/17/04	14:17	AJ	pb051404tpkn 5/14/04

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Lab Code: J042820-14

Site:

Client Sample Number: BK-1

Matrix: Soil

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
% Moisture	SM2540G	NONE	WCJ-051404-M	5/14/04	12:30	CR	
Total Metals	SW6010B	SW3050B	M051404-3050-1	5/19/04	12:25	KC	M051404-3050-1 5/14/04 04:30:00
Total Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04	08:56	TP	M051904-HG-1 5/19/04 04:30:00

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Lab Code: J042820-15

Site:

Client Sample Number: BK-2

Matrix: Soil

Test Description	Analysis Method	Prep Method	Analytical Batch ID	Analysis Date/Time	Analyst	Prep Batch ID	Prep Date/Time
% Moisture	SM2540G	NONE	WCJ-051404-M	5/14/04	12:30	CR	
Total Metals	SW6010B	SW3050B	M051404-3050-1	5/19/04	12:25	KC	M051404-3050-1 5/14/04 04:30:00
Total Metals (Hg)	SW7470A	METHOD	M051904-HG-1	5/19/04	08:56	TP	M051904-HG-1 5/19/04 04:30:00

If the Analytical Batch ID and Prep Batch ID is null, the analysis was not performed by AEL, and the original report from the subcontracted laboratory will be provided containing this information.

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.
Project Name: FPUA

Report No.: J042820
Date/Time Received: 5/12/04 08:45

Quality Assurance Report

Method Blanks

Dissolved Metals							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
M051304-3010-1	Arsenic, dissolved	Method Blank	SW6010B	0.0070	0.0070	mg/L	U
M051304-3010-1	Barium, dissolved	Method Blank	SW6010B	0.0025	0.0025	mg/L	U
M051304-3010-1	Beryllium, dissolved	Method Blank	SW6010B	0.000027	0.000076	mg/L	I
M051304-3010-1	Cadmium, dissolved	Method Blank	SW6010B	0.00021	0.00021	mg/L	U
M051304-3010-1	Chromium, dissolved	Method Blank	SW6010B	0.00016	0.00091	mg/L	
M051304-3010-1	Copper, dissolved	Method Blank	SW6010B	0.0071	0.0071	mg/L	U
M051304-3010-1	Iron, dissolved	Method Blank	SW6010B	0.016	0.028	mg/L	I
M051304-3010-1	Lead, dissolved	Method Blank	SW6010B	0.00092	0.00092	mg/L	U
M051304-3010-1	Selenium, dissolved	Method Blank	SW6010B	0.0058	0.0058	mg/L	U
M051304-3010-1	Silver, dissolved	Method Blank	SW6010B	0.0019	0.0019	mg/L	U
M051304-3010-1	Silver, dissolved	Method Blank	SW6010B	0.0019	0.0019	mg/L	U
M051304-3010-1	Sodium, dissolved	Method Blank	SW6010B	0.0084	0.0084	mg/L	U
Total Metals							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
M051304-3010-1	Arsenic	Method Blank	SW6010B	0.0070	0.0070	mg/L	U
M051304-3010-1	Barium	Method Blank	SW6010B	0.0025	0.0025	mg/L	U
M051304-3010-1	Cadmium	Method Blank	SW6010B	0.00021	0.00021	mg/L	U
M051304-3010-1	Chromium	Method Blank	SW6010B	0.00016	0.00091	mg/L	
M051304-3010-1	Lead	Method Blank	SW6010B	0.00092	0.00092	mg/L	U
M051304-3010-1	Selenium	Method Blank	SW6010B	0.0058	0.0058	mg/L	U
M051304-3010-1	Silver	Method Blank	SW6010B	0.0019	0.0019	mg/L	U
Total Metals							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
M051404-3050-1	Arsenic	Method Blank	SW6010B	0.17	0.17	mg/Kg	U
M051404-3050-1	Barium	Method Blank	SW6010B	0.028	0.028	mg/Kg	U
M051404-3050-1	Cadmium	Method Blank	SW6010B	0.0020	0.0020	mg/Kg	U
M051404-3050-1	Chromium	Method Blank	SW6010B	0.018	0.018	mg/Kg	I
M051404-3050-1	Copper	Method Blank	SW6010B	0.25	0.25	mg/Kg	U
M051404-3050-1	Lead	Method Blank	SW6010B	0.033	0.036	mg/Kg	I
M051404-3050-1	Selenium	Method Blank	SW6010B	0.18	0.18	mg/Kg	U
M051404-3050-1	Silver	Method Blank	SW6010B	0.038	0.038	mg/Kg	U
Dissolved Metals (TI)							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
M051704-3020-1	Thallium, dissolved	Method Blank	SW7841	0.00098	0.00098	mg/L	U
Dissolved Metals (Hg)							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
M051904-HG-1	Mercury, dissolved	Method Blank	SW7470A	0.000014	0.000014	mg/L	U
Total Metals (Hg)							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
M051904-HG-1	Mercury	Method Blank	SW7470A	0.00068	0.00068	mg/Kg	U
M051904-HG-1	Mercury	Method Blank	SW7470A	0.000014	0.000014	mg/L	U
Chlorinated Pesticides							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
sv051304c-pp	4,4'-DDD	Method Blank	SW8081A	0.37	0.37	ug/kg	U
sv051304c-pp	4,4'-DDE	Method Blank	SW8081A	0.34	0.34	ug/kg	U
sv051304c-pp	4,4'-DDT	Method Blank	SW8081A	1.4	1.4	ug/kg	U

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sv051304c-pp	Aldrin	Method Blank	SW8081A	0.53	0.53	ug/kg	U
sv051304c-pp	Alpha-BHC	Method Blank	SW8081A	0.94	0.94	ug/kg	U
sv051304c-pp	Beta-BHC	Method Blank	SW8081A	0.71	0.71	ug/kg	U
sv051304c-pp	Chlordane	Method Blank	SW8081A	17	17	ug/kg	U
sv051304c-pp	Delta-BHC	Method Blank	SW8081A	0.75	0.75	ug/kg	U
sv051304c-pp	Dieldrin	Method Blank	SW8081A	0.47	0.47	ug/kg	U
sv051304c-pp	Endosulfan I	Method Blank	SW8081A	0.40	0.40	ug/kg	U
sv051304c-pp	Endosulfan II	Method Blank	SW8081A	0.51	0.51	ug/kg	U
sv051304c-pp	Endosulfan Sulfate	Method Blank	SW8081A	0.78	0.78	ug/kg	U
sv051304c-pp	Endrin	Method Blank	SW8081A	0.52	0.52	ug/kg	U
sv051304c-pp	Endrin Aldehyde	Method Blank	SW8081A	0.85	0.85	ug/kg	U
sv051304c-pp	Gamma-BHC (Lindane)	Method Blank	SW8081A	0.81	0.81	ug/kg	U
sv051304c-pp	Heptachlor	Method Blank	SW8081A	1.2	1.2	ug/kg	U
sv051304c-pp	Heptachlor Epoxide	Method Blank	SW8081A	0.43	0.43	ug/kg	U
sv051304c-pp	Methoxychlor	Method Blank	SW8081A	0.98	0.98	ug/kg	U
sv051304c-pp	Toxaphene	Method Blank	SW8081A	19	19	ug/kg	U

PCBs

QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
sv051304c-pp	PCB-1016	Method Blank	SW8082	9.5	9.5	ug/kg	U
sv051304c-pp	PCB-1221	Method Blank	SW8082	2.4	2.4	ug/kg	U
sv051304c-pp	PCB-1232	Method Blank	SW8082	5.8	5.8	ug/kg	U
sv051304c-pp	PCB-1242	Method Blank	SW8082	7.0	7.0	ug/kg	U
sv051304c-pp	PCB-1248	Method Blank	SW8082	4.2	4.2	ug/kg	U
sv051304c-pp	PCB-1254	Method Blank	SW8082	2.8	2.8	ug/kg	U
sv051304c-pp	PCB-1260	Method Blank	SW8082	2.0	2.0	ug/kg	U
Surrogate(s)	Result	Units	% Recovery	Qualifier	Acceptance Limits		
Tetrachloro-m-xylene	0.90	ug/kg	90		15 - 147		
Decachlorobiphenyl	0.50	ug/kg	101		15 - 147		
Surrogate(s)	Result	Units	% Recovery	Qualifier	Acceptance Limits		
Tetrachloro-m-xylene	0.90	ug/kg	90		30 - 120		
Decachlorobiphenyl	0.50	ug/kg	101		30 - 120		

Polynuclear Aromatic Hydrocarbons

QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
sv051404i	1-Methylnaphthalene	Method Blank	SW8270C-SIM	0.12	0.12	ug/L	U
sv051404i	2-Methylnaphthalene	Method Blank	SW8270C-SIM	0.18	0.18	ug/L	U
sv051404i	Acenaphthene	Method Blank	SW8270C-SIM	0.13	0.13	ug/L	U
sv051404i	Acenaphthylene	Method Blank	SW8270C-SIM	0.13	0.13	ug/L	U
sv051404i	Anthracene	Method Blank	SW8270C-SIM	0.080	0.080	ug/L	U
sv051404i	Benzo(a)anthracene	Method Blank	SW8270C-SIM	0.11	0.11	ug/L	U
sv051404i	Benzo(a)pyrene	Method Blank	SW8270C-SIM	0.094	0.094	ug/L	U
sv051404i	Benzo(b)fluoranthene	Method Blank	SW8270C-SIM	0.081	0.081	ug/L	U
sv051404i	Benzo(g,h,i)perylene	Method Blank	SW8270C-SIM	0.092	0.092	ug/L	U
sv051404i	Benzo(k)fluoranthene	Method Blank	SW8270C-SIM	0.082	0.082	ug/L	U
sv051404i	Chrysene	Method Blank	SW8270C-SIM	0.060	0.060	ug/L	U
sv051404i	Dibenz(a,h)anthracene	Method Blank	SW8270C-SIM	0.10	0.10	ug/L	U
sv051404i	Fluoranthene	Method Blank	SW8270C-SIM	0.084	0.084	ug/L	U
sv051404i	Fluorene	Method Blank	SW8270C-SIM	0.10	0.10	ug/L	U
sv051404i	Indeno(1,2,3-cd)pyrene	Method Blank	SW8270C-SIM	0.15	0.15	ug/L	U
sv051404i	Naphthalene	Method Blank	SW8270C-SIM	0.15	0.15	ug/L	U
sv051404i	Phenanthrene	Method Blank	SW8270C-SIM	0.10	0.10	ug/L	U
sv051404i	Pyrene	Method Blank	SW8270C-SIM	0.12	0.12	ug/L	U
Surrogate(s)	Result	Units	% Recovery	Qualifier	Acceptance Limits		
Decafluorobiphenyl	27	ug/L	108		55 - 108		

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Chlorinated Pesticides							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
sv051904c-pp	4,4'-DDD	Method Blank	SW8081A	0.0080	0.0080	ug/L	U
sv051904c-pp	4,4'-DDE	Method Blank	SW8081A	0.016	0.016	ug/L	U
sv051904c-pp	4,4'-DDT	Method Blank	SW8081A	0.013	0.013	ug/L	U
sv051904c-pp	Aldrin	Method Blank	SW8081A	0.0050	0.0050	ug/L	U
sv051904c-pp	Alpha-BHC	Method Blank	SW8081A	0.0060	0.0060	ug/L	U
sv051904c-pp	Beta-BHC	Method Blank	SW8081A	0.0050	0.0050	ug/L	U
sv051904c-pp	Chlordane	Method Blank	SW8081A	0.20	0.20	ug/L	U
sv051904c-pp	Delta-BHC	Method Blank	SW8081A	0.017	0.017	ug/L	U
sv051904c-pp	Dieldrin	Method Blank	SW8081A	0.0090	0.0090	ug/L	U
sv051904c-pp	Endosulfan I	Method Blank	SW8081A	0.016	0.016	ug/L	U
sv051904c-pp	Endosulfan II	Method Blank	SW8081A	0.013	0.013	ug/L	U
sv051904c-pp	Endosulfan Sulfate	Method Blank	SW8081A	0.0060	0.0060	ug/L	U
sv051904c-pp	Endrin	Method Blank	SW8081A	0.014	0.014	ug/L	U
sv051904c-pp	Endrin Aldehyde	Method Blank	SW8081A	0.012	0.012	ug/L	U
sv051904c-pp	Gamma-BHC (Lindane)	Method Blank	SW8081A	0.0060	0.0060	ug/L	U
sv051904c-pp	Heptachlor	Method Blank	SW8081A	0.0090	0.0090	ug/L	U
sv051904c-pp	Heptachlor Epoxide	Method Blank	SW8081A	0.013	0.013	ug/L	U
sv051904c-pp	Methoxychlor	Method Blank	SW8081A	0.014	0.014	ug/L	U
sv051904c-pp	Toxaphene	Method Blank	SW8081A	0.070	0.070	ug/L	U

PCBs							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
sv051904c-pp	PCB-1016	Method Blank	SW8082	0.098	0.098	ug/L	U
sv051904c-pp	PCB-1221	Method Blank	SW8082	0.31	0.31	ug/L	U
sv051904c-pp	PCB-1232	Method Blank	SW8082	0.20	0.20	ug/L	U
sv051904c-pp	PCB-1242	Method Blank	SW8082	0.083	0.083	ug/L	U
sv051904c-pp	PCB-1248	Method Blank	SW8082	0.054	0.054	ug/L	U
sv051904c-pp	PCB-1254	Method Blank	SW8082	0.089	0.089	ug/L	U
sv051904c-pp	PCB-1260	Method Blank	SW8082	0.11	0.11	ug/L	U
Surrogate(s)	Result	Units	% Recovery	Qualifier	Acceptance Limits		
Tetrachloro-m-xylene	0.82	ug/L	82		15 - 147		
Decachlorobiphenyl	0.42	ug/L	84		15 - 147		
Surrogate(s)	Result	Units	% Recovery	Qualifier	Acceptance Limits		
Tetrachloro-m-xylene	0.82	ug/L	82		15 - 147		
Decachlorobiphenyl	0.42	ug/L	84		15 - 147		

Semi-Volatile Organic Compounds							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
SV052004L	1,2,4,5-Tetrachlorobenzene	Method Blank	SW8270C	2.5	2.5	ug/L	U
SV052004L	1,2,4-Trichlorobenzene	Method Blank	SW8270C	2.7	2.7	ug/L	U
SV052004L	1,2-Dichlorobenzene	Method Blank	SW8270C	2.9	2.9	ug/L	U
SV052004L	1,2-Diphenylhydrazine	Method Blank	SW8270C	0.94	0.94	ug/L	U
SV052004L	1,3-Dichlorobenzene	Method Blank	SW8270C	3.0	3.0	ug/L	U
SV052004L	1,4-Dichlorobenzene	Method Blank	SW8270C	2.9	2.9	ug/L	U
SV052004L	1-Methylnaphthalene	Method Blank	SW8270C	1.5	1.5	ug/L	U
SV052004L	1-Naphthylamine	Method Blank	SW8270C	0.98	0.98	ug/L	U
SV052004L	2,3,4,6-Tetrachlorophenol	Method Blank	SW8270C	3.0	3.0	ug/L	U
SV052004L	2,4,5-Trichlorophenol	Method Blank	SW8270C	3.5	3.5	ug/L	U
SV052004L	2,4,6-Trichlorophenol	Method Blank	SW8270C	2.2	2.2	ug/L	U
SV052004L	2,4-Dichlorophenol	Method Blank	SW8270C	2.2	2.2	ug/L	U
SV052004L	2,4-Dimethylphenol	Method Blank	SW8270C	1.9	1.9	ug/L	U
SV052004L	2,4-Dinitrophenol	Method Blank	SW8270C	4.6	4.6	ug/L	U
SV052004L	2,4-Dinitrotoluene	Method Blank	SW8270C	0.94	0.94	ug/L	U
SV052004L	2,6-Dinitrotoluene	Method Blank	SW8270C	2.1	2.1	ug/L	U
SV052004L	2-Chloronaphthalene	Method Blank	SW8270C	2.0	2.0	ug/L	U

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SV052004L	2-Chlorophenol	Method Blank	SW8270C	2.7	2.7	ug/L	U
SV052004L	2-Methylnaphthalene	Method Blank	SW8270C	1.2	1.2	ug/L	U
SV052004L	2-Methylphenol	Method Blank	SW8270C	2.3	2.3	ug/L	U
SV052004L	2-Naphthylamine	Method Blank	SW8270C	1.3	1.3	ug/L	U
SV052004L	2-Nitroaniline	Method Blank	SW8270C	0.78	0.78	ug/L	U
SV052004L	2-Nitrophenol	Method Blank	SW8270C	3.0	3.0	ug/L	U
SV052004L	2-Picoline	Method Blank	SW8270C	1.8	1.8	ug/L	U
SV052004L	3,3'-Dichlorobenzidine	Method Blank	SW8270C	1.0	1.0	ug/L	U
SV052004L	3-Methylcholanthrene	Method Blank	SW8270C	1.3	1.3	ug/L	U
SV052004L	3-Nitroaniline	Method Blank	SW8270C	1.5	1.5	ug/L	U
SV052004L	4,6-Dinitro-2-methylphenol	Method Blank	SW8270C	3.7	3.7	ug/L	U
SV052004L	4-Aminobiphenyl	Method Blank	SW8270C	1.2	1.2	ug/L	U
SV052004L	4-Bromophenyl phenyl ether	Method Blank	SW8270C	2.3	2.3	ug/L	U
SV052004L	4-Chloro-3-methylphenol	Method Blank	SW8270C	2.6	2.6	ug/L	U
SV052004L	4-Chloroaniline	Method Blank	SW8270C	1.4	1.4	ug/L	U
SV052004L	4-Chlorophenyl Phenyl Ether	Method Blank	SW8270C	2.8	2.8	ug/L	U
SV052004L	4-Nitroaniline	Method Blank	SW8270C	0.63	0.63	ug/L	U
SV052004L	4-Nitrophenol	Method Blank	SW8270C	1.7	1.7	ug/L	U
SV052004L	7,12-Dimethylbenz(a)anthracene	Method Blank	SW8270C	1.3	1.3	ug/L	U
SV052004L	a,a-Dimethylphenethylamine	Method Blank	SW8270C	0.80	0.80	ug/L	U
SV052004L	Acenaphthene	Method Blank	SW8270C	1.7	1.7	ug/L	U
SV052004L	Acenaphthylene	Method Blank	SW8270C	1.6	1.6	ug/L	U
SV052004L	Acetophenone	Method Blank	SW8270C	0.86	0.86	ug/L	U
SV052004L	Aniline	Method Blank	SW8270C	1.5	1.5	ug/L	U
SV052004L	Anthracene	Method Blank	SW8270C	1.3	1.3	ug/L	U
SV052004L	Benzidine	Method Blank	SW8270C	0.84	0.84	ug/L	U
SV052004L	Benzo(a)anthracene	Method Blank	SW8270C	1.4	1.4	ug/L	U
SV052004L	Benzo(a)pyrene	Method Blank	SW8270C	1.1	1.1	ug/L	U
SV052004L	Benzo(b)fluoranthene	Method Blank	SW8270C	1.5	1.5	ug/L	U
SV052004L	Benzo(g,h,i)perylene	Method Blank	SW8270C	1.1	1.1	ug/L	U
SV052004L	Benzo(k)fluoranthene	Method Blank	SW8270C	1.8	1.8	ug/L	U
SV052004L	Benzoic Acid	Method Blank	SW8270C	2.1	2.1	ug/L	U
SV052004L	Benzyl Alcohol	Method Blank	SW8270C	1.4	1.4	ug/L	U
SV052004L	Benzyl Butyl Phthalate	Method Blank	SW8270C	0.87	0.87	ug/L	U
SV052004L	Bis(2-chloroethoxy)methane	Method Blank	SW8270C	2.4	2.4	ug/L	U
SV052004L	Bis(2-chloroethyl) Ether	Method Blank	SW8270C	1.3	1.3	ug/L	U
SV052004L	Bis(2-chloroisopropyl) Ether	Method Blank	SW8270C	2.0	2.0	ug/L	U
SV052004L	Bis(2-ethylhexyl)phthalate	Method Blank	SW8270C	0.74	0.74	ug/L	U
SV052004L	Chrysene	Method Blank	SW8270C	1.7	1.7	ug/L	U
SV052004L	Di-n-butyl Phthalate	Method Blank	SW8270C	0.75	0.75	ug/L	U
SV052004L	Di-n-octyl Phthalate	Method Blank	SW8270C	0.82	0.82	ug/L	U
SV052004L	Dibenz(a,h)anthracene	Method Blank	SW8270C	1.2	1.2	ug/L	U
SV052004L	Dibenzofuran	Method Blank	SW8270C	1.4	1.4	ug/L	U
SV052004L	Diethyl Phthalate	Method Blank	SW8270C	1.4	1.4	ug/L	U
SV052004L	Dimethyl Phthalate	Method Blank	SW8270C	1.3	1.3	ug/L	U
SV052004L	Ethyl Methanesulfonate	Method Blank	SW8270C	1.2	1.2	ug/L	U
SV052004L	Fluoranthene	Method Blank	SW8270C	1.6	1.6	ug/L	U
SV052004L	Fluorene	Method Blank	SW8270C	1.5	1.5	ug/L	U
SV052004L	Hexachlorobenzene	Method Blank	SW8270C	1.8	1.8	ug/L	U
SV052004L	Hexachlorobutadiene	Method Blank	SW8270C	2.1	2.1	ug/L	U
SV052004L	Hexachlorocyclopentadiene	Method Blank	SW8270C	0.92	0.92	ug/L	U
SV052004L	Hexachloroethane	Method Blank	SW8270C	2.8	2.8	ug/L	U
SV052004L	Indeno(1,2,3-cd)pyrene	Method Blank	SW8270C	1.6	1.6	ug/L	U
SV052004L	Isophorone	Method Blank	SW8270C	1.3	1.3	ug/L	U

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SV052004L	Methyl Methanesulfonate	Method Blank	SW8270C	1.3	1.3	ug/L	U
SV052004L	N-Nitroso-di-n-butylamine	Method Blank	SW8270C	1.7	1.7	ug/L	U
SV052004L	N-Nitroso-di-n-propylamine	Method Blank	SW8270C	1.5	1.5	ug/L	U
SV052004L	N-Nitrosodimethylamine	Method Blank	SW8270C	1.5	1.5	ug/L	U
SV052004L	N-Nitrosodiphenylamine	Method Blank	SW8270C	1.7	1.7	ug/L	U
SV052004L	N-Nitrosopiperidine	Method Blank	SW8270C	1.5	1.5	ug/L	U
SV052004L	Naphthalene	Method Blank	SW8270C	1.6	1.6	ug/L	U
SV052004L	Nitrobenzene	Method Blank	SW8270C	1.0	1.0	ug/L	U
SV052004L	p-Dimethylaminoazobenzene	Method Blank	SW8270C	0.82	0.82	ug/L	U
SV052004L	Pentachlorobenzene	Method Blank	SW8270C	2.7	2.7	ug/L	U
SV052004L	Pentachloronitrobenzene	Method Blank	SW8270C	2.8	2.8	ug/L	U
SV052004L	Pentachlorophenol	Method Blank	SW8270C	3.2	3.2	ug/L	U
SV052004L	Phenacetin	Method Blank	SW8270C	1.2	1.2	ug/L	U
SV052004L	Phenanthrene	Method Blank	SW8270C	1.4	1.4	ug/L	U
SV052004L	Phenol	Method Blank	SW8270C	1.4	1.4	ug/L	U
SV052004L	Pronamide	Method Blank	SW8270C	1.2	1.2	ug/L	U
SV052004L	Pyrene	Method Blank	SW8270C	0.88	0.88	ug/L	U

Surrogate(s)	Result	Units	% Recovery	Qualifier	Acceptance Limits
2-Fluorophenol	18	ug/L	36		20 - 119
Phenol-d6	13	ug/L	26		18 - 121
Nitrobenzene d5	50	ug/L	100		23 - 120
2-Fluorobiphenyl	46	ug/L	92		20 - 119
2,4,6-Tribromophenol	41	ug/L	82		15 - 112
p-Terphenyl-d14	51	ug/L	102		18 - 137

Florida Petroleum Range Organics

QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
sv052404b-fp	Total PHS	Method Blank	FL-PRO	280	280	ug/L	U
Surrogate(s)	Result	Units	% Recovery	Qualifier	Acceptance Limits		
Ortho-Terphenyl	51	ug/L	103		82 - 142		
Nonatricontane	230	ug/L	78		42 - 193		

Volatile Aromatic Hydrocarbons

QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
V051304A	Benzene	Method Blank	SW8260B	0.30	0.30	ug/L	U
V051304A	Ethylbenzene	Method Blank	SW8260B	0.27	0.27	ug/L	U
V051304A	m&p-Xylenes	Method Blank	SW8260B	0.61	0.61	ug/L	U
V051304A	Methyl-tert-butyl Ether	Method Blank	SW8260B	0.31	0.31	ug/L	U
V051304A	o-Xylene	Method Blank	SW8260B	0.25	0.25	ug/L	U
V051304A	Toluene	Method Blank	SW8260B	0.29	0.29	ug/L	U

Volatile Organic Compounds

QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
V051304A	1,1,1,2-Tetrachloroethane	Method Blank	SW8260B	0.27	0.27	ug/L	U
V051304A	1,1,1-Trichloroethane	Method Blank	SW8260B	0.33	0.33	ug/L	U
V051304A	1,1,2,2-Tetrachloroethane	Method Blank	SW8260B	0.19	0.19	ug/L	U
V051304A	1,1,2-Trichloroethane	Method Blank	SW8260B	0.34	0.34	ug/L	U
V051304A	1,1-Dichloroethane	Method Blank	SW8260B	0.36	0.36	ug/L	U
V051304A	1,1-Dichloroethene	Method Blank	SW8260B	0.50	0.50	ug/L	U
V051304A	1,1-Dichloropropene	Method Blank	SW8260B	0.39	0.39	ug/L	U
V051304A	1,2,3-Trichlorobenzene	Method Blank	SW8260B	0.30	0.30	ug/L	U
V051304A	1,2,3-Trichloropropane	Method Blank	SW8260B	0.33	0.33	ug/L	U
V051304A	1,2,4-Trichlorobenzene	Method Blank	SW8260B	0.30	0.30	ug/L	U
V051304A	1,2,4-Trimethylbenzene	Method Blank	SW8260B	0.26	0.26	ug/L	U
V051304A	1,2-Dibromo-3-chloropropane	Method Blank	SW8260B	0.55	0.55	ug/L	U
V051304A	1,2-Dibromoethane	Method Blank	SW8260B	0.20	0.20	ug/L	U
V051304A	1,2-Dichlorobenzene	Method Blank	SW8260B	0.28	0.28	ug/L	U
V051304A	1,2-Dichloroethane	Method Blank	SW8260B	0.36	0.36	ug/L	U
V051304A	1,2-Dichloropropane	Method Blank	SW8260B	0.30	0.30	ug/L	U

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

V051304A	1,3,5-Trimethylbenzene	Method Blank	SW8260B	0.29	0.29	ug/L	U
V051304A	1,3-Dichlorobenzene	Method Blank	SW8260B	0.26	0.26	ug/L	U
V051304A	1,3-Dichloropropane	Method Blank	SW8260B	0.26	0.26	ug/L	U
V051304A	1,4-Dichlorobenzene	Method Blank	SW8260B	0.30	0.30	ug/L	U
V051304A	2,2-Dichloropropane	Method Blank	SW8260B	0.39	0.39	ug/L	U
V051304A	2-Chloroethyl Vinyl Ether	Method Blank	SW8260B	0.35	0.35	ug/L	U
V051304A	2-Chlorotoluene	Method Blank	SW8260B	0.29	0.29	ug/L	U
V051304A	2-Hexanone (MBK)	Method Blank	SW8260B	0.27	0.27	ug/L	U
V051304A	4-Chlorotoluene	Method Blank	SW8260B	0.27	0.27	ug/L	U
V051304A	4-Methyl-2-pentanone (MIBK)	Method Blank	SW8260B	0.35	0.35	ug/L	U
V051304A	Acetone	Method Blank	SW8260B	0.71	0.71	ug/L	U
V051304A	Acrolein	Method Blank	SW8260B	2.8	2.8	ug/L	U
V051304A	Acrylonitrile	Method Blank	SW8260B	1.6	1.6	ug/L	U
V051304A	Benzene	Method Blank	SW8260B	0.30	0.30	ug/L	U
V051304A	Bromobenzene	Method Blank	SW8260B	0.22	0.22	ug/L	U
V051304A	Bromochloromethane	Method Blank	SW8260B	0.39	0.39	ug/L	U
V051304A	Bromodichloromethane	Method Blank	SW8260B	0.29	0.29	ug/L	U
V051304A	Bromoform	Method Blank	SW8260B	0.25	0.25	ug/L	U
V051304A	Bromomethane	Method Blank	SW8260B	0.47	0.47	ug/L	U
V051304A	Carbon Disulfide	Method Blank	SW8260B	0.41	0.41	ug/L	U
V051304A	Carbon Tetrachloride	Method Blank	SW8260B	0.39	0.39	ug/L	U
V051304A	Chlorobenzene	Method Blank	SW8260B	0.31	0.31	ug/L	U
V051304A	Chloroethane	Method Blank	SW8260B	0.62	0.62	ug/L	U
V051304A	Chloroform	Method Blank	SW8260B	0.41	0.41	ug/L	U
V051304A	Chloromethane	Method Blank	SW8260B	0.43	0.43	ug/L	U
V051304A	Cis-1,2-dichloroethene	Method Blank	SW8260B	0.33	0.33	ug/L	U
V051304A	Cis-1,3-dichloropropene	Method Blank	SW8260B	0.27	0.27	ug/L	U
V051304A	Dibromochloromethane	Method Blank	SW8260B	0.25	0.25	ug/L	U
V051304A	Dibromomethane	Method Blank	SW8260B	0.34	0.34	ug/L	U
V051304A	Dichlorodifluoromethane	Method Blank	SW8260B	0.51	0.51	ug/L	U
V051304A	Ethylbenzene	Method Blank	SW8260B	0.27	0.27	ug/L	U
V051304A	Hexachlorobutadiene	Method Blank	SW8260B	0.59	0.59	ug/L	U
V051304A	Iodomethane	Method Blank	SW8260B	0.40	0.40	ug/L	U
V051304A	Isopropylbenzene	Method Blank	SW8260B	0.26	0.26	ug/L	U
V051304A	m&p-Xylenes	Method Blank	SW8260B	0.61	0.61	ug/L	U
V051304A	Methyl ethyl ketone	Method Blank	SW8260B	0.25	0.25	ug/L	U
V051304A	Methyl-tert-butyl Ether	Method Blank	SW8260B	0.31	0.31	ug/L	U
V051304A	Methylene Chloride	Method Blank	SW8260B	0.21	0.63	ug/L	i
V051304A	N-butylbenzene	Method Blank	SW8260B	0.27	0.27	ug/L	U
V051304A	N-propylbenzene	Method Blank	SW8260B	0.25	0.25	ug/L	U
V051304A	o-Xylene	Method Blank	SW8260B	0.25	0.25	ug/L	U
V051304A	Sec-butylbenzene	Method Blank	SW8260B	0.27	0.27	ug/L	U
V051304A	Styrene	Method Blank	SW8260B	0.25	0.25	ug/L	U
V051304A	Tert-butylbenzene	Method Blank	SW8260B	0.29	0.29	ug/L	U
V051304A	Tetrachloroethene	Method Blank	SW8260B	0.43	0.43	ug/L	U
V051304A	Toluene	Method Blank	SW8260B	0.29	0.29	ug/L	U
V051304A	Trans-1,2-dichloroethene	Method Blank	SW8260B	0.50	0.50	ug/L	U
V051304A	Trans-1,3-dichloropropene	Method Blank	SW8260B	0.25	0.25	ug/L	U
V051304A	Trichloroethene	Method Blank	SW8260B	0.43	0.43	ug/L	U
V051304A	Trichlorofluoromethane	Method Blank	SW8260B	0.50	0.50	ug/L	U
V051304A	Vinyl Acetate	Method Blank	SW8260B	0.31	0.31	ug/L	U
V051304A	Vinyl Chloride	Method Blank	SW8260B	0.49	0.49	ug/L	U

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Kimley-Horn and Associates, Inc.

Report No.: J042820

Project Name: FPUA

Date/Time Received: 5/12/04 08:45

Surrogate(s)	Result	Units	% Recovery	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4	53	ug/L	106		80 - 120
Toluene d(8)	51	ug/L	102		88 - 110
4-Bromofluorobenzene	55	ug/L	110		86 - 115

Surrogate(s)	Result	Units	% Recovery	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4	53	ug/L	106		80 - 120
Toluene d(8)	51	ug/L	102		88 - 110
4-Bromofluorobenzene	55	ug/L	110		86 - 115

Miscellaneous Analytes							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
WCJ-051304-N	Nitrate + Nitrite (as N)	Method Blank	SM4500NO3-F	0.027	0.027	mg/L	U

TDS							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
WCJ-051304-TDS	Total Dissolved Solids	Method Blank	E160.1	10	10	mg/L	U

Miscellaneous Analytes							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
WCJ-051804-CL	Total Chlorides	Method Blank	E325.2	0.50	0.50	mg/L	U

Miscellaneous Analytes							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
wct051404nh3-3	Ammonia (as N)	Method Blank	E350.1	0.026	0.026	mg/L	U

Miscellaneous Analytes							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
WCT051704TKN1	Total Kjeldahl Nitrogen (as N)	Method Blank	E351.2	0.048	0.048	mg/L	U

Miscellaneous Analytes							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
WCT051704TKN2	Total Kjeldahl Nitrogen (as N)	Method Blank	E351.2	0.19	0.048	mg/kg	U
WCT051704TKN2	Total Kjeldahl Nitrogen (as N)	Method Blank	E351.2	0.048	0.048	mg/L	U

Miscellaneous Analytes							
QCBatchID	Analyte	QC Sample Type	Method	MDL	Result	Units	Qualifier
WCT051804NO3	Nitrate + Nitrite (as N)	Method Blank	SM4500NO3-F	0.27	0.27	mg/Kg	U

Quality Assurance Qualifiers:

- i The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- U The compound was analyzed for but not detected.

Definitions:

Water matrix refers to all aqueous matrices, including but not limited to, drinking water, wastewater, ground water, surface water, aqueous wastes and leachates
 Soil matrix refers to all non-aqueous matrices, including soils, solids, sludges, semi-solids, and non-aqueous waste samples
 All results in mg/kg or % are reported in dry weight basis, unless notated otherwise. All results in mg/L are reported in wet weight basis.
 MDL Method Detection Limit, without correction for dilution or moisture content
 Adjusted Reporting Limit is the MDL accounting for all dilutions and moisture content calculations.
 PQL is defined to be 4 times the MDL, for all results qualified with a 'U' qualifier.
 Sampling Method; G=Grab, P=Pump, C=Composite

The estimated measurements of uncertainty can be provided upon request

This is the last page of the analytical report.



Advanced Environmental Labs Inc

Advanced Environmental Labs
6601 Southpoint Parkway
Jacksonville, FL 32216

Client: KHA Project name: FMA
Date/Time Rcvd: 5/12/04 0845 Log-in request number: JOU2820
Received by: dm Completed by: dm

Cooler/Shipping Information:

Courier: ☐ AEL ☒ Client ☐ UPS ☐ Pony Express ☐ FedEx ☐ Other (describe): _____

Type: ☒ Cooler ☐ Box ☐ Other (describe): _____

Cooler temperature: Identify the cooler and document the temperature blank or ice water measurement

Cooler ID	1	2	3	4	
Temp (°C)	0.0	0.0	0.0	0.3	
Temp taken from	☐ Temp blank ☒ Cooler	☐ Temp blank ☒ Cooler	☐ Temp blank ☒ Cooler	☐ Temp blank ☒ Cooler	☐ Temp blank ☒ Cooler
Temp measured with	☒ IR gun ☐ Thermometer (enter ID):	☒ IR gun ☐ Thermometer (enter ID):	☒ IR gun ☐ Thermometer (enter ID):	☒ IR gun ☐ Thermometer (enter ID):	☐ IR gun ☐ Thermometer (enter ID):

Other Information:

Any discrepancies should be explained in the "Comments" section below.

	CHECKLIST	YES	NO	NA
1.	Were custody seals on shipping container(s) intact?			
2.	Were custody papers properly included with samples?			
3.	Were custody papers properly filled out (ink, signed, match labels)?			
4.	Did all bottles arrive in good condition (unbroken)?			
5.	Were all bottle labels complete (sample #, date, signed, analysis, preservatives)?			
6.	Did the sample labels agree with the chain of custody?			
7.	Were correct bottles used for the tests indicated?			
8.	Were proper sample preservation techniques indicated on the label?			
9.	Were samples received within holding times?			
10.	Were all VOA vials checked for the presence of air bubbles?			
11.	Were there air bubbles present in the VOA vials?			
12.	Were samples in direct contact with wet ice? If "No," check one: ☐ NO ICE ☐ BLUE ICE			
13.	Was the cooler temperature less than 6°C?			
14.	Were sample pHs checked and recorded by Sample control? <i>NOTE: VOA samples are checked by laboratory analysts.</i>			
15.	Were the sample containers provided by AEL?			
16.	Were samples accepted into the laboratory?			
17.	Was it necessary to split samples into other bottles?			

Comments:

Chain-of-Custody for AEL Jax to AEL Tampa

AEL Jax
6601 Southpoint Parkway
Jacksonville, FL 32216
904-363-9350 Fax 904-363-9354
Contact Person: Sean Hyde

AEL Tampa
5810-D Breckinridge Parkway
Tampa, FL 33610
813-630-9616 Fax 813-630-4327
Contact Person: Michael Cammarata

Project #: J042820

CustomerName: Kimley-Horn and Associates, Inc.

Collector: Troy Mayhew

Department: Wetchem (Tampa)

☐ Check if Rush

Lab Code	Client Sample ID	Test	Matrix	Collect Date / Time	Receive Date	Due Date	# Bottles	Bottle Type (Pres.)
J042820-01	GP-1	X_TN (not test group)(T)	Water	5/11/2004 11:30	5/12/04 8:45	5/17/2004		250mL Poly
J042820-01	GP-1	Ammonia (T)	Water	5/11/2004 11:30	5/12/04 8:45	5/17/2004		250mL Poly
J042820-01	GP-1	X_TKN (T)	Water	5/11/2004 11:30	5/12/04 8:45	5/17/2004		250mL Poly
J042820-02	GP-2	X_TKN (T)	Water	5/11/2004 19:30	5/12/04 8:45	5/17/2004		250mL Poly
J042820-02	GP-2	X_TN (not test group)(T)	Water	5/11/2004 19:30	5/12/04 8:45	5/17/2004		250mL Poly
J042820-02	GP-2	Ammonia (T)	Water	5/11/2004 19:30	5/12/04 8:45	5/17/2004		250mL Poly
J042820-03	GP-3	Ammonia (T)	Water	5/11/2004 17:00	5/12/04 8:45	5/17/2004		250mL Poly
J042820-03	GP-3	X_TKN (T)	Water	5/11/2004 17:00	5/12/04 8:45	5/17/2004		250mL Poly
J042820-03	GP-3	X_TN (not test group)(T)	Water	5/11/2004 17:00	5/12/04 8:45	5/17/2004		250mL Poly
J042820-07	GP-5	Ammonia (T)	Water	5/11/2004 18:00	5/12/04 8:45	5/17/2004		250mL Poly
J042820-07	GP-5	X_TKN (T)	Water	5/11/2004 18:00	5/12/04 8:45	5/17/2004		250mL Poly
J042820-07	GP-5	X_TN (not test group)(T)	Water	5/11/2004 18:00	5/12/04 8:45	5/17/2004		250mL Poly
J042820-08	S-1	Nitrate + Nitrite (T)	Soil	5/11/2004 10:30	5/12/04 8:45	5/19/2004		4oz. Glass Jar
J042820-08	S-1	TKN (T)	Soil	5/11/2004 10:30	5/12/04 8:45	5/19/2004		4oz. Glass Jar
J042820-08	S-1	TN (not test group)	Soil	5/11/2004 10:30	5/12/04 8:45	5/19/2004		4oz. Glass Jar
J042820-08	S-1	Ammonia (T) in soil	Soil	5/11/2004 10:30	5/12/04 8:45	5/19/2004		8oz. Glass Soil

Jacksonville Relinquisher: *[Signature]* Date/Time: 5/12/2004 4:43:16 PM
Shipping Relinquisher: *[Signature]* Date/Time: 05/13/04 8:00

Chain-of-Custody for AEL Jax to AEL Tampa

AEL Jax
6601 Southpoint Parkway
Jacksonville, FL 32216
904-363-9350 Fax 904-363-9354
Contact Person: Sean Hyde

AEL Tampa
5810-D Breckinridge Parkway
Tampa, FL 33610
813-630-9616 Fax 813-630-4327
Contact Person: Michael Cammarata

Project #: J042820

CustomerName: Kimley-Horn and Associates, Inc.

Collector: Troy Mayhew

Department: Wetchem (Tampa)

☐ Check if Rush

Lab Code	Client Sample ID	Test	Matrix	Collect Date / Time	Receive Date	Due Date	# Bottles	Bottle Type (Pres.)
J042820-09	S-2	TKN (T)	Soil	5/11/2004 19:30	5/12/04 8:45	5/19/2004	4oz.	Glass Jar
J042820-09	S-2	TN (not test group)	Soil	5/11/2004 19:30	5/12/04 8:45	5/19/2004	4oz.	Glass Jar
J042820-09	S-2	Ammonia (T) in soil	Soil	5/11/2004 19:30	5/12/04 8:45	5/19/2004	8oz.	Glass Soil
J042820-09	S-2	Nitrate + Nitrite (T)	Soil	5/11/2004 19:30	5/12/04 8:45	5/19/2004	4oz.	Glass Jar
J042820-10	S-3	Nitrate + Nitrite (T)	Soil	5/11/2004 15:00	5/12/04 8:45	5/19/2004	4oz.	Glass Jar
J042820-10	S-3	TKN (T)	Soil	5/11/2004 15:00	5/12/04 8:45	5/19/2004	4oz.	Glass Jar
J042820-10	S-3	TN (not test group)	Soil	5/11/2004 15:00	5/12/04 8:45	5/19/2004	4oz.	Glass Jar
J042820-10	S-3	Ammonia (T) in soil	Soil	5/11/2004 15:00	5/12/04 8:45	5/19/2004	8oz.	Glass Soil
J042820-11	S-4	TN (not test group)	Soil	5/11/2004 14:00	5/12/04 8:45	5/19/2004	4oz.	Glass Jar
J042820-11	S-4	Ammonia (T) in soil	Soil	5/11/2004 14:00	5/12/04 8:45	5/19/2004	8oz.	Glass Soil
J042820-11	S-4	TKN (T)	Soil	5/11/2004 14:00	5/12/04 8:45	5/19/2004	4oz.	Glass Jar
J042820-11	S-4	Nitrate + Nitrite (T)	Soil	5/11/2004 14:00	5/12/04 8:45	5/19/2004	4oz.	Glass Jar
J042820-12	S-5	TKN (T)	Soil	5/11/2004 16:30	5/12/04 8:45	5/19/2004	4oz.	Glass Jar
J042820-12	S-5	TN (not test group)	Soil	5/11/2004 16:30	5/12/04 8:45	5/19/2004	4oz.	Glass Jar
J042820-12	S-5	Ammonia (T) in soil	Soil	5/11/2004 16:30	5/12/04 8:45	5/19/2004	8oz.	Glass Soil
J042820-12	S-5	Nitrate + Nitrite (T)	Soil	5/11/2004 16:30	5/12/04 8:45	5/19/2004	4oz.	Glass Jar

Date/Time: 5/12/2004 4:43:16 PM

PE

Shipping Receiver:

Jacksonville Relinquisher:

Date/Time:

Tampa Receiver:

Shipping Relinquisher:

Chain-of-Custody for AEL Jax to AEL Tampa

AEL Jax
 6601 Southpoint Parkway
 Jacksonville, FL 32216
 904-363-9350 Fax 904-363-9354
 Contact Person: Sean Hyde

AEL Tampa
 5810-D Breckinridge Parkway
 Tampa, FL 33610
 813-630-9816 Fax 813-630-4327
 Contact Person: Michael Cammarata

Project #: J042820

CustomerName: Kimley-Horn and Associates, Inc.

Collector: Troy Mayhew

Department: Wetchem (Tampa)

☐ **Check If Rush**

Lab Code	Client Sample ID	Test	Matrix	Collect Date / Time	Receive Date	Due Date	# Bottles	Bottle Type (Pres.)
J042820-13	S-6	Ammonia (T) in soil	Soil	5/11/2004 17:00	5/12/04 8:45	5/19/2004	8oz.	Glass Jar
J042820-13	S-6	Nitrate + Nitrite (T)	Soil	5/11/2004 17:00	5/12/04 8:45	5/19/2004	4oz.	Glass Jar
J042820-13	S-6	TKN (T)	Soil	5/11/2004 17:00	5/12/04 8:45	5/19/2004	4oz.	Glass Jar
J042820-13	S-6	TN (not test group)	Soil	5/11/2004 17:00	5/12/04 8:45	5/19/2004	4oz.	Glass Jar

Jacksonville Relinquisher: *Omachado*
 Shipping Relinquisher: *SR*

Shipping Receiver: PE Date/Time: 5/12/2004 4:43:16 PM
 Tampa Receiver: _____ Date/Time: _____



Advanced
Environmental Laboratories, Inc.

Jacksonville: 6801 Southpoint Parkway, Jacksonville, FL 32216 • (904) 363-9350 Fax (904) 363-9354
Tampa: 9610 Princess Palm Avenue, Tampa, FL 33619 • (813) 830-9619 Fax (813) 830-4327
Gainesville: 2106 NW 67th Place, Suite 7, Gainesville, FL 32606 • (352) 387-1500 Fax (352) 387-0050
Orlando: 528 S. North Lake Blvd., Suite 1016, Altamonte Springs, FL 32701 • (407) 937-1594 Fax (407) 937-1597

CHAIN OF CUSTODY RECORD

J042820

sectlab45/172004

CLIENT NAME: KIMLEY-HORN		PROJECT NAME: FPUA						
ADDRESS: 8711 Primmer Park Blvd #24		P.O. NUMBER / PROJECT NUMBER:						
PROJECT LOCATION: JACKSONVILLE, FL 32216								
PHONE: 904-2084		PROJECT LOCATION: FORT PIERCE, FL						
FAX: 904-2197								
CONTACT: TROY MAYHEW		SAMPLED BY: TROY MAYHEW						
TURN AROUND TIME:		REMARKS / SPECIAL INSTRUCTIONS:						
STANDARD								
RUSH								
WW - waste water	SW - surface water	GW - ground water	DW - drinking water	OIL	A - air	SO - soil	SL - sludge	Preserv
SAMPLE ID	SAMPLE DESCRIPTION			Grab Composite	SAMPLING DATE		MATRIX	NO. CONT.
GP-1	DISSOLVED METALS ONLY			G	5/11/04	1130 GW	12	
GP-2	DISSOLVED METALS ONLY			G		1930 GW	9	
GP-3	DISSOLVED METALS ONLY			G		1700 GW	9	
GP-4				G		1530 GW	9	
GP-5				G		1800 GW	10	
PAW-1				G		1000 GW	10	
PAW-2				G		1430 GW	9	
BOTTLE SIZE & TYPE								
A R E A U A L Y I R S I D								
LAB NUMBER								
8081								
8082								
5141								
8151								
8 FACT Metals								
TOTAL NITROGEN								
AMMONIA								
COPPER								

Relinquished by:		Received by:	
Date		Date	
Time		Time	
5/12/04 09:45		5/12/04 08:15	
1 Troy Mayhew			
2			
3			
4			

revised 8/01

Received on ice ☒ yes ☐ no ☐ QC ☐ sent ☐ received



Advanced Environmental Laboratories, Inc.
CHAIN OF CUSTODY HY

☒ Jacksonville: 8601 Southpoint Parkway, Jacksonville, FL 32216 • (904) 363-9350 Fax (904) 363-9354
☒ Tampa: 9610 Princess Palm Avenue, Tampa, FL 33619 • (813) 630-9616 Fax (813) 630-4327
☒ Gainesville: 2106 NW 67th Place, Suite 7, Gainesville, FL 32606 • (352) 387-1500 Fax (352) 387-0010
☒ Orlando: 528 S. North Lake Blvd., Suite 1016, Altamonte Springs, FL 32701 • (407) 937-1594 Fax (407) 937-1594

LAB NUMBER: J042820

Page 2 of 2

[illegible]

Revised 8/01

received on	yes	no	QC	sent	received
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**Advanced
Environmental Laboratories, Inc.**

Environmental Laboratories, Inc.
 6601 Southpoint Parkway, Jacksonville, FL 32216 • (904) 363-8950 Fax (904) 383-9354
 Jacksonville: 9610 Princess Palm Avenue, Tampa, FL 33619 • (813) 630-9616 Fax (813) 630-4327
 Tampa: 2106 NW 67th Place, Suite 7, Gainesville, FL 32606 • (352) 367-1500 Fax (352) 367-0000
 Gainesville: 528 S. North Lake Blvd., Suite 1016, Allamonte Springs, FL 32701 • (407) 937-1994 Fax
 Orlando:

CHAIN OF CUSTODY RECORD

LAB NUMBER: JDU2820

Page 3 of 3

CLIENT NAME: KIMLEY-HORN		PROJECT NAME: FDU A	
ADDRESS: 2106 NW 67th Place, Suite 7, Gainesville, FL 32606 • (352) 367-1500 Fax (352) 367-0001 528 S. North Lake Blvd., Suite 1016, Altamonte Springs, FL 32701 • (407) 937-1994 Fax (407) 937-1597		P.O. NUMBER / PROJECT NUMBER: 	
PHONE: FAX:		PROJECT LOCATION: 	
CONTACT: 		SAMPLED BY: 	
TURN AROUND TIME: ☐ STANDARD ☐ RUSH		REMARKS / SPECIAL INSTRUCTIONS: 	
WW = waste water SW = surface water GW = ground water DW = drinking water OIL A-air SO=soil SL=sludge	SAMPLE ID GP-5	SAMPLE DESCRIPTION DISSOLVED METALS ONLY	Grab Composite ☒
DATE 5/11/04	TIME 1800	MATRIX GW	NO. CONT. 10
BOTTLE SIZE & TYPE ARE REQUIRED			
PRESERVATION 8260 - Full 8270 - Full SODIUM, BARIUM, IRON PRIORITY PRIORITY METALS CHLORIDES TOTAL NITROGEN AMMONIA TOTAL DISSOLVED SOLIDS			
LAB NUMBER			

Relinquished by: Reg Meyer	Date 5/11/04	Received by: [Signature]	Date 5/11/04
1	2	3	4

I = Ice H = (HCl) S = (H ₂ SO ₄) N = (HNO ₃) T = (Sodium Thiosulfate)	QC ☐ sent ☐ received
--	--



Environmental Laboratories, Inc.

LAB NUMBER: 7042820

Page 7 of 7

☐ Gainesville: 2106 NW 67th Place, Suite 7, Gainesville, FL 32606 • (352) 367-1500 Fax (352) 367-0050
☐ Orlando: 528 S. North Lake Blvd., Suite 1016, Altamonte Springs, FL 32701 • (407) 937-154 Fax (407) 937-1597

CLIENT NAME:		PROJECT NAME:		P.O. NUMBER / PROJECT NUMBER:		PROJECT LOCATION:		SAMPLED BY:		REMARKS / SPECIAL INSTRUCTIONS:		TURN AROUND TIME:		SW-surface water		GW-ground water		DW-drinking water		OIL		A-air		SO-soil		SL-sludge		BOTTLE SIZE & TYPE		LAB NUMBER	
KIMLEY-HORN		FAUA																													
ADDRESS:		PHONE:		FAX:		CONTACT:		TURN AROUND TIME:		SW-surface water		GW-ground water		DW-drinking water		OIL		A-air		SO-soil		SL-sludge									
KIMLEY-HORN																															
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revised 8/01

Received on file: ☒ yes ☐ no ☐ sent ☐ received

XII Nature of Business

FMPA proposes to install a 300 MW combined cycle combustion turbine generating unit (Unit 1) at a site (Lot 8) of the Midway Industrial Park – Phase III North in Ft. Pierce, Florida. Natural gas will be the primary fuel; ultra-low sulfur No. 2 fuel oil will be the backup fuel. All process and sanitary wastewaters will be returned to the FPUA wastewater system for treatment and disposal.

Florida Electrical Power Plant Siting Act Site Certification Application

Volume 2 of 3

Treasure Coast Energy Center



**Submitted by:
Florida Municipal Power Agency
April 2005**



10.0 Permit Applications

This section identifies the permits and approvals that are required to construct and operate the Treasure Coast Energy Center (TCEC) Unit 1. The permit applications for state and local permits are included for informational purposes and to facilitate agency review of the TCEC Project. The site certification application and any final site certification constitute the sole license of the state and any regional or state agency for the construction and operation of the TCEC Project in accordance with Section 403.511(1), Florida Statutes. The exceptions to this are the conditional use permit applications which have been submitted separately to St. Lucie County.

10.1 Federal Permits Applications and Approvals

10.1.1 316 Demonstrations.

Not required.

10.1.2 NPDES Application

Industrial and sanitary wastewater from the TCEC will be conveyed to the separately permitted FPUA wastewater treatment system for treatment and/or disposal. As demonstrated in Form 62-620.910(1) included herein, the TCEC facility has no surface or ground water discharge requiring an NPDES permit.

10.1.3 Hazardous Waste Disposal Application

Not required.

10.1.4 Environmental Resource Permit Application

The U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service (USFWS) will review the potential environmental and wetlands impacts associated with the construction and operation of TCEC Unit 1 and associated facilities. An Environmental Resource Permit (ERP) application has been prepared to assist in this review and will be submitted to the Jacksonville District, South Permits Branch of the Corps in Palm Beach Gardens, Florida, in April 2005. A copy of the ERP application is included herein.

FMPA conducted a Wetland Rapid Assessment Procedure (WRAP) at the TCEC site to evaluate the conditions of the existing onsite wetlands and provide the basis for a mitigation proposal. The methods and results of the WRAP study are appended to the ERP application.

10.1.5 Prevention of Significant Deterioration (PSD) Permit Application

The construction and operation of Unit 1 will require a prevention of significant deterioration (PSD) air construction permit. The Florida Department of Environmental Protection (FDEP) will review the PSD application in coordination with the USEPA. The PSD Air Permit Application is attached under separate cover as Volume 3 of this SCA.

10.1.6 Coastal Zone Management Certification

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. The requirements related to Section 10 of the Rivers and Harbors Act and Section 404 of the Water Pollution Control Act are addressed in Appendix 10.1.4. Issuance of the final Site Certification will demonstrate consistency with Section 307 of the Coastal Zone Management Act.

10.1.7 Department of Energy Self-Certification

The primary fuel for TCEC is natural gas. No. 2 fuel oil is the backup fuel. FMPA will consider LNG as an alternate fuel for Unit 1 and future units.

The Power Plant and Industrial Fuel Use Act requires FMPA to certify that, with the installation of additional equipment, the TCEC Unit 1 would be capable of firing coal or another alternate fuel as the primary energy source. A copy of the Self-Certification is included herein.

10.1.8 Federal Aviation Administration - Determination of No Hazard to Air Navigation

The FAA requires that structures over 200 feet in height or within a specified distance of an airport be marked and lighted in accordance with the standards of the FAA Obstruction Marking and Lighting Advisory Circular 70/7460-1F. Although the stack will be less than 200 feet in height, a construction crane, likely 200 feet or greater in height, will be onsite during construction. The application is completed on FAA Form 7460-1 and is included herein.

10.1.9 U.S. Fish and Wildlife Service Review

The USFWS will review the proposed TCEC Unit 1 project for potential impacts to threatened and endangered species and/or critical habitat areas located within 5 miles of the TCEC site. The transmittal letter for this review request is included herein.

10.1.10 Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities

The Notice of Intent (NOI) form must be completed and submitted to the FDEP prior to Unit 1 construction activities at the TCEC site. The NOI is completed on Form 62-621.300(4)(b) and is included herein.

A Stormwater Pollution Prevention Plan for Stormwater Discharges from Construction Activities has been prepared for the TCEC Unit 1 construction. The Stormwater Pollution Prevention Plan is required to be onsite and implemented during the Unit 1 construction period.

10.1.11 Notice of Intent to use Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity

The FDEP requires a Notice of Intent for stormwater discharges associated with industrial activity. The Notice of Intent is included herein. The required Stormwater Pollution Prevention Plan will be prepared and implemented prior to operation of Unit 1.

10.2 Zoning Descriptions

A copy of the St. Lucie County zoning categories identified in the St. Lucie County Land Development Code applicable to the TCEC site and linear facility corridors are included herein.

10.3 Land Use Plan Descriptions

A copy of the St. Lucie County Future Land Use Designation element of the Comprehensive Plan of St. Lucie County, Florida, applicable to the TCEC site and linear facility corridors are included herein.

10.4 State Permits and Applications

As an undeveloped Greenfield site, FMPA holds not active permits for the TCEC facility or associated facilities.

10.4.1 Environmental Resource Permit Application

The construction, operation, and environmental/wetland impacts associated with Unit 1 and ultimate site development of TCEC will be reviewed during the certification process. An Environmental Resource Permit Application reflecting state permitting requirements has been prepared to assist in this review is included herein.

FMPA conducted a Wetland Rapid Assessment Procedure (WRAP) at the TCEC site to evaluate the conditions of the existing onsite wetlands and provide the basis for a mitigation proposal. The methods and results of the WRAP study are appended to the ERP application.

10.4.2 Application for Consumptive Uses of Water

Groundwater withdrawals associated with operation of Unit 1 will be required. These withdrawals will be reviewed through completion and review of a South Florida Water Management District Application Form 0645-W01. This application is included herein.

10.4.3 Permit Application to Construct, Repair, Modify, or Abandon a Well

FMPA proposes to construct three groundwater wells on the TCEC site. The permit application for this activity will be reviewed by the South Florida Water Management District. The detailed design and well drilling contractor information will be provided post-certification. The partially completed application is included herein. The final application will be submitted post-certification.

10.4.4 Short-Term Dewatering Permit Application

Dewatering of groundwater is considered a consumptive use of water and requires authorization from the South Florida Water Management District. Dewatering will be required for the construction of Unit 1. Further, the majority of the construction area will be dewatered to allow filling and stabilization of the site for placement of piping, electrical trenches, sumps, and foundations. Therefore, a Short-Term Dewatering Permit application has been prepared for review by the South Florida Water Management District. The permit application is prepared on Form 0445 and is included herein.

10.4.5 Florida Department of Transportation Utility Permit Application

The construction of the electrical transmission lines from the TCEC to the existing FPL transmission line and the Midway Substation will cross state roadways and are, therefore, subject to review by the Florida Department of Transportation (FDOT) and the Florida Turnpike Authority (FTA). The electric transmission lines will cross state Highway 709 (Glades Cutoff Road) and 712 (Midway Road), and the Florida's Turnpike and Interstate-95. The natural gas pipeline will cross Midway Road. Since the construction of the electric transmission lines and gas pipeline will cross or occur in state highway rights-of-way, FMPA will be required to apply for a Utility Permit through the FDOT. This permit application is included herein. Detailed design and right-of-way information will be provided post-certification.

10.4.6 Florida Division of Historical Resources (DHR) Review

The DHR will review the proposed TCEC site and surrounding areas to ascertain whether historic properties are known to exist in the area of potential effect. Duke Energy submitted a project review request to the DHR regarding this same project site and the DHR concluded in a letter dated March 10, 2000 that "no historic properties are known to exist in the area of potential effect....it is the opinion of this office that no historic properties will be affected by this undertaking." FMPA requested a similar review for the TCEC project. The DHR responded in similar fashion as the Duke determination. Copies of FMPA's request letter and the DHR response letter are included herein.

10.4.7 Florida Fish and Wildlife Conservation Commission Review

The Florida Fish and Wildlife Conservation Commission will review the proposed TCEC site and Unit 1 project for potential impacts to significant ecological and wildlife resources located within 5 miles of the TCEC site. The transmittal letter for this request is included herein.

10.4.8 Florida Natural Areas Inventory Review

The Florida Natural Areas Inventory (FNAI) was requested to review the proposed TCEC site and Unit 1 project for significant potential impacts to natural areas located within 5 miles of the project site. The transmittal letter for this request and the FNAI response are included herein.

10.5 Monitoring Programs

No monitoring programs are proposed at this time.

10.6 Groundwater Quality Data

Kimley-Horn and Associates, Inc. completed a groundwater and soils investigation at the TCEC site for the Ft. Pierce Utilities Authority in May 2004. The soils results will not be discussed in this subsection. However, the eight soil analytical results are included herein for reference.

Seven groundwater samples were collected in May 2004 from locations as illustrated on the 2003 aerial photograph included herein. Chemical analytical groundwater results were compared to Groundwater Cleanup Target Levels (GCTL) promulgated under Chapter 62-777 of the Florida Administrative Code.

The Kimley-Horn and Associates, Inc. investigation indicates that dissolved iron concentrations in the groundwater exceed the corresponding GCTL. The dissolved iron concentration reported from the investigation is 9.4 milligrams per liter (mg/L). The GCTL secondary standard for dissolved iron is 0.3 mg/L. Since iron is a naturally occurring metal in the subsurface geology, elevated concentrations in groundwater that interfaces with a subsurface geology rich in iron can be anticipated.

10.6.1 Site Subsurface Data

The TCEC site subsurface conditions were investigated by Tolunay-Wong Engineers, Inc. in September 2000 for the Duke Energy project. Tolunay-Wong Engineers, Inc. investigated the site by drilling 9 test borings to depths ranging from six feet to 80 feet; performing 13 cone penetrometer soundings to depths ranging from 30 feet to 80 feet; excavating 12 test pits to depths ranging from 6 feet to 12 feet; conducting one percolation test and four infiltration tests; installing two piezometers to depths of 20 feet and 25 feet, respectively; performing one downhole seismic cone survey and two electrical resistivity geophysical surveys at selected locations across the project area.

The soil stratigraphy primarily consists of interbedded layers of fine sands, silty fine sands, sandy silts, and to a lesser extent, clayey sands. The layer thicknesses generally vary from about 1 foot to 15 feet. The soils to depths of approximately 25 feet below existing grade are variable with significant loose zones. The soils below depths of about 25 feet to 30 feet are denser with layers of slight cementation and shell fragments. A copy of the Tolunay-Wong Engineers, Inc. report is included herein.

10.7 St. Lucie County Permit Applications and Approvals

Permit applications are forthcoming, after filing with St. Lucie County.

NPDES Application

Environmental Resource Permit Application

Department of Energy Self-Certification

Federal Aviation Administration
Determination of No Hazard
to Air Navigation

U.S. Fish and Wildlife Service Review

Notice of Intent for Water Main Extension

Notice of Intent to Use Generic
Permit for Stormwater Discharge
from Large and Small Construction
Activities

Notice of Intent to Use
Multi-Sector Generic Permit for
Stormwater Discharge Associated
with Industrial Activity

Environmental Resource Permit Application

Application for Consumptive Uses of Water

Permit Application to Construct, Repair, Modify, or Abandon a Well

Short-Term Dewatering Permit Application

Florida Department of Transportation Utility Permit Application

Florida Division of Historical Resources Review

Florida Fish and Wildlife Conservation Commission Review

Florida Natural Areas Inventory Review

Site Subsurface Data

HEC-1 and HEC-2 Results

Treasure Coast Unit 1 Water Use Permit Application Form

The following quantities are being requested in the SCA and Consumptive Use Permit Application for TCEC Unit 1. These are based on using groundwater for cooling.

Daily Max = 3.654 MGD

- U1-WMB2: 100% load on oil with groundwater cooling water

Monthly Max = 110.98 MG

- daily max * 31d

90-day Max = 313.3 MG

- 500 hrs on oil + 1,660 hrs on gas with groundwater as cooling water
- oil: $3.654 \text{ MGD}/24 = 152,250 \text{ GPH} * 500 \text{ hr} = 76.125 \text{ MG}$
- gas: $3.429 \text{ MGD}/24 = 142,875 \text{ GPH} * 1,660 \text{ hr} = 237.173 \text{ MG}$
- $76.125 \text{ MG} + 237.173 \text{ MG} = 313.3 \text{ MG}$

Annual = 2.965 MGD = 1.1 BGY

- U1-WMB3: 500 hr on oil

Note that Item F.1 asks for the average gallons per day needed; however, the maximum gallons per day needed are given here to avoid underestimation of water needs.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

WATER USE PERMIT APPLICATION FORM (RC-1A, RC-1W, RC-1G) For all water uses EXCEPT dewatering for mining or construction

General and Specific Authority, Chapter 373, State Statutes, 40E-20 Florida Administrative Code
and Basis of Review, Vol III, South Florida Water Management District.

A. GENERAL INFORMATION

1. Name of Owner, Responsible Entity, etc.

Name: _____ Project Name: _____

Address: _____

City: _____ County: _____ State: _____ ZIP: _____

Phone: _____ Cell Phone: _____ Fax: _____ E-mail: _____

2. Proof of Ownership is required, in the form of a Deed, tax certificate, lease, or Articles of Incorporation

ATTACH Proof of Ownership to this Form

3. Name of Engineer, Contractor or Other.

Name: _____ Firm: _____

Address: _____

City: _____ County: _____ State: _____ ZIP: _____

Phone: _____ Cell Phone: _____ Fax: _____

4. If the above person(s) filling out this form will sign this Application on behalf of the owner, a letter of authorization signed by the owner, stating they are acting on behalf of the owner, must be submitted.

ATTACH Letter of Authorization to this form

5. Is this a New Permit _____ Renewal/Modification/Expired _____ Permit No.: _____

6. Amount of water applied for: _____ gallons per day

7. Has a Surface Water Management Permit or Environmental Resource Permit from the District been issued for this Project? **SWM / ERP Permit No.:** _____
or has a Surface Water Management Permit or Environmental Resource Permit from the District been applied for? **SWM / ERP Application No.:** _____

8. A fee of _____ is required to process this Application. See Chapter 40E-1.607, F.A.C. for fee schedule.

ATTACH Application fee to this Form

9. Please Identify any District Staff member you have discussed this Application with:

B. LOCATION OF THE PROPERTY

1. General Location of the Property/Project

County: _____ City: _____

Sections _____

Township (s) _____ Range (s) _____ (or Land Grant Name) _____

2. It will be necessary to submit two drawings to be used as exhibits for this Permit.

- Location Map**, (8 $\frac{1}{2}$ x 11), showing location of the project in relation to major roads.
- Site Map**, (8 $\frac{1}{2}$ x 11) locating project in relation to adjacent streets, canals and water bodies, and showing property boundaries, buildings, on-site lakes/ponds and the location of pumps and wells.

ATTACH Location Map and Site Map to this Form

sfwmd.gov

C. WATER SOURCE and WATER USE TYPE

Please indicate the source of water.

____ Groundwater from an underground aquifer:

Aquifer Name (if known): _____

**ATTACH
Table A for Wells
to this form**

____ Surface water:

____ Onsite Lake/Pond ____ Onsite Ditch/Canal

____ Adjacent Lake/Open Water, Name: _____

____ Adjacent Canal, Name: _____

**ATTACH
Table B for Pumps
to this Form**

Type of water use (Please check at least one)

____ Agricultural Irrigation ____ Landscape Irrigation ____ Golf Course Irrigation

____ Public Water Supply ____ Industrial/Commercial ____ Aquaculture

____ Aquifer Storage/Recovery (ASR) ____ Other (Please describe): _____

D. IRRIGATION WATER USE

1. Is this permit for irrigation? Landscape: ____ Golf: ____ Agriculture: ____ Crop type: ____
What is the Total Project Acreage: ____ Irrigated Acreage: ____

ATTACH Table D for Crop Information to this Form

2. Applications for golf or landscape irrigation in excess of 500,000 gallons per day require a water conservation plan as explained in Section 2.3.1 of the Basis of Review.

ATTACH, if needed, a water conservation plan for golf or landscape irrigation

E. PUBLIC WATER SUPPLY WATER USE

1. Is this permit for Public Water Supply?

Maximum gallons per month needed: ____ Average gallons per day: ____

Permit Duration requested: ____ Years

2. A map of the service area for the utility, (8¹/₂ x 11) showing boundaries of service, water treatment plants, storage facilities, the location of all production and monitor wells is required.

ATTACH Location Map and Service Area Map to this Form

3. For public water supplies using more than 100,000 gallons per day, applicants must meet criteria and identify the demand for each use/component including number, type and size of service connections; past pumpage, projected population data, future expected pumpage, water treatment method and losses and other specific data as identified in Section 2.1 and 2.6 of the Basis of Review. Tables F (past water use), Table G (projected water use) and Table I (treatment method and losses) must be submitted.

ATTACH water supply demand computations and Tables F, G and I to this Form

4. For public water supplies using more than 100,000 gallons per day, other necessary information requirements may include if applicable: explanations of per-capita greater than 200 GPD, water supply system interconnections, water received from or distributed to other entities, and aquifer storage and recovery. Please submit Tables H (for per capita use greater than 200 GPD), Table J (ASR), Table K (interconnections), and Table E (water received from or distributed to other entities) if necessary.

ATTACH, if needed, Tables H, J, K and E to this Form

5. Applications for public water supply in excess of 500,000 gallons per day require a water conservation plan as explained in Section 2.6.1 of the Basis of Review.

ATTACH, if needed, a water conservation plan for public water supply to this Form

F. INDUSTRIAL, COMMERCIAL AND OTHER WATER USES

1. *Is this permit for Industrial/Commercial? Nature of the Business:* _____

Maximum gallons per month needed: _____

Average gallons per day needed: _____

2. *Industrial/commercial applicants using more than 100,000 gallons per day must provide information on the water balance for the operation, including all sources of water and losses of water for processes, personal/sanitary needs, treatment losses and unaccounted uses. A flow chart for the water balance should be submitted.*

ATTACH Water balance and flow chart to this Form

3. *For uses other than Irrigation, Public Water Supply, Industrial or Commercial, but excluding mining/dewatering (Air conditioning, pool heating, mitigation, etc.):*

Describe Water Needs: _____

Maximum gallons per month needed: _____

Average gallons per day needed: _____

ATTACH a written explanation and calculations used to determine the amount of water you need

4. *Applications for industrial, commercial and other water uses in excess of 500,000 gallons per day require a water conservation plan as explained in Section 2.4.1 of the Basis of Review.*

ATTACH, if needed, A water conservation plan for industrial, commercial or other water supply

G. ADDITIONAL REQUIREMENTS IF YOU ARE USING MORE THAN 100,000 GALLONS PER DAY

1. *The withdrawal of water must not cause harm to sensitive areas, wetlands or saline water intrusion. It may be necessary to supply modeling to address impacts of the water use.*

ATTACH, if needed, modeling or documentation on environmental impacts to this Form

2. *All applicants withdrawing water in proximity to saline surface or ground water, or withdrawing saline water that may come in contact with fresh surface or ground water, are required to develop a saline water monitoring program as described in Section 4.2 of the Basis of Review.*

ATTACH, if needed, a saline water monitoring program

3. *Except for Public Water Supply, reclaimed water must be used when readily available, unless it is not environmentally, technically or economically feasible to do so, as explained in Section 3.2.3 of the Basis of Review.*

ATTACH, if needed, an evaluation of the feasibility of using reclaimed water and a letter from your local utility regarding their availability of reclaimed water to this Form

4. *An aerial photograph of the entire project site is required.*

ATTACH An aerial photograph

5. *Section 4.1 of the Basis of Review requires all wells and pumps be equipped with a calibrated meter or other acceptable water use accounting method.*

ATTACH calibration reports of the water use accounting method for Each well and pump

H. ATTACHMENTS

Please make sure you have included the following attachments with your Application:

- | | |
|--|---|
| ☐ Proof of Ownership | ☐ Table A for Wells |
| ☐ Letter of Authorization (where required) | ☐ Table B for pumps |
| ☐ Location Map | ☐ Application Fee |
| ☐ Site Map | |

For Irrigation water use, also make sure you have included the following attachments:

- | | |
|--|---|
| ☐ Table D for crop information | ☐ Water conservation plan (if needed) |
|--|---|

For Public Water Supply water use of more than 100,000 gallons per day, also make sure you have included the following attachments:

- | | |
|---|--|
| ☐ Table F for past water use | ☐ Table I for treatment method and losses |
| ☐ Table G for projected water use | ☐ Table J for ASR well operations (if needed) |
| ☐ Table H for projected water use greater than 200 gpcd (if needed) | ☐ Table K for interconnections (if needed) |
| ☐ Water conservation plan (if needed) | ☐ Table E for water received from or delivered to other entities (if needed) |
| ☐ Service Area Map | |

For Industrial water use of more than 100,000 gallons per day, also make sure you have included the following attachments:

- | | |
|--|---|
| ☐ Water balance and flow chart | ☐ Water conservation plan (if needed) |
|--|---|

For Commercial or other water use that is not irrigation, public water supply, or industrial, also make sure you have included the following attachments:

- | |
|--|
| ☐ Explanation of how you determined the amount of water you need |
| ☐ Water conservation plan (if needed) |

Attachments for additional special requirements

- ☐ **Saline Water Monitoring Plan**
- ☐ **Feasibility evaluation of reclaimed water use**
- ☐ **Aerial Photograph**
- ☐ **Letter from reclaimed water utility**
- ☐ **Modeling or documentation of impacts of water use**
- ☐ **Reports of calibration of water use accounting method for wells and pumps**

I. CERTIFICATION

I hereby certify that, to the best of my knowledge, the total project acreage listed above is owned or controlled by me and encompasses the project referenced in this permit application. In addition, I agree to provide entry to the project site for South Florida Water Management inspectors with proper identification or documents as required by law for the purpose of making analyses of the site. Further, I agree to provide entry to the project site for such inspectors to monitor permitted work if a permit is granted. If I do not use the water for which this permit is issued within two years the permit may be revoked. If this application is not complete within 240 days, it may be denied pursuant to Rule 40E-1.603, Florida Administrative Code.

Print: **Name of Owner or Authorized Agent**

Title

Signature:

South Florida Water Management District Water Use Permit Application Supporting Information

The following discussions supplement Items F4, G1, and G3 of Page 3 of Form 0645-W01 (08/03), Water Use Permit Application Form (RC-1A, RC-1W, RC-1G). FMPA understands that SFWMD will not issue a water use permit for the Unit 1 project, but will provide Conditions of Certification relevant to the request.

The Treasure Coast Energy Center project will utilize reclaimed water from the Ft. Pierce Utilities Authority, when available, and groundwater (temporary use) as makeup water for the cooling tower.

F.4. Water Conservation Plan

The *Water Use Permit Application* will require a *Water Conservation Plan* because the projected maximum groundwater demand for Unit 1 is 597,000 gallons per day (gpd), which is above the 500,000 gpd threshold requirement for the completion of a *Water Conservation Plan*. The *Water Conservation Plan* will be prepared during the detailed design phase for this project and will be submitted post-certification and prior to operation.

G.1. Groundwater

The use of groundwater for this project will require a *Water Use Permit Application* to be submitted to the South Florida Water Management District. The *Water Use Permit Application* requires *Table A, Description of Wells* be submitted as supporting documentation regarding the groundwater wells constructed for this project. However, the groundwater well design will be completed during the detailed design phase and will be submitted post-certification and prior to well construction.

Water for fire water, service water, evaporative cooler makeup, demineralizer makeup, and cooling tower makeup initial and emergency operation will be supplied by the Floridan Aquifer. The Floridan Aquifer, as defined for the project, is a confined unit. The base of the confining unit is located at approximately 500 feet to 600 feet below ground surface (bgs).

Three wells will be initially installed into the Floridan Aquifer during the construction of Unit 1 of the TCEC. TCEC withdrawals (including groundwater for cooling tower water) are requested as a 90 day allocation not to exceed 3.13 million gallons; an annual allocation not to exceed 2.965 million gallons per day; and a maximum daily allocation not to exceed 3.654 million gallons per day. Excluding cooling system makeup, the maximum Unit 1 daily well water requirement is estimated to be 597,000 gallons per day. Three 1,500 gpm wells are proposed for Unit 1. Each well will be capable of producing a

maximum of 2,000 gpm. One well is considered to be a spare, available during periodic maintenance of individual wells.

Prior to the assessment of the drawdown impacts from the project on the aquifer, Mr. John Lockwood, the SFWMD hydrogeologist was contacted. Mr. Lockwood suggested the use of analytic solution to calculate distance-drawdown of the proposed pumping wells. The SFWMD 1992 Floridan Aquifer model documentation was acquired and reviewed to estimate aquifer parameters for the analytic model. Information containing a list of the area permitted Floridan Aquifer pumping wells, pumping rates, and annual allocations within three miles of the project site was also acquired from SFWMD.

The SFWMD Florida Aquifer model documentation, Technical Publication 92-03, includes a detailed discussion of a Three-Dimensional Finite Difference Ground Water Flow Model of the Floridan aquifer System in Martin, St. Lucie, and Eastern Okeechobee Counties in Florida. The SFWMD calibrated model of the Upper Floridan Aquifer transmissivity at the project site was 257,322 ft² per day. The model used an average storage coefficient of 0.0004, and leakance of 0.04 per day for the semi-confining layer between the upper and the Upper-lower Floridan aquifers.

- The impact of groundwater pumping from the Upper Floridan Aquifer was determined using the Theis analytic model. Theis (1935) derived an equation that predicts groundwater level decline in a confined aquifer when the aquifer is pumped.

The equation is applicable to evaluate pumping drawdown at the Project site for the following reasons: the Upper Floridan aquifer is assumed as a high transmissivity confined aquifer; groundwater flow in the aquifer is considered horizontal; and there is a potential for limited leakage amount through the semi-confining layer between the upper and the Upper-lower Floridan aquifers. The aquifer parameters used in the Theis solution were transmissivity and storage coefficient. These parameters were taken from the SFWMD calibrated regional model. The SFWMD model used a leakance value of 0.04 per day. In the calculation of distance-drawdown due to pumping at the Project site, the leakage is not included so that the most conservative estimates of drawdown are calculated.

Drawdown resulting from pumping at the maximum demands was calculated using a spreadsheet program for a one unit Project and a four unit Project. The distance drawdown calculation was completed using the Project maximum daily withdrawal with cooling tower makeup demands. A 90 day continuous pumping at a single equivalent pumping well was assumed. Table G-1 includes calculated distance-drawdown from the Energy center pumping location. Figure 1 is a plot of the calculated distance-drawdown. The predictive results for a one unit and a four unit pumping scenario indicate the following:

- **One-unit including cooling system makeup (2,538 gpm):** The drawdown at 1,000 feet from the well was only 1.78 feet. The drawdown at 1 mile distance

from the well is predicted to be 1.27 feet. Therefore, the site pumping will have very little impact beyond the TCEC site.

- **Four units including cooling system makeup (10,150 gpm):** The drawdown at approximately 5,300 feet (1 mile distance from the well) is predicted to be 5.10 feet. The pumping drawdown is estimated to be 4.26 and 3.77 feet at approximately 2 and 3 mile distances from the pumping well, respectively.

The calculated results indicate the drawdown caused by 90 days of pumping at the maximum daily flow at the proposed site without considering recharge from the Lower Floridan Aquifer; therefore, calculated drawdowns indicate the worst case scenarios. Since the Floridan Aquifer is fully confined at its top, the pumping will not impact the surficial aquifer or any local surface water bodies. At the closest permitted user, approximately 1 mile from the site, the predicted results indicate that even the four unit maximum demand including cooling tower makeup will cause only 5.1 feet of drawdown in the Floridan Aquifer. Despite this change in head, the Floridan Aquifer, which is artesian, would still be over 20 feet NGVD (land surface is estimated between 15 and 20 NGVD). Therefore, the maximum water usage at the plant site is not considered to be sufficient to cause head changes required to induce vertical or lateral saltwater intrusion into the Upper Floridan Aquifer.

In summary, TCEC Unit 1 and ultimate capacity groundwater withdrawals from the Upper Floridan Aquifer will not affect the unconfined groundwater elevations, adversely impact other users, or result in saline water intrusion.

Distance Drawdown in the Floridan Aquifer Caused by Site Pumping Alternatives			
Theis Solution		1 - Unit	4 - Units
	Q in gpm =	2,538	10,150
	Q in ft ³ /day =	488,437	1,953,749
Distance, feet	U	Drawdown, feet	Drawdown, feet
2	1.72719E-11	3.66	14.62
50	1.07949E-08	2.68	10.73
100	4.31798E-08	2.47	9.90
200	1.72719E-07	2.26	9.06
300	3.88618E-07	2.14	8.57
400	6.90877E-07	2.06	8.22
500	1.07949E-06	1.99	7.95
600	1.55447E-06	1.93	7.73
700	2.11581E-06	1.89	7.55
800	2.76351E-06	1.85	7.38
900	3.49756E-06	1.81	7.24
1,000	4.31798E-06	1.78	7.11
1,100	5.22476E-06	1.75	7.00
1,200	6.21789E-06	1.72	6.89
1,300	7.29739E-06	1.70	6.80
1,400	8.46324E-06	1.68	6.71
1,500	9.71545E-06	1.66	6.62
1,600	1.1054E-05	1.64	6.55
1,700	1.2479E-05	1.62	6.47
1,800	1.39903E-05	1.60	6.40
1,900	1.55879E-05	1.58	6.34
2,000	1.72719E-05	1.57	6.28
2,100	1.90423E-05	1.55	6.22
2,200	2.0899E-05	1.54	6.16
2,300	2.28421E-05	1.53	6.11
2,400	2.48716E-05	1.51	6.06
2,500	2.69874E-05	1.50	6.01
2,600	2.91895E-05	1.49	5.96
2,700	3.14781E-05	1.48	5.91
2,800	3.3853E-05	1.47	5.87
2,900	3.63142E-05	1.46	5.83

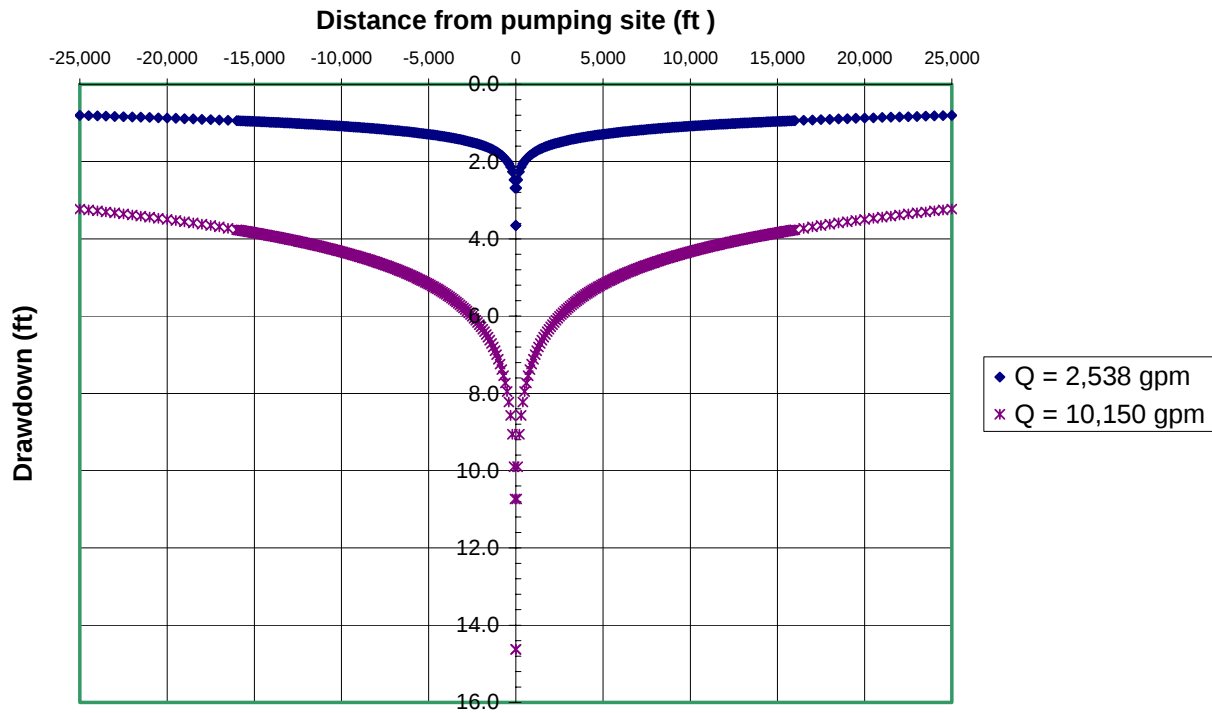
Distance Drawdown in the Floridan Aquifer Caused by Site Pumping Alternatives			
Theis Solution		1 - Unit	4 - Units
	Q in gpm =	2,538	10,150
	Q in ft ³ /day =	488,437	1,953,749
Distance, feet	U	Drawdown, feet	Drawdown, feet
3,000	3.88618E-05	1.45	5.79
3,100	4.14958E-05	1.44	5.75
3,200	4.42161E-05	1.43	5.71
3,300	4.70228E-05	1.42	5.67
3,400	4.99158E-05	1.41	5.64
3,500	5.28952E-05	1.40	5.60
3,600	5.5961E-05	1.39	5.57
3,700	5.91131E-05	1.38	5.53
3,800	6.23516E-05	1.38	5.50
3,900	6.56765E-05	1.37	5.47
4,000	6.90877E-05	1.36	5.44
4,100	7.25852E-05	1.35	5.41
4,200	7.61692E-05	1.35	5.38
4,300	7.98394E-05	1.34	5.35
4,400	8.35961E-05	1.33	5.32
4,500	8.74391E-05	1.32	5.30
4,600	9.13684E-05	1.32	5.27
4,700	9.53842E-05	1.31	5.24
4,800	9.94862E-05	1.30	5.22
4,900	0.000103675	1.30	5.19
5,000	0.000107949	1.29	5.17
5,100	0.000112311	1.29	5.15
5,200	0.000116758	1.28	5.12
5,300	0.000121292	1.27	5.10
5,400	0.000125912	1.27	5.08
5,500	0.000130619	1.26	5.05
5,600	0.000135412	1.26	5.03
5,700	0.000140291	1.25	5.01
5,800	0.000145257	1.25	4.99
5,900	0.000150309	1.24	4.97
6,000	0.000155447	1.24	4.95
6,100	0.000160672	1.23	4.93

Distance Drawdown in the Floridan Aquifer Caused by Site Pumping Alternatives			
Theis Solution		1 - Unit	4 - Units
	Q in gpm =	2,538	10,150
	Q in ft ³ /day =	488,437	1,953,749
Distance, feet	U	Drawdown, feet	Drawdown, feet
6,200	0.000165983	1.23	4.91
6,300	0.000171381	1.22	4.89
6,400	0.000176864	1.22	4.87
6,500	0.000182435	1.22	4.85
6,600	0.000188091	1.21	4.83
6,700	0.000193834	1.21	4.82
6,800	0.000199663	1.20	4.80
6,900	0.000205579	1.20	4.78
7,000	0.000211581	1.19	4.76
7,100	0.000217669	1.19	4.75
7,200	0.000223844	1.18	4.73
7,300	0.000230105	1.18	4.71
7,400	0.000236453	1.17	4.70
7,500	0.000242886	1.17	4.68
7,600	0.000249406	1.17	4.66
7,700	0.000256013	1.16	4.65
7,800	0.000262706	1.16	4.63
7,900	0.000269485	1.15	4.62
8,000	0.000276351	1.15	4.60
8,100	0.000283303	1.15	4.59
8,200	0.000290341	1.14	4.57
8,300	0.000297466	1.14	4.56
8,400	0.000304677	1.14	4.54
8,500	0.000311974	1.14	4.53
8,600	0.000319358	1.13	4.51
8,700	0.000326828	1.13	4.50
8,800	0.000334384	1.13	4.49
8,900	0.000342027	1.12	4.47
9,000	0.000349756	1.12	4.46
9,100	0.000357572	1.60	4.45
9,200	0.000365474	1.60	4.43
9,300	0.000373462	1.59	4.42

Distance Drawdown in the Floridan Aquifer Caused by Site Pumping Alternatives			
Theis Solution		1 - Unit	4 - Units
	Q in gpm =	2,538	10,150
	Q in ft ³ /day =	488,437	1,953,749
Distance, feet	U	Drawdown, feet	Drawdown, feet
9,400	0.000381537	1.59	4.41
9,500	0.000389698	1.58	4.39
9,600	0.000397945	1.58	4.38
9,700	0.000406279	1.57	4.37
9,800	0.000414699	1.57	4.36
9,900	0.000423205	1.56	4.34
10,000	0.000431798	1.56	4.33
10,100	0.000440477	1.56	4.32
10,200	0.000449243	1.55	4.31
10,300	0.000458094	1.55	4.30
10,400	0.000467033	1.54	4.29
10,500	0.000476057	1.54	4.27
10,600	0.000485168	1.53	4.26
10,700	0.000494365	1.53	4.25
10,800	0.000503649	1.53	4.24
10,900	0.000513019	1.52	4.23
11,000	0.000522476	1.52	4.22
11,100	0.000532018	1.51	4.21
11,200	0.000541647	1.51	4.20
11,300	0.000551363	1.51	4.18
11,400	0.000561165	1.50	4.17
11,500	0.000571053	1.50	4.16
11,600	0.000581027	1.50	4.15
11,700	0.000591088	1.49	4.14
11,800	0.000601235	1.49	4.13
11,900	0.000611469	1.48	4.12
12,000	0.000621789	1.48	4.11
12,100	0.000632195	1.48	4.10
12,200	0.000642688	1.47	4.09
12,300	0.000653267	1.47	4.08
12,400	0.000663933	1.47	4.07
12,500	0.000674684	1.46	4.06

Distance Drawdown in the Floridan Aquifer Caused by Site Pumping Alternatives			
Theis Solution		1 - Unit	4 - Units
	Q in gpm =	2,538	10,150
	Q in ft ³ /day =	488,437	1,953,749
Distance, feet	U	Drawdown, feet	Drawdown, feet
12,600	0.000685522	1.46	4.05
12,700	0.000696447	1.46	4.04
12,800	0.000707458	1.45	4.03
12,900	0.000718555	1.45	4.03
13,000	0.000729739	1.45	4.02
13,100	0.000741008	1.44	4.01
13,200	0.000752365	1.44	4.00
13,300	0.000763807	1.44	3.99
13,400	0.000775336	1.43	3.98
13,500	0.000786952	1.43	3.97
13,600	0.000798653	1.43	3.96
13,700	0.000810442	1.42	3.95
13,800	0.000822316	1.42	3.94
13,900	0.000834277	1.42	3.93
14,000	0.000846324	1.41	3.93
14,100	0.000858457	1.41	3.92
14,200	0.000870677	1.41	3.91
14,300	0.000882984	1.40	3.90
14,400	0.000895376	1.40	3.89
14,500	0.000907855	1.40	3.88
14,600	0.000920421	1.40	3.88
14,700	0.000933072	1.39	3.87
14,800	0.00094581	1.39	3.86
14,900	0.000958635	1.39	3.85
15,000	0.000971545	1.38	3.84
15,100	0.000984542	1.38	3.83
15,200	0.000997626	1.38	3.83
15,300	0.001010796	1.37	3.82
15,400	0.001024052	1.37	3.81
15,500	0.001037395	1.37	3.80
15,600	0.001050823	1.37	3.80
15,700	0.001064339	1.36	3.79

Distance Drawdown in the Floridan Aquifer Caused by Site Pumping Alternatives			
Theis Solution		1 - Unit	4 - Units
	Q in gpm =	2,538	10,150
	Q in ft ³ /day =	488,437	1,953,749
Distance, feet	U	Drawdown, feet	Drawdown, feet
15,800	0.00107794	1.36	3.78
15,900	0.001091628	1.36	3.77
16,000	0.001105403	1.36	3.77
16,500	0.00117557	1.34	3.73
17,000	0.001247896	1.33	3.69
17,500	0.001322381	1.32	3.66
18,000	0.001399025	1.30	3.62
18,500	0.001477828	1.29	3.59
19,000	0.001558791	1.28	3.56
19,500	0.001641912	1.27	3.53
20,000	0.001727192	1.26	3.50
20,500	0.001814631	1.25	3.47
21,000	0.001904229	1.24	3.44
21,500	0.001995986	1.23	3.41
22,000	0.002089902	1.22	3.38
22,500	0.002185977	1.21	3.35
23,000	0.002284211	1.20	3.33
23,500	0.002384604	1.19	3.30
24,000	0.002487156	1.18	3.28
24,500	0.002591867	1.17	3.25
25,000	0.002698737	1.16	3.23
25,500	0.002807766	1.15	3.20
26,000	0.002918954	1.14	3.18
26,400	0.003009459	1.14	3.16

Figure 1: Distance-Drawdown Plot from Theis Solution**G.1.1 Drinking Water**

The effects of groundwater withdrawals during the plant operation on drinking water supplies are discussed in Section 5.3.2 of the Site Certification Application. There will be no harm to any existing legal users or to the resource by any of the activities associated with the Treasure Coast Energy Center operations based on groundwater analytic model predictive results.

G.1.2 Leachate and Runoff

There is no source of leachate runoff associated with TCEC operations; therefore, there will be no impact on the underlying aquifers due to leachate.

G.1.3 Measuring and Monitoring Program

The proposed groundwater monitoring plan consists of maintaining records of the calibrated daily withdrawals from each pump. Quarterly reports will be submitted to the SFWMD.

G.1.4 Reclaimed Water

An agreement between the Florida Municipal Power Agency (FMPA) and Ft. Pierce Utilities Authority to provide reclaimed water for cooling tower operations will be completed prior to construction. FMPA acknowledges that a reliable source of reclaimed water is available at the project site to serve Unit 1 and future units. Once the use of

reclaimed water has been established, the use of Floridan Aquifer water shall be reduced in proportion to the volume of reclaimed water made available to Unit 1, such that the combined sources (reclaimed water and groundwater) meet the total maximum demand of a 90 day average withdrawal of 313.3 MG and an average annual groundwater withdrawal of 2.965 mgd. Should reclaimed water become temporarily unavailable, FMPA will notify the SFWMD within 24 hours of commencing temporary withdrawals from the Floridan Aquifer.



ENERGY • WATER • INFORMATION • GOVERNMENT

Florida Municipal Power Agency
Treasure Coast Energy Center

B&V Project 138859
B&V File 32.6000
March 9, 2005

Mr. Frederick P. Gaske
State Historic Preservation Officer
Attn: Review and Compliance Section
R.A. Gray Building, 4th Floor
500 South Bronough Street
Tallahassee, Florida 32399-0250

Subject: Treasure Coast Energy Center
Project Review

Dear Mr. Gaske:

The Florida Municipal Power Agency (FMPA) proposes to construct a new nominal 300 megawatt combined cycle combustion turbine unit (Unit 1) at 4585 Selvitz Road, Lot 8, near Ft. Pierce, Florida. The proposed site is located in the Midway Industrial Park Phase III-North. The scheduled construction start date is August 2006; the scheduled commercial operation date is June 2008. Black & Veatch has been contracted to assist FMPA with Unit 1 design and permitting.

The 68-acre Treasure Coast Energy Center site is located in the southwest quarter of Section 31, Township 35 South, Range 40 East in St. Lucie County. A project location map and aerial photo are enclosed for your information. The project site is zoned "utility" while the immediate project area is zoned IH for heavy industry. The site is currently used as pasture and includes 11 acres of low quality herbaceous wetlands. Please be assured that Unit 1 will be designed and permitted in accordance with all applicable federal, state, and local regulations, including review under the Florida Electrical Power Plant Siting Act.

A project review request was submitted by CH2MHill, on behalf of Duke Energy, to the Division of Historical Resources (DHR) regarding the construction of a power generating station on this same piece of property. CH2MHill received a response from the DHR dated March 10, 2000 (DHR Project File Number 2000-01051) indicating that "no historic properties are known to exist in the area of potential effect....it is the opinion of this office that no historic properties will be affected by this undertaking." A copy of the March 10, 2000 correspondence is attached to this letter.

Two transmission lines, a natural gas pipeline, and a potable water pipeline will be required to support the operation of the Treasure Coast Energy Center. One transmission line will extend for 2.6 miles beginning at the site and following Glades Cutoff Road southwest to Interstate 95, where it will interconnect to an existing Florida Power and Light (FP&L) transmission line. The second transmission line will extend west from the site approximately 2 miles before turning south to the FP&L Midway Substation. This transmission line will be located adjacent to an existing FP&L transmission line right-of-way. The length of this transmission line will be 2.8 miles.

SHPO
Mr. Gaske

B&V Project 138859
March 9, 2005

Florida Gas Transmission (FGT) will deliver natural gas to the site boundary. Several FGT natural gas mainlines are located approximately 3,000 feet southwest of the site near the Florida Turnpike. The proposed natural gas pipeline route will likely be adjacent to the south side of the Florida East Coast Railroad corridor.

The Ft. Pierce Utilities Authority will construct the potable water interconnection by crossing the North St. Lucie River Water Control District's Canal 102 and following an existing City wastewater pipeline right-of-way to the site.

On behalf of FMPA, and in compliance with Section 403, *Florida Statutes*, and Section 106 of the *National Historic Preservation Act*, Black & Veatch requests the Division of Historic Resources review the proposed project site for potential impacts to historic properties listed, or eligible for listing, in the *National Register of Historic Places* and provide a written response for the project record.

If you have any questions during your review, please contact me at (913) 458-7563 or soltysjm@bv.com.

Very truly yours,

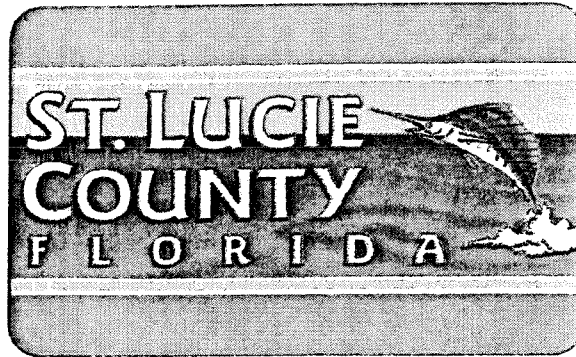
BLACK & VEATCH CORPORATION



J. Michael Soltys
Site Certification Coordinator

Enclosures

cc: Susan Schumann, FMPA
Stanley Armbruster/File



Comprehensive Plan

of

St. Lucie County, Florida

Prepared by:

**St. Lucie County
Board of County Commissioners**

**St. Lucie County
Growth Management Department**

ADOPTED: January 9, 1990
REVISED: March 5, 2002 (Ordinance 02-008)
REVISED: January 6, 2004 (Compliance Agreement)

along the I-95/Florida Turnpike corridor. It should also be noted that most of the new intense land use designations correspond with those areas identified as vacant or undeveloped on the existing land use map.

This particular pattern of development is somewhat different than the typical coastal community in Southeast Florida. Yet it should be pointed out that St. Lucie County has certain physical differences that serve to discourage the intense urbanization of its easternmost regions. Concerns about the further degradation of the quality of the riverine systems of the Indian River Lagoon, the North Fork of the St. Lucie River as well as the Savannas, which could be accelerated through the discharge of stormwater run-off, has lead St. Lucie County to recognize the need to move west of these areas with its more intense development patterns, while maintaining the Urban Service Boundary. Other considerations for developing areas along the western edges of the current urban form are the physical and fiscal constraints faced with increasing development intensities, and providing the necessary transportation and community services in this area. By directing future land development into areas that can be economically provided with urban services and do not have major environmental constraints, it will be possible to more effectively provide for the future needs of the community

B. FUTURE LAND USE DESIGNATIONS

The following future land use designations are those portrayed on the Future Land Use Map (Figure 1-6B). These descriptions provide the intent as well as recommend permitted/preferred uses within each designation. Further descriptions include other uses related to the predominant use which are consistent with the intent of the designation and which would be permitted at the discretion of the County. All residential densities are given in dwelling units per gross acre (du/ac). With the exception of the description of the Special District (SD) classification, these designations are unchanged from the existing Plan.

Also included in this section is a description of how the Future Land Use Map addresses certain non-residential uses. As explained later, specific non-residential uses are permitted within a variety of future land use designations without requiring amendments to the map.

Finally, Table 1-3 provides a land use district/zoning district compatibility chart that is intended to provide assistance in the application of compatible zoning districts, as currently found in St. Lucie County's Land Development Regulations.

Figure 1-6b

Future Land Use with Urban Service Boundary

SEE ATTACHED LARGE SCALE MAP

TABLE 1-3
Land Use Designation/Zoning Compatibility Matrix

Zoning	LAND USE DISTRICTS												
	AG-5	AG-2.5	RE	RS	RU	RM	RH	R/C	Cpub	COM	IND	P/F	MXD
AG-5	X	X	X	X				X				X	X
AG-2.5		X	X	X								X	X
AG-1			X	X	X								X
R/C			X	X	X	X	X	X					X
AR-1			X	X	X	X							X
RE-1			X	X	X	X							X
RE-2				X	X	X	X						X
RS-2				X	X	X	X						X
RS-3					X	X	X						X
RS-4					X	X	X						X
RM-5					X	X	X						X
RMH-5					X	X	X						X
RM-7						X	X						X
RM-9						X	X						X
RM-11							X						X
RM-15							X						X
CN	X	X	X	X	X	X	X			X			X
CO	X	X	X	X	X	X	X			X			X
CG										X	X		X
IL											X		X
IH											X		X
IX	X	X	C	C	C	C	C	C	C	X	X	X	X
U	X	X	X	X	X	X	X	X	X	X	X	X	X
I	X	X	X	X	X	X	X	X	X	X	X	X	X
RF	X	X	X	X	X	X	X	X		X		X	X

TABLE 1-3 Land Use Designation/Zoning Compatibility Matrix														
Zoning	LAND USE DISTRICTS													
	AG-5	AG-2.5	RE	RS	RU	RM	RH	R/C	Cpub	COM	IND	P/F	MXD	SD
PUD	X	X	X	X	X	X	X	X				X	X	X
PNRD	X	X	X	X	X	X	X	X		X	X	X	X	X
PMUD	X	X	X	X	X	X	X	X		X	X	X	X	X
HIRD			X	X	X	X	X	X		X		X	X	X
RVP											X		X	
X - Indicates compatible land use/zoning combination C - Indicates requirement for Conditional Use to insure compatibility														

- o All uses shall be compatible with internal and external adjacent land uses.

I. SPECIAL DISTRICT (SD)

The intent of the Special District (SD) designation is to identify those areas where specific uses or combinations of uses are anticipated. These include previously approved Community Development Districts, areas for which a site specific development plan or concept has been granted, or areas which by their location have specific issues and concerns for their development.

Residential densities within an area designated as a Special District are limited to what the current land use designation authorizes. Any increase over the present designation may be considered only through the Plan Amendment process.

J. COMMERCIAL (COM)

The Commercial (COM) land use designation is applicable to areas of future commercial development, in addition to those existing developed commercial areas. Future commercial areas should be located at points of high transportation access, with specific action taken to prevent the development of new linear commercial strips.

Although this plan supports the location of higher intensity commercial uses at the intersection of arterial roadways, it should not be interpreted to mean that every intersection should be designated for commercial activities. Unless otherwise designated on the future land use maps, applications for commercial use should be done in conjunction with a detailed review of the impacts of such development on adjacent property, specifically noting what, if any, negative neighborhood impacts could result.

The Commercial (COM) designation is intended to accommodate all commercial zoning districts as identified under St. Lucie County's Land Development Regulations. Office and general retail uses are considered the principal uses within the COM designated areas.

J. INDUSTRIAL (IND)

This land use designation is applied to specific areas of the County identified as suitable for industrial use. This land use designation is intended to be implemented through both the heavy and light industrial zoning districts, with the specific criteria for zoning application as provided for under the policies of the Future Land Use Element.

Areas designated for Industrial activities must have available all necessary services and facilities prior to development, supplied by either public or private sources as permitted. In addition, developments proposing to incorporate heavy industrial uses will be required to be adequately buffered from any adjacent use that would be incompatible.

K. PUBLIC FACILITIES (P/F)

The Public Facilities (P/F) land use designation is applied to properties used for such activities as education and places of worship. This designation may also be applied to other public uses such as jails and administrative buildings.

(L) TRANSPORTATION/UTILITIES (T/U)

The purpose of this district is to recognize the Transportation or Utility use of property. This designation may be applied as appropriate subject to review of the specific application and intended use of the property.

The Transportation/Utilities (T/U) land use designation has been applied principally to four areas:

- 1) St. Lucie County International Airport;
- 2) The St. Lucie County Landfill;
- 3) The St. Lucie Power Plant site located on South Hutchinson Island; and,
- 4) The Florida Power and Light - Midway switching station along West Midway Road.

M. HISTORIC (H)

The Historic (H) land use designation is applied to properties of historic significance as identified by the national historic register, or State of Florida.

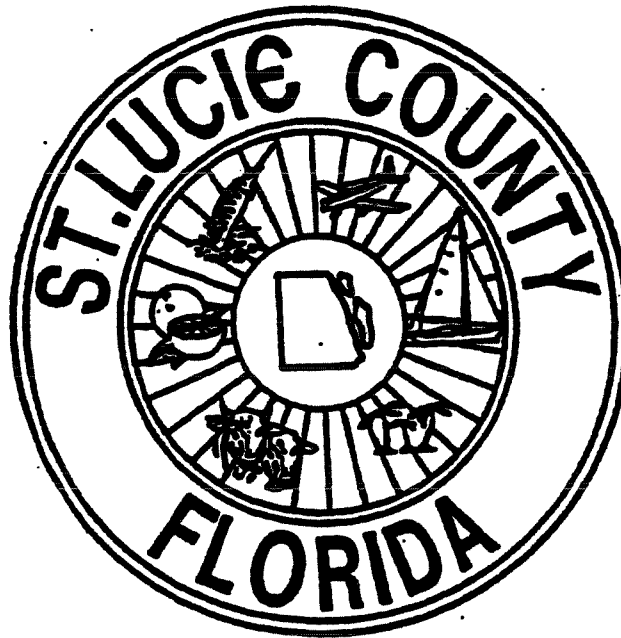
N. CONSERVATION

The Conservation land use designation has been divided into two categories: **Residential/Conservation (R/C)** and **Conservation-Public (Cpub)**. These designations are intended to identify areas of the County which exhibit unique or special environmental characteristics, and may be either publicly or privately held. The designations are described in more detail below.

1. **Residential/Conservation (R/C):** The Residential/Conservation category is intended to identify those privately controlled lands that contain unique vegetation or have characteristics which warrant special attention prior to their being developed. The Residential/Conservation designation is not intended to prevent development activities. Instead, its purpose is to identify those areas that, due to special environmental or other unique constraints, location, property configuration, or topography should be more closely examined before final development approvals are authorized.

ST. LUCIE COUNTY

LAND DEVELOPMENT CODE



ADOPTED ON: AUGUST 1, 1990

Ordinance 90-036

Revised Through: August 1, 2000

**St. Lucie County
Board of County Commissioners**

**John Bruhn
Frannie Hutchinson
Cliff Barnes
Doug Coward
Paula A. Lewis**

**Chairman
Vice Chairman
Commissioner
Commissioner
Commissioner**

**Douglas Anderson, County Administrator
Community Development Director**

TABLE 11.1

**ST. LUCIE COUNTY
LAND USE CATEGORY/ZONING DISTRICT
COMPATIBILITY CHART**

[illegible]

TABLE 11.1
(Continued)

ST. LUCIE COUNTY LAND USE CATEGORY/ZONING DISTRICT COMPATIBILITY CHART														
LAND USE CATEGORY	ZONING DISTRICT													
	CN	CO	CG	IL	IH	IX	U	I	RF	RVP	HIRD	PUD	PNRD	PMUD
AG-5	X ¹	X ¹				X	X	X	X			X	X	
AG-25	X ¹	X ¹				X	X	X	X			X	X	
AG-1	X ¹	X ¹				X	X	X	X			X	X	
RE	X ¹	X ¹				X	X ¹	X	X		X	X	X	X
RS	X ¹	X ¹				X	X ¹	X	X		X	X	X	X
RU	X ¹	X ¹				X	X ¹	X	X		X	X	X	X
RM	X ¹	X ¹				X	X ¹	X	X		X	X	X	X
RH	X ¹	X ¹				X	X ¹	X	X		X	X	X	X
R/C							X ¹	X	X		X	X	X	X
Cpub							X ¹	X	X					
COM	X	X	X			X	X	X	X	X	X		X	X
IND			X	X	X	X	X	X	X			X	X	X
P/F							X	X	X	X		X		
T/U			X	X	X	X	X	X					X	X
MXD	X ²	X ²	X ²	X ²	X ²	X ²	X ²	X ²	X ²	X ²	X ²	X ²	X ²	X ²
SD	X	X				X	X	X	X			X	X	X
HIST	X ¹	X ¹	X ¹				X ¹	X	X		X	X	X	X

1: limited to a maximum of 10 acres per parcel.
2: see Future Land Use Element of SLC Comprehensive Plan for rezoning restrictions

T. IL INDUSTRIAL, LIGHT

1. Purpose

The purpose of this district is to provide and protect an environment suitable for light manufacturing, wholesale, and warehousing activities that do not impose undesirable noise, vibration, odor, dust, or other offensive effects on the surrounding are, together with such other uses as may be necessary to and compatible with light industrial surroundings. The number in "()" following each identified use corresponds to the SIC code reference described in Section 3.01.02(B). The number 999 applies to a use not defined under the SIC code but may be further defined in Section 2.00.00 of this code.

2. Permitted Uses

- a. Business services (73)
- b. Communications - including telecommunication towers - subject to the standards of Section 7.10.23 (48)
- c. Construction services:
 - (1) Building construction - general contractors (15)
 - (2) Other construction - general contractors (16)
 - (3) Construction - special trade contractors (17)
- d. Engineering, architectural and surveying services (871)
- e. Commercial fishing (091)
- f. Laundry, cleaning & garment services (721)
- g. Local & suburban transit (41)
- h. Manufacturing:
 - (1) Food and kindred products (20)
 - (2) Tobacco products (21)
 - (3) Textile mill products (22)
 - (4) Apparel & other finished products (23)
 - (5) Furniture & fixtures (25)
 - (6) Printing, publishing and allied industries (27)
 - (7) Drugs (283)
 - (8) Leather & leather products (31)
 - (9) Glass:
 - (a) Flat glass (321)
 - (b) Glass & glassware - pressed or blown (322)
 - (c) Glass products - made of purchased glass (323)
 - (10) Fabricated metal prod. - except machinery & transport. equip.:
 - (a) Metal cans & shipping containers (341)
 - (b) Cutlery, handtools & general hardware (342)
 - (c) Heating equipment, except electric and warm air, and plumbing fixtures (343)
 - (d) Fabricated structural metal products (344)
 - (e) Coating, engraving & allied services (347)
 - (f) Miscellaneous fabricated metal products -
 - (1) Wire products (3485)
 - (2) Misc. fabricated wire products (3486)
 - (3) Metal foil & leaf (3487)
 - (4) Fabricated metal products - NEC (3499)
 - (11) Industrial/commercial machinery & computer equipment:
 - (a) Metalworking machinery & equipment (354)

- (b) Special industry machinery, except metalworking machinery (355)
- (c) General industrial machinery & equipment (356)
- (d) Computers & office equipment (357)
- (12) Electronic & other electrical equipment and components, except computer equipment:
 - (a) Household appliances (363)
 - (b) Electric lighting & wiring equipment (364)
 - (c) Household audio & video equipment (365)
 - (d) Communications equipment (366)
 - (e) Electronic components & accessories (367)
 - (f) Misc. electrical machinery equipment & supplies (369)
- (13) Measuring, analyzing and controlling instruments (38)
- (14) Photographic, medical and optical goods (38)
- (15) Watches & clocks (38)
- (16) Misc. manufacturing industries:
 - (a) Jewelry, silverware, and platedware. (391)
 - (b) Musical instruments and parts. (393)
 - (c) Dolls, toys, games & sporting goods (394)
 - (d) Pens, pencils, & other office & artists' materials. (395)
 - (e) Costume jewelry, costume novelties, and notions. (396)
 - (f) Brooms and brushes. (3991)
 - (g) Signs and advertising displays. (3993)
 - (h) Morticians goods. (3995)
 - (i) Manufacturing industries, NEC. (3999)
- (17) Plastic products - fabrication, molding, cutting, extrusion, and injection processing. (398)
- i. Marinas (4493)
- j. Millwork and structural wood members. (243)
- k. Motion pictures (78)
- l. Motor freight transportation & warehousing. (42)
- m. Repair services:
 - (1) Automotive & automotive parking (75)
 - (2) Electrical (762)
 - (3) Watch, clock & jewelry repair (763)
 - (4) Reupholstery & furniture repair (764)
 - (5) Misc. repairs & services (768)
- n. Retail trade:
 - (1) Lumber & other building materials (521)
 - (2) Paint, glass & wallpaper (523)
 - (3) Hardware (525)
 - (4) Nurseries, lawn & garden supplies (526)
 - (5) Mobile home dealers (527)
 - (6) Automotive/boat/RV/motorcycle dealers (55)
 - (7) Gasoline service (55)
 - (8) Furniture & furnishings (57)
- o. Research, development, and testing services. (873)
- p. Ship, boat building & repairing - less than forty-five (45) ft. (873)
- q. Sorting, grading & packaging services - citrus/vegetables (8723)
- r. Vocational Schools (824)
- s. Wholesale trade - durable goods:

- (1) Motor vehicle and automotive equipment. (501)
- (2) Furniture and home furnishings. (502)
- (3) Lumber and other building materials. (503)
- (4) Professional & commercial equipment/supplies. (504)
- (5) Metals & minerals except petroleum. (505)
- (6) Electrical goods. (506)
- (7) Hardware, plumbing and heating equipment, and supplies. (507)
- (8) Machinery, equipment, and supplies. (508)
- (9) Misc. durable goods:
 - (a) Sporting and recreational goods (5091)
 - (b) Toys & hobby goods (5092)
 - (c) Jewelry, watches, precious stones & metals. (5094)
 - (d) Durable goods NEC (5099)
- t. Wholesale trade - nondurable goods:
 - (1) Paper and paper products. (511)
 - (2) Drugs (512)
 - (3) Dry goods and apparel. (513)
 - (4) Groceries and related products. (514)
 - (5) Farm products - raw materials. (515)
 - (6) Chemicals, and allied products. (516)
 - (7) Beer, wine, and distilled alcoholic beverages. (518)
 - (8) Misc. nondurable goods:
 - (a) Farm supplies (5191)
 - (b) Books, periodicals & newspapers (5192)
 - (c) Flowers, nursery stock & florists' supplies (5193)
 - (d) Tobacco/tobacco products (5194)
 - (e) Paints, varnishes & supplies (5198)
 - (f) Nondurable goods, NEC (5199)
- u. Mobile food vendors (529)
- v. Single family detached dwelling units provided that the single family dwelling unit is located on an existing lot or parcel or record, as further defined in this code, that was existing on or before August 1, 1990. (539)

3. Lot Size Requirements

Lot size requirements shall be in accordance with Section 7.04.00.

4. Dimensional Regulations

Dimensional requirements shall be in accordance with Section 7.04.00.

5. Offstreet Parking and Loading Requirements

Offstreet parking and loading requirements are subject to Section 7.06.00.

6. Landscaping Requirements

Landscaping requirements are subject to Section 7.09.00.

7. Conditional Uses

- a. Airports, landing and takeoff fields - general aviation (4581)
- b. Manufacturing:
 - (1) Cut stone and stone products. (328)
 - (2) Motorcycles, bicycles, and parts. (375)
 - (3) Wood containers, wood buildings and mobile homes. (244/245)
- c. Ship, boat building & repairing (excluding ship or boat salvaging) - Forty-five (45) to one-hundred fifty (150) ft (373)
- d. Wholesale:
 - (1) Petroleum bulk stations and terminals.
- e. Scrap and waste materials - subject to the provisions of Section 7.10.12.A.

8. Accessory Uses

Accessory uses are subject to the requirements of Section 8.00.00 and include the following:

- a. Co-generation facilities. (999)
- b. Fueling facilities. (999)
- c. Industrial wastewater disposal. (999)
- d. One detached single-family dwelling or mobile home for on-site security purposes per property. (999)
- e. Retail trade accessory to the primary manufacturing or wholesaling use. (999)

U. IH INDUSTRIAL, HEAVY

1. Purpose

The purpose of this district is to provide an environment suitable for heavy manufacturing and other activities that may impose undesirable noise, vibration, odor, dust, or other offensive effects on the surrounding area together with such other non-residential uses as may be necessary to and compatible with heavy industrial surroundings. The number in "()" following each identified use corresponds to the SIC code reference described in Section 3.01.02(B). The number 999 applies to a use not defined under the SIC code but may be further defined in Section 2.00.00 of this code.

2. Permitted Uses

Any use permitted in the Industrial Light (IL) zoning district:

- a. Agricultural services (07)
- b. Construction services:
 - (1) Building construction - general contractor (15)
 - (2) Other construction - general contractors (16)
 - (3) Construction - special trade contractors (17)
- c. Docks and boathouses (private). (999)
- d. Engineering services (871)
- e. Manufacturing:
 - (1) Food & kindred products (20)
 - (2) Tobacco products (21)
 - (3) Textile mill products (22)
 - (4) Apparel and other finished products (23)
 - (5) Lumber and wood products, except furniture (24)
 - (6) Furniture and fixtures (25)
 - (7) Printing and publishing and allied industries (27)
 - (8) Chemicals & allied products:
 - (a) Drugs (283)
 - (b) Soap, detergents and cleaning preparations; perfumes, cosmetics and other toilet preparations (284)
 - (c) Agricultural chemicals (287)
 - (9) Rubber & misc. plastic products (30)
 - (10) Leather & leather products (31)
 - (11) Glass
 - (a) Flat glass (321)
 - (b) Glass & glassware - pressed or blown (322)
 - (c) Glass products - made of purchased glass (323)
 - (12) Fabricated metal products (except ammunition and ordnance) (34)
 - (13) Industrial/commercial machinery & computer equipment (35)
 - (14) Electronic & other electrical equipment and components, except computer equipment (36)
 - (15) Transportation equipment (37)
 - (16) Measuring, analyzing and controlling instruments (38)
 - (17) Misc. manufacturing industries:
 - (a) Jewelry, silverware, and platedware. (391)
 - (b) Musical instruments and parts. (393)

- (c) Dolls, toys, games & sporting goods (394)
 - (d) Pens, pencils & other office & artists' materials. (395)
 - (e) Costume jewelry, costume novelties, and notions. (396)
 - (f) Brooms and brushes. (3991)
 - (g) Signs and advertising displays. (3993)
 - (h) Morticians goods. (3995)
 - (i) Manufacturing industries, NIC. (3999)
- (18) Paper and allied products:
 - (a) Paperboard containers & boxes (265)
 - (b) Converted paper & paperboard products (267)
- f. Local & suburban transit (41)
- g. Water transportation. (44)
- h. Transportation services. (47)
- i. Communications. (48)
- j. Motor freight transportation & warehousing. (42)
- k. Motion pictures. (78)
- l. Membership organizations (86)
- m. Personal & business services. (72)
- n. Research, development, and testing services. (873)
- o. Repair services:
 - (1) Automotive & automotive parking (75)
 - (2) Electrical (762)
 - (3) Watch, clock & jewelry repair (763)
 - (4) Reupholstery & furniture repair (764)
 - (5) Misc. repairs & services (769)
- p. Retail trade:
 - (1) Lumber & other building materials (521)
 - (2) Paint, glass & wallpaper (523)
 - (3) Hardware (525)
 - (4) Nurseries, lawn & garden supplies (526)
 - (5) Mobile home dealers (527)
 - (6) Automotive/boat/RV/motorcycle dealers (55)
 - (7) Gasoline service (55)
 - (8) Furniture & furnishings (57)
- q. Telecommunication towers - subject to the standards of Section 7.10.23 (999)
- r. Wholesale trade - durable goods:
 - (1) Motor vehicle and automotive equipment. (501)
 - (2) Furniture and home furnishings. (502)
 - (3) Lumber and other building materials. (503)
 - (4) Professional & commercial equipment/supplies. (504)
 - (5) Metals & minerals, except petroleum. (505)
 - (6) Electrical goods. (506)
 - (7) Hardware, plumbing and heating equipment, and supplies. (507)
 - (8) Machinery, equipment, and supplies. (508)
 - (9) Misc. Durable goods:
 - (a) Sporting and recreational goods (5091)
 - (b) Toys & hobby goods (5092)
 - (c) Jewelry, watches, precious stones & metals. (5094)
 - (d) Durable goods NEC (5099)
- s. Wholesale trade - nondurable goods:

- (1) Paper and paper products. (511)
- (2) Drugs (512)
- (3) Dry goods and apparel. (513)
- (4) Groceries and related products. (514)
- (5) Farm products - raw materials. (515)
- (6) Chemicals, and allied products. (516)
- (7) Beer, wine, and distilled alcoholic beverages. (518)
- (8) Misc. Nondurable Goods:
 - (a) Farm supplies (5191)
 - (b) Books, periodicals, & newspapers (5192)
 - (c) Flowers, nursery stock & florists' supplies (5193)
 - (d) Tobacco/tobacco products (5194)
 - (e) Paints, varnishes & supplies (5198)
 - (f) Nondurable goods, NEC (5199)

t. Mobile food vendors (599)

3. Lot Size Requirements

Lot size requirements shall be in accordance with Section 7.04.00.

4. Dimensional Regulations

Dimensional requirements shall be in accordance with Section 7.04.00.

5. Offstreet Parking and Loading Requirements

Offstreet parking and loading requirements are subject to Section 7.06.00.

6. Landscaping Requirements

Landscaping requirements are subject to Section 7.09.00.

7. Conditional Uses

- a. Airport, landing and takeoff fields - general aviation. (4501)
- b. Manufacturing:
 - (1) Paper & allied products (28)
 - (2) Chemicals & allied products (28)
 - (3) Petroleum refining & related products (28)
 - (4) Stone, clay, glass & concrete products (32)
 - (5) Primary metal industries (33)
 - (6) Ammunition & ordinance (348)
- c. Natural or manufactured gas storage and distribution points. (482)
- d. Scrap, waste and land clearing and yard trash recycling operations - subject to the provisions of Section 7.10.12.
- e. Warehousing and storage services - stockyards. (500)
- f. Wholesale trade - nondurable goods:
 - (1) Petroleum & petroleum products (500)

8. Accessory Uses

Accessory uses are subject to the requirements of Section 8.00.00, and include the following:

- a. Co-generation facilities. (999)
- b. Fueling facilities. (999)
- c. Industrial wastewater disposal. (999)
- d. One detached single-family dwelling or mobile home, for on-site security purposes per property. (999)
- e. Retail:
 - (1) Bottled gas. (999)
 - (2) Fuel oil. (999)
 - (3) Gasoline service stations. (999)
 - (4) Retail trade accessory to the primary manufacturing or wholesaling use. (999)

W. U UTILITIES

1. Purpose

The purpose of this district is to provide and protect an environment suitable for utilities, transportation, and communication facilities, together with such other uses as may be compatible with utility, transportation, and communication facility surroundings. The number in "()" following each identified use corresponds to the SIC code reference described in Section 3.01.02(B). The number 999 applies to a use not defined under the SIC code but may be further defined in Section 2.00.00 of this code.

2. Permitted Uses

- a. Air transportation services (451,452)
- b. Agriculture, including farms, groves, and ranches. (01.02)
- c. Communication. (48)
- d. Electric services (491)
- (e.)** Electric transmission rights-of-way. (491)
- (f.)** Gas pipeline rights-of-way. (492)
- g. Gas production and distribution (492)
- h. Industrial wastewater disposal. (999)
- i. Railroad, rapid rail transit, & street railway transportation. (40,41)
- j. Sanitary services (495)
- k. Transportation services (47)
- l. Telecommunication towers - subject to the standards of Section 7.10.23 (999)
- m. Water supply and irrigation systems. (494,497)
- n. Water transportation (44)

3. Lot Size Requirements

Lot size requirements shall be in accordance with Section 7.04.00.

4. Dimensional Regulations

Dimensional requirements shall be in accordance with Section 7.04.00.

5. Off-street Parking and Loading Requirements

Off-street parking and loading requirements are subject to Section 7.06.00.

6. Landscaping Requirements

Landscaping requirements are subject to Section 7.09.00.

7. Conditional Uses

- a. Airports. (45)
- (b.)** Electric generation plants. (491)
- c. Gas production plants. (492)
- d. Land clearing and yard trash recycling operations - subject to the provisions of Section

7.10.12. (999)

- e. Natural or manufactured gas storage and distribution points. (452)
- f. Protective functions and their related activities - Correctional institutions (5223)
- g. Solid waste disposal. (4953)
- h. Outdoor shooting ranges, providing site plan approval is obtained according to the provisions of Sections 11.02.07 through 11.02.09 and Section 7.10.19 of this Code. (999)

8. Accessory Uses

Accessory uses are subject to the requirements of Section 8.00.00 and include the following:

- a. Automobile and truck rental services.
- b. Restaurants. (Including the sale of alcoholic beverages for on premises consumption only.)
(999)

JOANNE HOLMAN, CLERK OF THE CIRCUIT COURT - SAINT LUCIE COUNTY
FILE # 2516024 OR BOOK 2111 PAGE 1046, Recorded 12/09/2004 at 02:38 PM

STATE OF FLORIDA
ST. LUCIE COUNTY

THIS IS TO CERTIFY THAT THIS IS A
TRUE AND CORRECT COPY OF THE
ORIGINAL.

This Instrument Prepared by:
R. M. Koblegard, III, Esquire
Fee & Koblegard, P.A.
401-A S. Indian River Drive
Fort Pierce, Florida 34950

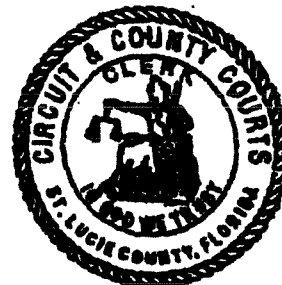
JOANNE HOLMAN, CLERK

By

Date

Return to:
R. M. Koblegard, III, Esq.
Courthouse Box 28

Parcel I.D. No.: 2431-422-0001-000/3



SPECIAL WARRANTY DEED

THIS SPECIAL WARRANTY DEED, executed this 1st day of
December, 2004, by

CITY OF FORT PIERCE, for the use and benefit of
THE FORT PIERCE UTILITIES AUTHORITY,
113 North Second Street
Fort Pierce, FL 34950

hereinafter called the Grantor, to

FLORIDA MUNICIPAL POWER AGENCY,
A Governmental Legal Entity
2061 - 2 Delta Way
Tallahassee, FL 32303

hereinafter called the Grantee:

(Wherever used herein, the terms "Grantor" and "Grantee" shall include singular and plural, heirs, legal representatives, and assigns of individuals, and the successors and assigns of corporations, wherever the context so admits or requires.)

WITNESSETH, That the Grantor, for and in consideration of the sum of \$10.00 in hand paid by the said second party, the receipt whereof is hereby acknowledged, hereby grants, bargains, sells, aliens, remises, releases, conveys and confirms unto the Grantee forever, all that certain land situate, lying and being in the County of St. Lucie, State of Florida, to-wit:

See attached Exhibit A for legal description.

TOGETHER with all the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining.

TO HAVE AND TO HOLD the same in fee simple forever.

AND the Grantor hereby covenants with the Grantee that the Grantor is lawfully seized of said land in fee simple; that the Grantor has good right and lawful authority to sell and convey said land and hereby warrants the title to said land and will defend the same against the lawful claims of all persons claiming by, through or under the said Grantor; and that this conveyance is subject to the encumbrances created by the instruments referenced on Exhibit B attached hereto (the "Permitted Encumbrances").

IN WITNESS WHEREOF, the Grantor has caused these presents to be executed the day and year first above written.

Signed, Sealed and Delivered
in the Presence of:

Print Name: Kia Flores

CITY OF FORT PIERCE
a Florida Municipality

By:

Robert A. Benton, III
Mayor-Commissioner

Print Name: Jeanette Coolon

STATE OF FLORIDA
COUNTY OF ST. LUCIE

I HEREBY CERTIFY that the foregoing instrument was acknowledged before me this 12th day of December, 2004, by ROBERT A. BENTON, III, who is personally known to me and who did not take an oath.

Print Name: CASSANDRA STEELE
Notary Public, State of Florida at Large



Cassandra Steele
MY COMMISSION EXPIRES
January 12, 2005
BONDED THROUGH FARM INSURANCE, INC.

OR BOOK 2111 PAGE 1048

EXHIBIT A

LEGAL DESCRIPTION - PARCEL "A"

A PORTION OF LAND LYING WITHIN SECTION 31, TOWNSHIP 35 SOUTH, RANGE 40 EAST, ST. LUCIE COUNTY, FLORIDA.

COMMENCE AT THE SOUTHWEST CORNER OF SECTION 31, TOWNSHIP 35 SOUTH, RANGE 40 EAST; THENCE RUN NORTH 89°57'15" EAST, ALONG THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 31 FOR A DISTANCE OF 1005.74 FEET (BEARINGS ARE BASED ON THE SOUTH LINE OF SAID SOUTHWEST QUARTER OF SAID SECTION 31 AND ALL OTHER BEARINGS ARE RELATIVE THERETO); THENCE DEPARTING SAID LINE RUN NORTH 00°02'45" WEST, FOR A DISTANCE OF 48.50 FEET TO THE POINT OF BEGINNING, SAID POINT BEING A POINT ON THE NORTH LINE OF THE NORTH ST. LUCIE RIVER WATER CONTROL DISTRICT CANAL NO. 102, SAID POINT ALSO BEING A POINT ON A CURVE CONCAVE SOUTHWESTERLY, HAVING A RADIUS OF 3336.33 FEET, A CENTRAL ANGLE OF 14°41'53", A CHORD BEARING OF NORTH 29°01'12" WEST AND A CHORD LENGTH OF 853.62 FEET; THENCE ALONG THE ARC OF SAID CURVE; AN ARC LENGTH OF 955.97 FEET TO A POINT ON THE SOUTHEASTERLY RIGHT-OF-WAY LINE OF THE FLORIDA EAST COAST RAILROAD; THENCE RUN NORTH 44°44'24" EAST, ALONG SAID SOUTHWESTERLY RIGHT-OF-WAY LINE FOR A DISTANCE OF 1498.22 FEET; THENCE DEPARTING SAID LINE RUN SOUTH 45°18'08" EAST, FOR A DISTANCE OF 334.40 FEET TO A POINT ON A LINE LYING 1035.50 FEET SOUTH OF AND PARALLEL TO THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 31; THENCE RUN SOUTH 89°53'50" EAST, ALONG SAID LINE FOR A DISTANCE OF 1180.28 FEET; THENCE RUN SOUTH 22°32'00" WEST, FOR A DISTANCE OF 1701.80 FEET TO A POINT ON THE AFOREMENTIONED NORTH LINE OF THE NORTH ST. LUCIE RIVER WATER CONTROL DISTRICT CANAL NO. 102; THENCE RUN SOUTH 89°57'15" WEST, ALONG SAID NORTH LINE FOR A DISTANCE OF 1404.02 FEET TO THE POINT OF BEGINNING.

AND TOGETHER WITH

LEGAL DESCRIPTION - PARCEL "B"

A PORTION OF LAND LYING WITHIN SECTION 31, TOWNSHIP 35 SOUTH, RANGE 40 EAST, ST. LUCIE COUNTY, FLORIDA.

COMMENCE AT THE SOUTHWEST CORNER OF SECTION 31, TOWNSHIP 35 SOUTH, RANGE 40 EAST; THENCE RUN NORTH 89°57'15" EAST, ALONG THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 31 FOR A DISTANCE OF 1005.74 FEET (BEARINGS ARE BASED ON THE SOUTH LINE OF SAID SOUTHWEST QUARTER OF SAID SECTION 31 AND ALL OTHER BEARINGS ARE RELATIVE THERETO); THENCE DEPARTING SAID LINE RUN NORTH 00°02'45" WEST, FOR A DISTANCE OF 48.50 FEET, SAID POINT BEING A POINT ON THE NORTH LINE OF THE NORTH ST. LUCIE RIVER WATER CONTROL DISTRICT CANAL NO. 102; THENCE NORTH 89°57'15" EAST ALONG THE NORTH LINE OF THE AFOREMENTIONED NORTH ST. LUCIE RIVER WATER CONTROL DISTRICT CANAL NO. 102 FOR A DISTANCE OF 1404.02 FEET TO THE POINT OF BEGINNING; THENCE NORTH 22°32'00" EAST, FOR A DISTANCE OF 1701.80 FEET TO A POINT ON A LINE LYING 1035.50 FEET SOUTH OF AND PARALLEL TO THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 31; THENCE RUN SOUTH 89°53'50" EAST, ALONG SAID LINE FOR A DISTANCE OF 81.73 FEET TO A POINT; THENCE SOUTH 24°25'33" WEST, FOR A DISTANCE OF 1726.40 FEET TO THE POINT OF BEGINNING.

TOTAL ACREAGE: 69.3 Acres, More or Less
TOGETHER WITH:

An easement for ingress and egress, both pedestrian and vehicular, over and upon that area depicted as "Energy Drive" providing access to and from Selwitz Road (GR-611), upon a certain site plan and proposed plat prepared by Culpepper & Terpening, Inc., Job No. 0020, dated April 12, 2001, Sheet 2 of 2.

EXHIBIT "B"**PERMITTED ENCUMBRANCES**

1. Right-of-Way Agreement given by E. C. Lunsford and Thomas C. Jones to, and in favor of, Florida Power & Light Company comprehending the South 170 feet of captioned property, dated July 27, 1984 and recorded in OR Book 96, page 62, of the Public Records of St. Lucie County, Florida.
2. Twelve foot easements to, and in favor, of Fort Pierce Utilities Authority as more fully described in those certain easements dated, respectively, October 2, 1995 and October 10, 1995, and recorded, respectively, in OR Book 1013, page 682, and OR Book 1013, page 679, of the Public Records of St. Lucie County, Florida.
3. Resolution Granting Major Site Plan Approval, recorded October 2, 2001 in OR Book 1439, page 2424, of the Public Records of St. Lucie County, Florida.



**STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT,
REPAIR, MODIFY, OR ABANDON A WELL**

- ☐ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River

THIS FORM *MUST* BE FILLED OUT COMPLETELY.

The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegated county where applicable.

CHECK BOX FOR APPROPRIATE DISTRICT. ADDRESS ON BACK OF PERMIT FORM.

Permit No. _____
Florida Unique I.D. _____
Permit Stipulations Required (See attached)
62-524 well ☐
CUP/ WUP Application No. _____
ABOVE THIS LINE FOR OFFICIAL USE ONLY

Fold at this line in order that address is visible through envelope window.

1. Owner, Legal Name of Entity if Corporation _____		Address _____		City _____	Zip _____	Telephone Number _____
2. Well Location — Address, Road Name or Number, City _____						
3. Well Drilling Contractor _____		License No. _____		Telephone No. _____		
Address _____		4. <u>1/4</u> of <u>1/4</u> of Section _____ (smallest) (biggest)		(Indicate Well on Chart)		
City _____ State _____ Zip _____		5. Township _____ Range _____		SW NE SE		
6. County _____		Subdivision Name _____		Lot _____	Block _____	Unit _____
7. Number of proposed wells _____ Check the use of well: (See back of permit for additional choices) _____ Domestic _____ Monitor (type) _____ _____ Irrigation (type) _____ Public Water Supply (type) _____ List Other _____ (See Back) (See Back) Distance from septic system _____ ft. Description of facility _____ Estimated start of construction date _____						
8. Application for: _____ New Construction _____ Repair/Modify _____ Abandonment _____ (Reason for Abandonment) _____						Date Stamp
9. Estimated: Well Depth _____ Casing Depth _____ Screen Interval from _____ to _____ Casing Material: Blk-Steel / Gal / PVC Casing Diameter _____ Seal Material _____						
10. If applicable: Proposed From _____ to _____ Seal Material _____ Grouting Interval From _____ to _____ Seal Material _____ From _____ to _____ Seal Material _____						
11. Telescope Casing _____ or Liner _____ (check one) Diameter _____ Blk-Steel / Galvanized / PVC Other (specify: _____)						
12. Method of Construction: _____ Rotary _____ Cable Tool _____ Combination _____ _____ Auger _____ Other (specify: _____)						
13. Indicate total No. of wells on site _____. List number of unused wells on site _____.						
14. Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? ____ No ____ Yes (If yes, complete the following) CUP/WUP No. _____ District well I.D. No. _____ Latitude _____ Longitude _____ Data obtained from GPS _____ or map _____ or survey _____ (map datum NAD 27 _____ NAD 83 _____)						
15. I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code, and that a water use permit or artificial recharge permit, if needed, has been or will be obtained prior to commencement of well construction. I further certify that all information provided on this application is accurate and that I will obtain necessary approval from other federal, state, or local governments, if applicable. I agree to provide a well completion report to the District within 30 days after drilling or the permit expiration, whichever occurs first.						
I certify that I am the owner of the property, that the information provided is accurate, and that I am aware of my responsibilities under Chapter 373, Florida Statutes, to maintain or properly abandon this well; or, I certify that I am the agent for the owner, that the information provided is accurate, and that I have informed the owner of his responsibilities as stated above. Owner consents to personnel of the WMD or a representative access to the well site.						
Signature of Contractor _____		License No. _____		Owner's or Agent's Signature _____		Date _____

DO NOT WRITE BELOW THIS LINE — FOR OFFICIAL USE ONLY

Approval Granted By: _____ Issue Date: _____ Hydrologist Approval _____
Owner Number: _____ Fee Received: \$ _____ Receipt No.: _____ Check No.: _____
Enter numerical month, day and full, four-digit year.

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD. IT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL DRILLING OPERATIONS. ***This permit is valid for 90 days from date of issue.***

Southwest Florida Water Management District

2379 Broad Street, Brooksville, FL 34604-6899 Ph: (352) 796-7211 or 800-423-1476

Environmental Management Department
P.O. Box 1000
Bradenton, FL 34206-1000

Sarasota County Health Department
P.O. Box 2658
Sarasota, FL 34233-2658

Northwest Florida Water Management District

81 Water Management Drive, Havana, FL 32333-4712
(U.S. Highway 90, 10 miles west of Tallahassee) Ph: (904) 539-5999 1-800-785-3001

St. Johns Water Management District

P.O. Box 1429, Palatka, FL 32078-1429 PH: (407) 897-4349 1-800-226-4181

South Florida Water Management District

P.O. Box 24680 3301 Gun Club Road
West Palm Beach, FL 33416-4680 Ph: (407) 686-8800 1-800-432-2045

Suwannee River Water Management District

9225 C.R. 49, Live Oak, FL 32060 Ph: (904) 362-1001 or 800-226-1066

USE OF WELL – ADDITIONAL CHOICES:

Recovery (R)	Landscape Irrigation (LI)	Recreation Area Irrigation (RAI) (ball fields, playgrounds)	Aquaculture (A) (fish ponds)
Public Water Supply (DEP) Community Non-Community (PWS-C) (PWS-N-C)	Agricultural Irrigation (AI) (crops, sod, orchards, nursery stock)	Golf Course Irrigation (GCI)	Class I Injection Well (C-1-I) Class V Injection (C-5-I)
Limited Use Public Supply (HRS)(LUPS) NOTE--HRS is now Dept. of Health (DOH).	Nursery Irrigation (NI) (retail outlets only)	Heat Pump (AC Supply) (HP-Sply)	Test (temporary) (T-WUP) WUP
Livestock (L)	Pesticide (PM&L) Mixing & Loading	Heat Pump (AC Return) (HP-Ret)	Industrial (I)

MONITOR Choices--Fuel (F); Class I Monitor (C-1-M); Class 5 Monitor (C-5-M).

OTHER Choices--Fuel Monitor (FM); Geo Thermal (GT); Recharge (R); Sealing Water (SW); Augmentation (A); Piezometer (P).

WELL SETBACK DISTANCES:

25 ft.	From a treated building slab.
75 ft.	Domestic – From on site septic system.
100 ft.	Public Supply and Limited Public Supply less than 2000 GPD Sewage Flow.
200 ft.	Public Supply and Limited Public Supply greater than 2000 GPD Sewage Flow.

These are common setback distances. **However they are not all-inclusive.** Refer to other applicable rules for additional setbacks.

**Storm Water Pollution Prevention Plan
for
Storm Water Discharge from Construction Activities**

**Treasure Coast Energy Center
Unit 1 Construction**

**Prepared for:
Florida Municipal Power Agency**

**Prepared by
Black & Veatch**

August 2006

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138859-CSTA-S1001	Site Arrangement - Site
138859-CSTF-S3000	Grading and Drainage-Site Key Plan, General Notes, and Legend
138859-CSTF-S3001	Grading and Drainage-Site Plan-Area 1
138859-CSTF-S3002	Grading and Drainage-Site Plan-Area 2
138859-CSTF-S3003	Grading and Drainage-Site Plan-Area 3
138859-CSTF-S3004	Grading and Drainage-Site Plan-Area 4
138859-CSTF-S3005	Grading and Drainage-Site Plan-Area 5
138859-CSTF-S3006	Grading and Drainage-Site Plan-Area 6
138859-CSTF-S3900	Site Typical Culvert and Riprap Details
138859-CSTF-S3050	Site Specific Grading and Drainage Details
138859-CSTE-S3101	Erosion Control Plan Sheet
138859-CSTE-S3150	Erosion Control - Site Details and Sections

Storm Water Pollution Prevention Plan Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Printed Name: _____

Title: _____

Certification Date: _____

Storm Water Pollution Prevention Plan Record of Plan Amendments

<u>Amendment Number</u>	<u>Date of Amendment</u>	<u>Description of Amendment</u>

1.0 Introduction

Florida Municipal Power Agency (FMPA) plans to construct and operate a combined combustion turbine power station in St. Lucie County, Florida, located near Ft. Pierce, Florida. This facility, known as the Treasure Coast Energy Center - Unit 1, as shown on Drawing 138859-CSTA-S1001, is used to produce electricity for consumers within the FMPA service area. Construction activities will take place on approximately 68.1 acres within the Treasure Coast Energy Center site property. The construction contractor for the Unit 1 construction project has responsibility for all construction related activities, including storm water management.

To satisfy the requirements of the National Pollutant Discharge Elimination System (NPDES) Generic Permit for Storm Water Discharge from Construction Activities, authorized under the provisions of Section 403.0885, Florida Statutes, applicable rules of the Florida Administrative Code, and applicable conditions of the Site Certification, this Pollution Prevention Plan has been implemented. The Unit 1 project will involve the installation of all new equipment for power generating equipment and associated support systems including, but not limited to, the construction of a warehouse, administration building, storm water detention area, water treatment building, substation, and No. 2 fuel oil storage tank. This plan has been prepared to address construction of the Unit 1 project. This plan details the procedures and a practice implemented to prevent storm water pollution, and has been prepared to meet Florida Department of Environmental Protection (FDEP) regulatory requirements for such plans.

1.1 Environmental Background

In 2001, the U.S. Environmental Protection Agency delegated the NPDES storm water program to the state of Florida. The program is administered by the FDEP.

Under the NPDES Generic Permit for Storm Water Discharge from Construction Sites, the FDEP requires the development and implementation of a Storm Water Pollution Prevention Plan. A pollution prevention plan for construction is designed to reduce pollution at the construction site before it can cause environmental impacts. Erosion and sediment control measures are addressed herein.

1.2 Facility Description

The Treasure Coast Energy Center Unit 1 project will consist of one natural gas fired, 300 MW combined cycle combustion turbine, unit, and ancillary equipment. The combustion turbine will also be capable of firing with No. 2 fuel oil or liquefied natural gas, to be used as backup fuel only. The overall site arrangement for Unit 1 and future units is shown on Drawing 138859-CSTA-S1001. The parcel of property to be used for the TCEC construction and operations consists of approximately 68.1 acres. For the Unit 1 project area, approximately 46 acres will be utilized for temporary and permanent facilities: 37.3 acres for the power plant, and 8.7 acres for construction. Construction facilities will include equipment lay-down areas, parking areas, and trailers for construction management and contractors. The construction facilities are shown on Drawing 138859-CSTF-S3800. The construction activities planned for each area are described in Section 3.0 of this plan.

1.3 Contact Information

The Treasure Coast Energy Center Construction Site Manager, Mr. _____, is responsible for overall environmental compliance and can be contacted 24 hours a day at (Later).

2.0 Site Description

The Treasure Coast Energy Center Unit 1 Project and associated construction facilities will occupy approximately 46 acres of the 68.1 acre site. The site is owned by FMPA. Land use at the project site consists primarily of improved pastureland. Within the pastureland are areas of wet prairie, freshwater marsh, and thickets of Brazilian pepper. The site is currently used for grazing livestock. Site Arrangement shows the boundary for the Treasure Coast Energy Center Unit 1 Project.

2.1 Site Location

The Treasure Coast Energy Center is located in unincorporated St. Lucie County, Florida (Section -1 Township 35 South, Range 40 East). The site is located in east central St. Lucie County approximately 3.0 miles southwest of the municipal limits of Ft. Pierce, and approximately 1.0 mile north of Port St. Lucie. The Treasure Coast Energy Center Unit 1 site is bounded by the Florida East Coast Railroad (northwest), South Jenkins Road (southwest), North St. Lucie River Water Control District Canal number 102 (south), and undeveloped lands (north and southeast).

The street address of the plant is 4585 Selvitz Road, Ft. Pierce, Florida 34981 (Lot 8 in Midway Industrial Park Phase III North). The Treasure Coast Energy Center Unit 1 is owned and operated by FMPA, with corporate headquarters at 8553 Commodity Circle, Orlando, Florida, 32819.

2.2 Topography

The existing topography of the site varies between elevation 15.5 feet and 18 feet above mean sea level. Finished topography of the Treasure Coast Energy Center Unit 1 Project will be presented when available.

2.3 Drainage

Drainage facilities (detention areas and ditches) will be constructed to adequately manage storm water at full site buildout. The Treasure Coast Energy Center Unit 1 Project will use these facilities while incorporating a series of ditches, culverts, and trench drains that will be integrated into the system. Surface runoff from the area disturbed for the project construction and operation of Unit 1 will be collected and routed to a new storm water system. Existing drainage patterns will be maintained where possible. Due to the relatively flat gradients and limited topographic relief in the area, storm water runoff will have a low velocity.

The surface water management system for the Treasure Coast Energy Center Project has been designed to meet the requirements of the South Florida Water Management District. The design rainfall event is the 25 year, 72 hour storm.

2.4 Soils

Information from a subsurface investigation in 2000 indicates the stratigraphy of the soils at the Treasure Coast Energy Center site generally consist of interbedded layers of loose to medium dense sands with varying amounts of silt, clay and shells mixed throughout. At depths greater than 30 feet, the soils generally become denser with slight cementation. The maximum depth of the investigation was 80 feet below ground surface. Consolidated rock was not encountered within the depths of the investigation.

According to the 1980 USDA soil survey for St. Lucie County, Florida, the majority of the surface soils at the site belong to the Akona series. The series is generally described as poorly drained soil derived from marine sandy and loamy sediments.

Groundwater is located at depths of 0.4 to 3.8 feet below ground surface (El. 17.5 feet to about El. 21 feet). The groundwater levels are expected to vary seasonally.

The risk of geologic hazards at the site is minimal and should not be a cause of concern as the site is developed.

2.5 Runoff Water Quality

No surface water quality data is available for the Treasure Coast Energy Center site since there are no surface waters. Construction runoff will be directed into the storm water detention area. There will be no direct release or discharge into a surface water body.

2.6 Receiving Water

The new storm water system will not be discharged to any receiving water. Instead, construction storm water will be routed to the detention area to be constructed as part of the Treasure Coast Energy Center Unit 1 project. The storm water will remain in the detention area and allowed to percolate and evaporate. If a rainfall event is greater than the design rainfall event of the storm water detention area then the overflow will be conveyed through a wier to an existing ditch. The ditch is located immediately south of the southern property boundary. Water flow in the ditch is generally to the west.

2.7 Adjacent Land Uses

Adjacent land use classifications include heavy industrial, agricultural residential, and some residential/conservation. The southern municipal limit of Ft. Pierce is located northeast, approximately 3 miles from the project site while the northern municipal limits of Port St. Lucie are located approximately 3.0 miles south of the project site. Residential development extends north, south, and southeast within 1 mile south of the Treasure Coast Energy Center Unit 1 site. Additionally, agricultural uses such as croplands, pastures, and groves account for much of the land use and cover within 5 miles of the Treasure Coast Energy Center site.

2.8 Wetlands, Waters, Preservation Areas

There are 11.96 acres of regulated wetlands that exist within the Treasure Coast Energy Center site boundary. The majority of these wetlands are located in the area designated for the storm water detention area. Wetlands on the project site were originally delineated for the Duke Energy Ft. Pierce Generating Station. An Environmental Resources Permit (ERP) Application was submitted to the COE and DEP on April 1, 2005 for work in wetlands. Site conditions remain unchanged, however, because the Duke project was never constructed.

3.0 Site Construction Plan

3.1 Construction Activities

The area proposed for Unit 1 development is an area currently used for grazing livestock. It currently consists of wet prairie, freshwater marsh, and thickets of Brazilian pepper. The area will be developed to support an industrial facility (Unit 1). Soil disturbing activities will include rough grading, excavation, filling, and final grading.

A record of the project site construction activities must be maintained as part of this Plan. Appendix A includes a form and instructions to record such information on an ongoing basis.

3.2 Construction Sequence

Unit 1 will be constructed generally following the sequence indicated below.

- Install silt fences on perimeter of construction area(s).
- Strip and stockpile topsoil.
- Rough grade site, fill site, construct storm water drainage system, excavate power block area.
- Preliminary site stabilization.
- Construct major foundations.
- Install underground utilities.
- Erect major equipment.
- Finish road surfaces.
- Final site grading.
- Final site stabilization.

3.3 Construction Areas

3.3.1 Power Block Equipment Area

Surface runoff from this area will be collected and routed to the storm water detention area that will be constructed onsite.

During construction in this area, sediment controls will be installed, preventing runoff-induced migration of sediments. New culverts, trench drains, and ditches will be protected from construction runoff by sediment filters (staked silt fences, staked straw bales, and vegetation). Sediment controls are designed in accordance with the South Florida Water Management District best management practices.

3.3.2 Construction-Related Areas

Equipment lay-down areas, parking, and trailer areas will be developed for construction. Sediment controls will be installed, preventing runoff-induced mitigation of sediments. Storm water runoff from these areas will be routed to the existing adjacent detention area via overland flow. This detention area was originally designed and constructed in anticipation of full site buildout.

3.3.3 Switchyard Area

Surface runoff from this area will be routed to the detention pond.

During construction in this area, sediment controls will be installed, preventing runoff-induced migration of sediments.

4.0 Storm Water Management Plan

This Storm Water Management Plan was designed following FDEP and South Florida Water Management District guidelines. Control of site runoff will be by means of storm water management. Erosion and sediment controls will be installed prior to site clearing.

4.1 General Description of Storm Water Management System

The potential for storm water runoff pollution will be present during construction of Unit 1. This risk will be minimized through the use of several control measures implemented during the construction sequence.

This Storm Water Pollution Prevention Plan was prepared in accordance with the FDEP guidance document entitled *Generic Permit for Storm Water Discharge from Construction Activities that Disturb Five or More Acres of Land*, (FDEP Document No. 62-621.300(4)(a), May 2003), and South Florida Water Management District's Best Management Practices. Detention will be the main method of storm water management. Storm water management control measures are described herein and shown on Drawings 138859-CSTA-S3000 through S3900. Erosion Control and Sediment control measures are described herein and shown on Drawings 138859-CSTE-S3101 and S3150.

Embankment slopes for the site will be constructed no steeper than 3 horizontal to 1 vertical. Construction activities will be restricted to within the silt fences. Post-construction drainage patterns are also shown on the plans.

4.1.1 Stabilization Practices

Temporary and permanent stabilization methods will be used on the construction project site. Two major stabilization methods that will be used on the site are preserving existing vegetation where possible and disturbing only the area needed for project construction. Disturbed areas will be stabilized within 7 days after construction activity has temporarily or permanently ceased, with one exception: when construction will resume within 21 days. Stabilization practices may include seeding, mulching, geotextiles, sodding, or aggregate surfacing. Temporary access facilities (construction parking or staging areas, equipment lay-down areas) will be surfaced with aggregate to reduce sediment tracking.

4.1.2 Structural Practices

Temporary and permanent structural devices to divert, store, or limit runoff from disturbed areas will be used on the project site. Such devices may include silt fences,

straw bale dikes, culvert inlet/outlet protection (rock or riprap), storm water detention system. Details of the structural control measures are shown on Drawing 138859-CSTE-S3150.

4.2 Runoff Coefficient

The runoff coefficient was based on the amount of impervious and pervious areas. The Treasure Coast Energy Center site is designed to be 11 percent impervious, which is safely within the permitted limits.

4.3 Unit 1 Plant Site

The surface water management system for construction of the Unit 1 project will be the same system used during project operation. In the Unit 1 switchyard and disturbed areas, open channels and drainage structures (culverts, trench drains, etc.) will be designed to collect and direct runoff resulting from a 25 year, 72 hour storm event. Additional grades and drainage patterns will be designed to slow flow rates, dissipate water energy, and prevent erosion. Strategically placed barriers of silt fences will be provided between the construction areas and the perimeter ditches to remove silt and help prevent erosion. Vegetation may be provided in appropriate areas to further reduce pollutants.

5.0 Description of Stormwater Controls

5.1 Erosion and Sediment Control

Erosion will be controlled by compaction of soils, construction of ditches and embankments, maintenance of relatively flat grades, preserving natural vegetation where practical, sodding and/or seeding, inlet/outlet protection, and other appropriate erosion control techniques. Sedimentation will be controlled during construction by use of silt fences, filter berms, straw bale dikes, and other applicable devices as appropriate. Runoff from the construction lay-down areas and parking will drain to ditches and ultimately into the storm water detention area. The general site erosion control plan is included with this document as shown on Drawing 138859-CSTE-S3101.

Dewatering activities will be required during below-grade construction and will be accomplished by localized pumping of the shallow aquifer to lower the water table. The water pumped during dewatering will be discharged to the storm water detention area in accordance with the South Florida Water Management District approved Dewatering Plan.

Following completion of construction, the non-paved areas will be treated or replanted with appropriate ground cover.

5.1.1 Temporary Stabilization

In the areas affected by the construction where the construction activity ceases for at least 21 days, top soil and disturbed portions of the site will be stabilized with temporary seed and mulch no later than 7 days from the last construction activity in that area. Temporary seed and fertilizer will be applied at recommended rates. After seeding, each area will be mulched with straw. Secondary lay-down areas will be stabilized by geotextile and aggregate sub-base where needed.

5.1.2 Storm Water Detention Area

Sediment in storm water runoff will be controlled during construction. For this purpose, appropriate sediment control techniques will be used to filter storm water prior to entering the storm water management system.

During construction, sediment controls will surround the perimeter of the construction area, minimizing runoff-induced migration of sediments. Storm water flows through construction areas will be filtered by staked silt barriers, straw bales, and other appropriate sediment/erosion control devices. Existing and new catch basins will be protected from construction runoff by sediment filters. During construction, filtered

storm water from some areas will continue as sheet flow to the existing storm water management system or natural drainage patterns.

5.2 Controls for Other Potential Pollutants

Pollutants from sources other than ground disturbing activities have the potential to enter the storm water system during project construction. A description of such potential pollutants and the control measures proposed to reduce the risk of storm water pollution is provided below.

5.2.1 Fugitive Dust

Fugitive dust may be generated during dry weather conditions. The Treasure Coast Energy Center Unit 1 Construction Site Manager, or his authorized designee, will direct dust control activities. Water sprays, placing aggregate or shell rock, wind fencing, and physical or vegetative stabilization practices will be used for dust control as appropriate.

5.2.2 Offsite Sediment Tracking

The vehicle tracking of sediment will be reduced by installing stabilized construction road aprons. If necessary, vehicles will be cleaned to remove excess mud, dirt, or rock prior to exiting from the construction site.

5.2.3 Petroleum Products and Chemicals

All onsite construction vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. No “topping off” of fuel tanks will be allowed, reducing the possibility of spills. Petroleum products will be stored in tightly sealed containers and tanks which are clearly labeled. Any asphalt substances used onsite will be applied according to the manufacturer’s recommendations. Secondary containment for stationary tanks and procedures for mobile storage tanks are described in the Construction SPCC Plan. Clean water will be released onsite after visual verification that no oil or oil sheen is present. Any soil contaminated by petroleum products will be immediately cleaned up and removed to an approved storage or disposal site by the Contractor.

Impacts from the use of chemicals for cleanup of spillage of chemicals or petroleum products will be mitigated through proper storage, handling, and disposal practices. Construction contractors will be required to implement practices (e.g., spill prevention, employee training) to prevent spills. Fueling and maintenance areas will be located so that any spills, if they do occur, will not be adjacent to any storm water

facilities. If any spills occur, immediate cleanup will be performed with ultimate disposal in an approved facility.

5.2.4 Construction Waste Materials

All waste materials generated during construction will be collected and stored in labeled metal or plastic dumpsters and removed from the construction site by a licensed waste management contractor. Dumpsters will meet required local and state solid waste management regulations. All trash and construction debris will be deposited in dumpsters. The dumpsters will not be overfilled. No construction waste materials will be buried onsite except for concrete truck washout or other material as approved by FMPA. All construction personnel will be instructed regarding the correct procedure for waste disposal. The Treasure Coast Energy Center Unit 1 Construction Site Manager will be responsible for overall compliance with these procedures.

5.2.5 Hazardous Materials and Wastes

All hazardous materials and wastes will be stored, handled, and disposed of in the manner specified by local or state regulation or by the manufacturer to minimize the potential for storm water pollution. All construction personnel will be instructed regarding the correct procedure for hazardous waste handling and disposal. The Treasure Coast Energy Center Unit 1 Construction Site Manager will be responsible for overall compliance with these procedures. Additional procedures for hazardous material/waste handling are described in the Environmental Control Plan.

5.2.6 Fertilizers/Pesticides

Fertilizers and pesticides used will be applied in the amounts and by methods recommended by the manufacturer. Storage will be in a rain protected facility.

5.2.7 Paints/Solvents

All paint and paint cleaning containers will be tightly sealed and properly stored to prevent leaks or spills. Storage will be in a rain protected facility. Unused paints or cleaners will be disposed of according to local and/or state regulations, or manufacturer's recommendations.

5.2.8 Equipment and Concrete Truck Wash Areas

Large equipment and concrete trucks will be allowed to discharge wash water in the project area in such a manner that prevents contact with storm waters discharged from the site. Dikes, barriers, or a shallow excavation may be constructed to contain the wash

waters. Materials collected in such areas will be disposed of in an acceptable manner. The equipment wash area is shown on the Construction Facilities drawing, Drawing 138859-CSTF-S3800.

5.2.9 Sanitary Wastes

All sanitary wastes will be collected from portable units provided by a licensed contractor for offsite treatment and disposal as needed.

5.2.10 Non-Storm Water Discharges

It is expected that the following non-storm water discharges will occur onsite during the construction period:

- Water pipeline flushings.
- Water from dewatering excavations (i.e. uncontaminated groundwater) will be discharged in accordance with the approved Dewatering Plan.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- Vehicle and building wash waters (where no detergents have been used).
- Water for dust control.
- Fire fighting waters; fire hydrant flushings.
- Vegetation watering; irrigation drainage.
- Potable water discharges.
- Air conditioning condensate.
- Springs.
- Uncontaminated foundation or footing drains.

Waters from hydrostatic testing of new water lines, natural gas lines, and tank flushings will be released into the storm water detention area. This activity will require authorization from FDEP.

All non-storm water discharges will be directed to the Treasure Coast Energy Center site storm water management system except where otherwise specified.

5.3 Inventory for Pollution Prevention Plan

Following is a partial list of materials that are expected to be present onsite during construction:

- Concrete.
- Wood.
- Masonry block.

- Detergents.
- Tar.
- Paints (non-lead based).
- Fertilizers.
- Petroleum-based products (lubricants, fuels, solvents).
- Metal studs.
- Bricks.
- Solvents.
- Metal parts.
- Steel.
- Insulation.
- Refrigerants.
- Light bulbs.
- Batteries.

5.3 Timing of Controls/Measures

Erosion and sediment controls will be in place prior to the start of construction and maintained throughout construction. The storm water management system will be the first system installed onsite. Once construction activity ceases permanently in an area, that area will be permanently stabilized. After the entire site is stabilized, any accumulated sediment will be removed.

5.4 Water Quality Monitoring

The general site runoff will be monitored during a rainfall event which causes discharge from the site runoff collection system at the site runoff detention overflow weir. A grab sample will be collected during the event in the vicinity of the basin overflow. The sample will be tested in accordance with applicable local, state, and federal requirements.

6.0 Best 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.

6.1 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 appropriate containers.
- Products will be kept in their original containers with the original manufacturer's label or in a labeled container once subdivided.
- 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.
- Containers for general waste collection (i.e., nonregulated materials) will be placed around the project area.

6.2 Maintenance and Inspection Procedures

The inspection and maintenance practices that will be used to maintain erosion and sediment controls at the project area are listed below. The Storm Water Management System Weekly Inspection Form included as Appendix B of this plan addresses items for weekly inspection. Documentation will be retained onsite for the duration of the construction project.

- Turbidity barriers will be installed at all locations as shown on Drawing 138859-CSTE-S3150. These barriers will be inspected and maintained in good working condition.
- All control measures will be inspected at least once each week and following any storm event of 0.50 inch or greater.

- All control measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of report and completed within 7 days.
- Built up sediment will be removed from silt fence when it has reached one-third the height of the fence.
- Silt fence 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.
- The storm water detention area will be inspected for depth of sediment. Built up sediment will be removed when it reaches 10 percent of the design capacity or at the end of the job.
- Berms will be inspected and any breaches will be promptly repaired.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
- The Treasure Coast Energy Center Unit 1 Construction Site Manager will designate one or more individuals, as needed, to be responsible for inspections, maintenance, repair, and reporting activities. The selected personnel will receive instruction from the Site Manager or qualified designee.

6.3 Spill Prevention and Response

The Treasure Coast Energy Center Unit 1 Construction Spill Prevention, Control and Countermeasure Plan will be prepared to address construction issues prior to bringing regulated chemicals or petroleum products onsite. 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 maintained at the construction site and site personnel handling materials 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 may 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. All work in progress in the area where the release occurred shall cease until cleanup is completed. Any work affecting the area must also be stopped.
- 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 FMPA and the appropriate State or local government agency according to regulations and ordinances.
- The spill prevention plan will be adjusted to include measures to prevent spills from reoccurring and procedures for clean up. A description of the spill, what caused it, and the cleanup measures will also be recorded.

The Treasure Coast Energy Center Unit 1 Construction Site Manager will be responsible for the day-to-day site operations, and will designate a spill prevention and cleanup coordinator. The names of responsible spill personnel will be posted in the material storage area and in the office trailer onsite.

7.0 Contractor Certifications

All contractors and subcontractors responsible for implementing the storm water management and control measures identified in this plan during the Treasure Coast Energy Center Unit 1 construction period must sign a copy of the certification statement provided below.

CONTRACTOR CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the generic storm water permit pursuant to Section 403.0885, F.S., which authorizes storm water discharges associated with industrial activity from the Treasure Coast Energy Center Unit 1 Project construction site identified as part of this certification.

Signature: _____

Printed Name: _____

Title: _____

Firm: _____

Address: _____

Phone: _____

Nature of Contracted Service: _____

Certification Date: _____

8.0 Recordkeeping

A signed copy of this Plan and any supporting materials must be maintained at the project construction site from the date of project initiation to the date of final stabilization. All records and supporting documents will be compiled in an orderly manner and maintained for a period of three years following final site stabilization.

The generation of reports, as part of the construction process and inspection or amendment procedures, provides accurate records that can be used to evaluate the effectiveness of this Plan, and document compliance with the regulatory requirements. Changes in design or construction of the storm water management system must be documented and included with the Plan to facilitate Plan review or evaluation. Three forms have been developed to assist the Treasure Coast Energy Center Unit 1 Construction Site Manager with recordkeeping activities:

- Record of Plan Amendments
- Construction Activity Record
- Storm Water Management System Weekly Inspection Form

Plan amendments will be documented on the form in the front of this Plan and on the drawings. A record of construction activities will be maintained in Appendix A of this Plan. A weekly inspection form is provided in Appendix B of this Plan.

9.0 Project Completion

Construction is considered complete when the project site is 70 percent (density) stabilized. The Treasure Coast Energy Center Unit 1 Construction Site Manager may terminate construction erosion and sediment control measures at this time. A Notice of Termination will be submitted to the FDEP notifying the FDEP that project construction is essentially complete and that the site is stabilized. A partially completed Notice of Termination form is provided herein.

Permanent erosion and sedimentation control measures within the project plant site will include the runoff collection system (ditches, culverts, trenches), surfaced traffic and work areas, nonworking areas with established vegetation, and the site runoff detention area. These measures will minimize erosion and potential sedimentation into the detention area.

The permanent erosion and sediment control system will be installed as early as possible during construction and will remain in service throughout the life of the project. The primary components of this system will be established vegetation, surfacing, grassed ditches, culverts, and trenches which will collect the site runoff and direct it to the site detention basin. The system will be maintained and monitored during construction and operation.



NOTICE OF TERMINATION OF GENERIC PERMIT COVERAGE (RULE 62-621.300(6), F.A.C.)

This form is to be completed and submitted to the Department to terminate coverage under the Generic Permit for Stormwater Discharge From Construction Activities that Disturb Five or More Acres of Land provided in Rule 62-621.300(4), F.A.C., and the Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity provided in Rule 62-621.300(5), F.A.C. Instructions for completing this form are attached. **Please print or type information in the appropriate areas below.**

I. PERMIT INFORMATION:

A. Generic Permit Coverage Number (Facility/Project ID): Treasure Coast Energy Center	
B. Reason for Termination:	☐ Check here if you are no longer the operator of the facility/project. ☒ Check here if the stormwater discharge is being terminated.

II. PERMITTEE INFORMATION:

A. Operator Name: Florida Municipal Power Agency		
B. Address: 8553 Commodity Circle		
C. City: Orlando	D. State: FL	E. Zip Code: 32819-9002
F. Responsible Authority: Roger Fontes, General Manager/CEO		G. Phone No.: 407-355-7767

III. FACILITY/PROJECT INFORMATION:

A. Name: Treasure Coast Energy Center Unit 1		
B. Address/Location: 4585 Selvitz Rd		
C. City: Ft. Pierce	D. State: FL	E. Zip Code: 34981-4801
F. County: St. Lucie	G. Latitude: N27 ° 23 ' 02 "	Longitude: W80 ° 22 ' 39 "

IV. CERTIFICATION¹:

I certify under penalty of law that all stormwater discharges associated with industrial activity from the identified facility or activity that are authorized by the referenced State of Florida generic permit have been eliminated or that I am no longer the operator of the facility or activity. I understand that by submitting this Notice of Termination, I am no longer authorized to discharge stormwater associated with industrial activity under this generic permit, and that discharging pollutants in stormwater associated with industrial activity to surface waters of the State is unlawful unless authorized by a permit issued pursuant to 403.0885, F.S. I also understand that the submittal of this Notice of Termination does not release an operator from liability for any violations of this permit.

Name and Official Title (Type or Print): Roger Fontes

Signature: _____

Date Signed: _____

¹ Signatory requirements are contained in Rule 62-620.305, F.A.C.

INSTRUCTIONS – DEP FORM 62-621.300(6)
NOTICE OF TERMINATION (NOT) OF GENERIC PERMIT COVERAGE

Who May File an NOT:

Permittees who are presently covered under the Generic Permit for Stormwater Discharge From Construction Activities that Disturb Five or More Acres of Land provided in Rule 62-621.300(4), F.A.C., the Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity provided in Rule 62-621.300(5), F.A.C., or an EPA-issued National Pollutant Discharge Elimination System (NPDES) general permit for stormwater discharges associated with industrial activity may submit a Notice of Termination (NOT) when their facility or activity no longer has any stormwater discharges associated with industrial activity as defined at 40 CFR 122.26(b)(14), or when they are no longer the operator of the facility or activity.

For construction activities, elimination of all stormwater discharges associated with industrial activity occurs when disturbed soils at the construction site have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time, or that all stormwater discharges associated with industrial activity from the construction site that are authorized under the generic permit have otherwise been eliminated. Final stabilization means that all soil-disturbing activities at the site have been completed and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

Where to File NOT:

NOTs for termination of coverage under this generic permit must be sent to the following address:

NPDES Stormwater Notices Center, MS #2510
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Part I – Permit Information

Item A.: Enter the generic permit coverage number (DEP Facility/Project ID number) for the facility/project.

Item B.: Indicate the reason for termination of permit coverage.

Part II – Permittee Information

Item A.: Provide the legal name of the entity (operator) to which permit coverage was granted.

Items B. – E.: Provide the complete mailing address of the operator, including city, state, and zip code.

Items F. – G.: Provide the name and telephone number (including area code) of the person authorized to submit this application on behalf of the operator. This should be the same person as indicated in the certification in Part IV.

Part III – Facility/Project Information

Items A. – E.: Enter the official or legal name and complete street address, including city, state, and zip code of the facility/project site. Do not provide a P.O. Box number as the street address. If it lacks a street address, describe the facility/project site location (e.g., intersection of State Road 1 and Smith Street).

Item F.: Enter the county in which the facility/project site is located.

Item G.: Enter the latitude and longitude of the approximate center of the facility/project site.

Part IV – Certification

Type or print the name and official title of the person signing the certification. Sign and date the certification.

Section 403.161, F.S., provides severe penalties for submitting false information on this application (NOT) or any reports or records required by a permit. There are both civil and criminal penalties for submitting false information.

Rule 62-620.305, F.A.C., requires that the application (NOT) be signed as follows:

- A. For a corporation, by a responsible corporate officer as described in Rule 62-620.305, F.A.C.;
- B. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or,
- C. For a municipality, state, federal or other public facility, by a principal executive officer or elected official.

Appendix A
SWPPP Construction Activity Record

SWPPP Construction Activity Record

An accurate and up-to-date record of construction activity must be maintained as a part of this Plan. Record the information below on an ongoing basis.

- Dates when major soil disturbing activities occur.
- Dates when construction activities temporarily cease on a portion of the site.
- Dates when construction activities permanently cease on a portion of the site.
- Dates when stabilization measures are initiated.
- Dates when stabilization measures are complete.

[illegible]

Appendix B
Storm Water Management System Weekly Inspection Form

Weekly and Rainfall Event Inspection Form Storm Water Management System Erosion and Sedimentation Controls

Visually inspect disturbed areas of the construction site that have not been finally stabilized. Inspections to be completed once a week and within 24 hours of a rainfall event of 1/2 inch or more. The frequency of regular inspections is proportional to the amount of construction activity and will increase accordingly. Maintenance to be initiated within 24 hours of inspection, and completed within 7 days.

Inspector: _____

Inspection Date: _____

Date of last rainfall: _____

Amount of last rainfall: _____ inches

Report on the condition of the storm water facilities and erosion and sedimentation controls installed at the construction site. Check for tears in silt fences, for securely attached fabric to fence posts, and for depth of sediment in front of the silt fences. The depth of sediment should not exceed one-third of the fence height. Seeding/planting areas and riprap/aggregate areas should be inspected for bare spots and washouts.

Note: Attach marked-up site layout drawing to this Inspection Form to identify repair locations.

Area	Control	Response		Describe Action Taken For All "No" Answers
	Is the silt fence free from tears?	Y	N	
	Is the fence fabric attached securely to the posts?	Y	N	
	Is sediment less than 1/3 of the fence height?	Y	N	
	Are seeding / planting areas and riprap / aggregate areas free of bare spots or washouts?	Y	N	
	Are roadways adjacent to the site mostly free of mud, dirt, and rock?	Y	N	
	Is the silt fence free from voids where sediment can travel underneath?	Y	N	
	Are graveled areas adequately covered?	Y	N	
	Is the site free from excessive dust that requires watering?	Y	N	
	Are swales and / or ditches free of obstructions?	Y	N	
	Are straw bales secured and in good condition?	Y	N	
	Are discharge structures free of obstructions?	Y	N	
	Are discharges from the detention area free from turbidity and oil sheen?	Y	N	
	Are discharges to the detention area free from turbidity and oil sheen?	Y	N	

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
UTILITY PERMIT

FORM 710-010-85
UTILITIES
OGC - 01/99
10/04

PERMIT NO.:	SECTION NO.:	STATE ROAD		COUNTY
FDOT construction is proposed or underway.		☐ Yes	☐ No	Financial Project ID:
Is this work related to an approved Utility Relocation Schedule?		☐ Yes	☐ No	If yes, Document Number:
PERMITTEE:				
ADDRESS:			TELEPHONE NUMBER: () -	
CITY/STATE/ZIP:				
The above PERMITTEE requests permission from the State of Florida Department of Transportation, hereinafter called the FDOT, to construct, operate and maintain the following:				
FROM:		TO:		
Submitted for the PERMITTEE by:				
	Name and Title (Typed or Printed Legibly)	Signature	Date	

1. The PERMITTEE declares that prior to filing this application, the location of all existing utilities that it owns or has an interest in, both aerial and underground, are accurately shown on the plans and a letter of notification was mailed on _____ to the following utilities known to be involved or potentially impacted _____ in _____ the _____ area _____ of _____ the _____ proposed installation: _____

_____.
2. The local Maintenance or Resident Engineer, hereafter referred to as the FDOT Engineer, shall be notified a minimum of forty-eight (48) hours advance notification prior to starting work and again immediately upon completion of work. The FDOT's Engineer is _____, located at _____, Telephone Number _____.
The PERMITTEE's employee responsible for Maintenance of Traffic is _____, Telephone Number _____.
(This name may be provided at the time of the 48 hour notice prior to starting work).
3. All work, materials, and equipment shall be subject to inspection and approval by the FDOT Engineer.
4. All plans and installations shall conform to the requirements of the FDOT's Utility Accommodation Manual in effect as of the date this permit is approved by FDOT, and shall be made a part of this permit. This provision shall not limit the authority of the FDOT under Paragraph 8 of this Permit.
5. This PERMITTEE shall commence actual construction in good faith within _____ days after issuance of permit, and shall be completed within _____ days after the permitted work has begun. If the beginning date is more than 60 days from the date of permit approval, the PERMITTEE must review the permit with the FDOT Engineer to make sure no changes have occurred to the Transportation Facility that would affect the permitted construction.
6. The construction and maintenance of such utility shall not interfere with the property and rights of a prior PERMITTEE.
7. It is expressly stipulated that this permit is a license for permissive use only and that the placing of utilities upon public property pursuant to this permit shall not operate to create or vest any property right in said holder, except as provided in executed subordination and Railroad Utility Agreements.
8. Pursuant to Section 337.403(1), Florida Statutes, any utility placed upon, under, over, or along any public road or publicly owned rail corridor that is found by FDOT to be unreasonably interfering in any way with the convenient, safe, or continuous use, or maintenance, improvement, extension, or expansion, of such public road or publicly owned rail corridor shall, upon 30 days written notice to the utility or its agent by FDOT, be removed or relocated by such utility at its own expense except as provided in paragraphs (a) and (b), and except for reimbursement rights set forth in previously executed subordination and Railroad Utility Agreements, and shall apply to all successors and assigns for the permitted facility.
9. It is agreed that in the event the relocation of said utilities are scheduled to be done simultaneously with the FDOT's construction work, the PERMITTEE will coordinate with the FDOT before proceeding and shall cooperate with the FDOT's contractor to arrange the sequence of work so as not to delay the work of the FDOT's contractor, defend any legal claims of the FDOT's contractor due to delays caused by the PERMITTEE's failure to comply with the approved schedule, and shall comply with all provisions of the law and the FDOT's current Utility Accommodation Manual. The PERMITTEE shall not be responsible for delay beyond its control.
10. In the case of non-compliance with the FDOT's requirements in effect as of the date this permit is approved, this permit is void and the facility will have to be brought into compliance or removed from the right of way at no cost to the FDOT, except for reimbursement rights set forth in previously executed subordination and Railroad Utility Agreements. This provision shall not limit the authority of the FDOT under Paragraph 8 of this Permit.
11. It is understood and agreed that the rights and privileges herein set out are granted only to the extent of the State's right, title and interest in the land to be entered upon and used by the PERMITTEE, and the PERMITTEE will, at all times, and to the extent permitted by law, assume all risk of and indemnify, defend, and save harmless the State of Florida and the FDOT from and against any and all loss, damage, cost or expense arising in any manner on account of the exercise or attempted exercises by said PERMITTEE of the aforesaid rights and privileges.
12. During construction, all safety regulations of the FDOT shall be observed and the PERMITTEE must take measures, including placing and the display of safety devices that may be necessary in order to safely conduct the public through the project area in accordance with the Federal Manual on Uniform Traffic Control Devices, as amended for highways, the requirements of the Standard Application Package for railways, including flagging services and Railroad Protective Insurance or acceptable alternative, when applicable, and the FDOT's latest Roadway and Traffic Design Standards and Standard Specifications for Road and Bridge Construction, as amended. When a Utility deems it necessary to conduct Traffic Control activities and methods significantly different from those addressed in the above references, the Utility must submit an alternative plan signed and sealed by a qualified registered Florida professional engineer qualified to develop Traffic Control Planning in accordance with the provisions of the Utility Accommodation Manual, Chapter 8.
13. Should the PERMITTEE be desirous of keeping its utilities in place and out of service, the PERMITTEE, by execution of this permit acknowledges its present _____ and continuing ownership of its utilities located between _____ and _____ within the FDOT's rights-of-way as set forth above. Whenever the PERMITTEE removes its facilities, it shall be at the PERMITTEE's sole cost and expense. The PERMITTEE, at its sole expense, shall promptly remove said out of service utilities whenever the FDOT determines said removal is in the public interest.
14. In the event contaminated soil is encountered by the Utility or anyone within the permitted construction limits, the Utility shall immediately cease work and notify the FDOT. The FDOT shall coordinate with the appropriate agencies and notify the PERMITTEE of any suspension or revocation of the permit until contamination assessment and remediation, as appropriate under Rule Chapters 62-770 and 62-730 Florida Administrative Code, has progressed to a state that all environmental regulatory agencies having jurisdiction have approved the site of the contamination for resumption of work.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
UTILITY PERMIT

FORM 710-010-85
UTILITIES
OGC - 01/99
10/04

15. During excavation operations, an on-site representative of the PERMITTEE may be required to perform the following activities with respect to their own facilities: physically expose or direct exposure of underground facilities, provide any necessary support to facilities and/or cover aerial facilities as deemed necessary to aid construction.
16. Pursuant to Section 337.401(2), Florida Statutes, the permit shall require the permit holder to be responsible for damage resulting from the issuance of the permit. The Department may initiate injunctive proceedings as provided in s.120.69 to enforce provisions of this subsection or any rule or order issued or entered into pursuant thereto.
17. Pursuant to Section 337.402, Florida Statutes, when any public road or publicly owned rail corridor is damaged or impaired in any way because of the installation, inspection, or repair of a utility located on such road or publicly owned rail corridor, the owner of the utility shall, at his or her own expense, restore the road or publicly owned rail corridor to its original condition before such damage. If the owner fails to make such restoration, the authority is authorized to do so and charge the cost thereof against the owner under the provisions of s.337.404.
18. Special FDOT instructions:

It is understood and agreed that commencement by the PERMITTEE is acknowledgment and acceptance of the binding nature of all the above listed permit conditions and special instructions.

19. By the below signature, the Permittee hereby represents that no change to the FDOT's standard Utility Permit form, as incorporated by reference into Rule 14-46.001, for this Utility Permit has been made which has not been previously called to the attention of the FDOT (and signified to by checking the appropriate box below) by a separate attached written document showing all changes and the written and dated approval of the FDOT Engineer. Are there attachments reflecting change/s to the standard form? ☐ NO ☐ YES If Yes, _____ pages are attached.

PERMITTEE		SIGNATURE		DATE:	
Name & Title of Authorized Permittee or Agent (Typed or Printed Legibly)					
APPROVED BY:				ISSUE DATE:	
District Maintenance Engineer or Designee					

UTILITY PERMIT FINAL INSPECTION CERTIFICATION

PERMIT NUMBER:	SECTION:	S.R.:	M.P.:
DATE:			
DATE WORK STARTED:			
DATE WORK COMPLETED:			
INSPECTED BY:			
(Permittee or Agent)			
CHANGE APPROVED BY:			DATE:
District Maintenance Engineer or Designee			

I the undersigned PERMITTEE do hereby CERTIFY that the utility construction approved by the above numbered permit was inspected and installed in accordance with the approved plans made a part of this permit and in accordance with the FDOT's current Utility Accommodation Manual. All plan changes have been approved by the FDOT's Engineer and are attached to this permit. I also certify that the work area has been left in as good or better condition than when the work was begun.

PERMITTEE:	SIGNATURE:	DATE:
Name & Title of Authorized Permittee or Agent (Typed or Printed Legibly)		

CC: District Permit Office
Permittee

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

TABLE A Description of Wells

Well Name or Number	TCEC-1	TCEC-2	TCEC-3			
Map Designation						
Existing or Proposed	P	P	P			
Date of Proposed Construction						
Date Installed if Existing						
Diameter (in)						
Total Depth (ft)						
Cased Depth (ft)						
Screened Interval (ft)						
Pumped or Flowing	P	P	P			
Pump Type (see Instructions)						
Pump Intake Depth (ft bls)						
Pump or Flow Capacity (GPM)						
Working Valve if Artesian (yes, no or not applicable)						
Status (see Instructions)						
Purpose (see Instructions)						
Elevation of the Wellhead (ft NGVD - see Instructions)						
Water Use Accounting Method (see Instructions)						
Date Last Calibrated (ATTACH calibration report)						
Planar Coordinates (if known - see instructions)						
Section / Township / Range						

Instructions for Completing TABLE A, Description of Wells

Please provide the following information about the well, if known or if applicable:

Well Name or Number: *This is your designation of the well; if we contact you about the well, this is how you would refer to it.*

Map Designation: *This is how you have labeled the well on the map you submitted. This may be the same as Well Name or Number, but does not necessarily have to be.*

Existing or Proposed: *If the well is proposed enter the date of expected operation. If it is an existing well, enter the date it was installed if you know it.*

Diameter: *Outside diameter of the well casing.*

Total Depth: *Total length in feet between the land surface and the bottom of the well.*

Cased Depth: *The length in feet from land surface to the bottom of the well casing.*

Screened Interval: *The distance in feet below land surface to the top and bottom of the well screen if the well is so equipped.*

Pumped or Flowing: *Does the well produce water as a result of natural artesian flow, or is it pumped?*

Pump Type: *This is the type of pump that has been installed for your well. Typical choices are:*

centrifugal	diesel turbine	axial flow	windmill
submersible	jet	suction	other (specify)
electric turbine	hydraulic	portable	

Pump Intake Depth: *Location of the pump depth in feet below land surface. The pump may be on the surface or down inside the well.*

Pump or Flow Capacity: *The amount of water the pump can produce in gallons per minute (GPM).*

Working Valve: *If the well is artesian; does it have a working valve to control the flow?*

Status: *Typical choices are:*

- Primary
- Secondary (Ex: a production well that is rotated)
- Standby (Ex: used for freeze protection or emergency)
- Monitor
- Injection (Ex: Air Conditioning, pool heat exchange, etc.; sometimes used only periodically)
- Recharge (Ex: same as above)

Purpose: *This is what the water will be used for. Typical choices are:*

Dairy	Irrigation	Air Conditioning	Swimming Pool Heating
Monitor	Aquaculture	Freeze Protection	Irrigation/Lake Recharge
Livestock	Bottled Water	Mining/Dewatering	Aquifer Storage and Recovery
Industrial	Other (specify)	Public Water Supply	Aquifer Remediation and Recovery

Elevation of the Wellhead: *This is the elevation of the top of the finished well at the ground surface.*

Flow Measurement Method: *Section 4.1, Basis of Review for Water Use Permit Applications, requires all permittees with a **maximum monthly use of greater than 3 million gallons** to equip each existing water withdrawal facility with an authorized operating water use accounting system and a report of its calibration to be sent to the District. Describe how you measure the amount of water produced by the well.*

Date Last Calibrated: *When was the flow measurement method last calibrated? ATTACH the calibration report.*

Planar coordinates: *The Florida State Plane System (Planar Coordinates), should be submitted if you have a land survey which identifies the location of the well in terms of those measurements. If you do not know what these are, it is not necessary to include them.*

Section / Township / Range: *The section, township and range in which the well is located.*