CALPINE
BLUE HERON
ENERGY CENTER

Site Certification Application

Sufficiency Responses

Submitted by

CALPINE
CONSTRUCTION FINANCE COMPANY, L.P.

Prepared by

ECT
Environmental Consulting & Technology, Inc.

February 2002

CALPINE
EASTERN

ECT
Environmental Consulting & Technology, Inc.

February 1, 2002
ECT No. 000105-0100

Mr. Hamilton S. Oven, Jr.
Siting Coordination Office
Florida Department of Environmental Protection
2600 Blair Stone Road, MS 48
Tallahassee, FL 32399

Re: Calpine Construction Finance Company, L.P.
Blue Heron Energy Center
Site Certification Application No. PA00-42
DOAH Case No. 00-4564EPP
Responses to Agency Sufficiency Comments

Dear Mr. Oven:

On behalf of Calpine Construction Finance Company, L.P. (Calpine), I have enclosed four copies of Calpine's responses to the agency sufficiency comments concerning the Site Certification Application (SCA) for Calpine's Blue Heron Energy Center (BHEC) in Indian River County, Florida. Calpine's responses address the agency comments that were sent to Calpine by the Florida Department of Environmental Protection (FDEP) on January 26, 2001. The agency comments are included in Attachment A of Calpine's response document. Copies of Calpine's responses are also being provided directly to the recipients of the SCA and the parties to this proceeding.

Subsequent to filing the SCA, Calpine has determined that several changes are needed for the BHEC Project as described in the SCA. First, as you have been notified, Calpine has now determined that Calpine will not seek certification in this proceeding of the approximately 15-mile-long natural gas pipeline lateral from the Gulfstream Natural Gas Pipeline System metering station in St. Lucie County to the BHEC Site. Instead, this natural gas lateral for the Project will be designed, constructed, owned, and operated by another company, which is yet to be determined. The permits for this pipeline will be obtained in separate proceedings. The responses to the sufficiency comments reflect that this natural gas pipeline will not be certified in this proceeding.

Second, Calpine has now determined that the BHEC will also interconnect with the Florida Gas Transmission (FGT) natural gas transmission system, which is located west of I-95, approximately 1,400 feet west of the Site. The FGT pipeline is located between two Florida Power & Light Company (FPL) 230-kV electric transmission line rights-of-way.

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332-0444

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332-6722

This interconnection with FGT will serve as a backup and secondary source of natural gas for the Project. The natural gas pipeline interconnection between the BHEC and FGT system will be constructed, owned, and operated by Calpine. Therefore, Calpine will amend the SCA for the BHEC Project to seek certification of the corridor for this natural gas pipeline interconnection in this proceeding. Calpine will provide FDEP with revised pages of the SCA in the near future.

Third, the Conceptual Site Plan and Special Exception Use for the BHEC Project was approved by Indian River County on September 18, 2001. As part of this approval process, Calpine agreed to dedicate to the County a 30-foot-wide drainage and utility easement adjacent to the 74th Avenue right-of-way, which is located along the eastern boundary of the BHEC Site. To provide this easement, the site layout for the BHEC facilities had to be shifted 30 feet to the west. This minor shift did not change the overall arrangement of the BHEC facilities and equipment. The two onsite wetlands and buffer areas remain unaffected by the Project construction. The revised figures in the attached sufficiency responses reflect this shift in the site layout.

Next, Calpine has determined that the BHEC Project will be constructed in two phases with an ultimate site capacity of a nominal 1,080 megawatts (MW). Phase I will consist of one "2 on 1" combined cycle power plant and will have a generating capacity of 540 MW. Phase I will consist of two Siemens Westinghouse 501F Class combustion turbine generators integrated with two heat recovery steam generators and one steam turbine generator, as described in the SCA. Phase II of the Project will consist of constructing the second 540-MW "2 on 1" combined cycle power plant, as described in the SCA. Calpine currently anticipates that construction of Phase I will commence in 2003 with a commercial operation date in mid 2005. Further, Calpine intends to submit its petition for a determination of need for Phase I of the BHEC to the Public Service Commission in the near future.

Based on its current phased development plan, Calpine is hereby amending the SCA for the BHEC Project. In this proceeding, Calpine now wishes to obtain certification for the construction and operation of Phase I (i.e., a nominal 540-MW electric generating plant and associated facilities) and certification for an ultimate site capacity of 1,080 MW. Calpine recognizes that a supplemental application will need to be submitted and approved in the future, before Calpine commences construction and operation of Phase II (i.e., the second 540-MW facility).

Calpine continues to have discussions with Indian River County and Indian River Farms Water Control District (IRFWCD) regarding various water supply options for the BHEC Project. As described in the SCA, these options include excess surface water from the IRFWCD drainage canal system; reclaimed water, as available, from the County's wastewater treatment plants; reverse osmosis reject water from the County's water treat-

ment plants; and water from one or more regional storm water management parks or reservoirs currently being jointly evaluated by the County, IRFWCD, and St. Johns River Water Management District. Since discussions with the County and IRFWCD are still ongoing, Calpine's water supply plan for the BHEC Project is not final at this time. However, Calpine does anticipate that final agreements will be reached with the County and IRFWCD in the near future. At that time, Calpine will submit appropriate documentation to FDEP and other reviewing agencies concerning the water supply plan for the BHEC.

Finally, in the near future, Calpine will provide FDEP with revised pages of the SCA, which will reflect the above changes in the SCA.

We are available to discuss any of Calpine's sufficiency responses and any other related issues with you or other agency personnel to facilitate your review of the SCA. Please call me at 352/332-0444 if you have any questions.

Sincerely,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Jack D. Doolittle

Jack D. Doolittle
Project Manager

JDD/tsw

Enclosure

cc: Steve Palmer, FDEP, w/attachments
Scott Goorland, Esq., FDEP w/attachments
Tim Eves, Calpine, w/attachments
Ben Borsch, Calpine, w/attachments
David Dee, Esq., Landers & Parsons, w/attachments
All Parties of Record on Service List for PA00-42, w/attachments
Recipients of Site Certification Application, w/attachments

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[Note: The following figures are either revised figures from those presented in the SCA or are new figures. Other figures referenced in these sufficiency responses refer to figures previously presented in the SCA.]

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CALPINE CONSTRUCTION FINANCE COMPANY, L.P.
BLUE HERON ENERGY CENTER

SITE CERTIFICATION APPLICATION
SUFFICIENCY RESPONSES

A. FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

A.1 Memorandum from Allen Hubbard (FDEP) to Steven Palmer (FDEP) dated January 18, 2001

FDEP NPDES-1
Construction activities that disturb five or more acres of land and that discharge storm-water to surface waters of the state or to a municipal separate storm sewer system (MS4) are required to obtain coverage under the State of Florida "Generic Permit for Stormwater Discharge from Construction Activities that Disturb Five or More Acres of Land." Calpine should evaluate NPDES stormwater permitting regulations, and modify the SCA, as appropriate, with regard to requirements applicable to the facility during construction.

RESPONSE

Construction of the Calpine Blue Heron Energy Center (BHEC) will involve the disturbance of more than five areas of land and discharge of storm water to surface waters of the state. Therefore, the project will be subject to the NPDES permitting requirements for storm water discharge from construction activities. Calpine will submit a notice of intent for coverage under the Florida Generic Permit for Storm Water Discharge from Construction Activities at least 48 hours prior to the start of land disturbance activities on the Site.

FDEP NPDES-2
The SCA indicates that stormwater will be routed to a detention pond, and discharged to a canal at a controlled rate allowing treatment. Pursuant to 40 CFR 122.26(b)(14)(vii), stormwater discharges from steam electric power generating facilities to surface waters of the state or to a municipal separate storm sewer system (MS4) must be covered under an NPDES individual or general (generic) permit. Coverage for steam electric power generating facilities is available under the State of Florida "Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity." Calpine should evaluate NPDES stormwater permitting regulations, and modify the SCA, as appropriate, with regard to requirements applicable to the facility during its operational life.

RESPONSE

Calpine will submit a notice of intent to FDEP for coverage under the Florida Multi-Sector Generic Permit for Storm Water Discharge Associated with Industrial Activity at least 48 hours prior to commencement of operations of the BHEC.

FDEP NPDES-3

If a NPDES stormwater permit is required for the facility, Calpine should evaluate whether the facility will also be required to comply with the USEPA regulations proposed in the August 10, 2000 Federal Register, page 49060, entitled National Pollutant Discharge Elimination System—Regulations Addressing Cooling Water Intake Structures for New Facilities. The proposed rule implements Section 316(b) of the Clean Water Act (CWA). When finalized, the rule will apply to new facilities that use cooling water intake structures to withdraw water from waters of the U.S., and that have or require a NPDES permit under section 402 of the CWA. New facilities subject to this regulation would include those with a design intake flow greater than 2 million gallons/day (mgd). EPA is required by court order to finalize the proposed rule by November 9, 2001. Thus, the rule is anticipated to be in effect by the time the facility is under construction.

RESPONSE

Calpine will comply with the applicable provisions of the U.S. Environmental Protection Agency (EPA) Section 316(b) cooling water intake structure regulations as adopted by FDEP. Calpine will submit the required application information regarding the BHEC intake structure to FDEP at least 180 days prior to commencement of operation.

A.2 Memorandum from Eric Pluchino (FDEP) to Len Kozlov (FDEP) dated December 21, 2000

FDEP Ambient Monitoring-1

In the discussion of water quality on the site and in the Indian River the SCA states on page 2-118 that"... total phosphorus levels in this segment (of the Indian River) are higher than anywhere else in the Indian River Lagoon system. The low salinity values are attributed to the large volume of fresh water flowing into the lagoon from the Sebastian River and excess fresh water from the IRFWCD canal system." The fact that cooling water will come primarily from the canal system adjacent to the facility will hopefully result in decreases in pollutant loading and fresh water discharge to the Indian River Lagoon. This should be particularly true for phosphorus, which is present in high concentrations in the canal water (0.13 mg/L to 0.37 mg/L) as well as the shallow aquifer water on the site (0.58 mg/L and 0.29 mg/L for monitoring wells #1 and #4 respectively). There is no proposed surface water discharge from this site (other than stormwater in excess of the 25-year, 24-hour storm). Therefore there should be no issues regarding surface water quality degradation resulting from this facility other than those which are addressed in the discussion of construction activity controls.

RESPONSE

Comment is acknowledged. No response is needed.

FDEP Ambient Monitoring-2

Regarding threatened and endangered species it was well documented in the SCA that the endangered hand fern Ophioglossum palmatum is present in the wetland hammock on the site. The fact that this wetland is to be preserved is noteworthy. Section 9 of Appendix 10-1 appears to adequately address the impacts of the operation emissions on vegetation. However, a potential concern that I did not see addressed in the document is the issue of fire prevention in this area during land clearing. On page 2-147 of the SCA destruction by fire is listed along with over-collection and loss of habitat as contributing factors in the decline of this plant. I consulted the document entitled Rare and Endangered Biota of Florida, Volume Five, Plants for information regarding the protection of this plant. That document states emphatically that "The plants are very sensitive to fire..." and furthermore that"... those places where this fern still occurs must be protected from fire...". Review of the site map reveals that the wetland where these ferns were found is near the northwest corner of the site. I reviewed the wind rose figures for West Palm Beach International Airport (Figures 2.3.7-1 to 5 on pages 2-155 to 159) and observed that prevailing winds for most of the year are from the southeast. That would mean that the potential for the land clearing burning site to be upwind of the fern population is quite high. Therefore it would appear that utmost care should be exercised in the location and timing of the land clearing burn operations.

RESPONSE

During land clearing activities, any open burn operations will be conducted in accordance with Indian River County open burning requirements and/or restrictions. Also, special care will be taken to locate any burn operations at safe distances from the hand fern habitat to protect this species from fire impacts.

A.3 Memorandum from Steve Wesson and Tamy Dabu (FDEP) to Steve Palmer (FDEP), dated January 8, 2001

FDEP ERP-1

Only two drawings were submitted in the ERP portion of the application describing the water pump structure which is proposed in the Indian River Farms Water Control District (IRFWCD) Lateral C Canal. The drawings do not reflect where excavation and filling will occur. Please revise the drawings to include all construction details and dimensions to the proposed water pump structure in the Lateral C Canal. The plan view drawing shall clearly demonstrate all dimensions to any proposed excavation and/or fill, cross hatch areas proposed for excavation and fill, provide a legend to the cross hatched areas, dimensions to the proposed structure, turbidity control measures cross section locations, etc.

RESPONSE

The attached revised Figure 2 from the ERP Application, Appendix 10.1.2 of the SCA, shows both the plan view and cross section with dimensions of the proposed excavation area. There is no proposed fill except the concrete floor and walls of the pump structure. The concrete walls and floor are 1 foot thick. Due to the proposed construction method within sheet piles (see response to FDEP ERP-3 below), there is no further requirement for turbidity controls.

FDEP ERP-2

The cross section drawings should also clearly reflect any proposed excavation, fill, existing elevations, proposed elevations, dimensions to the area to be excavated, legends to the cross hatched areas, etc.

RESPONSE

See response to FDEP ERP-1.

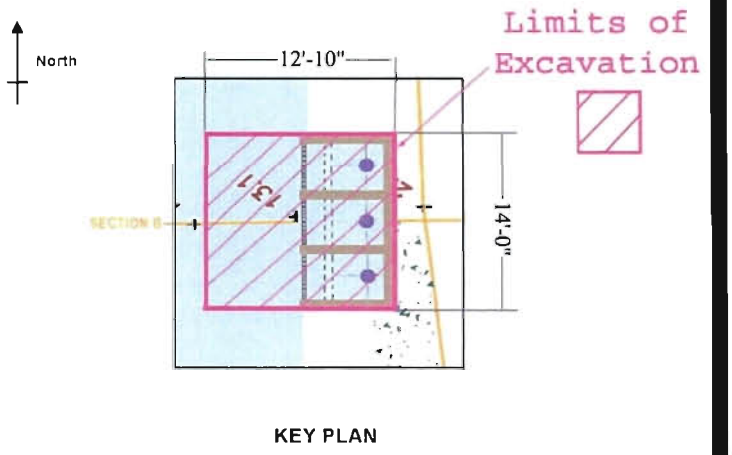
FDEP ERP-3

Please provide a description of how the area will be excavated, type of equipment to be used, staging area for the equipment, number of cubic yards to be excavated, spoil containment, where specifically the spoil will be placed, etc. Are additional wetland impacts proposed with the disposal of the spoil?

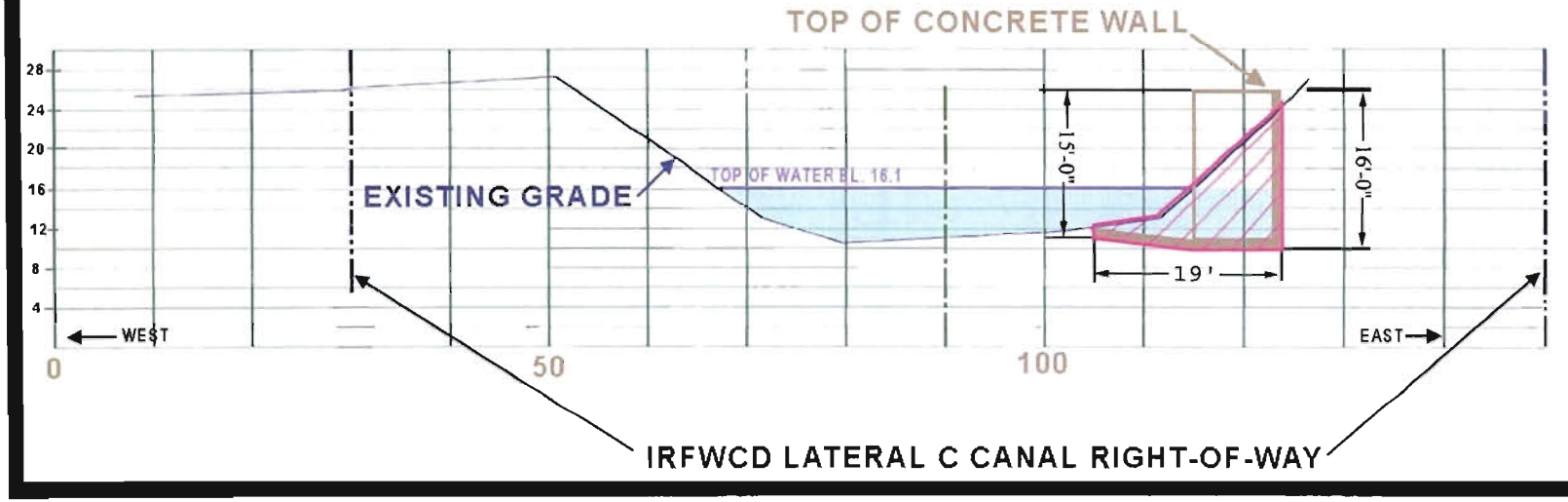
Harold A. Frediani, Jr. Florida P. E. Number 36394
Foster Wheeler Environmental Corporation
759 South Federal Highway - Suite 100 - Stuart, Florida 34994
Certificate of Authorization Number 7130

FIGURE 2 MAKEUP WATER PUMP STATION CROSS SECTION

(REV. 1 1/16/02)



KEY PLAN



RESPONSE

The proposed construction method is within sheet pile walls driven to allow construction to be done in the dry. Sheet piles will be driven completely around the proposed structure, and the volume within the sheet piles will be dewatered. Forms will be constructed inside the sheet pile, with reinforcing rods. Concrete will be placed in the forms and allowed to cure. Upon completion of concrete curing, the sheet piles will be removed. The initial spoil will be reused as fill in the power plant island. As described in the ERP Application Form (Appendix 10.1.2 of the SCA, Section A, Part 4, Item H), the number of cubic yards to be excavated is 29. Equipment will include a pile driver and a backhoe. Equipment will be staged adjacent to the proposed pump structure on the upland side. Dewatering effluent will be returned to the canal. No additional wetlands impacts are proposed with the disposal of the spoil.

FDEP ERP-4

Is the concrete for the structure and wall prefab or will it be poured on site? Please describe.

RESPONSE

The concrete for the proposed structure will be delivered in trucks and poured onsite. See response to FDEP ERP-3 above.

FDEP ERP-5

In the Stormwater Drawings Figures 3, 5 reflect a "New Channel". Please clarify the purpose of the "New Channel" and demonstrate that this channel will not degrade existing wetlands on site. Specifically based upon the drawing Figure 5 the new channel appears to abut the mixed hardwood wetland found in the northwest portion of the parcel.

RESPONSE

There will not be a new channel near the mixed hardwood wetland. The only channel/ditch abutting the mixed hardwood wetland in the northwest portion of the parcel is the existing IRFWCD Sub-Lateral C-7 Canal. This canal is part of the IRFWCD system and has been in existence in its current configuration for many years. There are no pro-

posed construction activities for this canal as part of the construction of this project. The only "new channel" near a wetland reflected in the attached revised Figures 3 and 5 is a storm water runoff conveyance ditch that lies outside of the buffer surrounding the small freshwater marsh wetland located in the west-central portion of the Site. A cross section of the ditch is reflected on Figure 4, Site Sections and Details, in Appendix 10.1.3, Storm Water Management Plan, in the SCA. The ditch conveys storm runoff from the developed part of the Site to the proposed detention pond. Adverse impacts are not anticipated as the proposed ditch lies outside of the wetland's buffer.

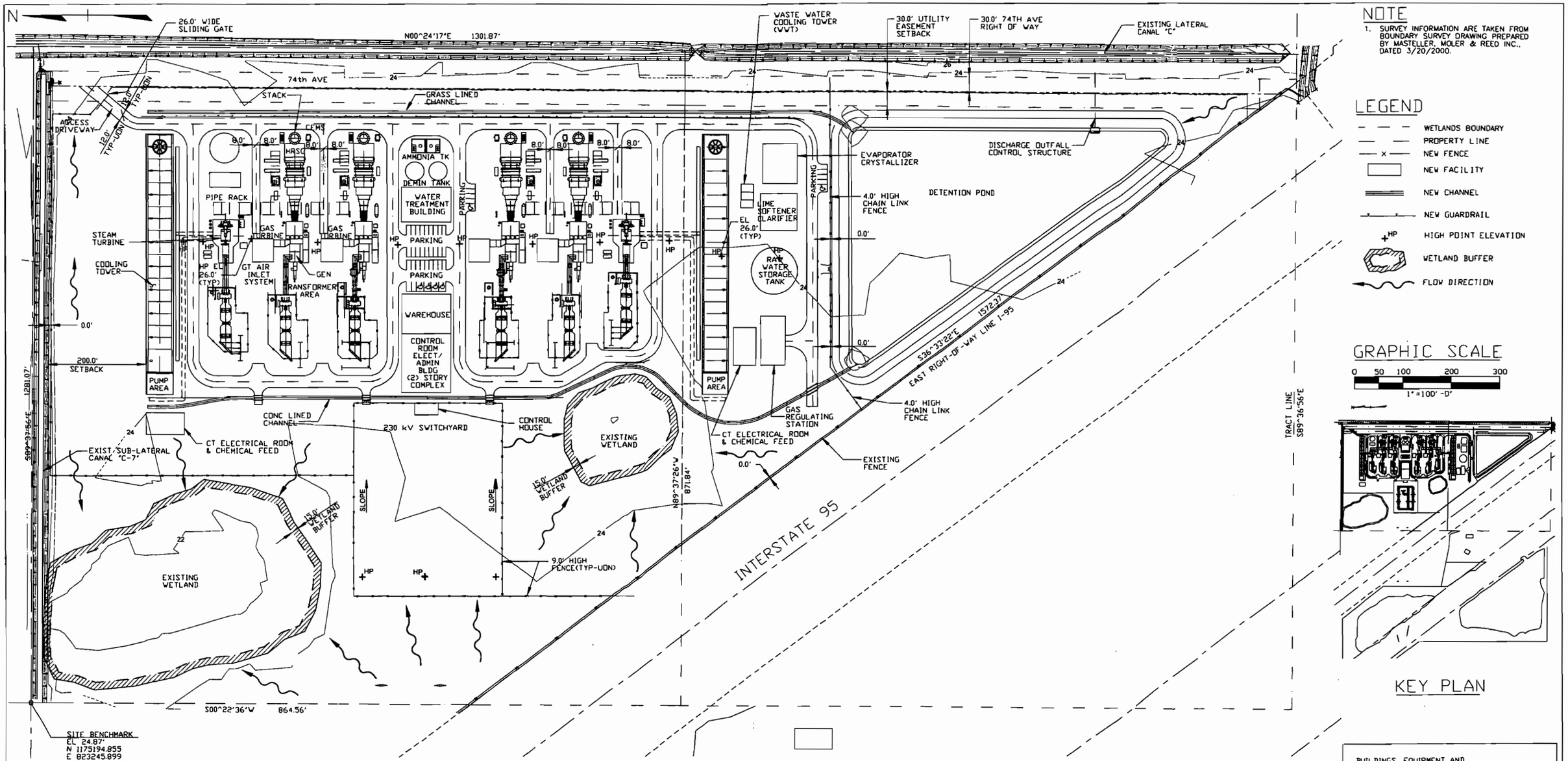
FDEP ERP-6

Please add to Figure 1 or create a new drawing which clearly reflects the location of the water pump station and pipeline route from the Lateral C Canal to the BHEC site. Section 6.3.1 states that the entire route follows existing roadway and IRFWCD canal right-of-way. However, it does not identify if wetlands are found within the 3.5-mile stretch between the Lateral C Canal and the BHEC site. Please clarify and revise the plan view drawing to reflect wetland locations. Will any of the pipeline be installed by directional drill? If the area will be trenched using a backhoe, where will spoil temporary be placed for the installation and testing of the pipeline.

RESPONSE

There are no state jurisdictional wetlands that will be impacted by the construction of the approximately 3.5-mile pipeline between the plant site and Lateral C Canal. The attached revised Figure 6.3.1-1, Location of Proposed Water Supply Pipeline, from Section 6.3.1 of the SCA, indicates the location of the water pump station and pipeline route. This figure has been revised to indicate the location of IRFWCD canals that are in the vicinity of the proposed pipeline. These canals will not be impacted by the installation of the proposed water pipeline. Directional drilling is not anticipated at any of the perpendicular canal crossings.

Materials removed from the trench will be temporarily side cast into adjacent upland areas during the construction and testing period of the proposed pipeline.



BUILDINGS, EQUIPMENT AND CONCRETE AREA = 6.83 ACRES (±)

GRAVEL/CRUSHED STONE AREA =13.07 ACRES (±)

SOIL AREA = 21.20 ACRES (±)

FIGURE 3.
(REV. 1 1/16/02)

Rev No	Revision	Date	Dwn	Chkd	Approved Chief Engr

Drawing Control				
Purpose	Approved By	Date	Released By	Date
For Information				
For Comment				
For Bid				
For Construction				

Engineering Review		
Disc	Engr	Date
Mech		
Elec		
Civil		
Arch		
Nuc		
Dwn AMV	Chkd	SI

Reviewed By

Manager-Design & Drafting

CALPINE
BLUE HERON
ENERGY CENTER PROJECT
FLORIDA

SITE GRADING & DRAINAGE PLAN

BURNS AND ROE ENTERPRISES, INC.
Engineers and Constructors - Oradell, NJ

Approved for Construction	Date	Work Order	Drawing No	Rev
Chief CIVIL Engineer	Scale 1"=100'	2349	SC304	B

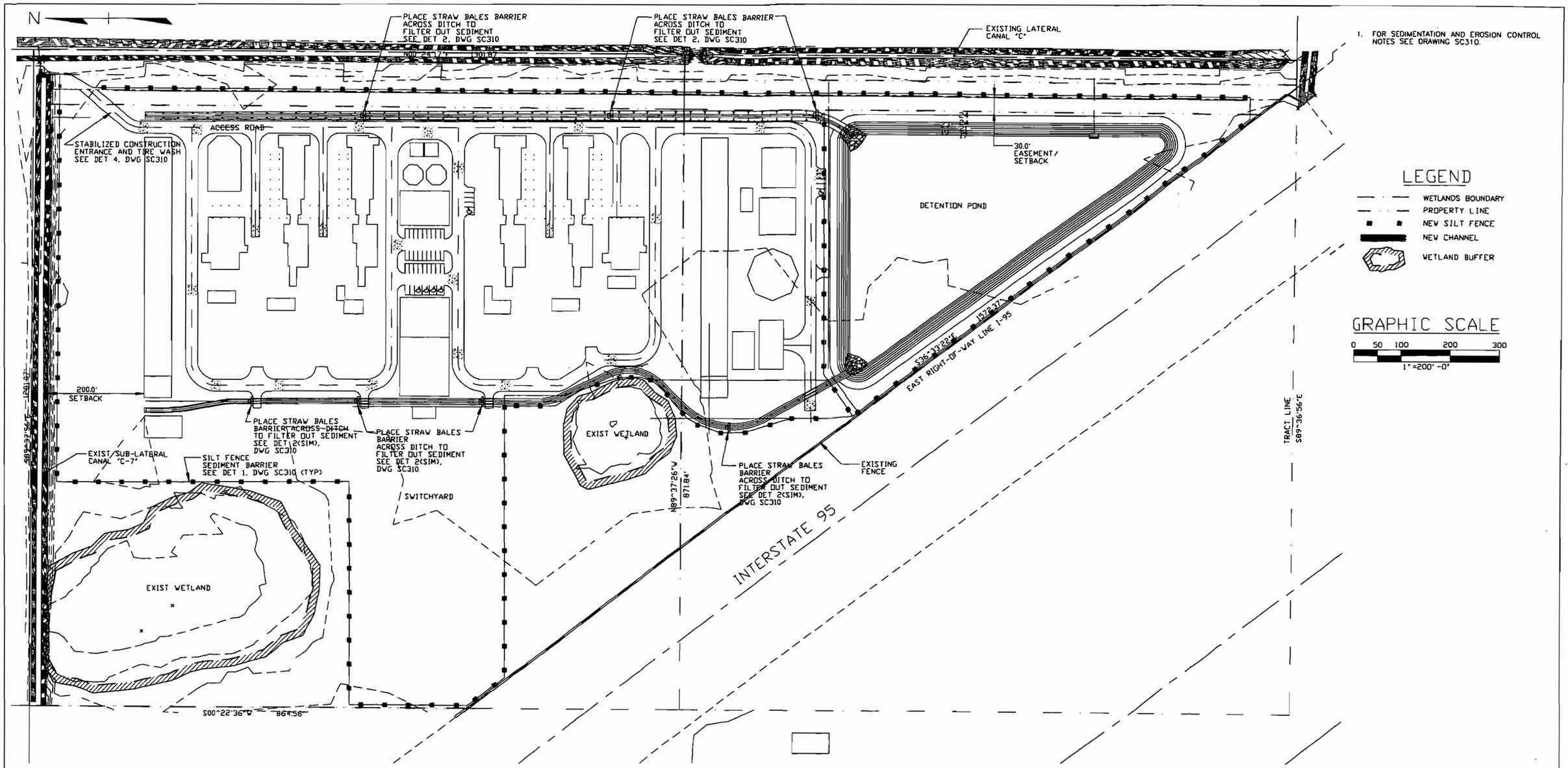


FIGURE 5.
(REV. 1 1/16/02)

Rev No	Revision	Date	Dwn	Chkd	Approved Chief Engr

Drawing Control

Purpose	Approved By	Date	Released By	Date
For Information				
For Comment				
For Bid				
For Construction	X			

Engineering Review

Disc	Engr	Date
Mech		
Elec		
Civil		
Arch		
Nuc		

Dwn RV | Chkd | Sh

Reviewed By

Manager-Design & Drafting

CALPINE
BLUE HERON
ENERGY CENTER PROJECT
FLORIDA

SEDIMENT AND EROSION CONTROL PLAN

BURNS AND ROE ENTERPRISES, INC.
Engineers and Constructors - Oradell, NJ

Approved for Construction | Date

Chief CIVIL Engineer

Scale 1"=200'

Work Order	Drawing No	Rev
2349	SC309	B

M:\gcgd\000105\h20pipe_0401 01/16/02 16:49:08

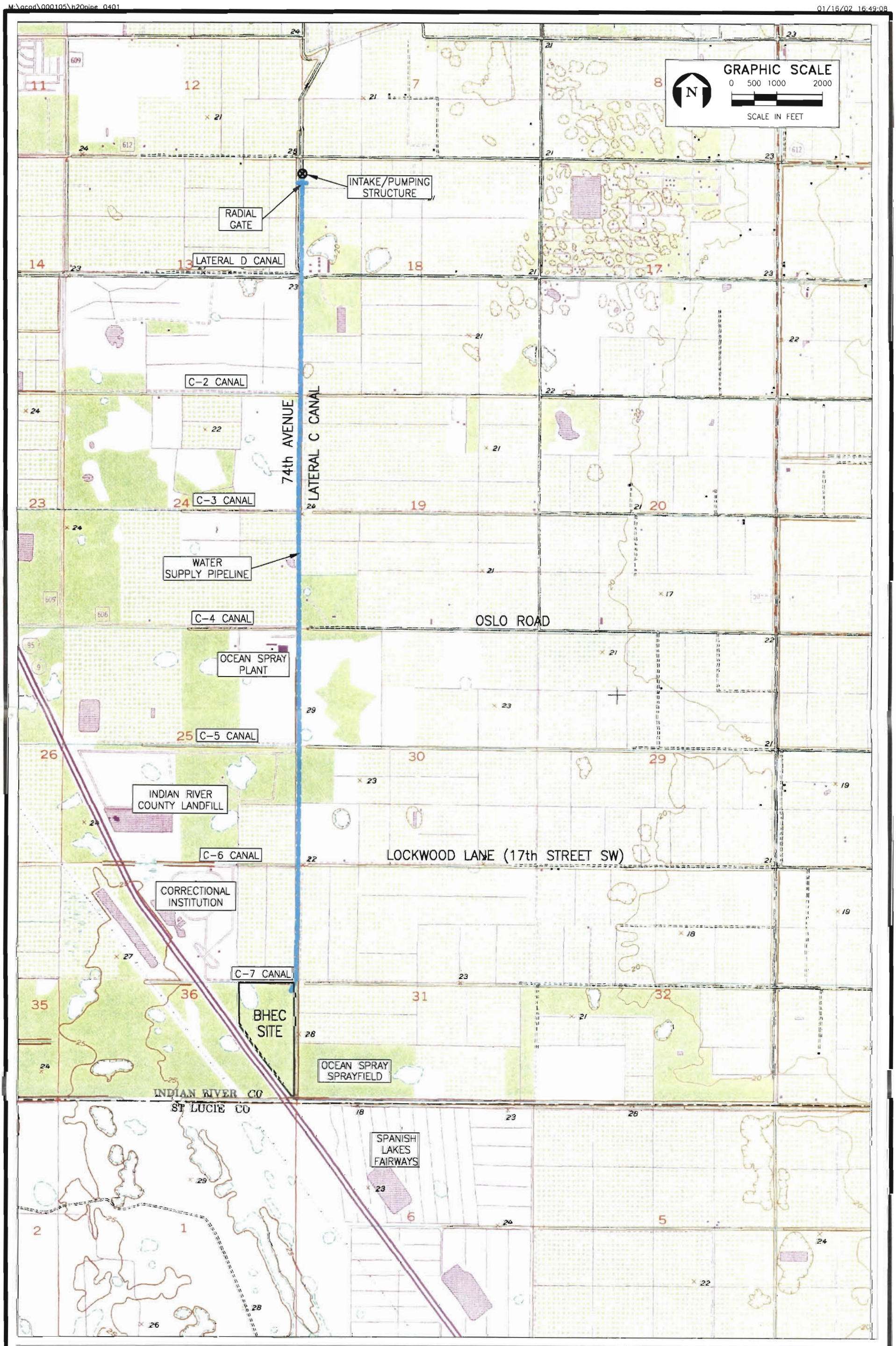


FIGURE 6.3.1-1. (REV. 1 1/16/02)
LOCATION OF PROPOSED WATER SUPPLY PIPELINE

Sources: USGS Quad: Oslo, FL, 1983; ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

FDEP ERP-7

Reference was made in Section 4.1.1.2 regarding the use of land to the north for a temporary "laydown area" on 30 acres of county-owned land. Specifically, are wetlands located within the 30-acre site? Please provide a wetland determination for this parcel along with at least an aerial of the parcel. Please provide drawings for the proposed temporary "laydown area".

RESPONSE

There are no state jurisdictional wetlands located within the 30-acre temporary laydown area. Mr. James Carr of FDEP reviewed the site for an informal wetland determination on June 7, 2000. Please reference ERP/File No. 31-270976-001 and the FDEP letter dated 7/6/00 which is attached. The laydown area is located on Figure 2.1.0-3, Aerial at 1:24000 Showing Locational Features, in Section 2.1 of the SCA. The drainage plan for the construction laydown area is discussed in Appendix 10.1.3, Storm Water Management Plan, and a drawing is provided in Figure 8.

FDEP ERP-8

Figure 5 in the Stormwater Drawings reflects the BHEC site. This drawing and the others also reflect several circles around the two wetlands found within the site. Please provide an explanation for these circles along with an appropriate legend. If the circles do not represent for instance the 15 and 25-foot buffer from the wetlands then it appears that impacts are proposed to the marsh wetland located in the center of the parcel. Please clarify and revise all appropriate information and drawings.

RESPONSE

The circles surrounding the wetlands reflected in Figure 5 represent elevation contours and the wetland buffers. The wetlands will be protected during construction by the silt fences as shown in Figure 5. Figure 3, Site Grading and Drainage Plan, and Figure 5, Sediment and Erosion Control Plan, have been revised to more clearly show the wetland boundaries and buffers (see revised Figures 3 and 5 attached to FDEP ERP-5 above).

Department of Environmental Protection

Jeb Bush
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

David B. Struhs
Secretary

Doreen B. Donovan
Environmental Consulting & Technology, Inc.
5405 Cypress Center Drive, Suite 2100
Tampa, Fl 33609

Indian River County – ERP / File No. 31-270976-001
Calpine-Blue Heron Energy Center
Informal Wetland Determination

Dear Ms. Donovan:

It was a pleasure meeting with you on June 7, 2000 at the proposed Calpine-Blue Heron Energy Center site in Section 36, Township 33 South, Range 38 East, Indian River County

The properties are situated East of Interstate 95 and west of 74th Avenue, and they encompass approximately 47 acres. The site visit consisted of reviewing wetland boundary lines that were previously established by you.

It appears based upon the site inspection, that your wetland boundary lines accurately reflect the limits of wetlands as described in Section 62-340 Florida Administrative Code (F.A.C.).

Additionally, we reviewed the abandoned citrus field north of this site. At a minimum it appears that the north-south ditch system on this site will also be considered a wetland, and therefore any dredge or fill activity within this ditch will require permitting from this office. The east-west swales do not appear to contain sufficient wetland plant species, or hydric soils and/or hydrologic indicators to meet the criteria established in F.A.C. 62-340.

Permits may also be required from the Army Corps of Engineers (407-453-3020), and Indian River County (561-567-8000).

This is an informal preapplication jurisdictional determination pursuant to Sections 373 Florida Statutes (F.S.). It does not bind the Department, its agents or employees, nor does it convey any legal rights, expressed or implied. Persons obtaining this informal preapplication jurisdictional determination are not entitled to rely upon it for purposes of compliance with Sections 373 F.S., nor any other provision of law or Department rules. A binding jurisdictional determination may be obtained by petitioning the Department for a jurisdictional declaratory statement pursuant to F.A.C. Rule 62-343.040 or by applying for a dredge and fill permit.

Please contact me at the letterhead address or by calling 407/893-3307, between the hours of 8:00 a.m. and 5:00 p.m., should you have any questions.

Sincerely,

James L. Carr II
Environmental Specialist
Submerged Lands and Environmental
Resource Permitting
Date: 7/6/00

JC/dv
cc: Indian River County Environmental Planning

FDEP ERP-9

Justify the shape factor of 484 of the unit hydrograph used in determining the pre-development peak discharges? Were allowances made for the depressional storage that exists on the pre-developed site? Does any portion of the site flow to the existing on-site wetlands?

RESPONSE

The Soil Conservation Service (SCS), as a result of analyzing many watersheds of various size and geographic locations, has determined the shape factor to be 484 for most watersheds. The typical value is 484 for a hydrograph where the volume under the rising side of the triangular unit hydrograph is equal to the volume under the rising limb of the curvilinear unit hydrograph. The SCS recommends shape factors ranging from 300 for very flat swampy country to 600 for steep terrain. The site was analyzed using a combination of variables (including depressional storage) under different conditions and the shape factor of 484 yielded a peak rate of approximately 0.5 cubic feet per second per acre (cfs/acre) for the 25-year storm event, a reasonable rate for the size of the watershed given its hydrologic conditions. The routed post-development peak discharge rate for the project (50.5 acres) is approximately 4.10 cfs (or 0.08 cfs/acre), as reflected in the storm water management calculations attached to Appendix 10.1.3 of the SCA. This rate is significantly lower than the pre-development peak discharge rate obtained utilizing any reasonable shape factor in the 250 to 400 range.

The existing onsite wetlands receive some runoff from the areas immediately adjacent to the west, south, and north, as evident in the topographic survey (Figure 2). The wetland located in the northwest portion of the site will continue to receive storm runoff from the existing contributing watershed to the west and south of the wetland. The small central wetland will continue to receive storm runoff from the contributing area to the west, north, and south (please refer to revised Figure 3, Site Grading and Drainage attached to FDEP ERP-5 above). No adverse impacts to the wetlands are anticipated as a result of the proposed water management system.

FDEP ERP-10

Provide the pre-development drainage patterns, via directional flow arrows to a scaled plan drawing, including points of discharge for existing site drainage and drainage basin boundaries. In addition, provide off-site drainage area and flow patterns at the property boundaries and across the project site.

RESPONSE

Please refer to Figure 2A (attached), Pre-Development Drainage, for pre-development drainage patterns and directional flow arrows.

FDEP ERP-11

Provide the post-development drainage patterns, via directional flow arrows to a scaled plan drawing, including points of discharges and drainage basin boundaries. Include off-site drainage area and flow patterns at the property boundaries.

RESPONSE

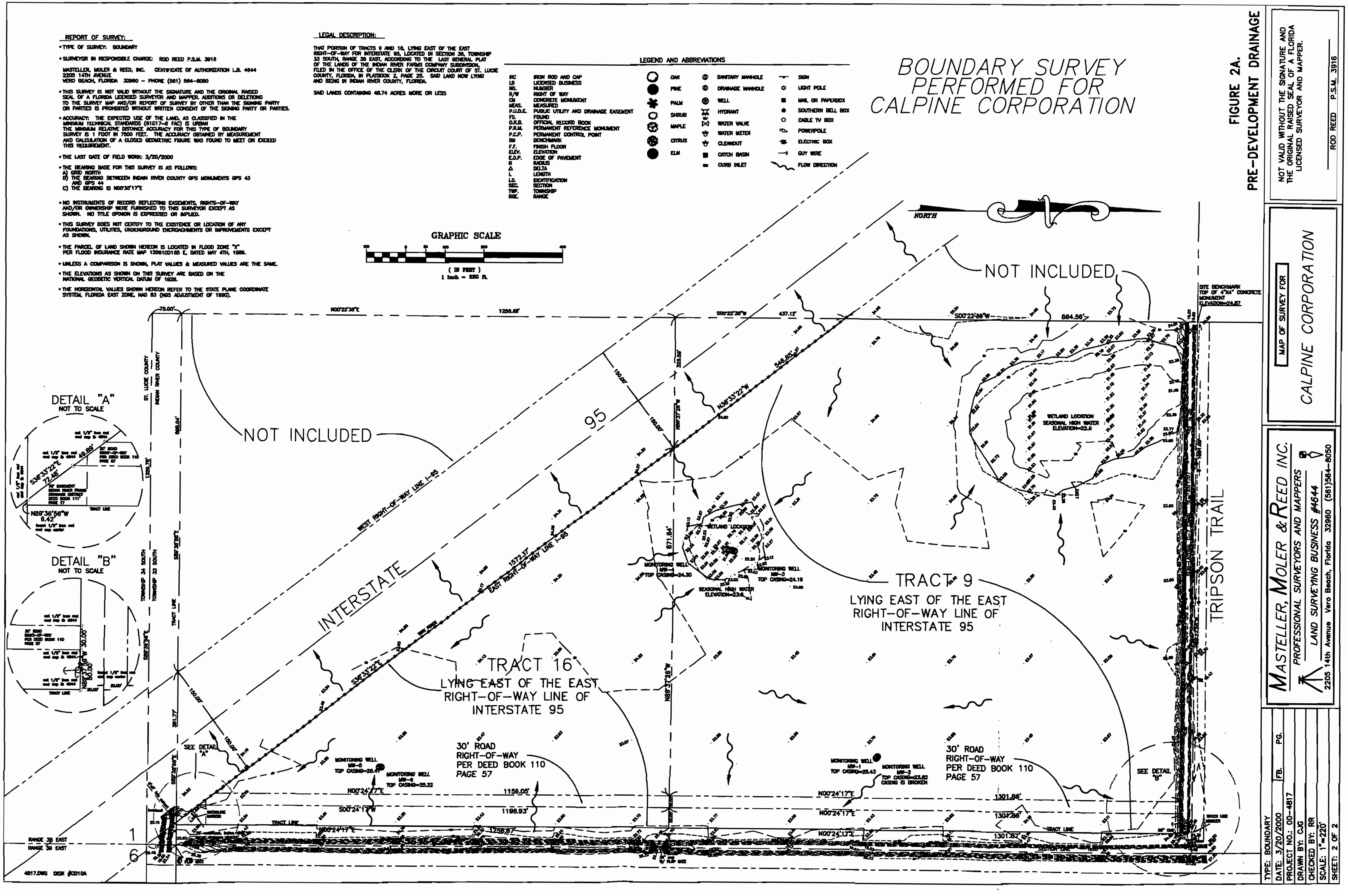
Directional flow arrows depicting the post-development drainage patterns have been added to the revised Figure 3, Site Grading and Drainage (see revised Figure 3 attached to FDEP ERP-5 above).

FDEP ERP-12

The pond shall be designed so the flow path through the pond has an average length to width ratio of at least 2:1 pursuant Rule 4OC-42.026(4)(f), F.A.C. The alignment and location of inlets and outlets should be designed to maximize flow paths in the pond. If short flow paths are unavoidable, the effective flow path should be increased by adding diversion barriers such as islands, peninsulas, or baffles to the pond.

RESPONSE

The proposed detention pond has been designed according to the criteria set forth by the St. Johns River Water Management District (SJRWMD) *Applicant's Handbook, Regulation of Storm Water Management Systems (1995)* and the *Applicant's Handbook, Management and Storage of Surface Waters (1996)* and Indian River County storm water management criteria. The detention pond may be viewed as having a composite triangular configuration, made up of a rectangle and a triangle. If the pond is separated into its



REPORT OF SURVEY:
• TYPE OF SURVEY: BOUNDARY
• SURVEYOR IN RESPONSIBLE CHARGE: ROD REED P.S.M. 3916
MASTELLER, MOLER & REED, INC. CERTIFICATE OF AUTHORIZATION L.B. 4644
2205 14TH AVENUE
VERO BEACH, FLORIDA 32960 – PHONE (561) 564-8050
• THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER. ADDITIONS OR DELETIONS TO THE SURVEY MAP AND/OR REPORT OF SURVEY BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.
• ACCURACY: THE EXPECTED USE OF THE LAND, AS CLASSIFIED IN THE MINIMUM TECHNICAL STANDARDS (61G17-6 FAC) IS URBAN THE MINIMUM RELATIVE DISTANCE ACCURACY FOR THIS TYPE OF BOUNDARY SURVEY IS 1 FOOT IN 7500 FEET. THE ACCURACY OBTAINED BY MEASUREMENT AND CALCULATION OF A CLOSED GEOMETRIC FIGURE WAS FOUND TO MEET OR EXCEED THIS REQUIREMENT.
• THE LAST DATE OF FIELD WORK: 3/20/2000
• THE BEARING BASE FOR THIS SURVEY IS AS FOLLOWS:
A) GRID NORTH
B) THE BEARING BETWEEEN INDAIN RIVER COUNTY GPS MONUMENTS GPS 43 AND GPS 44
C) THE BEARING IS N00°35'17"E
• NO INSTRUMENTS OF RECORD REFLECTING EASEMENTS, RIGHTS-OF-WAY AND/OR OWNERSHIP WERE FURNISHED TO THIS SURVEYOR EXCEPT AS SHOWN. NO TITLE OPINION IS EXPRESSED OR IMPLIED.
• THIS SURVEY DOES NOT CERTIFY TO THE EXISTENCE OR LOCATION OF ANY FOUNDATIONS, UTILITIES, UNDERGROUND ENCROACHMENTS OR IMPROVEMENTS EXCEPT AS SHOWN.
• THE PARCEL OF LAND SHOWN HEREON IS LOCATED IN FLOOD ZONE "X" PER FLOOD INSURANCE RATE MAP 12061C0165 E, DATED MAY 4TH, 1989.
• UNLESS A COMPARISON IS SHOWN, PLAT VALUES & MEASURED VALUES ARE THE SAME.
• THE ELEVATIONS AS SHOWN ON THIS SURVEY ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
• THE HORIZONTAL VALUES SHOWN HEREON REFER TO THE STATE PLANE COORDINATE SYSTEM, FLORIDA EAST ZONE, NAD 83 (NGS ADJUSTMENT OF 1990).
LEGAL DESCRIPTION:
THAT PORTION OF TRACTS 9 AND 16, LYING EAST OF THE EAST RIGHT-OF-WAY FOR INTERSTATE 95, LOCATED IN SECTION 36, TOWNSHIP 33 SOUTH, RANGE 38 EAST, ACCORDING TO THE LAST GENERAL PLAT OF THE LANDS OF THE INDIAN RIVER FARMS COMPANY SUBDIVISION, FILED IN THE OFFICE OF THE CLERK OF THE CIRCUIT COURT OF ST. LUCIE COUNTY, FLORIDA, IN PLATBOOK 2, PAGE 25. SAID LAND NOW LYING AND BEING IN INDIAN RIVER COUNTY, FLORIDA.
SAID LANDS CONTAINING 48.74 ACRES MORE OR LESS
LEGEND AND ABBREVIATIONS
IRC IRON ROD AND CAP
LB LICENSED BUSINESS
NO. NUMBER
R/W RIGHT OF WAY
CM CONCRETE MONUMENT
MEAS. MEASURED
P.U.D.E. PUBLIC UTILITY AND DRAINAGE EASEMENT
FD. FOUND
O.R.B. OFFICIAL RECORD BOOK
P.R.M. PERMANENT REFERENCE MONUMENT
P.C.P. PERMANENT CONTROL POINT
BM BENCHMARK
F.F. FINISH FLOOR
ELEV. ELEVATION
E.O.P. EDGE OF PAVEMENT
R RADIUS
Δ DELTA
L LENGTH
I.D. IDENTIFICATION
SEC. SECTION
TWP. TOWNSHIP
RGE. RANGE
OAK
PINE
PALM
SHRUB
MAPLE
CITRUS
ELM
SANITARY MANHOLE
DRAINAGE MANHOLE
WELL
HYDRANT
WATER VALVE
WATER METER
CLEANOUT
CATCH BASIN
CURB INLET
SIGN
LIGHT POLE
MAIL OR PAPERBOX
SOUTHERN BELL BOX
CABLE TV BOX
POWERPOLE
ELECTRIC BOX
GUY WIRE
FLOW DIRECTION
BOUNDARY SURVEY PERFORMED FOR CALPINE CORPORATION
FIGURE 2A.
PRE-DEVELOPMENT DRAINAGE
GRAPHIC SCALE
(IN FEET)
1 inch = 220 ft.
NORTH
NOT INCLUDED
NOT INCLUDED
DETAIL "A"
NOT TO SCALE
DETAIL "B"
NOT TO SCALE
INTERSTATE 95
WEST RIGHT-OF-WAY LINE I-95
EAST RIGHT-OF-WAY LINE I-95
TRACT 9
LYING EAST OF THE EAST RIGHT-OF-WAY LINE OF INTERSTATE 95
TRACT 16
LYING EAST OF THE EAST RIGHT-OF-WAY LINE OF INTERSTATE 95
30' ROAD RIGHT-OF-WAY PER DEED BOOK 110 PAGE 57
30' ROAD RIGHT-OF-WAY PER DEED BOOK 110 PAGE 57
WETLAND LOCATION
SEASONAL HIGH WATER ELEVATION=22.9
SEASONAL HIGH WATER ELEVATION=23.8
MONITORING WELL MW-4 TOP CASING=24.30
MONITORING WELL MW-3 TOP CASING=24.19
MONITORING WELL MW-6 TOP CASING=26.47
MONITORING WELL MW-5 TOP CASING=26.22
MONITORING WELL MW-1 TOP CASING=25.43
MONITORING WELL MW-2 TOP CASING=25.82 CASING IS BROKEN
SITE BENCHMARK TOP OF 4"X4" CONCRETE MONUMENT ELEVATION=24.87
TRIPSON TRAIL
ST. LUCIE COUNTY
INDIAN RIVER COUNTY
TOWNSHIP 34 SOUTH
TOWNSHIP 33 SOUTH
RANGE 39 EAST
RANGE 38 EAST
SEE DETAIL "A"
SEE DETAIL "B"
TRACT LINE
N00°22'36"E 1256.68'
S00°22'36"W 437.12'
S00°22'36"W 884.56'
N36°33'22"W 546.85'
1572.37'
S36°33'22"E
N00°24'17"E 1159.05'
S00°24'17"W 1198.93'
N00°24'17"E 1256.87'
N00°24'17"E 1301.88'
N00°24'17"E 1301.86'
N00°24'17"E 1301.87'
73.00'
150.00'
4817.DWG DISK #CD10A
NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.
ROD REED P.S.M. 3916
MAP OF SURVEY FOR
CALPINE CORPORATION
MASTELLER, MOLER & REED INC.
PROFESSIONAL SURVEYORS AND MAPPERS
LAND SURVEYING BUSINESS #4644
2205 14th Avenue Vero Beach, Florida 32960 (561)564-8050
TYPE: BOUNDARY
DATE: 3/20/2000
PROJECT NO.: 00-4817
DRAWN BY: CJG
CHECKED BY: RR
SCALE: 1"=220'
SHEET: 2 OF 2
FB. PG.

rectangular and triangular components, the average length to width ratio exceeds 2:1, with the rectangular section having an average length of 545 feet (ft) and width of 126 ft, and the triangular section having an average length of 432 ft and width of 215 ft. The flow paths of water from the inlets to the outlet have been maximized, minimizing possible short-circuiting and maximizing mixing and pollutant removal efficiency.

FDEP ERP-13

Provide documentation showing the software used for the routing is an acceptable methodology and/or provide the Department with the means to verify that the results and conclusions of the analysis are consistent with those that would be obtained from another routine model such as ICPR.

RESPONSE

The software used for the post-development routing is the Multi-Basin Routing Model developed by the South Florida Water Management District (SFWMD) in the 1980s. This model is widely used by consultants and others in the South Florida region and is an accepted methodology by the SFWMD. The program is a hydrologic/hydraulic routing model capable of generating runoff hydrographs based on the SCS-modified instantaneous hydrograph method, the Santa Barbara Urban Hydrograph method, or a user supplied hydrograph Mass Route method. The runoff hydrograph is then routed through the reservoir using the SCS Mass Curve Method technique (as described in the SCS *National Engineering Handbook*, Chapter 17, Section 4) or linear reservoir method depending on the type of runoff hydrograph generated. The program's documentation is contained in the SFWMD's *Technical Memorandum, User's guide for Multi-Basin Routing Model, December 1988* and *Technical Publication REG-002, User's Guide for the Multi-Basin Routing Model, November 1999.*

FDEP ERP-14

Based solely upon the information provided in the SCA it appears that avoidance and minimization methods are necessary and the submittal of this application may be premature. Specifically, what is the status of the Gulfstream application? If the Gulfstream application is not favorably reviewed please identify the natural gas source and route.

RESPONSE

Gulfstream has received its final environmental impact statement and expects to receive its final certificate and Federal Energy Regulatory Commission approval by June 1, 2002. Pipeline construction is nearing completion. Offshore pipe has been laid and its burial is underway. Compressor station construction in Alabama is approximately 60 percent complete. Onshore construction in Florida is about 70 percent complete. Gulfstream is on target to begin gas deliveries in Florida by June 2002. Calpine fully expects Gulfstream to be able to provide natural gas for the BHEC project.

Calpine has determined it will not build the pipeline lateral from the current Gulfstream terminus at Midway Road to the BHEC. Gulfstream, or another company, will permit, construct, own, and operate the lateral; therefore, Calpine is withdrawing its request for certification of the lateral in this proceeding under the Power Plant Siting Act (PPSA). The permits for the pipeline lateral will be obtained in a separate proceeding by the company that will construct, own, and operate the lateral.

In addition, Calpine has determined that the BHEC will also interconnect with the Florida Gas Transmission (FGT) natural gas transmission system, which is located west of I-95, approximately 1,400 feet west of the Site. The FGT pipeline system is located between the two Florida Power & Light Company (FPL) 230-kV electric transmission line rights-of-way. This interconnection with FGT will serve as a backup and secondary source of natural gas for the Project. This natural gas pipeline interconnection will be constructed, owned, and operated by Calpine. Therefore, Calpine will amend the SCA for the BHEC Project to seek certification of the corridor for this natural gas pipeline interconnection in this proceeding. Calpine will provide FDEP with revised pages of the SCA in the near future.

FDEP ERP-15

If the Gulfstream application is issued then the Department recommends that Calpine apply for a Noticed General or Standard General or Individual permit for an substantially narrower pipeline corridor for their 24-inch diameter gas pipeline. In addition, wetland impacts appear to be avoidable based upon the aerials provided in Figures 6.2.6-1 (1 through 5 of 5) if the pipeline stayed to the east side of the reflected corridor. In addition, wetland impacts can further be avoided and minimized if the proposed pipeline were directional drilled across Ten-Mile Creek and the wetlands adjacent to the creek with entry/exist stations located in uplands. Please demonstrate all avoidance and minimization methods, explain why the entire route is proposed to be trenched, and provide a copy of the Gulfstream pipeline permit.

RESPONSE

The size and location of the pipeline corridor will be addressed in a separate proceeding. Calpine is not seeking certification of the pipeline in this PPSA proceeding. This lateral has been removed from the SCA for the BHEC.

FDEP ERP-16

Your project may also require a private or public easement to use sovereignty-submerged lands, pursuant to Chapter 253.77, Florida Statutes. The Department's Title and Land Records Section is reviewing your application to determine if state-owned submerged lands will be affected. If state-owned submerged lands will be affected by your project, we will notify you in writing, and the items in Part II of the enclosed RAI will also be required. For expediency, if you acknowledge or believe that your project affects sovereign submerged lands you may respond to Part II of the PM, prior to receiving written confirmation of state ownership. This will not jeopardize any future claim of ownership. Below are the easement questions.

RESPONSE

As discussed in the response to FDEP ERP-14, another company will permit, construct, own, and operate the natural gas pipeline lateral from the current terminus of the Gulfstream pipeline to the BHEC Site. This lateral has been removed from the SCA for the BHEC.

Also, as discussed in FDEP ERP-14, Calpine will construct an approximately 1,400-foot natural gas pipeline interconnection from the BHEC Site to the FGT pipeline, which is located west of I-95 between the two FPL electric transmission line rights-of-way. This

pipeline interconnection will be constructed on private lands, primarily owned by Calpine, and will not use or affect sovereign submerged lands.

B. SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Letter from James J. Golden (SFWMD) to Hamilton S. Oven, Jr. (FDEP) dated January 12, 2001

SFWMD-1

Please specify the construction method that will be used for the proposed crossing (e.g., directional drill, subaqueous/excavation, pile-supported, etc.). Please be advised that the SFWMD would prefer the use of directional drilling (if feasible) because it poses minimal impacts to the canal/right-of-way.

SFWMD-2

The proposed crossing is depicted at an angle rather than perpendicular. Consequently, if a method other than directional drilling is used, additional impacts to the canal/right-of-way are likely. Why is it necessary to cross the canal at an angle?

SFWMD-3

Will the SFWMD's right-of-way be used for access purposes to construct the proposed pipeline and/or for access after construction (i.e., for routine maintenance, inspection, or other purposes)? If so, a complete description of the activities, the duration of the proposed activities, and the types of vehicles to be used within the right-of-way needs to be provided along with points of ingress and egress.

SFWMD-4

The proposed crossing design must meet the criteria in Permit Information Manual Volume V, entitled "Criteria Manual For Use of Works of the District." The criteria varies based on the crossing method used. Detailed design drawings must be submitted for staff's review and approval prior to construction of the proposed crossing. Since only the natural gas pipeline is proposed within SFWMD jurisdictional boundaries and this is the only SFWMD canal crossing, the applicant should consider seeking approval from the SFWMD in the form of a Right Of Way Occupancy Permit rather than through the post certification review process. The SFWMD is not in favor of granting an easement within the canal right-of-way for the proposed crossing. However, a Right Of Way Occupancy Permit authorizing the proposed crossing would remain in effect for as long as the facility occupies the SFWMD's right-of-way. In addition, please note that the project may qualify for a Notice General Right of Way Occupancy Permit. This type of permit has a $300.00 application fee and does not require approval by the SFWMD's Governing Board. For additional information concerning the right of way permitting program, please contact Laura Lythgoe at (561) 682-6827.

SFWMD-5

The information provided in Section 6.2 indicates that Ten Mile Creek will be directionally drilled within the eastern portion of FPL's transmission line corridor. Please be advised that this property is owned by the SFWMD and is part of the SFWMD's Ten Mile Creek Save Our Rivers (SOR) project. As part of the Comprehensive Everglades Restoration Project, the SFWMD will be constructing a stormwater attenuation reservoir, including a large levee, east of and adjacent to the FPL corridor. The purpose of the reservoir project is to restore more natural hydroperiods to the St. Lucie Estuary and Indian River Lagoon. Construction is scheduled to commence sometime between January, 2002, and June, 2002. Consequently, it appears that there may be potential conflicts with respect to location and timing. For additional information concerning the reservoir project, please contact Denise Arrieta at (561) 682-4420.

SFWMD-6

The SFWMD has designated an additional area outside of the actual reservoir project for potential acquisition under the Ten Mile Creek SOR project. It appears that the proposed route may also impact some of these lands. Are any staging or construction laydown areas proposed within SFWMD owned or targeted SOR lands? Please identify. For additional information concerning the SOR project boundaries, please contact Darla Fousek at (561) 682-6639.

SFWMD-7

For SFWMD owned SOR lands impacted by the proposed pipeline route, the following is requested:

- *(a) Segregation of topsoil and no importation of topsoil from off-site sources;*
- *(b) Removal of excess rock from at least the top 12 inches of the trench backfill area;*
- *(c) Monitoring of topsoil and subsoils for compaction;*
- *(d) In the floodplain area where tree removal is necessary, stumps should remain in place where possible;*
- *(e) Where stump removal is necessary, they should not be buried on site; and*
- *(f) The applicant should coordinate with the SFWMD's Land Stewardship Department regarding re-vegetation and restoration activities.*

SFWMD-8

The details of the proposed trench dewatering and hydrostatic testing activities must be submitted for staff's review and approval prior to construction of the proposed pipeline. Since the pipeline is the only portion of this project located within the SFWMD's jurisdictional boundaries, staff would prefer that these activities be approved through the water use permitting process rather than through the post-certification review process. Please note that this project may qualify for a Water Use General Permit if the duration of the proposed construction activities is less than 6 months. This type of permit does not require approval by the SFWMD's Governing Board. For additional information concerning water use permitting requirements, Please contact Jeff Rosenfeld at (561) 682-6922.

RESPONSE

All of the sufficiency comments from SFWMD are related to the 15-mile natural gas pipeline lateral, which was the only portion of the BHEC Project located within SFWMD's jurisdictional boundaries. Subsequent to filing the BHEC SCA, Calpine has decided that another company will be responsible for permitting, constructing, owning, and operating this natural gas pipeline lateral to the BHEC Site. Therefore, Calpine is no longer seeking certification of the pipeline corridor within this PPSA proceeding. Responses to the SFWMD comments are not needed in this proceeding because, without the pipeline lateral, no portion of the Project is located within SFWMD's jurisdictional boundaries.

C. ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

Letter from Mary Ellen Jones (SJRWMD) to Hamilton S. Oven (FDEP), dated January 2, 2001

SJRWMD-1

A total annual allocation of 2,373 mgy of water was requested based upon an average daily use of 6.5 mgd over 365 days per year. However, the report also notes that the plant will not be operational throughout the year. Please either revise the requested allocation to include maintenance periods when the plant does not use water or further justify the requested amount. [Paragraphs 10.2 (a), (h) & (k) and 10.3 (a) & (b), Applicant's Handbook: Consumptive Uses of Water (A.H.)]

RESPONSE

The total annual average allocation is based on plant operation at 100 percent capacity over the entire year. While it is true that the plant will have some maintenance periods in which it does not use water, it is conceivable that these periods could be spaced more than a year apart, thus enabling the plant to run at full load over an entire year.

SJRWMD-2

It was noted that the Project will consider using water from a regional reservoir to be created in the next several years and will also consider using "...some quantity of RO discharge..." from the County's water treatment plants. Please evaluate the environmental, technical, and economic feasibility of maximizing the use of these lower quality water sources. Please contact Ralph Brown, with SJRWMD, for any additional information that may be needed regarding the proposed storm water treatment reservoir. [Paragraphs 10.2 (a) & (l) and 10.3 (d) & (g), A.H-]

RESPONSE

As described in Sections 3.5 and 5.3 of the SCA, Calpine specifically proposed and evaluated the use excess surface water from the IRFWCD drainage canal system and reclaimed water, as available, from Indian River County, as the sources of water supply for the BHEC Project. The evaluations in the SCA demonstrated that sufficient water was available from these sources and that the potential impacts of using these sources were actually beneficial by reducing freshwater flows and pollutant loadings to the Indian River Lagoon.

Also, in these sections of the SCA, Calpine stated that it would consider using water from storm water storage and treatment facilities that were jointly being developed by the County, IRFWCD, and SJRWMD as part of the Master Storm Water Management planning efforts for the east Indian River County watershed. In addition, Calpine stated that it would consider using some quantity of reverse osmosis (RO) discharge from the County's water treatment plants as supplemental water supply.

Prior to and since the SCA was filed, Calpine has had numerous meetings with the County and IRFWCD to discuss water supply options for the BHEC Project, particularly use of the County's future storm water management facilities and use of some quantity of RO discharge. Since these discussions are still ongoing, Calpine's water supply plan for the BHEC is not final at this time. However, Calpine does anticipate that final agreements will be reached with the County and IRFWCD in the near future. At that time, Calpine will submit appropriate documentation to FDEP, SJRWMD, and other reviewing agencies.

SJRWMD-3

Figure 2-2 indicates that surface water will provide 6.3 million gallons on an average daily basis and reclaimed water will account for about 0.2 mgd. Please clarify the amounts of reclaimed water, surface water, and byproduct water generated in the reverse osmosis treatment process that will be used for power generation and provide supporting information. It was noted that subject to certain limitations, reclaimed water use would be maximized. Please fully explain the referenced limitations. [Paragraphs 10.2 (a), 0) & (k) and 10.3 (b), (c), (f) & (g), A.H.]

RESPONSE

Figure 2-2 in Appendix 10.1.4, Attachment 10.1.4 of the SCA, shows 4,360 gallons per minute (gpm) of surface water and 159 gpm of reclaimed water use by the BHEC on an annual average basis. See the calculations submitted in response to SJRWMD-7 for derivation of all values on this water balance.

The reclaimed water quantity was obtained from Indian River County utilities and represents the County's annual average excess reclaimed water for 1999. Peak reclaimed water flow has been quoted by Indian River County utilities as 5.3 MGD (3,680.6 gpm). It is anticipated that the County reclaimed system will typically provide between 0.0 and 5.3 MGD on an as-available basis. This water supply will be used as shown on the water balances. The statement that this use by BHEC is subject to "certain limitations" refers to the fact that BHEC will have lower priority for this water than some other customers of Indian River County, and will only receive this water when those other users do not want or need the water.

SJRWMD-4

Figure 3.5.0-2 Water Balance—Peak Daily Water Use shows a storage total input of 754 gpm and an output from storage of 1026 gpm. Please explain why the input and output volumes are different. [Paragraphs 10.2 (a) & (h) and 10.3 (a) & (b), A.H.]

RESPONSE

Figure 3.5.0-2, in Section 3.5 of the SCA, is the water balance for peak use on a daily basis. Each value in this water balance is a peak value calculated depending on conservative circumstances for that water stream. Many values do not balance, because the conditions that would maximize a particular value do not necessarily affect other values.

SJRWMD-5

Will the grassed and landscaped areas of the plant site be irrigated? If so, please complete and submit the marked portions of the attached forms addressing urban landscape irrigation. [Paragraphs 10.2(b), (i) & (k); 10.3(a), (b) & (e), A.H.]

RESPONSE

It is anticipated that some of the grassed and landscaped areas of the plant Site will be irrigated. The specific landscape plan for the Site has not been prepared at this time and will be developed in conjunction with future detailed engineering design and construction program efforts. Conceptually, approximately 10 percent of the Site's 20 acres of green space will be landscaped with native vegetation species. Grass native to the region will be

utilized in the green open areas. Irrigation for the landscaped and grassed areas will be provided by sprinkler systems at typical application rates in the South Florida region (approximately 1 million gallons per year per acre). The principal source of irrigation will be the storm water management wet detention pond and the plant's water supply system, which will utilize excess surface water from the IRFWCD Lateral C Canal and, as available, reclaimed water from Indian River County as a backup source. No ground water will be used for irrigation or any other plant water supply.

The final landscape plan will incorporate the principles of xeriscape, water use efficiency, use of lowest quality water source, and a water conservation awareness and education program. Detailed information will be provided to SJRWMD including urban landscape irrigation forms regarding the proposed landscape plan after its final design and prior to its implementation.

SJRWMD-6

It appears that a wet detention stormwater system is proposed for stormwater treatment instead of a stormwater reuse system. From a water resources perspective, a stormwater reuse system is the preferred method of stormwater treatment because less stormwater leaves the site and the use of ground water sources for irrigation is minimized or eliminated. If it is proposed to irrigate the plant site with ground water, please evaluate the technological, environmental, and economic feasibility of using stormwater from the proposed 5.2-acre stormwater detention pond for irrigation instead of discharging to the Lateral C canal as proposed. [Paragraphs 10.2 (c), (d), (h), (i) & (j) and 10.3 (a), (b), (d), (g) & (k), A. H.]

RESPONSE

The proposed source of irrigation water for the plant Site landscaped areas is the wet detention storm water pond. The plant water supply system consisting of excess surface water from the IRFWCD Lateral C Canal and, as available, reclaimed water from Indian River County will serve as the backup irrigation water source. No ground water will be used for irrigation or any other plant water supply.

SJRWMD-7

Please provide a basis for the peak day water uses shown on Figure 2-3. Were the water use amounts based on engineering calculations, data from similar type plants, or a combination of both? Please provide a copy of the calculations and/or data relied upon. [Paragraphs 10.2 (a), (b) & (h) and 10.3 (a) & (b), A.H.]

RESPONSE

Water balances showing peak daily and average annual water use, reflecting the updated engineering on this system, are included in Attachment B to these responses along with supporting calculations. These water use values are based on standard plant design data used for similar plants around the country. Calpine has over 40 operating facilities based on this general design, natural gas-fired combined cycle, and an additional 27 facilities in construction. Data from similar plant designs have been combined with vendor-supplied information to produce the basis for these site-specific calculations.

SJRWMD-8

It is our understanding that Calpine—Blue Heron Energy Center is currently working with the Indian River Farms Water Control District, Indian River County, and the SJRWMD to prepare a comprehensive surface water model for the Indian River Farms Water Control District. Please provide surface water modeling which shows the expected drawdown associated with the proposed surface water use. The modeling should evaluate the drawdown due to proposed withdrawals and confirm that existing legal uses are not adversely impacted. If a determination is made that there is a potential for the consumptive use to adversely effect water level stages, vegetation, or crops on lands not owned or controlled by the applicant, then describe how. these impacts would be avoided and/or mitigated. [Paragraphs 10.2 (e), (f), (g) & (p) andlO.3 (b) & (d), A. H.]

RESPONSE

Calpine has expended significant efforts and resources to develop a comprehensive storm water management model for the area of IRFWCD with the cooperative efforts of Indian River County, SJRWMD, City of Vero Beach, and IRFWCD. Calpine's development of this model has been very beneficial to the County and IRFWCD, since it is currently being used by SJRWMD to evaluate alternatives and develop the master storm water management plan for the east Indian River County watershed.

Visual SWMM 2000 was used to develop the model. The model configuration is shown in the attached Figure SJRWMD-1, which included:

N

NOT TO SCALE

LEGEND

- NODES
- STORAGE NODES
- LINKS

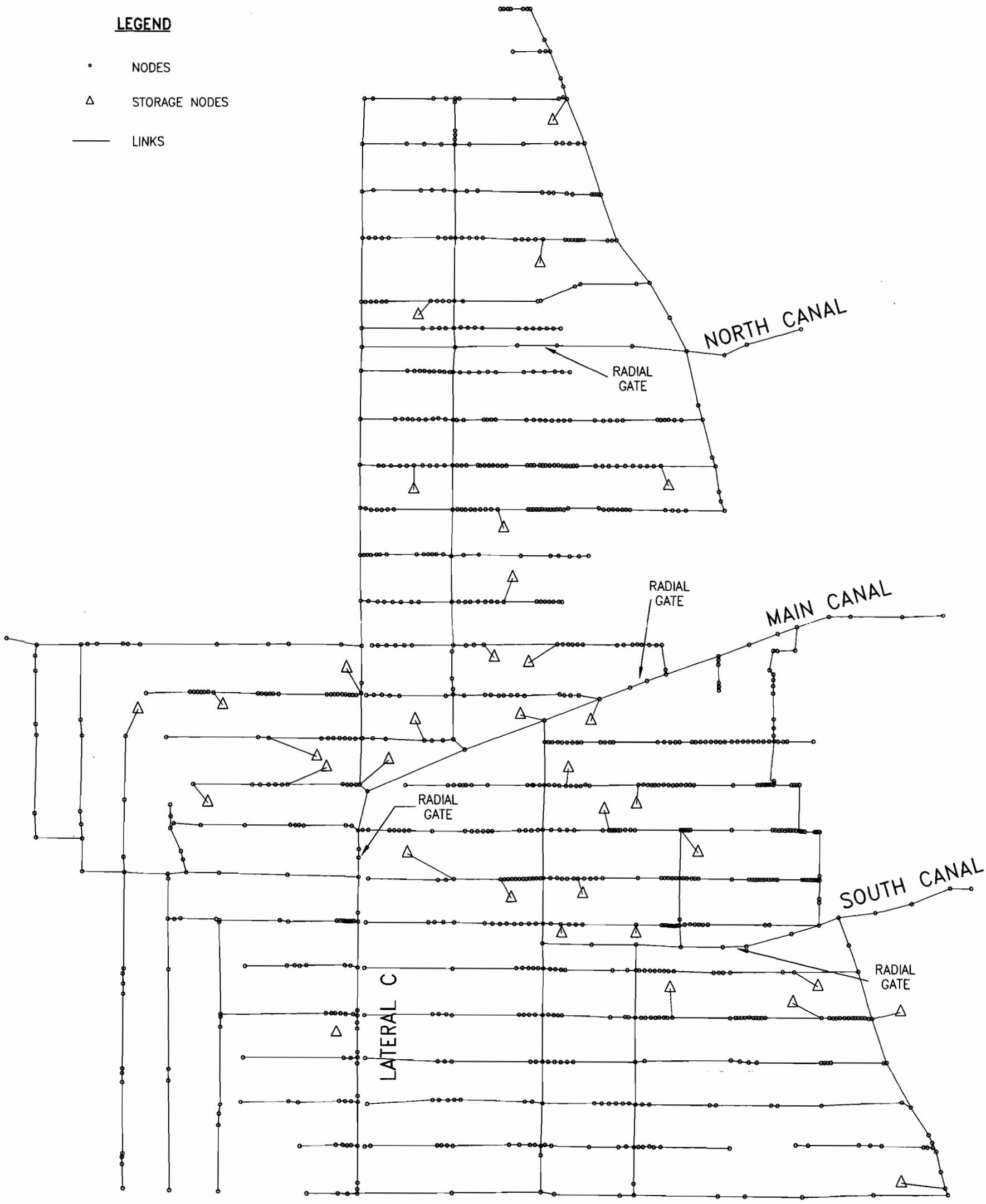


FIGURE SJRWMD-1.
MODEL CONFIGURATION

Source: ECT, 2002.

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- 787 culverts
- 230 runoff nodes
- 34 detention ponds
- 3 ocean boundary nodes
- 230 sub-basins
- 1,043 extran nodes
- 15 weirs

The model was calibrated by hydrologic data collected during Hurricane Gordon (November 14, 1984).

ECT conducted surface water modeling for the IRFWCD, using the calibrated Visual SWMM to evaluate the hydraulic effect of the BHEC withdrawal on the canal water supply system.

The period of April 22 through May 3, 1975, was determined to be the driest period of the entire 50-year period for which there are canal flow records. The flow data indicated that the historic low flow of 2.86 MGD in the lower pool of the canal system occurred on April 26, 1975; the 7-day historic low flow (4.7 MGD) and 12-day low flow (6.93 MGD) also occurred in this low flow period. Attached Figure SJRWMD-2 shows the daily flow from the lower pool during the year of 1975 and attached Figure SJRWMD-3 shows the daily flow of lower pool during historic low flow event (April 22 through May 3, 1975). To evaluate the worst-case impact of plant water use, model simulations were conducted using continuous time data from April 22 through May 8, 1975, for two scenarios:

- Baseline condition without withdrawal.
- Maximum withdrawal of 7.5 MGD at the downstream side of the Lateral C Canal radial gates in the canal system lower pool.

To quantify the water level drawdown impacts, simulated pre- and post-development canal water levels were compared at eight locations, as shown in attached Figure SJRWMD-4. Attached Figure SJRWMD-5 shows the pre- and post-development water levels at the intake (location No. 1). Similarly, attached Figures SJRWMD-6 through -12 show the pre- and post-development water level comparisons at location Nos. 2 through 8, respectively. Attached Figure SJRWMD-13 shows the net water level drawdown at the water intake (location No. 1) due to the plant water use. Similarly, attached Figures

SJRWMD-14 through -20 show the net water level drawdown at location Nos. 2 through 8, respectively.

The model results indicate that the maximum water level drawdown will occur near the water intake (0.33 ft), a localized pumping effect. The maximum water level drawdown at the other seven locations range from 0.20 to 0.21 ft. The figures show that the drawdown in excess of 0.15 ft is short-lived (less than 9 days), even under historic low flow event conditions. Attached Table SJRWMD-1 summarizes the modeled water level drawdowns at the eight locations.

These minimal and short-termed drawdowns due to the BHEC withdrawals will not adversely impact existing legal uses and will not adversely affect water level stages, vegetation, or crops in the IRFWCD drainage area.

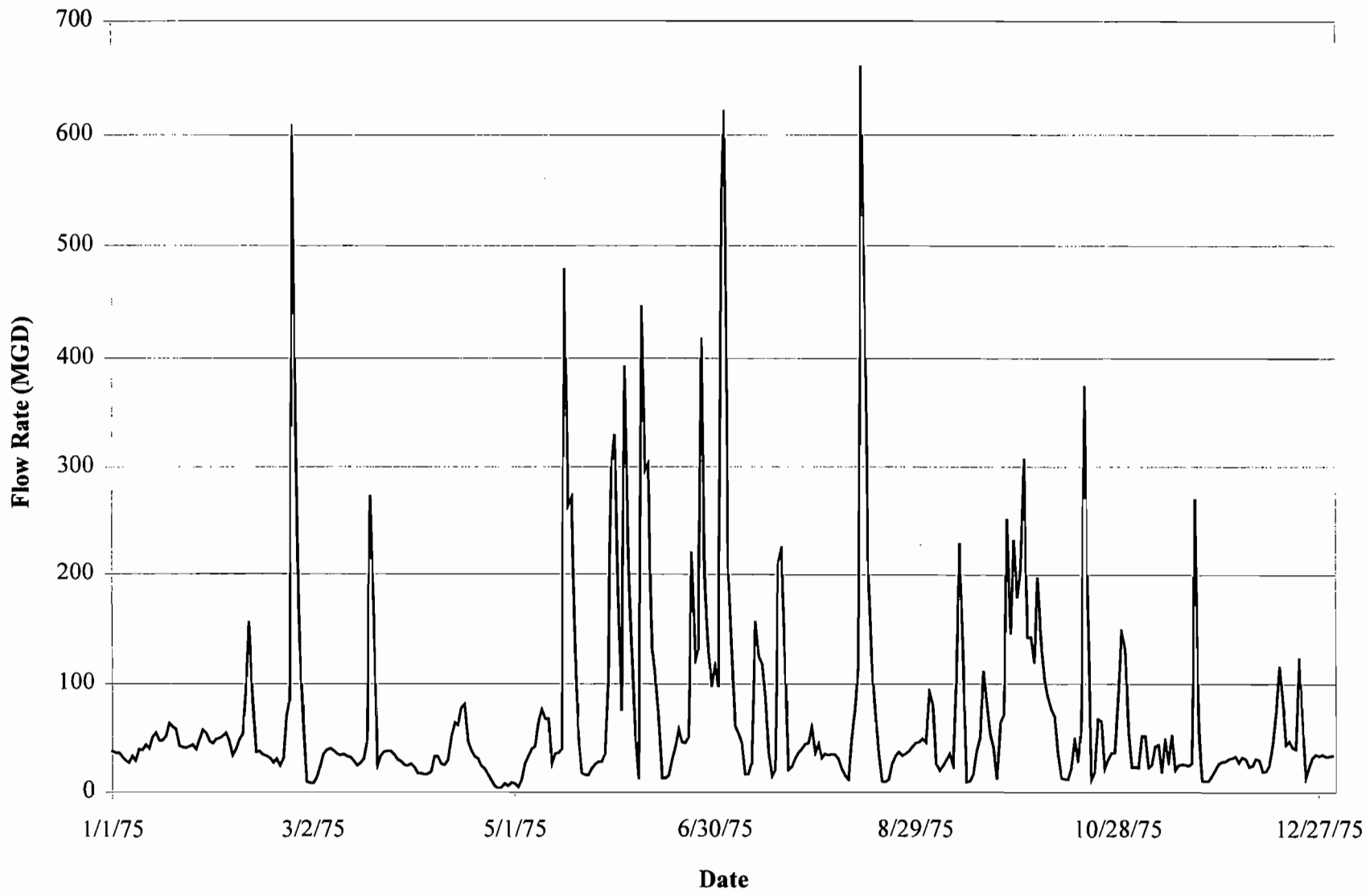

FIGURE SJRWMD-2.

IRFWCD LOWER POOL DISCHARGE (1975)

Source: ECT, 2002.

CALPINE
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ENERGY CENTER

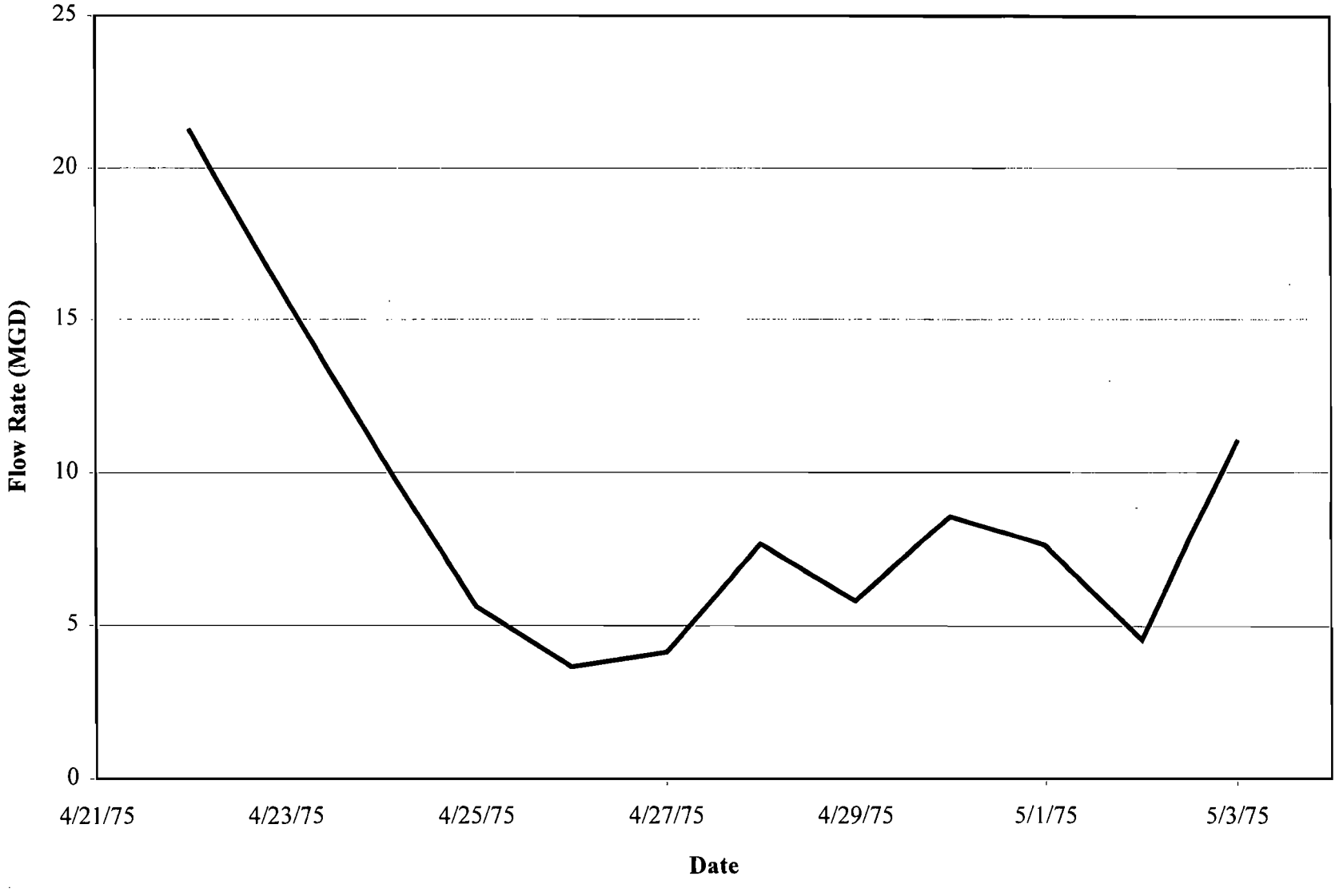

FIGURE SJRWMD-3.

HISTORIC LOW FLOW AT IRFWCD LOWER POOL (4/22 THROUGH 5/3/75)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

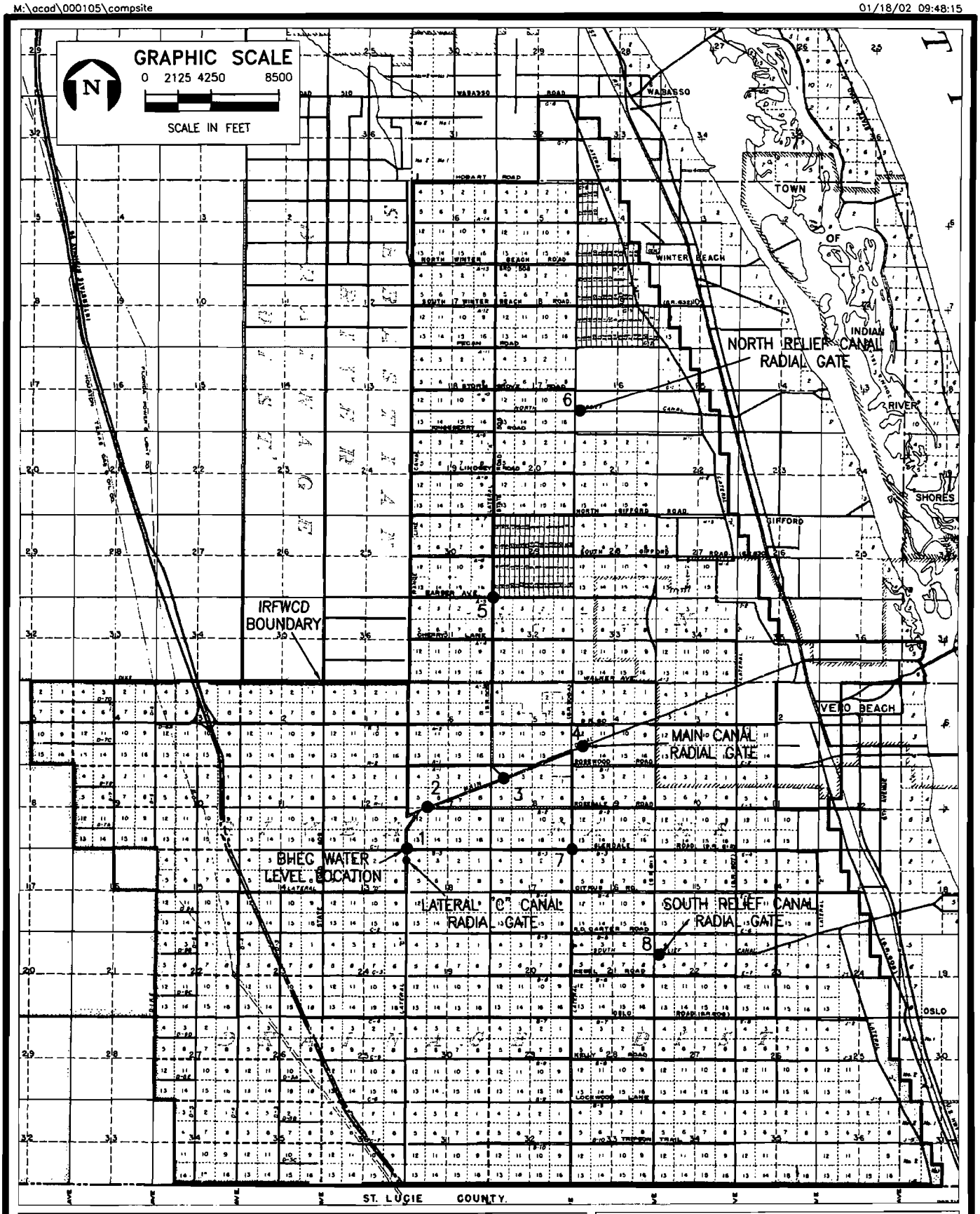

FIGURE SJRWMD-4.

LOCATIONS FOR WATER LEVEL DRAWDOWN ANALYSIS

Source: ECT, 2002.

CALPINE
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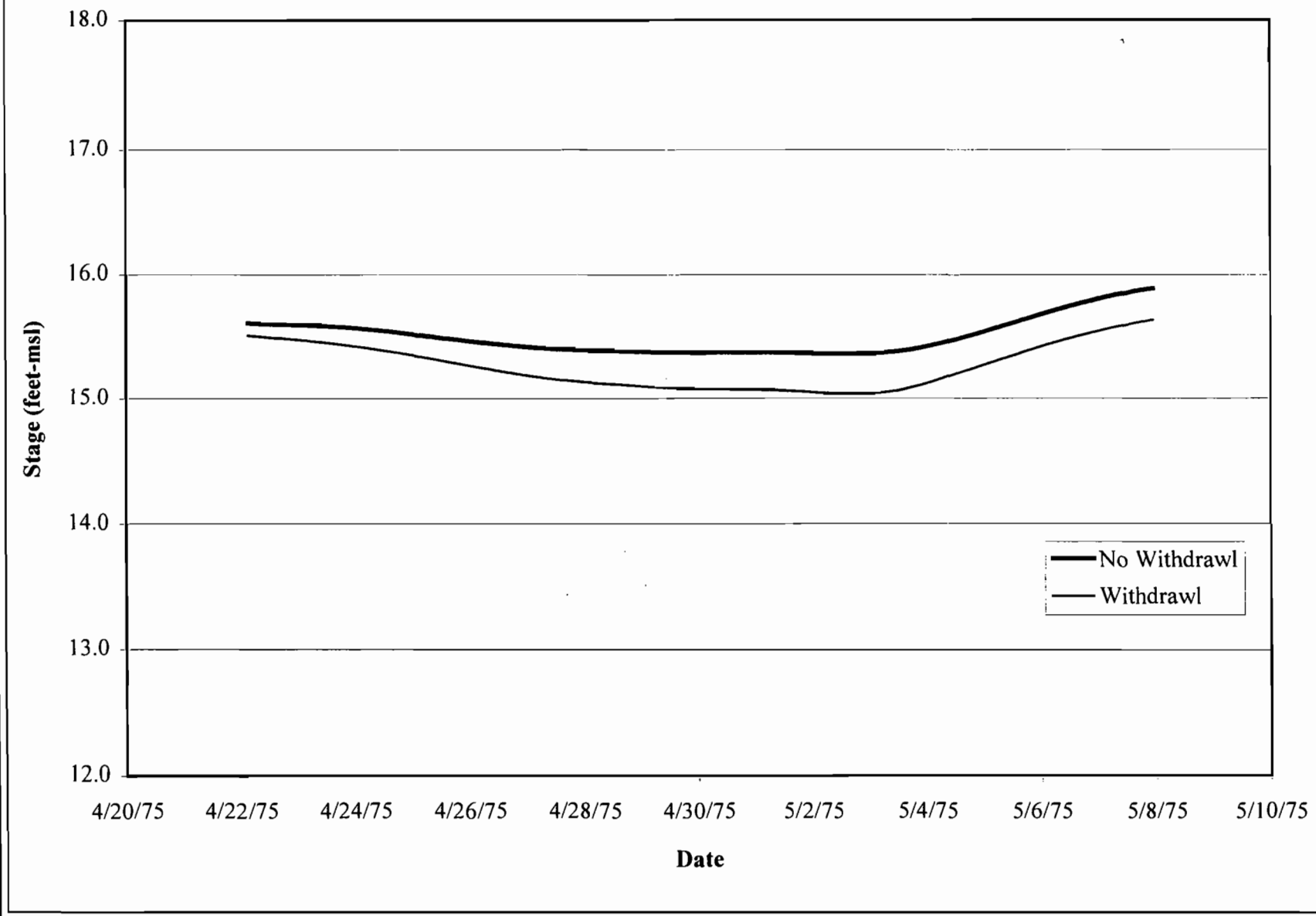

FIGURE SJRWMD-5.

WATER LEVEL COMPARISON IN LATERAL C CANAL NEAR INTAKE STRUCTURE (LOCATION 1)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

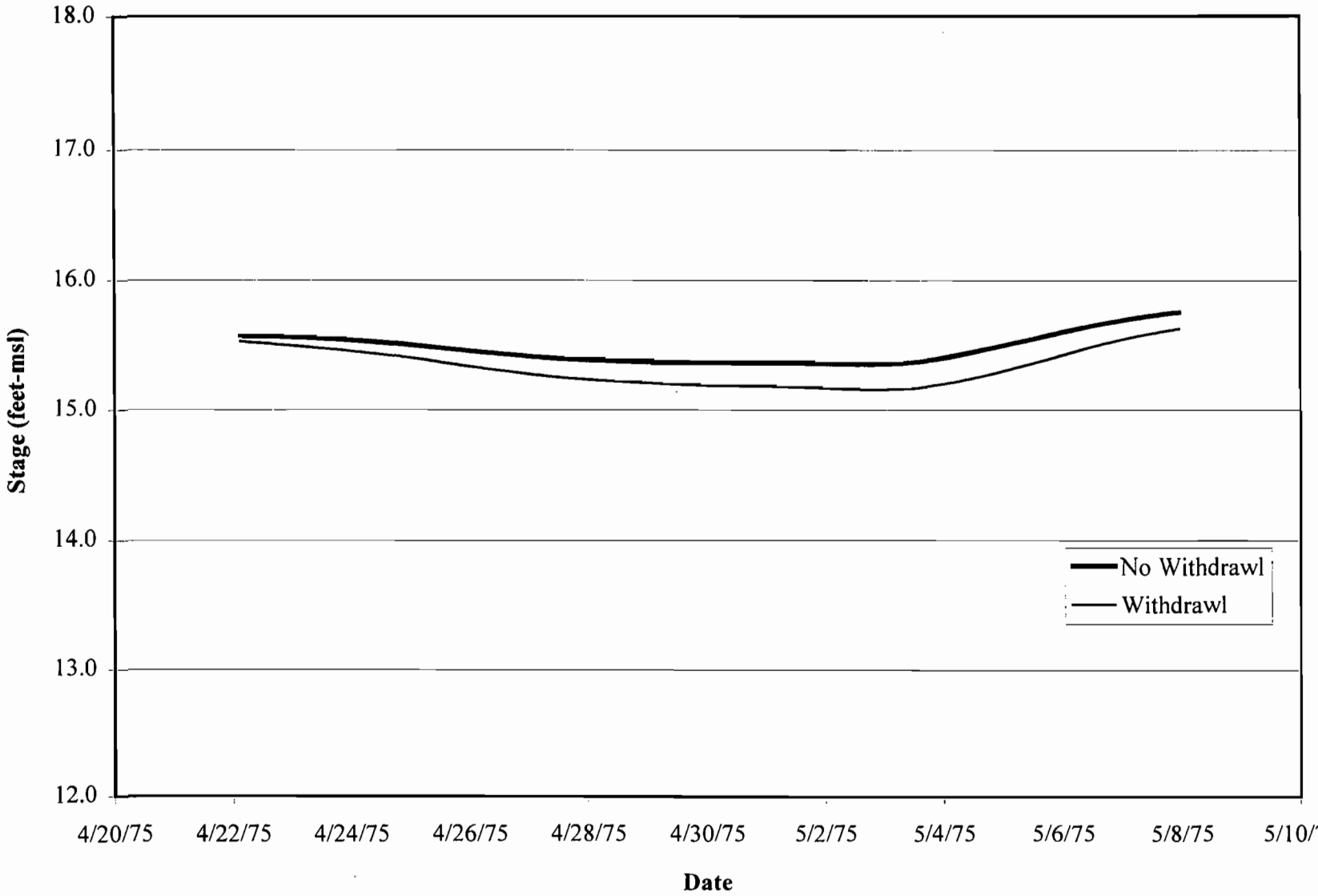

FIGURE SJRWMD-6.

WATER LEVEL COMPARISON IN MAIN CANAL 1.7 MILES DOWNSTREAM OF INTAKE (LOCATION 2)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

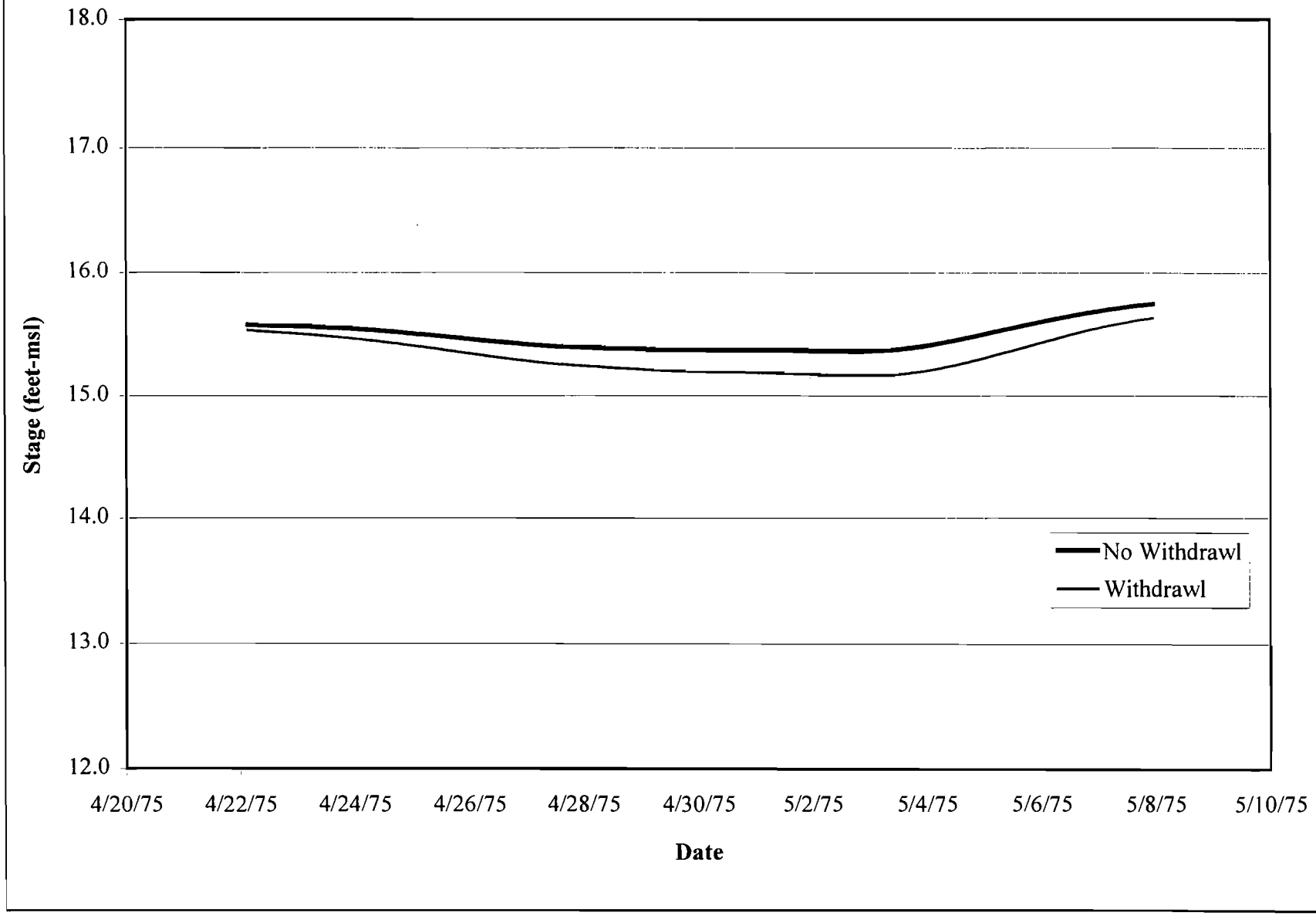

FIGURE SJRWMD-7.

WATER LEVEL COMPARISON IN MAIN CANAL 2.6 MILES DOWNSTREAM OF INTAKE (LOCATION 3)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

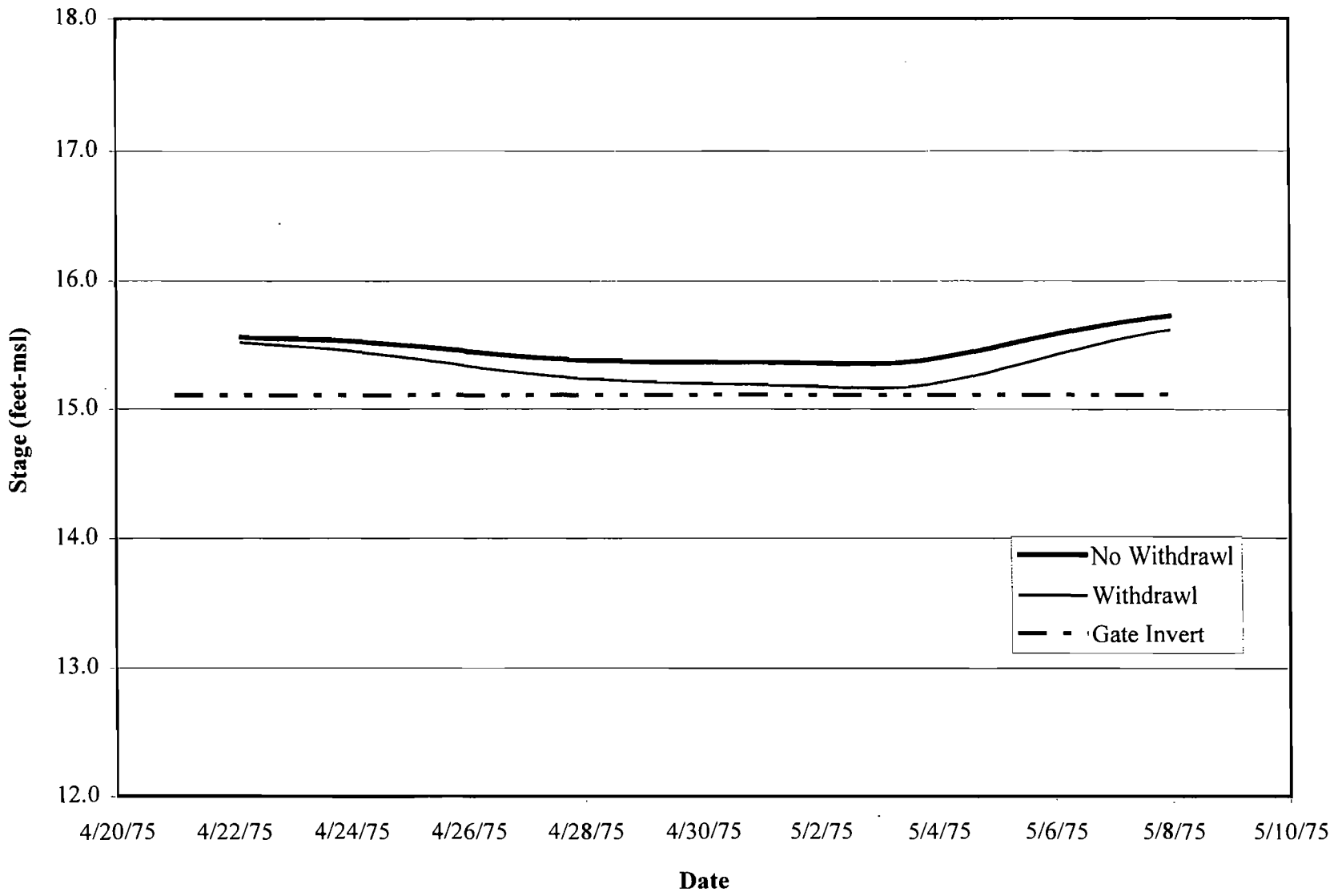

FIGURE SJRWMD-8.

WATER LEVEL COMPARISON IN MAIN CANAL AT RADIAL GATES (LOCATION 4)

Source: ECT, 2002.

CALPINE
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ENERGY CENTER

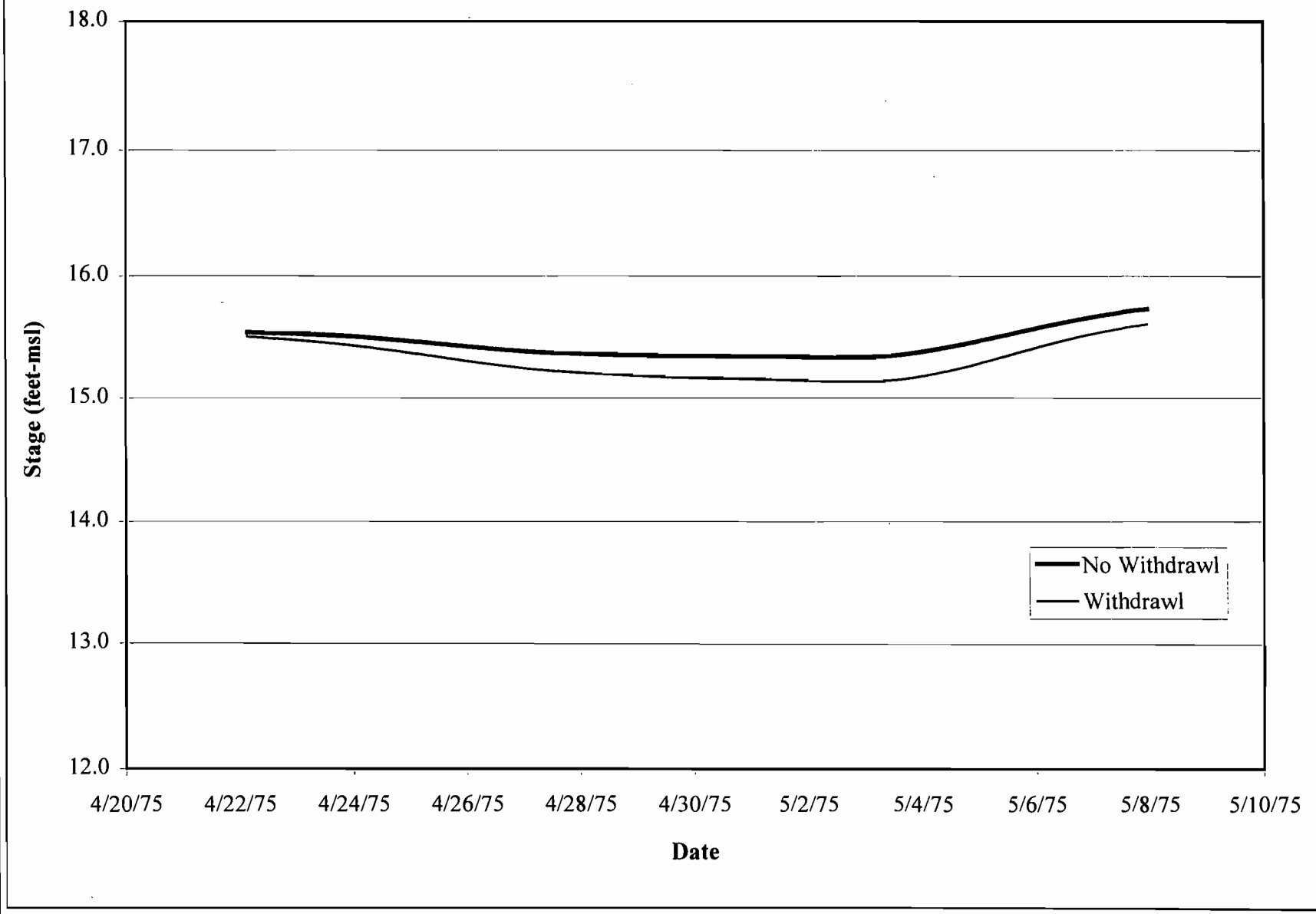

FIGURE SJRWMD-9.

WATER LEVEL COMPARISON IN LATERAL A CANAL 4.1 MILES DOWNSTREAM OF INTAKE (LOCATION 5)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

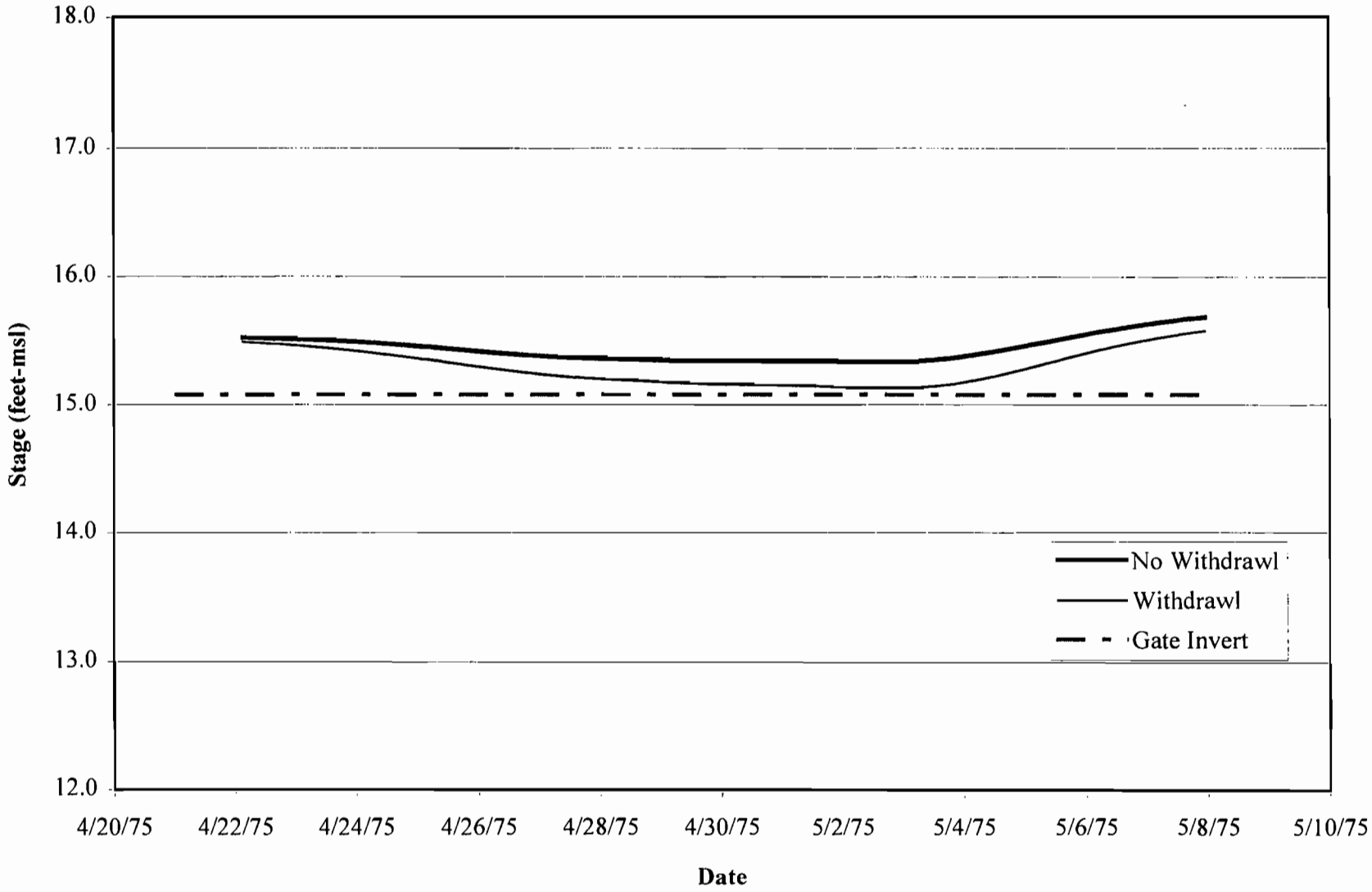

FIGURE SJRWMD-10.

WATER LEVEL COMPARISON IN NORTH RELIEF CANAL AT RADIAL GATES (LOCATION 6)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

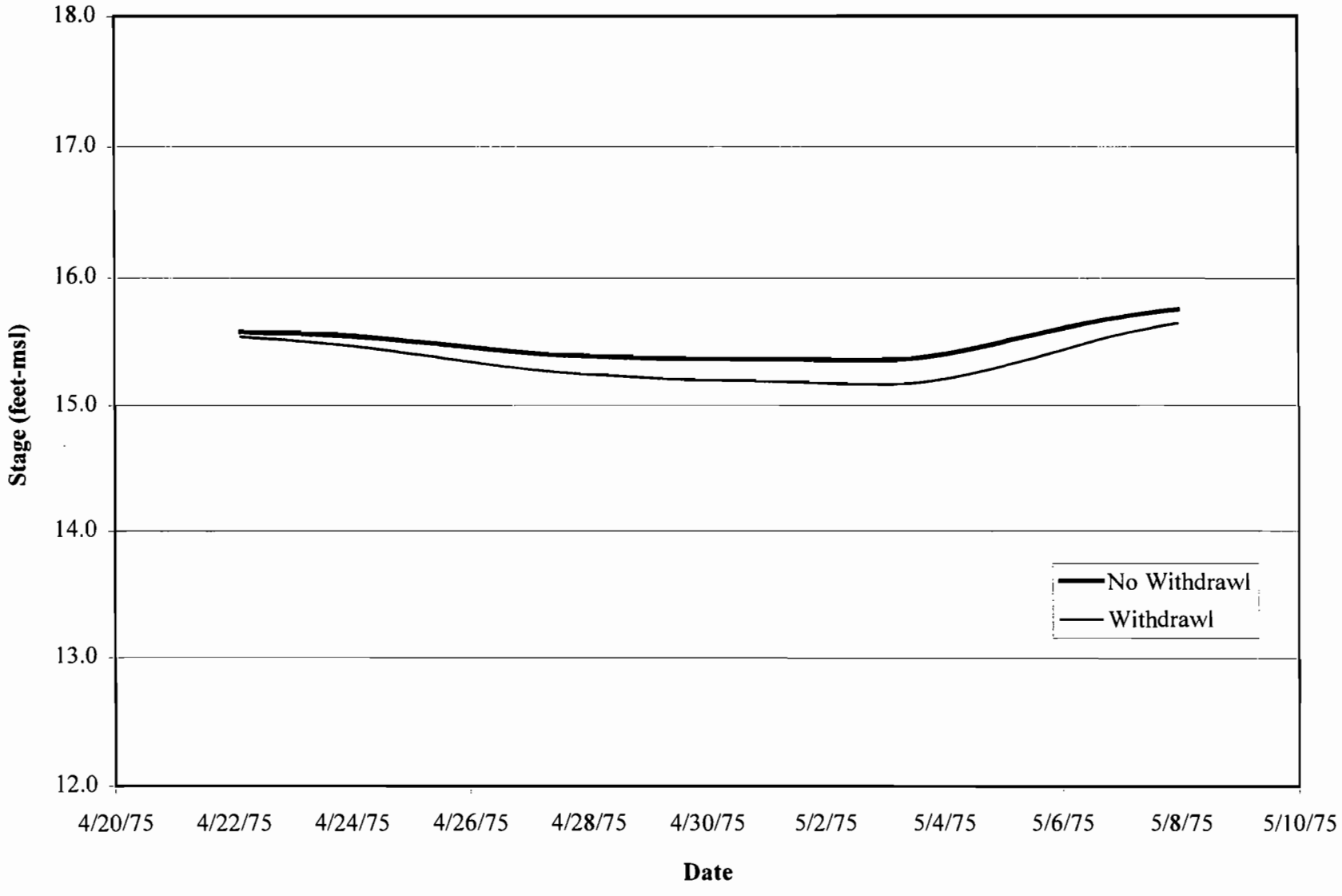

FIGURE SJRWMD-11.

WATER LEVEL COMPARISON IN LATERAL B CANAL 3.9 MILES DOWNSTREAM OF INTAKE (LOCATION 7)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

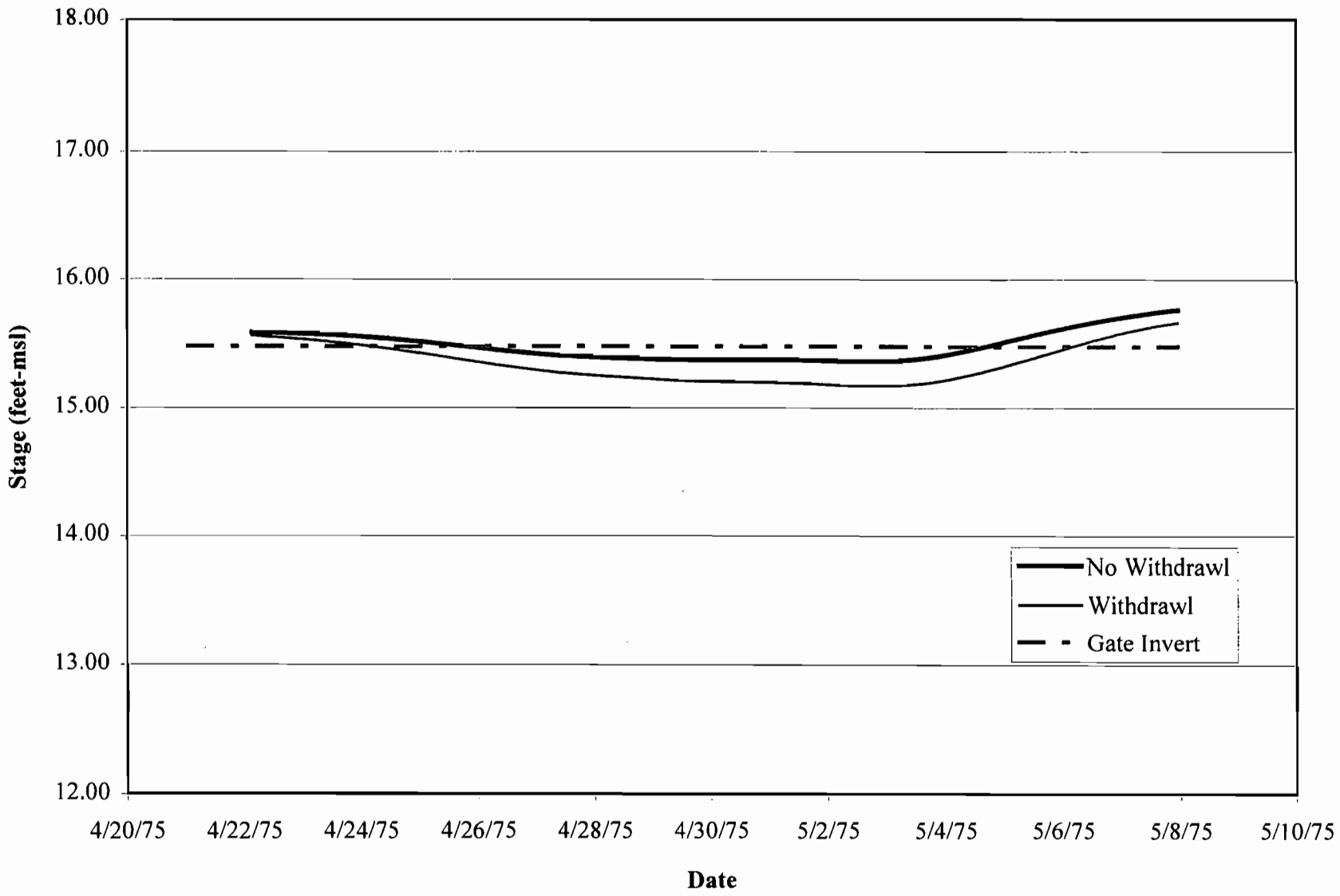

FIGURE SJRWMD-12.

WATER LEVEL COMPARISON IN SOUTH RELIEF CANAL
AT RADIAL GATES (LOCATION 8)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

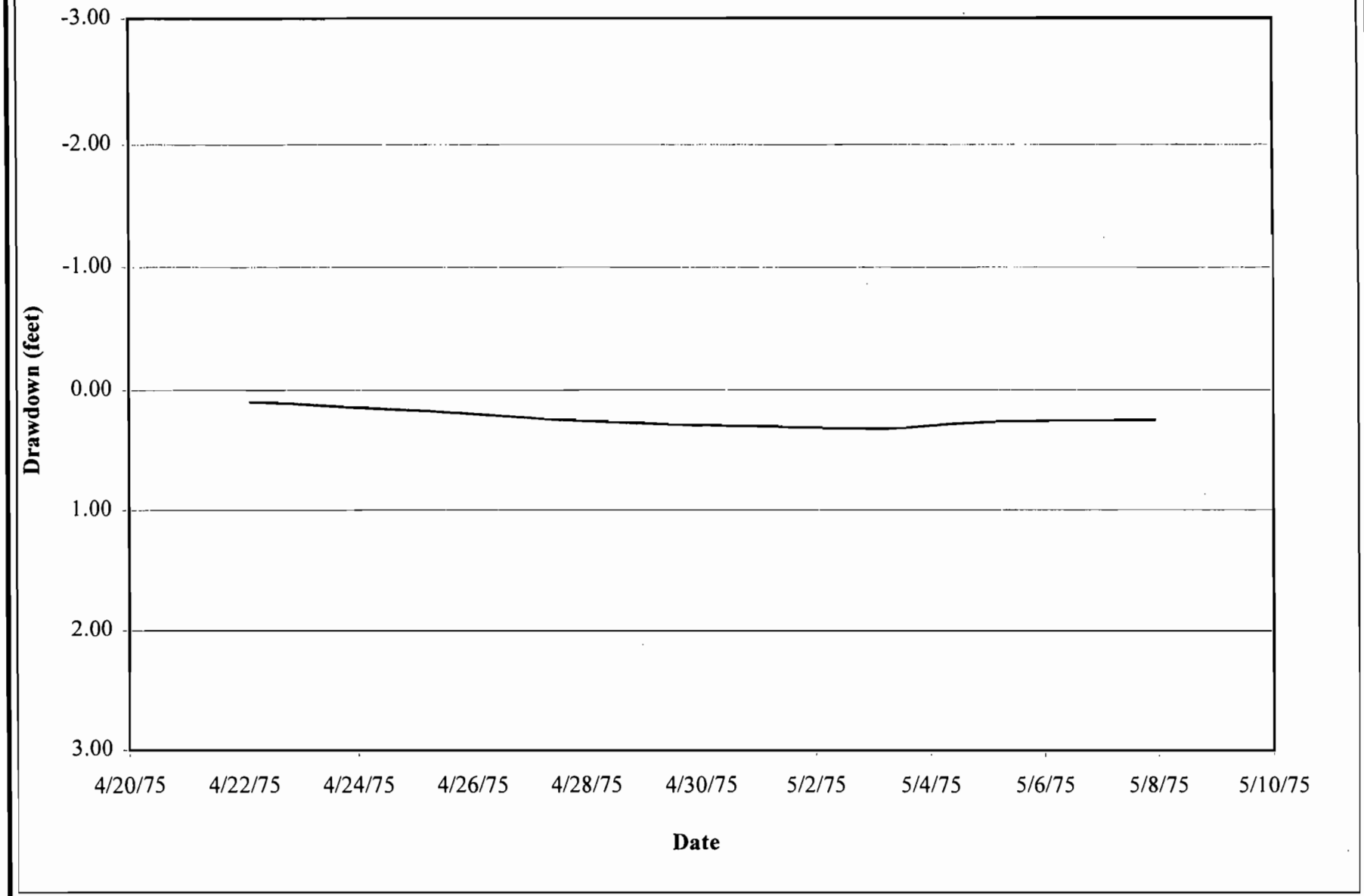

FIGURE SJRWMD-13.

WATER LEVEL DRAWDOWM IN LATERAL C CANAL NEAR INTAKE STRUCTURE (LOCATION 1)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

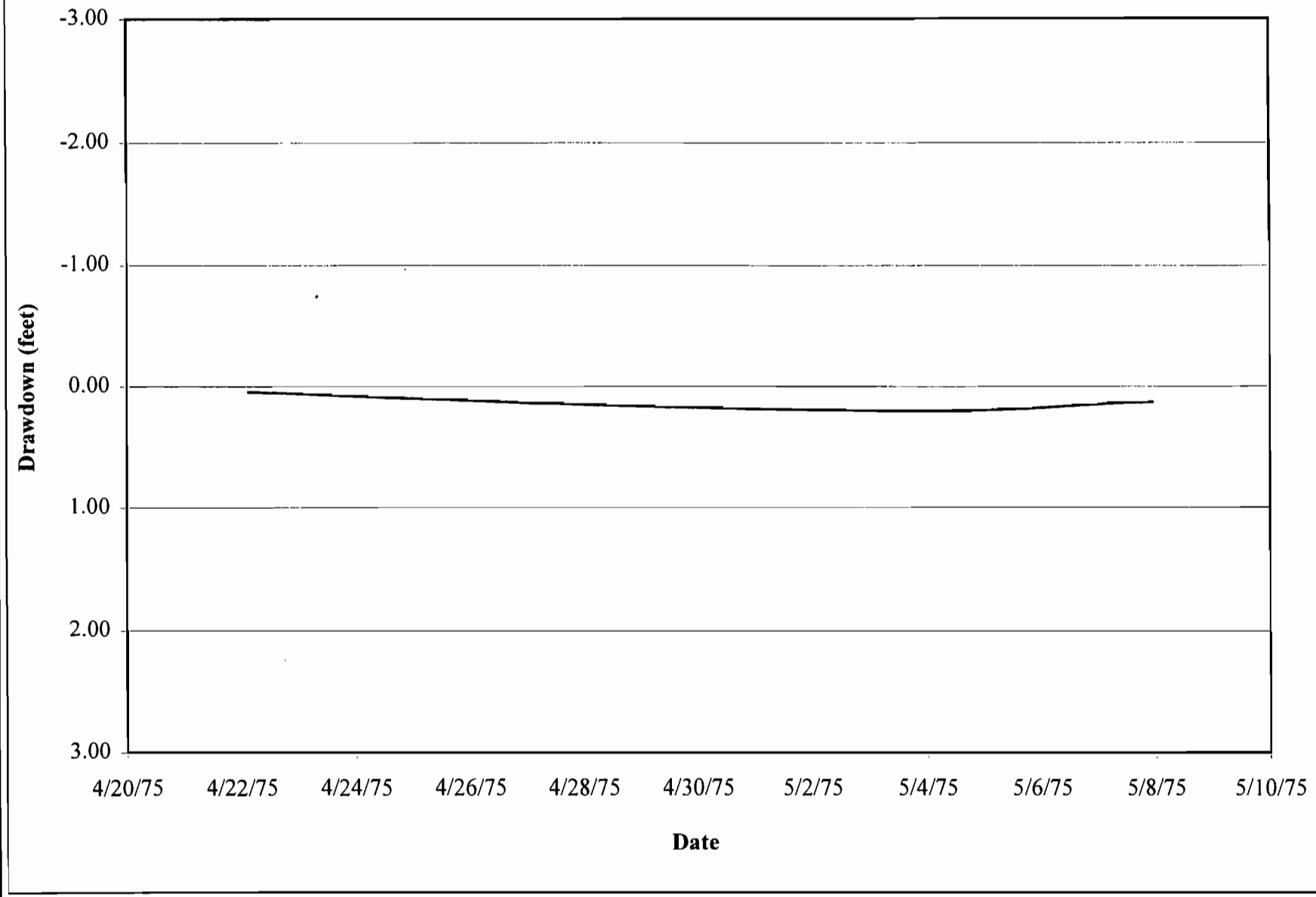

FIGURE SJRWMD-14.

WATER LEVEL DRAWDOWN IN MAIN CANAL 1.7 MILES DOWNSTREAM OF INTAKE (LOCATION 2)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

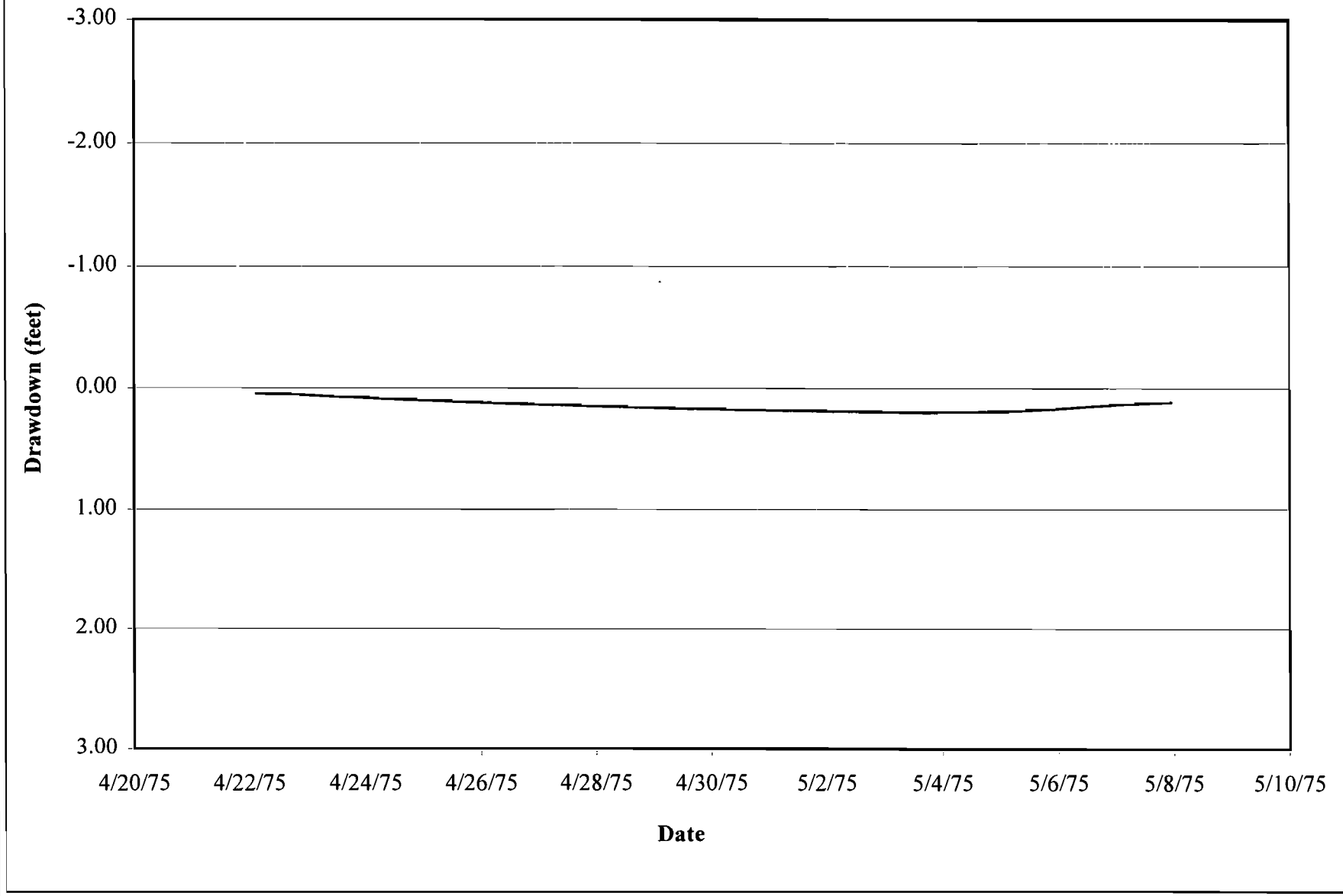

FIGURE SJRWMD-15.

WATER LEVEL DRAWDOWN IN MAIN CANAL 2.6 MILES DOWNSTREAM OF INTAKE (LOCATION 3)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

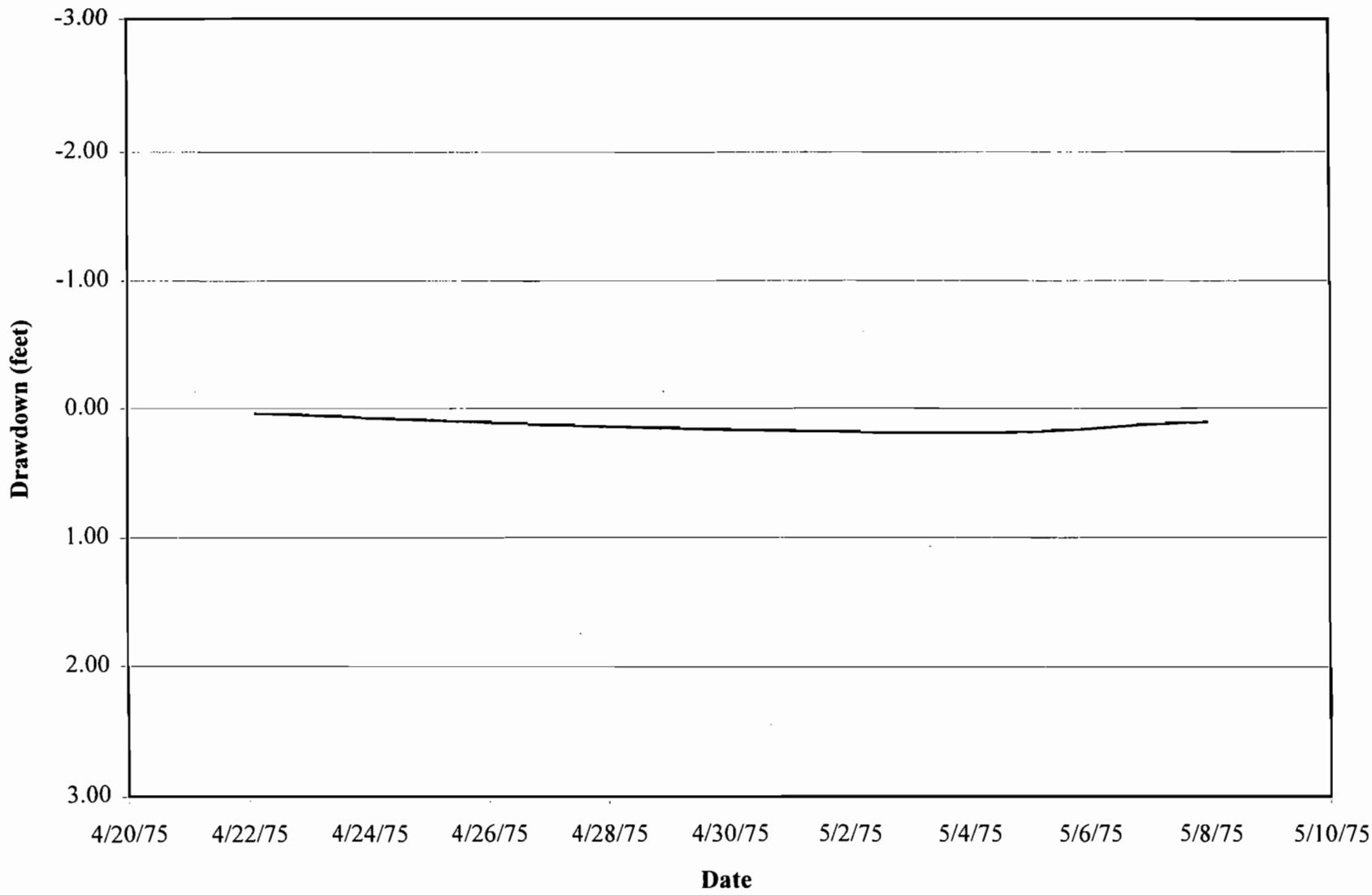

FIGURE SJRWMD-16.

WATER LEVEL DRAWDOWN IN MAIN CANAL AT RADIAL GATES (LOCATION 4)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

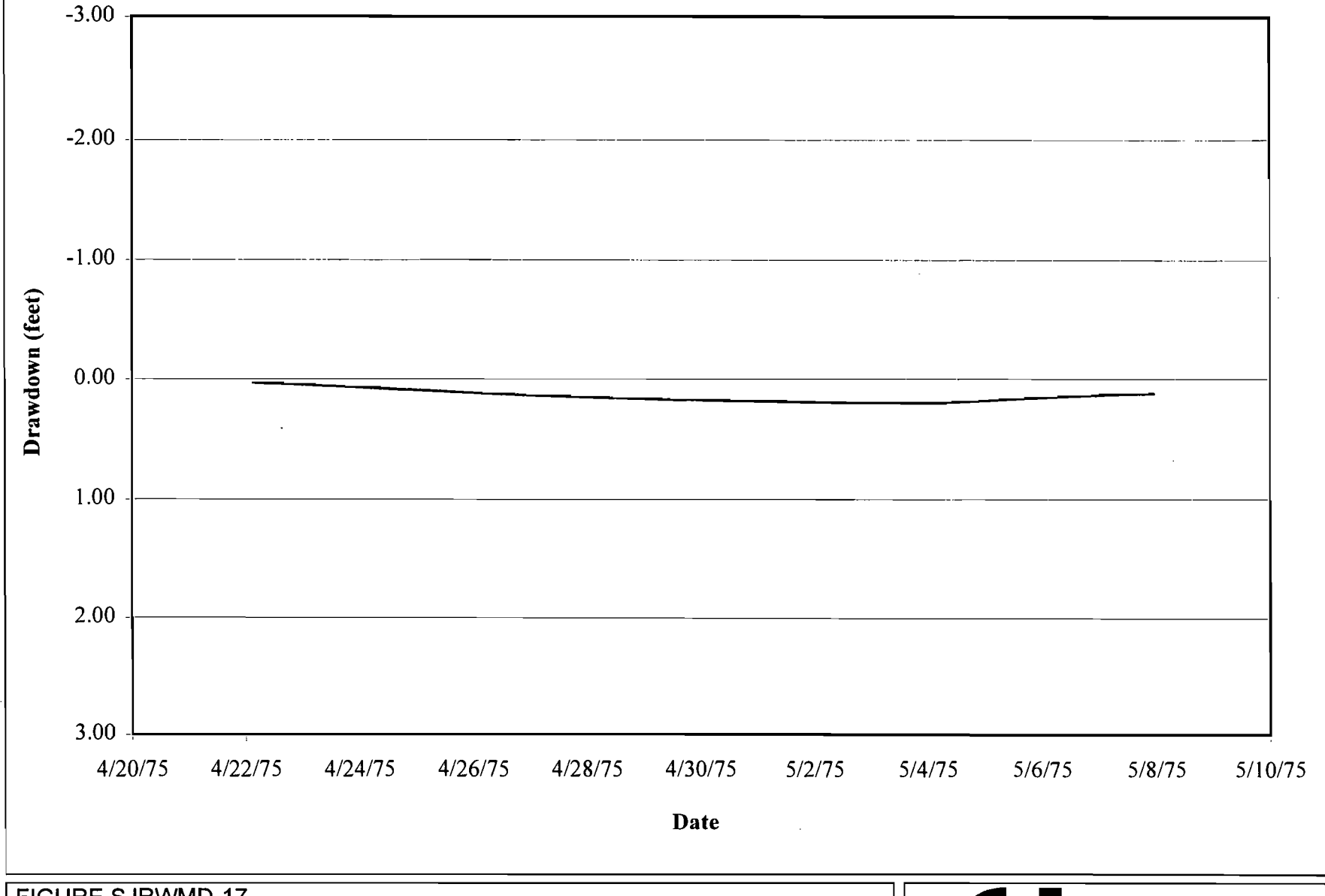

FIGURE SJRWMD-17.

WATER LEVEL COMPARISON IN LATERAL A CANAL 4.1 MILES DOWNSTREAM OF INTAKE (LOCATION 5)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

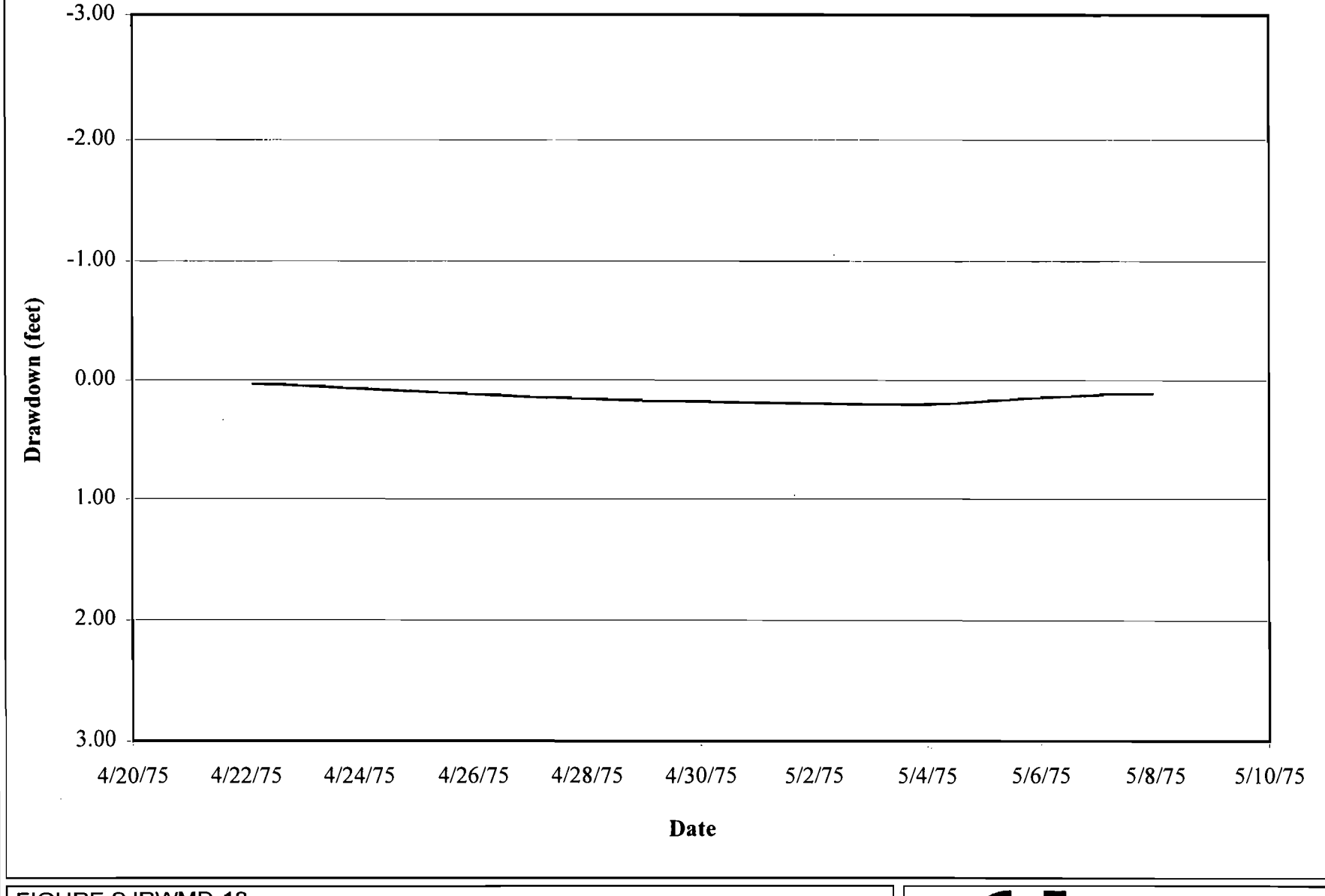

FIGURE SJRWMD-18.

WATER LEVEL DRAWDOWN IN NORTH RELIEF CANAL AT RADIAL GATES (LOCATION 6)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

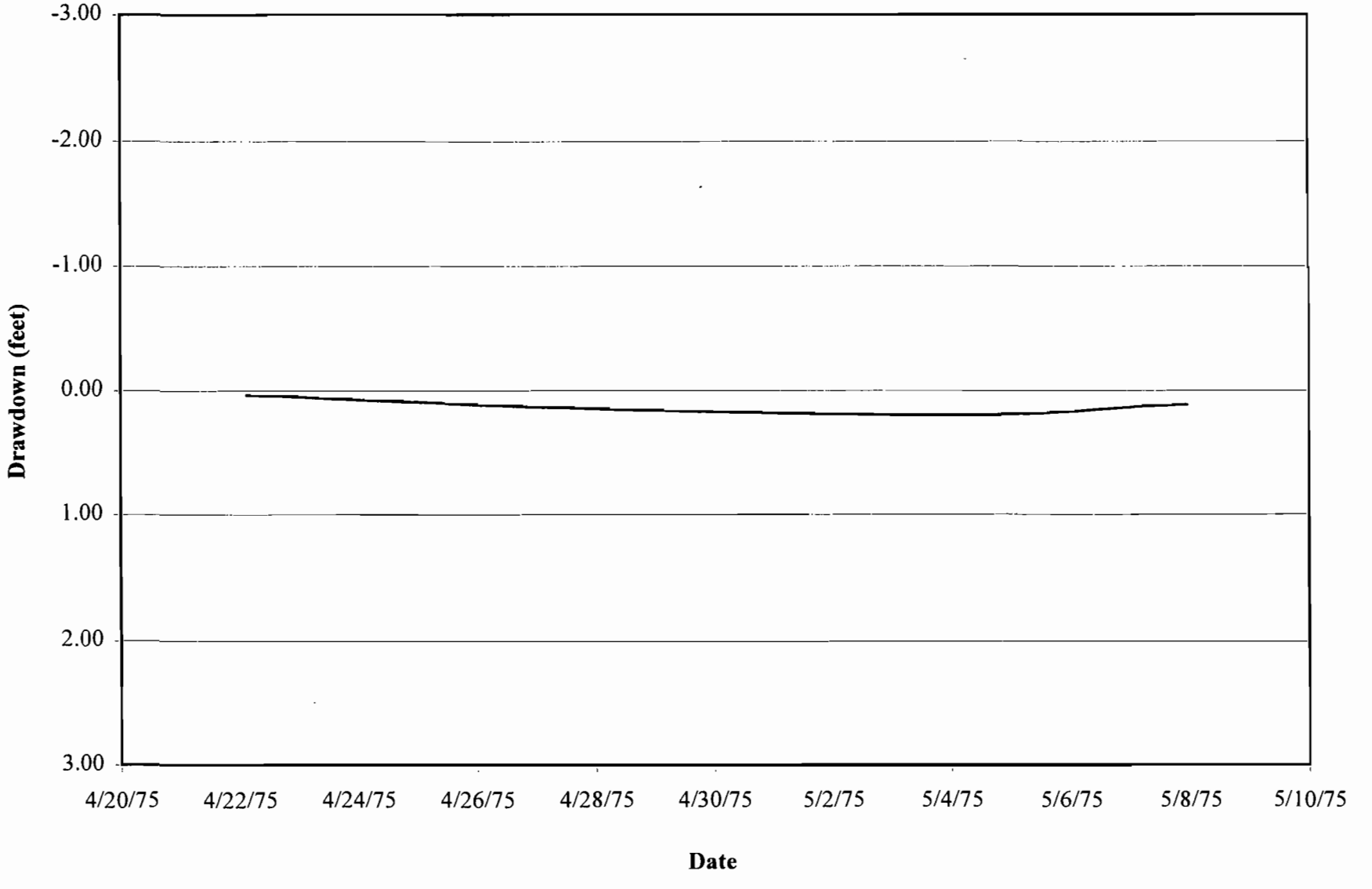

FIGURE SJRWMD-19.

WATER LEVEL DRAWDOWN IN LATERAL B CANAL 3.9 MILES DOWNSTREAM OF INTAKE (LOCATION 7)

Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

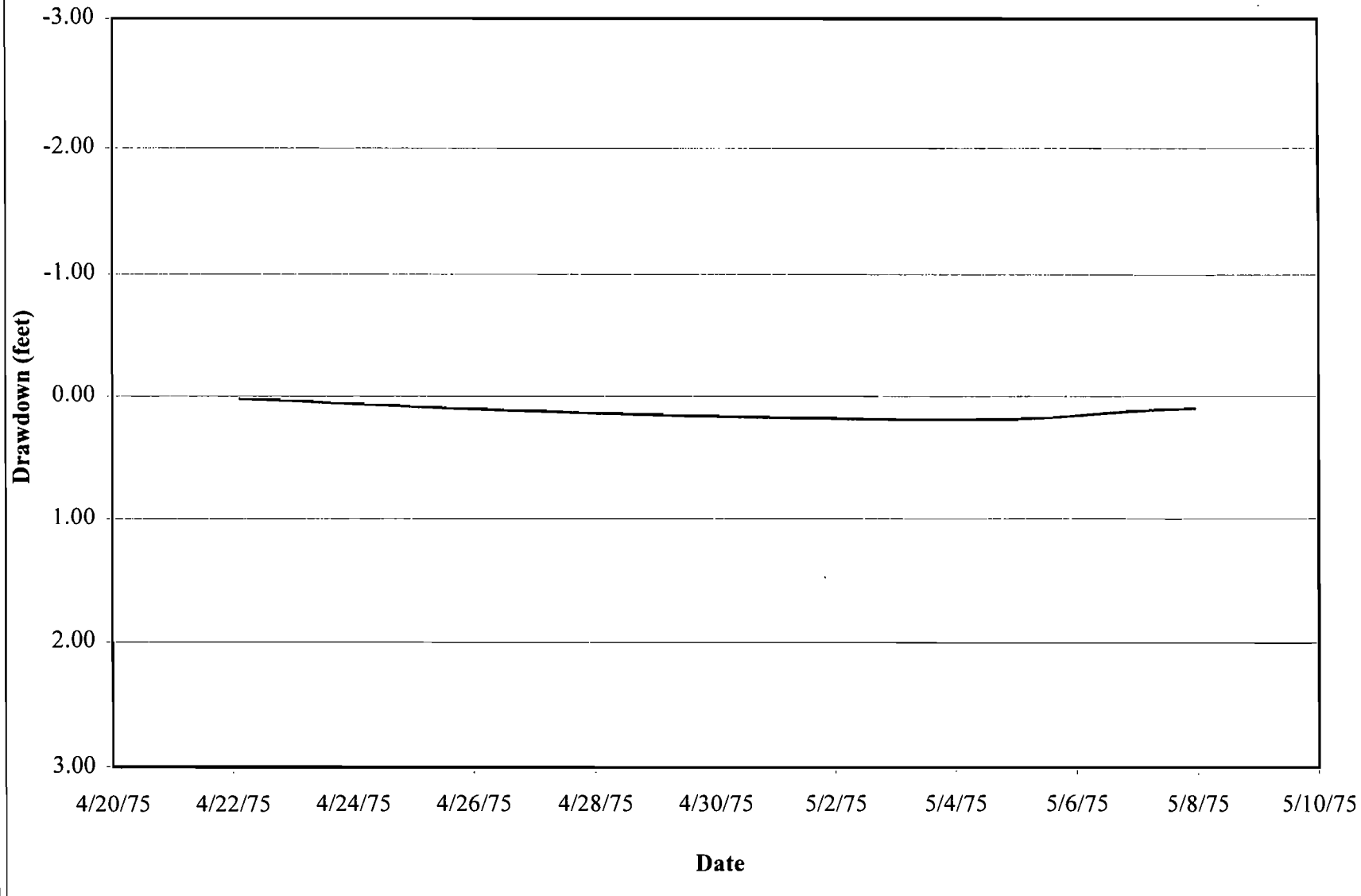

FIGURE SJRWMD-20.

WATER LEVEL DRAWDOWN IN SOUTH RELIEF CANAL
AT RADIAL GATES (LOCATION 8)
Source: ECT, 2002.

CALPINE
BLUE HERON
ENERGY CENTER

Table SJRWMD-1. Maximum Water Level Drawdown in IRFWCD Canal System

Location	Maximum Drawdown (ft)
1. Lateral C at Intake	0.33
2. Main Canal (1.7 miles downstream of intake)	0.20
3. Main Canal (2.6 miles downstream of intake)	0.20
4. Main Radial Gate (3.6 miles downstream of intake)	0.20
5. Lateral A Canal (4.1 miles downstream of intake)	0.21
6. North Radial Gate	0.21
7. Lateral B Canal (3.9 miles downstream of intake)	0.20
8. South Radial Gate	0.20

SJRWMD-9

What is the current status of the acquisition of easement rights from the Indian River Water Control District and the County for the water supply line and pump station? Please provide documentation from the Indian River Farms Water Control District and Indian River County authorizing Calpine—Blue Heron Energy Center to obtain "...some combination of reuse, canal, managed storm water, reverse osmosis discharge..." to operate the plant. [Paragraphs 10.2 (a), (k) & (l) and 10.3 (c)]

RESPONSE

As stated in the response to SJRWMD-2 comment above, Calpine has been involved in ongoing discussions with the County and IRFWCD regarding the water supply sources, pipeline and pump station locations, and easements for the BHEC Project. These discussions are still proceeding at this time. Calpine will provide documentation on the agreements reached with IRFWCD and the County to SJRWMD when these agreements are finalized in the near future.

SJRWMD-10

It was noted that the Project will be extremely efficient in its water use because of extensive water reuse measures including water recycling and reusing cooling water blowdown. Please provide a detailed description of these water conservation measures. [Paragraphs 10.2 (h) & (i) and 10.3 (e), A.H.]

RESPONSE

As shown on the water balances, all plant wastewaters, including cooling tower blowdown, water treatment wastewaters, plant and equipment drains, boiler blowdown, and other process wastewaters, will be treated and reused, and evaporated in the zero-discharge wastewater treatment system. Descriptions of the planned water conservation measures are provided in Attachment 10.1.4-B, Water Supply Alternatives Analysis, in Appendix 10.1.4 of the SCA.

ATTACHMENT A
AGENCY COMMENTS

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

IN RE: CALPINE CONSTRUCTION
FINANCE COMPANY, L. P.
(BLUE HERON ENERGY CENTER)
POWER PLANT SITING
APPLICATION NO. PA00-42
_____/

DOAH CASE NO.00-4564EPP
OGC CASE NO. 00-2072

NOTICE OF INSUFFICIENCY

Pursuant to section 403.5067, Florida Statutes, the Florida Department of Environmental Protection (Department) hereby finds the application insufficient in the following areas:

A. Department of Environmental Protection

See Exhibit "A", attached and incorporated by reference herein.

B. South Florida Water Management District

See Exhibit "B", attached and incorporated by reference herein.

C. St. Johns River Water Management District

See Exhibit "C", attached and incorporated by reference herein.

NOTICE OF RIGHTS

Pursuant to Section 403.5067, F.S., as a result of the Department's determination of insufficiency, the applicant may withdraw the application or amendment. If the applicant declines to withdraw the application or amendment, the applicant may, at its option:

1. Within 40 days after the department filed its statement of insufficiency or such later date as authorized by department rules, file additional information necessary to make the application or amendment sufficient. If the applicant makes its application or amendment sufficient within this time period, the time schedules under this act shall not be tolled by the department's statement of insufficiency;

2. Advise the department and the administrative law judge that the information necessary to make the application or amendment sufficient cannot be supplied within the time period authorized in paragraph 1. The time schedules under this act shall be tolled from the date of the notice of insufficiency until the application or amendment is determined sufficient; or

3. Contest the statement of insufficiency by filing a request for hearing with the administrative law judge within 15 days after the filing of the statement of insufficiency. If a hearing is requested by the applicant, all time schedules under this act shall be tolled as of the department's statement of insufficiency, pending the administrative law judge's decision concerning the dispute. A hearing shall be held no later than 30 days after the filing of the statement by the department, and a decision shall be rendered within 10 days after the hearing.

Respectfully submitted,

SCOTT A. GOORLAND
Senior Assistant General Counsel
Florida Bar No. 0066834

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION
3900 Commonwealth Boulevard
Mail Station 35
Tallahassee, Florida 32399-3000
Telephone: (850) 488-9314

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing Notice of Insufficiency has been sent by mail to the following listed persons this 26 day of January 2001:

Sheauching Yu
Assistant General Counsel
Department of Transportation
605 Suwannee Street, M.S. 58
Tallahassee, FL 32399-0458

James Antista
General Counsel
Florida Fish and Wildlife Conservation Commission
620 S. Meridian Street
Tallahassee, FL 32399-1600

Cari Roth
General Counsel
Department of Community Affairs
2555 Shumard Oak Blvd.
Tallahassee, FL 32399-2100

Jennifer B. Springfield
Mary Ellen Jones
St. Johns River Water Management District
P.O. Box 1429
Palatka, FL 32178-1429

Roger Saberson
General Counsel
Treasure Coast Regional Planning Counsel
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Delray Beach, FL 33483

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2300 Virginia Ave.
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Paul Bangel
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Indian River County
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Vero Beach, FL 32960

Cathy Beddell
General Counsel
Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399

David S. Dee
Landers & Parsons, P.A.
310 West College Ave.
P.O. Box 271
Tallahassee, FL 32302

John Fumero, General Counsel
South Florida Water Management District
Post Office Box 1260
West Palm Beach, FL 33416-4680

SCOTT A. GOORLAND
Senior Assistant General Counsel

Palmer, Steven

From: Hubbard, Allen
Sent: Thursday, January 18, 2001 2:59 PM
To: Palmer, Steven
Cc: Noble, Fred; Seibold, Vince; Oven, Hamilton
Subject: Calpine Blue Heron Sufficiency Comments

Steve,

The following comments are from the Industrial Wastewater Section Power Plant Group and from the NPDES Stormwater Section, via Fred Noble .

FDEP NPDES-1

1. Construction activities that disturb five or more acres of land and that discharge stormwater to surface waters of the state or to a municipal separate storm sewer system (MS4) are required to obtain coverage under the State of Florida "Generic Permit for Stormwater Discharge from Construction Activities that Disturb Five or More Acres of Land." Calpine should evaluate NPDES stormwater permitting regulations, and modify the SCA, as appropriate, with regard to requirements applicable to the facility during construction.

FDEP NPDES-2

2. The SCA indicates that stormwater will be routed to a detention pond, and discharged to a canal at a controlled rate allowing treatment. Pursuant to 40 CFR 122.26(b)(14)(vii), stormwater discharges from steam electric power generating facilities to surface waters of the state or to a municipal separate storm sewer system (MS4) must be covered under an NPDES individual or general (generic) permit. Coverage for steam electric power generating facilities is available under the State of Florida "Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity." Calpine should evaluate NPDES stormwater permitting regulations, and modify the SCA, as appropriate, with regard to requirements applicable to the facility during its operational life.

FDEP NPDES-3

3. If a NPDES stormwater permit is required for the facility, Calpine should evaluate whether the facility will also be required to comply with the USEPA regulations proposed in the August 10, 2000 Federal Register, page 49060, entitled *National Pollutant Discharge Elimination System - Regulations Addressing Cooling Water Intake Structures for New Facilities.* The proposed rule implements Section 316(b) of the Clean Water Act (CWA). When finalized, the rule will apply to new facilities that use cooling water intake structures to withdraw water from waters of the U.S., and that have or require a NPDES permit under section 402 of the CWA. New facilities subject to this regulation would include those with a design intake flow greater than 2 million gallons/day (mgd). EPA is required by court order to finalize the proposed rule by November 9, 2001. Thus, the rule is anticipated to be in effect by the time the facility is under construction.

Thanks for the opportunity to comment. If either Fred or I can be of further help, our telephone numbers are 921-9382 and 921-9385, respectively.

Allen Hubbard
P.E. III, Industrial Wastewater Section
850 921-9385
SC 291-9385
allen.hubbard@dep.state.fl.us

Memorandum

Florida Department of
Environmental Protection

TO: Len Kozlov
FROM: Eric Pluchino
DATE: December 21,2000
SUBJECT: Calpine Blue Heron Energy Center SCA

I have reviewed the SCA documents for the above and offer the following comments.

FDEP AMBIENT MONITORING-1

In the discussion of water quality on the site and in the Indian River the SCA states on page 2-118 that "...total phosphorus levels in this segment (of the Indian River) are higher than anywhere else in the Indian River Lagoon system. The low salinity values are attributed to the large volume of fresh water flowing into the lagoon from the Sebastian River and excess fresh water from the IRFWCD canal system". The fact that cooling water will come primarily from the canal system adjacent to the facility will hopefully result in decreases in pollutant loading and fresh water discharge to the Indian River Lagoon. This should be particularly true for phosphorus, which is present in high concentrations in the canal water (0.13 mg/L to 0.37 mg/L) as well as the shallow aquifer water on the site (0.58 mg/L and 0.29 mg/L for monitoring wells #1 and #4 respectively). There is no proposed surface water discharge from this site (other than stormwater in excess of the 25 year 24 hour storm). Therefore there should be no issues regarding surface water quality degradation resulting from this facility other than those which are addressed in the discussion of construction activity controls.

FDEP AMBIENT MONITORING-2

Regarding threatened and endangered species it was well documented in the SCA that the endangered hand fern *Ophioglossum palmatum* is present in the wetland hammock on the site. The fact that this wetland is to be preserved is noteworthy. Section 9 of Appendix 10-1 appears to adequately address the impacts of the operation emissions on vegetation. However, a potential concern that I did not see addressed in the document is the issue of fire prevention in this area during land clearing. On page 2-147 of the SCA destruction by fire is listed along with over-collection and loss of habitat as contributing factors in the decline of this plant. I consulted the document entitled *Rare and Endangered Biota of Florida, Volume Five, Plants* for information regarding the protection of this plant. That document states emphatically that "The plants are very sensitive to fire..." and furthermore that "...those places where this fern still occurs must be protected from fire...". Review of the site map reveals that the wetland where these ferns were found is near the northwest corner of the site. I reviewed the wind rose figures for West Palm Beach International Airport (Figures 2.3.7-1 to 5 on pages 2-155 to 159) and observed that prevailing winds for most of the year are from the southeast. That would mean that the potential for the land clearing burning site to be upwind of the fern population is quite high. Therefore it would appear that utmost care should be exercised in the location and timing of the land clearing burn operations.

Memorandum

Florida Department of Environmental Protection

CENTRAL DISTRICT

TO: Steve Palmer, Site Certification Coordinator

THROUGH: George Gionis, Program Administrator

FROM: Scott Wesson, Stormwater Engineer

FROM: Tamy Dabu, Environmental Supervisor

DATE: January 8, 2001

SUBJECT: Calpine Blue Heron Energy Center Site Certification Application (SCA)

The following are questions or concerns regarding the information provided for Calpine Blue Heron Energy Center's natural gas-fired electrical power plant in Indian River County. The Central District, Submerged Lands and Environmental Resource Program received the Calpine Site Certification Application on December 7, 2000 for a Standard General or Individual Permit, pursuant to Part IV, Chapter 373, Florida Statutes, to excavate and fill in the Lateral C Canal for the construction of a concrete pump station and install a 3.5 mile water supply 20 inch pipeline which will connect to the Blue Heron Energy Center (BHEC).

1. **FDEP ERP-1** Only two drawings were submitted in the ERP portion of the application describing the water pump structure which is proposed in the Indian River Farms Water Control District (IRFWCD) Lateral C Canal. The drawings do not reflect where excavation and filling will occur. Please revise the drawings to include all construction details and dimensions to the proposed water pump structure in the Lateral C Canal. The plan view drawing shall clearly demonstrate all dimensions to any proposed excavation and/or fill, cross hatch areas proposed for excavation and fill, provide a legend to the cross hatched areas, dimensions to the proposed structure, turbidity control measures cross section locations, etc.

2. **FDEP ERP-2** The cross section drawings should also clearly reflect any proposed excavation, fill, existing elevations, proposed elevations, dimensions to the area to be excavated, legends to the cross hatched areas, etc.

3. **FDEP ERP-3** Please provide a description of how the area will be excavated, type of equipment to be used, staging area for the equipment, number of cubic yards to be excavated, spoil containment, where specifically the spoil will be placed, etc. Are additional wetland impacts proposed with the disposal of the spoil?

4. **FDEP ERP-4** Is the concrete for the structure and wall prefab or will it be poured on site? Please describe.

5. **FDEP ERP-5** In the Stormwater Drawings Figures 3, 5 reflect a "New Channel". Please clarify the purpose of the "New Channel" and demonstrate the this channel will not degrade existing wetlands on site. Specifically based upon the drawing Figure 5 the new channel appears to abut the mixed hardwood wetland found in the northwest portion of the parcel.

6. **FDEP ERP-6** Please add to Figure 1 or create a new drawing which clearly reflects the location of the water pump station and pipeline route from the Lateral C Canal to the BHEC site. Section 6.3.1 states that the entire route follows existing roadway and IRFWCD canal right-of-way. However, it does not identify if wetlands are found within the 3.5-mile stretch between the Lateral C Canal and the BHEC site. Please clarify and revise the plan view drawing to reflect wetland locations. Will any of the pipeline be installed by directional drill? If the area will be trenched using a backhoe, where will spoil temporary be placed for the installation and testing of the pipeline?

7. **FDEP ERP-7** Reference was made in Section 4.1.1.2 regarding the use of land to the north for a temporary "laydown area" on 30 acres of county-owned land. Specifically, are wetlands located within the 30-acre site? Please provide a wetland determination for this parcel along with at least an aerial of the parcel. Please provide drawings for the proposed temporary "laydown area".

8. **FDEP ERP-8** Figure 5 in the Stormwater Drawings reflects the BHEC site. This drawing and the others also reflect several circles around the two wetlands found within the site. Please provide an explanation for these circles along with an appropriate legend. If the circles do not represent for instance the 15 and 25-foot buffer from the wetlands then it appears that impacts are proposed to the marsh wetland located in the center of the parcel. Please clarify and revise all appropriate information and drawings.

9. **FDEP ERP-9** Justify the shape factor of 484 of the unit hydrograph used in determining the pre-development peak discharges? Were allowances made for the depressional storage that exists on the pre-developed site? Does any portion of the site flow to the existing on-site wetlands?

10. **FDEP ERP-10** Provide the pre-development drainage patterns, via directional flow arrows to a scaled plan drawing, including points of discharge for existing site drainage and drainage basin boundaries. In addition, provide off-site drainage area and flow patterns at the property boundaries and across the project site.

11. **FDEP ERP-11** Provide the post-development drainage patterns, via directional flow arrows to a scaled plan drawing, including points of discharge and drainage basin boundaries. Include off-site drainage area and flow patterns at the property boundaries.

12. **FDEP ERP-12** The pond shall be designed so the flow path through the pond has an average length to width ratio of at least 2:1 pursuant rule 40C-42.026(4)(f),F.A.C... The alignment and location of inlets and outlets should be designed to maximize flow paths in the pond. If short flow paths are unavoidable, the effective flow path should be increased by adding diversion barriers such as islands, peninsulas, or baffles to the pond.

13. **FDEP ERP-13** Provide documentation showing the software used for the routing is an acceptable methodology and/or provide the Department with the means to verify that the results and conclusions of the analysis are consistent with those that would be obtained from another routing model such as ICPR.

(Part of FDEP ERP-16)

PUBLIC AND PRIVATE EASEMENT

(Chapters 18-18, or 18-21, Florida Administrative Code)

Note: The following questions are only applicable if your activity will affect state-owned sovereign, submerged lands. If you can document that your proposed project does not affect state-owned sovereign, submerged lands, please contact our office and provide copies of the documentation. Otherwise, please proceed to answer the following questions.

[ ] 1. 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 includes riparian rights. Evidence submitted must demonstrate that the applicant has sufficient title interest in the riparian upland property. An Affidavit of Ownership or Control may suffice as satisfactory evidence of title for federal, state and local government entities and those that qualify as Public Utilities.

[ ] 3. Provide a scaled and fully dimensioned drawing showing:

___ all proposed and existing structures/activities.
___ cross-sectional views of all proposed structures.

[ ] 4. An acceptable certified, sealed survey of the proposed easement area will be required. Refer to the enclosed package (SLER 0950) for specific survey requirements and information.

[ ] 5. An acceptable sketch and description of the proposed easement area will be required. Refer to the enclosed package (SLER 0960 or 0961) for specific requirements and information.

[ ] 6. Complete and return the enclosed Certification of Authorized Entity (SLER 0915). Refer to the enclosed information sheet detailing who is considered to be the individual authorized to execute easements.

[ ] 7. Provide either a copy of your local government permit, a copy of an intent to issue a permit from your local government, or a statement from local government which explicitly indicates that the proposed project is consistent with the local government's comprehensive plan.

In addition to the questions above, the following RAI questions needed for private easements only.

[ ] 9. Provide a statement from the Department of Community Affairs indicating whether or not your project, including associated development activities on the upland property, will require review as a Development of Regional Impact (DRI). If a DRI review is required, we will be unable to continue processing your application until you have provided evidence of DRI

(Part of FDEP ERP-16)

approval in the form of a Development Order or Preliminary Development Agreement. [See 380.06, F.S.]

[ ] 10. Requests for private easements must be noticed. Provide a list of names and addresses of all property owners within a 500-foot radius of the proposed easement area. This list must be verified by the County Property Appraiser's Office as coming from the latest tax assessment rolls. Specific written instructions and a notice to proceed (SLER 0905) with noticing will be provided to you at the appropriate time during the application process. Do not proceed with advertising until you are specifically notified by staff to do so.

The following are comments regarding the applicant's future application for the installation a gas pipeline through wetlands, ditches and in Ten-Mile Creek in Indian River and St. Lucie Counties.

FDEP ERP-14

Based solely upon the information provided in the SCA it appears that avoidance and minimization methods are necessary and the submittal of this application may be premature.
Specifically, what is the status of the Gulfstream application? If the Gulfstream application is not favorably reviewed please identify the natural gas source and route.

FDEP ERP-15

If the Gulfstream application is issued then the Department recommends that Calpine apply for a Noticed General or Standard General or Individual permit for an substantially narrower pipeline corridor for their 24-inch diameter gas pipeline. In addition, wetland impacts appear to be avoidable based upon the aerial's provided in Figures 6.2.6-1 (1 through 5 of 5) if the pipeline stayed to the east side of the reflected

corridor. In addition, wetland impacts can further be avoided and minimized if the proposed pipeline were directional drilled across Ten-Mile Creek and the wetlands adjacent to the creek with entry/exist stations located in uplands. Please demonstrate all avoidance and minimization methods, explain why the entire route is proposed to be trenched, and provide a copy of the Gulfstream pipeline permit.

FDEP ERP-16

Your project may also require a private or public easement to use sovereignty-submerged lands, pursuant to Chapter 253.77, Florida Statutes. The Department's Title and Land Records Section is reviewing your application to determine if state-owned submerged lands will be affected. If state-owned submerged lands will be affected by your project, we will notify you in writing, and the items in Part II of the enclosed RAI will also be required. For expediency, if you acknowledge or believe that your project affects sovereign submerged lands you may respond to Part II of the RAI, prior to receiving written confirmation of state ownership. This will not jeopardize any future claim of ownership. Below are the easement questions.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
3301 Gun Club Road, West Palm Beach, Florida 33406 • (561) 686-8800 • FL WATS 1-800-432-2045 • TDD (561) 697-2574
Mailing Address: P.O. Box 24680, West Palm Beach, FL 33416-4680 • www.sfwmd.gov

LAN 04-06

January 12, 2001

DEPARTMENT OF
ENVIRONMENTAL PROTECTION

JAN 16 2001

SITING COORDINATION

Mr. Hamilton S. Oven, Jr., P.E.
Administrator, Siting Coordination Office
Department of Environmental Protection
2600 Blair Stone Road, MS 48
Tallahassee, FL 32399-2400

Dear ~~Mr. Oven~~ Buck:

Subject: Blue Heron Energy Center, PA 00-42
Site Certification Application

South Florida Water Management District (SFWMD) staff has reviewed the above-referenced application as required by Sections 403.501-539, F.S., and Chapter 62-17, F.A.C. The only portion of the proposed project within SFWMD jurisdictional boundaries is that portion of the proposed 15 mile long natural gas pipeline located south of the Indian River County line within St. Lucie County. Please include the following questions/comments in your sufficiency letter on this project.

Proposed Crossing of the Belcher (C-25) Canal

(1) **SFWMD-1** Please specify the construction method that will be used for the proposed crossing (e.g., directional drill, subaqueous/excavation, pile-supported, etc.). Please be advised that the SFWMD would prefer the use of directional drilling (if feasible) because it poses minimal impacts to the canal/right-of-way.

(2) **SFWMD-2** The proposed crossing is depicted at an angle rather than perpendicular. Consequently, if a method other than directional drilling is used, additional impacts to the canal/right-of-way are likely. Why is it necessary to cross the canal at an angle?

(3) **SFWMD-3** Will the SFWMD's right-of-way be used for access purposes to construct the proposed pipeline and/or for access after construction (i.e., for routine maintenance, inspection, or other purposes)? If so, a complete description of the activities, the duration of the proposed activities, and the types of vehicles to be used within the right-of-way needs to be provided along with points of ingress and egress.

(4) **SFWMD-4** The proposed crossing design must meet the criteria in Permit Information Manual Volume V, entitled "Criteria Manual For Use of Works of the District." The criteria varies based on the crossing method used. Detailed design

drawings must be submitted for staff's review and approval prior to construction of the proposed crossing. Since only the natural gas pipeline is proposed within SFWMD jurisdictional boundaries and this is the only SFWMD canal crossing, the applicant should consider seeking approval from the SFWMD in the form of a Right Of Way Occupancy Permit rather than through the post certification review process. The SFWMD is not in favor of granting an easement within the canal right-of-way for the proposed crossing. However, a Right Of Way Occupancy Permit authorizing the proposed crossing would remain in effect for as long as the facility occupies the SFWMD's right-of-way. In addition, please note that the project may qualify for a Notice General Right of Way Occupancy Permit. This type of permit has a $300.00 application fee and does not require approval by the SFWMD's Governing Board. For additional information concerning the right of way permitting program, please contact Laura Lythgoe at (561) 682-6827.

Proposed Crossing of Ten Mile Creek

(5) SFWMD-5 The information provided in Section 6.2 indicates that Ten Mile Creek will be directionally drilled within the eastern portion of FPL's transmission line corridor. Please be advised that this property is owned by the SFWMD and is part of the SFWMD's Ten Mile Creek Save Our Rivers (SOR) project. As part of the Comprehensive Everglades Restoration Project, the SFWMD will be constructing a stormwater attenuation reservoir, including a large levee, east of and adjacent to the FPL corridor. The purpose of the reservoir project is to restore more natural hydroperiods to the St. Lucie Estuary and Indian River Lagoon. Construction is scheduled to commence sometime between January, 2002, and June, 2002. Consequently, it appears that there may be potential conflicts with respect to location and timing. For additional information concerning the reservoir project, please contact Denise Arrieta at (561) 682-4420.

(6) SFWMD-6 The SFWMD has designated an additional area outside of the actual reservoir project for potential acquisition under the Ten Mile Creek SOR project. It appears that the proposed route may also impact some of these lands. Are any staging or construction laydown areas proposed within SFWMD owned or targeted SOR lands? Please identify. For additional information concerning the SOR project boundaries, please contact Darla Fousek at (561) 682-6639.

(7) SFWMD-7 For SFWMD owned SOR lands impacted by the proposed pipeline route, the following is requested:

(a) Segregation of topsoil and no importation of topsoil from off-site sources;

(b) Removal of excess rock from at least the top 12 inches of the trench backfill area;

(c) Monitoring of topsoil and subsoils for compaction;

(d) In the floodplain area where tree removal is necessary, stumps should remain in place where possible;

(e) Where stump removal is necessary, they should not be buried on site; and

(f) The applicant should coordinate with the SFWMD's Land Stewardship Department regarding re-vegetation and restoration activities.

Dewatering/Hydrostatic Testing

(8) SFWMD-8 The details of the proposed trench dewatering and hydrostatic testing activities must be submitted for staff's review and approval prior to construction of the proposed pipeline. Since the pipeline is the only portion of this project located within the SFWMD's jurisdictional boundaries, staff would prefer that these activities be approved through the water use permitting process rather than through the post-certification review process. Please note that this project may qualify for a Water Use General Permit if the duration of the proposed construction activities is less than 6 months. This type of permit does not require approval by the SFWMD's Governing Board. For additional information concerning water use permitting requirements, please contact Jeff Rosenfeld at (561) 682-6922.

We appreciate this opportunity to comment. If you have any questions concerning the above, please give me a call at (561) 682-6862.

Sincerely,

James J. Golden, AICP
Senior Planner
Environmental Resource Regulation

/jjg

c: See attached distribution list

St. Johns River Water Management District

Henry Dean, Executive Director • John R. Wehle, Assistant Executive Director

Post Office Box 1429 • Palatka, FL 32178-1429 • (904) 329-4500

January 2, 2001

Hamilton S. Oven, Administrator
DEP Siting Coordination Office
Twin Towers Office Building
2600 Blair Stone Road, MS 48
Tallahassee, FL 32399-2400

Via Facsimile and Overnight Mail
(850) 921-7250

RE: Calpine Construction Finance Company, L.P. (Blue Heron Energy Center) Power Plant Siting Application No. PA00-42; DOAH Case No. 00-4564EPP; DEP File No. 00-2072; FOR No. 2000-0058

Dear Mr. Oven:

Pursuant to Section 403.5253, Florida Statutes, the St. Johns River Water Management District hereby transmits to you its requests for additional information which must be provided in order to render this application sufficient to enable the District to carry out its statutory review responsibilities. The requests below reflect the information the District's technical staff believes is needed to complete the District's review and to thereafter render a report to the Department:

SJRWMD-1 1. A total annual allocation of 2,373 mgy of water was requested based upon an average daily use of 6.5 mgd over 365 days per year. However, the report also notes that the plant will not be operational throughout the year. Please either revise the requested allocation to include maintenance periods when the plant does not use water or further justify the requested amount. [Paragraphs 10.2 (a), (h) & (k) and 10.3 (a) & (b), Applicant's Handbook: Consumptive Uses of Water (A.H.)]

SJRWMD-2 2. It was noted that the Project will consider using water from a regional reservoir to be created in the next several years and will also consider using "...some quantity of RO discharge..." from the County's water treatment plants. Please evaluate the environmental, technical, and economic feasibility of maximizing the use of these lower quality water sources. Please contact Ralph Brown, with SJRWMD, for any additional information that may be needed regarding the proposed storm water treatment reservoir. [Paragraphs 10.2 (a) & (l) and 10.3 (d) & (g), A.H.]

SJRWMD-3 3. Figure 2-2 indicates that surface water will provide 6.3 million gallons on an average daily basis and reclaimed water will account for about 0.2 mgd. Please clarify the amounts of reclaimed water, surface water, and byproduct water generated in the reverse osmosis treatment process that will be used for power generation and provide supporting information. It was noted that subject to *certain limitations*, reclaimed water use would be maximized. Please fully explain the referenced limitations. [Paragraphs 10.2 (a), (j) & (k) and 10.3 (b), (c), (f) & (g), A.H.]

SJRWMD-4 4. Figure 3.5.0-2 Water Balance – Peak Daily Water Use shows a storage total input of 754 gpm and an output from storage of 1026 gpm. Please explain why the input and output volumes are different. [Paragraphs 10.2 (a) & (h) and 10.3 (a) & (b), A.H.]

SJRWMD-5 5. Will the grassed and landscaped areas of the plant site be irrigated? If so, please complete and submit the marked portions of the attached forms addressing urban landscape irrigation. [Paragraphs 10.2(b), (i) & (k); 10.3(a), (b) & (e), A.H.]

SJRWMD-6 6. It appears that a wet detention stormwater system is proposed for stormwater treatment instead of a stormwater reuse system. From a water resources perspective, a stormwater reuse system is the preferred method of stormwater treatment because less stormwater leaves the site and the use of ground water sources for irrigation is minimized or eliminated. If it is proposed to irrigate the plant site with ground water, please evaluate the technological, environmental, and economic feasibility of using stormwater from the proposed 5.2-acre stormwater detention pond for irrigation instead of discharging to the Lateral C canal as proposed. [Paragraphs 10.2 (c), (d), (h), (i) & (j) and 10.3 (a), (b), (d), (g) & (k), A.H.]

SJRWMD-7 7. Please provide a basis for the peak day water uses shown on Figure 2-3. Were the water use amounts based on engineering calculations, data from similar type plants, or a combination of both? Please provide a copy of the calculations and/or data relied upon. [Paragraphs 10.2 (a), (b) & (h) and 10.3 (a) & (b), A.H.]

SJRWMD-8 8. It is our understanding that Calpine – Blue Heron Energy Center is currently working with the Indian River Farms Water Control District, Indian River County, and the SJRWMD to prepare a comprehensive surface water model for the Indian River Farms Water Control District. Please provide surface water modeling

which shows the expected drawdown associated with the proposed surface water use. The modeling should evaluate the drawdown due to proposed withdrawals and confirm that existing legal uses are not adversely impacted. If a determination is made that there is a potential for the consumptive use to adversely effect water level stages, vegetation, or crops on lands not owned or controlled by the applicant, then describe how these impacts would be avoided and/or mitigated. [Paragraphs 10.2 (e), (f), (g) & (p) and10.3 (b) & (d), A.H.]

SJRWMD-9 9. What is the current status of the acquisition of easement rights from the Indian River Water Control District and the County for the water supply line and pump station? Please provide documentation from the Indian River Farms Water Control District and Indian River County authorizing Calpine - Blue Heron Energy Center to obtain "...some combination of reuse, canal, managed storm water, reverse osmosis discharge..." to operate the plant. [Paragraphs 10.2 (a), (k) & (l) and 10.3 (c)]

SJRWMD-10 10. It was noted that the Project will be extremely efficient in its water use because of extensive water reuse measures including water recycling and reusing cooling water blowdown. Please provide a detailed description of these water conservation measures. [Paragraphs 10.2 (h) & (i) and 10.3 (e), A.H.]

The District requests the Department's assistance in obtaining the above-requested information. If further clarification is needed with regard to the items requested above, please contact me at (904) 312-2340 or Ms. Jennifer Springfield at (904) 329-4199. Thank you in advance for your cooperation.

Sincerely,

Mary Ellen Jones
Assistant General Counsel
Office of General Counsel

Enclosures – Forms
Landscape Irrigation Use
Water Conservation Plan Form
Notice to District of Dewatering Activity
Notice of Intent to Use Noticed General Permit for Short Term Construction Dewatering

cc: Jennifer Springfield, Esq.
Dwight Jenkins
Rich Burklew
Darrin Herbst
Michelle Reiber
Marc VonCanal
Ralph Brown
Troy Rice

LANDSCAPE IRRIGATION USE

(Submit 2 copies of application, supplemental information, drawings, calculations, etc.)

1. Complete this chart if water is requested for irrigation of lawns, common areas, aesthetic or recreational areas.

TYPE OF VEGETATION	NO. OF ACRES	IRRIGATION METHOD	AMOUNT REQUESTED (Mgals/Year)*	SOURCE NAME (lake, or well ID)

2. Attach 2 copies of the following:

___ a. Map (including scale) showing outline of irrigated areas according to vegetation type.

___ b. List of all surface water bodies on or adjacent to the property boundary. Include lakes, ponds, rivers, canals etc.

___ c. List of all wastewater treatment plants within a 5 mile radius of project. Provide the name and address of a contact person design capacity, current wastewater flows, and level of treatment.

DRAFT
7-29-92

WATER CONSERVATION PLAN FORM

FOR URBAN LANDSCAPE IRRIGATION USE APPLICANTS

Section 12.9 - Applicant's Handbook:

All individual permit applicants for urban landscape irrigation uses must submit a water conservation plan for their proposed use. The plan must contain specific activities designed to conserve water. The **conservation plan must include** provisions for the following:

(a) A program for increasing the water use efficiency of the applicant's operation;

(b) An analysis of the economic, environmental and technical feasibility of reusing reclaimed water, recycling water on site, and utilizing the lowest quality water source possible;

(c) Develop and implement an employee awareness and education program concerning water conservation; and

(d) Procedures and time frames for implementation, and for periodic assessment and revision of the conservation plan.

In evaluating this form, the District will consider:

- your specific use relative to other similar uses
- available technology
- economic feasibility

General Information

Applicant / Owner Name: _____

C.U.P. Number _____

Date Plan Submitted: _____

Agent Name: _____

Project Name: _____

Section I

Water Use Efficiency

- If you already have any of the following information, please attach a copy of each to this form.

  ⇒ Soil Conservation Service (SCS) Irrigation Water Management Plan.

  ⇒ Other written information describing your water conservation activities.

1. Have you conducted a water audit of your grounds?

   Yes _____ No _____

   If yes, describe the audit procedure, results, and evaluation.

2. What method(s) do you use to determine when to begin irrigating?

   _____ Computerized System (describe inputs)
   _____ Rain Gauges
   _____ Observation Well(s)
   _____ Soil Moisture Monitoring Device(s)
   _____ Judgment (explain) _____

   _____ Other (explain) _____

3. How often do you irrigate (if no rain during the week?)

Note: **District rules prohibits irrigation between the hours of 10:00 am and 4:00 pm**

4. How many zones do you irrigate? _____

5. How is the system operated during an irrigation cycle?

   _____ Manually
   _____ Automatic / Timer

   If the system is automatic or timed, what measures are taken to ensure that over watering does not occur during rainfall events?

6. What is the length (hours) of a typical irrigation cycle for each zone?
   _____

   How is this determined?

7. Are you aware of the supplemental irrigation requirements recommended by IFAS for urban landscape?
   Yes _____ No _____

   If yes, do you irrigate within these recommendations?
   Yes _____ No _____

   If no, provide information to demonstrate why you cannot limit the irrigation to IFAS recommendations.

8. Do you use fertilizer? Yes _____ No _____

   If yes,

   (a) Are the fertilizers applied through the irrigation system?
   Yes _____ No _____

   (b) Do you fertigate during a regularly scheduled irrigation application?
   Yes _____ No _____

   If no, **propose an implementation schedule** to coordinate fertilization with the irrigation cycle, or provide an explanation why it cannot be undertaken.

   What months do you apply fertilizers?_____

9. Do you over seed during the winter months?

Yes _____ No _____

10. Do you currently monitor your water use?

Yes _____ No _____

If Yes, (check all that apply:)

_____ Totalizing in-line flow meter

_____ Pump hour meter

_____ Fuel record conversion

_____ Other (explain):

Note: **New** applicants are required to install in-line totalizing flow meters to measure water use before initiating withdrawal.

Renewing applicants are required to measure water use within one year of permit renewal or by January 1, 1994, whichever is sooner, using either in-line flow meters or a District approved alternative method.

11. Please check any of the following irrigation system water conservation practices you have undertaken or plan to undertake.

Be sure to include implementation dates.

__ Decrease acreage of irrigated turf When? _____

__ Elimination of over seeding during winter When? _____

__ On site weather station When? _____

__ Professional irrigation consultation When? _____

__ Irrigation management educational session When? _____

__ Other (explain)_____ When? _____

12. Describe your procedure for maintaining even application of water to your turf.

13. Summarize your maintenance and repair schedule, by using the appropriate letter, indicate when each of the following tasks are done:

(a) Weekly (b) Monthly (c) Every time you irrigate
(d) As needed (e) Not feasible (f) not applicable

_____ Use pressure gauge to check system pressures and flow rates for leak and clog detection.

_____ Check controllers / timers for accuracy.

_____ Clean system components (i.e., valves, filters, meters).

_____ Repair leaks and clogs; replace worn or malfunctioning nozzles.

_____ Check to ensure sprinklers are not irrigating paved or other non-irrigated areas.

_____ Other (explain): _____

14. Please check which of the following irrigation system improvements you have undertaken or plan to undertake to conserve water.

Be sure to include implementation dates.

___ Computerized irrigation system When?_____
___ Flow control nozzles When?_____
___ Pressure regulation When?_____
___ Rain sensor shutoff system When?_____
___ Soil moisture monitoring When?_____
___ Other (explain) _____ When?_____

15. Has water efficient landscaping (Xeriscape) been incorporated into the facility design? Yes _____ No _____.

If yes, describe how water efficient landscaping has been incorporated.

If no, **propose an implementation schedule** for the planting of water efficient landscaping, or provide an explanation of why this program cannot be undertaken.

16. Please check any of the following conservation measures you have undertaken or plan to undertake.

Be sure to include implementation dates.

___ Soil Improvements When? _____

___ Mulching When? _____

___ Efficient sprinklers When? _____

___ Avoid water sidewalks When? _____

17. Do you participate in the District's Benchmark Farms Program?

Yes _____ No _____

If no, would you like to participate?

Yes _____ No _____

Note: Participation in the Benchmark Farms Program **does not exempt** the applicant from meeting the water use monitoring requirements as stated in Section 6.7.1 of the Applicant's Handbook.

18. Are you interested in participating in research programs sponsored by the District?

Yes ____ No ____

19. Describe any outdoor use of water (other than irrigation) for urban landscape irrigation not mentioned above (i.e., fountains).

Describe how water is conserved during these uses.

If water is not being conserved for these uses, **provide an implementation schedule** for conserving water, or provide an explanation why it cannot be undertaken.

Section II

LOWEST QUALITY WATER SOURCE FEASIBILITY ANALYSIS

Reuse of Reclaimed Water

Note: Reclaimed water is water that meets or exceeds FDER standards for reuse and that is reused for a beneficial purpose after flowing out of any wastewater treatment facility.

Section 10.3 (f), (g) – Applicant's Handbook:

(f) When reclaimed water is readily available **it must be used in place of higher quality water sources** unless the applicant demonstrates that its use is either not economically, environmentally or technologically feasible.

(g) The lowest quality water source, including reclaimed water **must be utilized for each consumptive use.**

1. Do you currently use reclaimed water for irrigation?

Yes _____ No _____

If yes, give name of facility providing reclaimed water:

If no:

(a) Please provide the name(s), address, and contact person of all domestic wastewater facilities within a five mile radius of your site.

Have you contacted these individuals about the availability of reclaimed water?

Yes _____ No _____

Provide a written response from the wastewater facility regarding availability.

(b) I agree to accept reclaimed water when it becomes available to me for irrigation.

Yes _____ No _____

(c) If you have determined that reuse is not feasible, please provide documentation to show that reuse or reclaimed water is not economically, environmentally, or technologically feasible.

2. What percentage of your irrigation requirement is obtained from:

Groundwater _____ %

Surface Water _____ %

3. How many acres are irrigated using the stormwater management system ponds or lakes?

Acres irrigated _____

4. Do you augment the surface water management system or lakes with groundwater wells? Yes _____ No _____

If Yes,

(a) Do you monitor the surface water level and cease augmentation above a prescribed level?

Yes _____ No _____

If no, **propose an implementation schedule** to establish a water level to regulate augmentation, or provide an explanation of why it cannot be undertaken.

(b) Have yau investigated plumbing the well(s) directly to the irrigation system?

Yes _____ No _____

5. Do you have tile drainage installed to route excess water to the stormwater ponds?

   Yes _____ No _____

6. Do you use any other non-potable sources of water for irrigation?

   Yes _____ No _____

   If yes, please describe source and use of water.

7. **Propose an implementation schedule** to reduce the reliance on groundwater for irrigation, or provide an explanation of why it cannot be undertaken.

Section III

EDUCATION PROGRAM / EMPLOYEE AWARENESS

Note: The conservation plan **must contain an education program.** If you have not implemented a program to date, **propose an implementation schedule** or provide information why this program cannot be undertaken.

(Please attach examples of water conservation information you provide to the public and employees.)

1. Using the appropriate letter, please summarize on the following list which player education and employee awareness measures you have already implemented (I) or plan to implement (p).

	Activity	Implementation date
_____	Use bill stuffers to provide water conservation tips and information.	_____
_____	Use special mailings to provide water conservation tips and information	_____
_____	Use other means of advertising (radio, and TV public service announcements, billboards, newspaper or magazine ads) to encourage water conservation.	_____
_____	Provide water conservation materials to schools.	_____
_____	Conduct public tours of your site.	_____
_____	Operate informational booths which include water conservation literature	_____
_____	Seek employees' ideas for water conservation, using contests, suggestion boxes or other incentives.	_____
_____	Install signs in rest rooms, encouraging water conservation.	_____

_____ Publish and distribute water conservation tips and information, via newsletters, bulletin boards, or employee paychecks. _____

_____ Appoint an employee water conservation coordinator to design and implement your internal plan. _____

_____ Conduct other education and employee awareness activities. (please explain) _____

2. Of the education and awareness programs you have implemented, which have been especially effective?

3. Of the education awareness programs you have implemented, which have not been effective? Why?

Section IV

PLAN IMPLEMENTATION SCHEDULE SUMMARY

Note: **This is a specific requirement of the applicant's Water Conservation Plan.**

1. Go back through the Conservation plan and list all of the activities where you proposed an implementation schedule. Specific dates and / or time frames must be given.

Activity Implementation Schedule

Note: A progress report must be submitted at the mid point of the permit to address the implementation of activities. Please keep a copy of this plan for your records.

Person Responsible for Implementing the Plan:

Signature

Date

Phone Number

NOTICE TO DISTRICT OF DEWATERING ACTIVITY

The Permittee hereby gives notice to the District of the commencement of short term construction dewatering activities pursuant to its Notice General Dewatering Permit under Chapter 40C-22, F.A.C.

Please type or print in ink. Complete all necessary data sheets attached. Submit 2 copies of all forms and attachments.	
Permit Tracking No. _____ Associated ERP/MSSW (if any): _____ County: _____ Sec/Twn/Rng: _____	
PERMITTEE	NAME _____ (LAST FIRST) ADDRESS _____ CITY _____ STATE _____ ZIP CODE _____ BUS. TELEPHONE NO. _____ HOME TELEPHONE NO. _____

Please mail to the nearest District Service Center: St. Johns River Water Management District			
District Headquarters:	Jacksonville Service Center:	Orlando Service Center:	Melbourne Service Center:
P.O. Box 1429 Highway 100 West Palatka, Florida 32178 FAX: 904-329-4490	7775 Baymeadows Way Suite 102 Jacksonville, Florida 32256 FAX: 904-730-6267	618 East South Street Suite 200 Orlando, Florida 32801 FAX: 407-897-4354	305 East Drive Melbourne, Florida 32904 FAX: 407-722-5357

PART II: SUPPLEMENTAL INFORMATION

Provide the following information:

1. Description type of turbidity barriers to be used:

   _____

   _____

   _____

2. Attach site map with scale no greater than 1 inch = 2000 feet, showing the following:
   a) area to be dewatered;
   b) location of all turbidity barriers; and,
   c) general route of discharge and all points of discharge offsite.

3. Date of anticipated start of project.

4. Estimated duration of the dewatering activity.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
NOTICE OF INTENT TO USE NOTICED GENERAL PERMIT FOR SHORT TERM CONSTRUCTION DEWATERING

OFFICIAL USE ONLY
APPLICATION NUMBER. _____
DATE RECEIVED _____
COUNTY _____
ASSIGNED REVIEWER _____
DATE COMPLETE _____

This is an application for a noticed general short term construction dewatering permit. A noticed general short term construction dewatering permit authorized dewatering anywhere within the St. Johns River Water Management District for 3 years subject to the limiting conditions of 40C-22, F.A.C., which are attached.

Please type or print in ink. Complete necessary data sheets attached. Submit 2 copies of all forms and attachments.	
APPLICANT	NAME _____ LAST FIRST ADDRESS _____ CITY _____ STATE _____ ZIP CODE _____ BUSINESS TELEPHONE NUMBER: (_____) _____ _____ CONTRACTOR LICENSE / REGISTRATION NUMBER: _____

In compliance with the provisions of Chapter 373, Florida Statutes, and applicable rules and regulations of St. Johns River Water Management District, application is hereby made for a permit as identified above according to the supporting data and incidental information filed with this application.

APPLICANT'S NAME APPLICANT'S SIGNATURE DATE

CONDITIONS FOR NOTICED GENERAL PERMIT FOR SHORT TERM CONSTRUCTION DEWATERING

1. This permit shall expire three years from the date the notice is submitted on form 40C-22-0590-1.

2. Maximum daily withdrawals for any dewatering activity shall not exceed four million gallons per day (MGD), except during the first 120 hours of dewatering when the daily and instantaneous pumping rates shall not exceed six MGD. Average daily withdrawal shall not exceed two MGD for the first 60 days of the dewatering activity and shall not exceed one MGD over a 180 day duration.

3. Each specific dewatering project shall not exceed 180 days.

4. Withdrawals for dewatering shall be by one of the following:

   (a) A conventional wellpoint system consisting of one or more stages of well-points installed near the excavation in lines or rings. These wellpoints shall be installed in variable spacings, and connected to a common header pumped by one or more pumps.

   (b) Vacuum underdrain consisting of a typical pipeline dewatering with the underdrain or "sock" placed horizontally below the design invert elevation on the pipeline via a large trenching machine. The underdrain shall be connected to a pump with the water conveyed through the underdrain and discharged from the pump.

   (c) Shallow vacuum well(s) consisting of one or more stages installed near an excavation in lines or rings. The vacuum well(s) shall be constructed of six inch or smaller pipe with a slotted screen area near the bottom of the well, and connected to a common header pumped by one or more pumps.

   (d) Hydraulic pumps to dewater stormwater management ponds and basins, as part of their construction or maintenance, through the discharge control structures for up to 30 days duration. The stormwater management pond or basin and associated discharge control structure must be permitted by the District and be in operational phase at the time the dewatering is to occur.

5. The permittee shall take turbidity readings once per week at all points of direct discharge into rivers, streams, or natural lakes. A direct discharge means a discharge which enters a river, stream or natural lake without an adequate opportunity for prior mixing and dilution to prevent significant degradation. A state certified laboratory must analyze the samples collected from the backside of the appropriate turbidity barrier, and the results shall be submitted monthly to the nearest St. Johns River Water Management District office. The results must contain the following information that must be submitted at project completion:

(a) Name of person sampling.
(b) Date and time sample was taken.
(c) Location of sample point.
(d) Time at which turbidity was measured.
(e) Turbidity reading in NTU's.
(f) The permit tracking number.

6. Dewatering discharge must not cause or contribute to flooding of off-site properties.

7. The permittee shall implement the following turbidity control measures, as appropriate, for any discharges off-site;

(a) If the discharge is to be to a drainage system, either pipe water directly into the drainage structure or if the discharge will be through a swale, or overland to a structure or water body, then the path of discharge shall be lined with visqueen plastic, sod, or hay bales appropriately to prevent a turbid discharge to the structure of water body.

(b) If water will discharge to an open water body, appropriate fabric silt screen or hay bales shall be used to prevent turbid discharges. When possible, establish a detention area to allow suspended solids to settle prior to entering the water body.

(c) If the above turbidity control measures are inadequate to retain sediment on-site and prevent turbid discharge, the permittee shall select, implement, and operate such additional or modified erosion and sediment control measures necessary to prevent violations of water quality standards as specified in Chapter 62-302, F.A.C.

8. There shall be no direct discharges into Outstanding Florida Water (OFW), Class I or Class II water bodies. A direct discharge means a discharge which enters an OFW, Class I or Class II water body without an adequate opportunity for prior mixing and dilution to prevent significant degradation.

9. The dewatering shall not be located within lands which have been used for industrial purposes or landfills, unless dewatering has previously been authorized by DER/DEP permit or order.

10. Ten days prior to conducting any dewatering, the permittee must provide to the District form RDS-50 containing the following: a site map with a north arrow; a scale (no greater than 1 inch = 2000 feet); area to be dewatered; location and type of turbidity barriers to be used; the general route of discharge and all points of discharge off site and to water bodies and wetlands; and the permit tracking number. Any other District permits issued for the project shall also be noted. Submittal of form RDS-50 is not required if:

(a) the dewatering will be 300,000 gallons per day or less and will not exceed 30 days in duration; or

(b) the dewatering is in response to an emergency situation involving a threat to public safety. For emergency situations, notification shall be provided on form RDS-50 the next working day.

11. The permittee shall clearly identify all pumps with the District permit tracking number issued to the permittee. The permit tracking number shall be painted on the pump, or a metal embossed tag with the number attached to the pump.

12. District authorized staff, upon proper identification, shall have permission to inspect and observe dewatering operations in order to determine compliance with this permit.

13. The permittee must mitigate any adverse impact caused by withdrawals permitted herein on adjacent land uses or legal uses of water existing at the time of permit application. Adverse impacts include but are not limited to:

(a) Reductions of well water levels resulting in a reduction of 10% in the ability of an adjacent well to produce water;

(b) Reductions of water levels in an adjacent surface water body resulting in a significant impairment of the use of water in that water body;

(c) Saline water intrusion;

(d) Change in water quality resulting in either impairment or loss of use of a well or water body;

(e) Land collapse or subsidence caused by a reduction in water levels; and

(f) Damage to crops and other types of vegetation.

ATTACHMENT B
WATER BALANCE CALCULATIONS

Mass Balance: Calpine Blue Heron Energy Facility
Case 01 Average Day, ZLD
TML Project #512-02-017
Configuration 4 X 2, HPD Site Altitude ft
Dry Bulb Temp. Deg F Wet Bulb Temp Deg F
Fog Yes
Power Aug. No

Ratio of Sources Blue Heron 100%
Other 0%

Stream #	Potable Water	Total Make Up		CT MU	Evap	Drift	CTBD	SS Flt Filtrate		Flt Bk Wash	Softener Effluent		RO Feed	Srv Wtr	Drains	RO Perm.	RO-Reject	BC Dist.	BC Conc.	Drier Vent	Drier Conc.
Flow (gpm)	0.8	4524	0	4402	4441	2.0	725	690		34.5	690	0	690	4	4	617	69	93	10.00	10.00	0.00
TDS		783	783	783	0	7477	7477	7477		7477	7477	0	7477	7477	7477	748	37386	10	150000	0	0
TSS		1	1	1	0	20	20	1		500	1	0	1	1	100	0	0	0	0	0	730000
SiO2		10	10	10	0	90	90	90		90	90		90	90	90	5	857	1			

Stream #	Quench Water	Quench Return	O/W Sep. O'flow	MU Fltr Eff.	MU Flt Backwsh	MU DM Feed	MU RO Perm	MU RO Reject	Soft Regen	MU MB Feed	MB Lo Waste	MB Hv Waste	MB Eff	DM O'flow	DM Feed	Fog	Turb Wash	HRSG Feed	Stm Inj PAG	HRSG Drains	HRSG BD Vent	BD -CT Condensed	HRSG BD
Flow (gpm)	118	192	16	122	3	120	96	24	35	189	0	0	189	0	189	79	4	106	0	8	24	74	98
TDS	7477	4595	1869	783	783	783	39	3917	10000	24.8	500	40000	0.01			0.01	0.01	0.01	0.01	0.01	0	0.5	0.5
TSS	20		25	1	500	1	0	0	0.0	0.0	0	0	0			0	0	0	0	0	0	0	0
SiO2	90	55	23	10	10	10	1	50	0.0	0.7	1	100	0.01			0.01	0.01	0.01	0.01	0.01	0	0.5	0.5

Tower Parameter Off Site Regeneration of DM
Equivalent Cycles 7.6

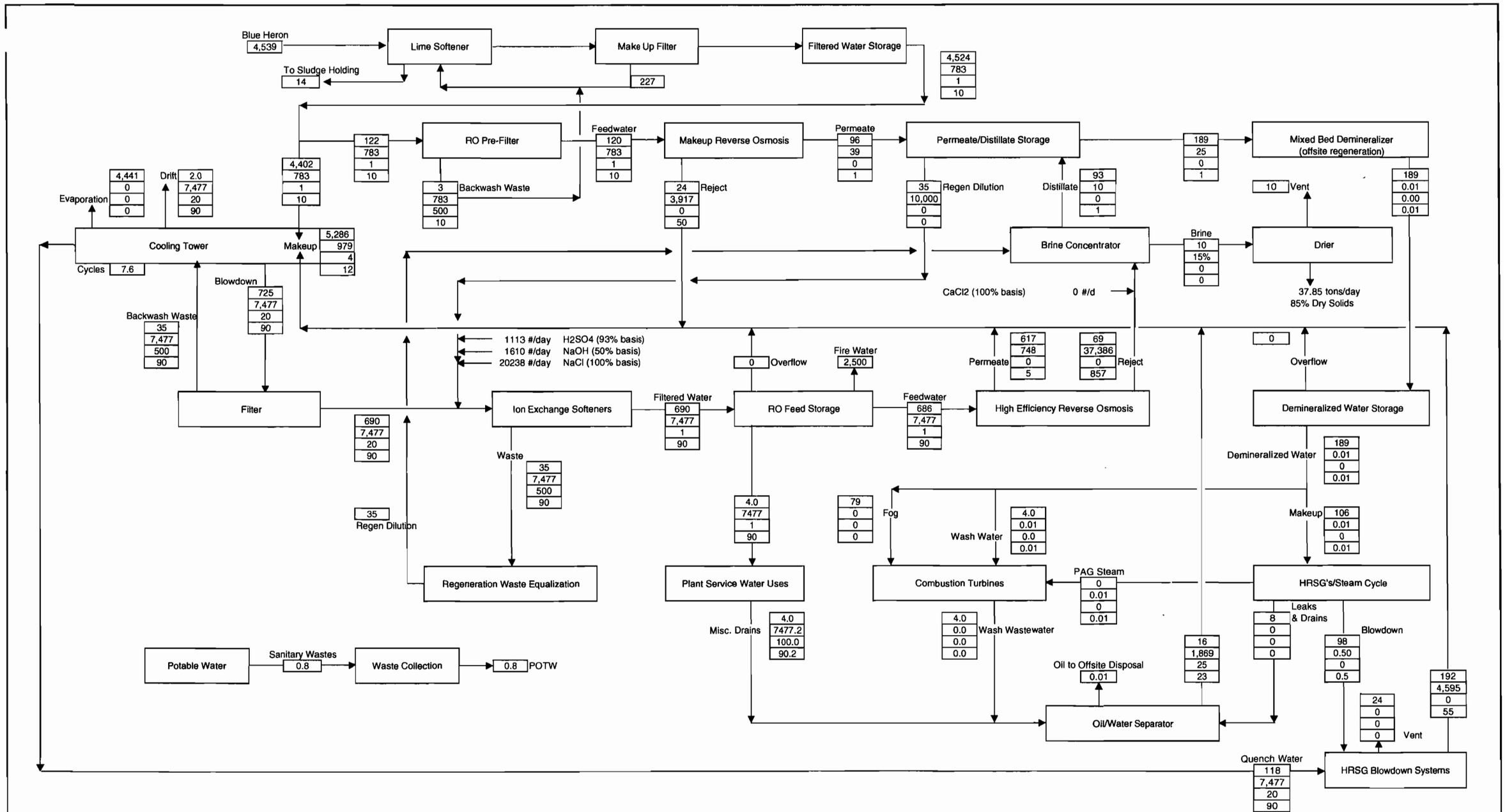
Average feed to the Cooling Tower:

Stream	Make Up	O/W Sep. O'flow	Quench Return	RO Perm.	MU RO Reject	Flt Bk Wash	MB Lo Waste	Average
Flow	4402	16	192	617	24.0	35	0	5286
TDS	783	1869	4595	748	3917	7477	500	979
TSS	1	25.0	0	0	0	500	0	4
SiO2	10	22.6	55	5	50	90	1	12

			96	
	2513		10	
	1		179	
	47		5	
	210		71	
	2771		361	2410

Chemicals
NaOH (50% basis) 1610 #/d
H2SO4 (93% basis) 1113 #/d
NaCl (100% basis) 20238 #/d
CaCl2 (100% basis) 0 #/d

Solids from Make Up	41382	#/d Dry Solids	tons/day at85%	24.34 t/d
Solids from Chemicals	22961	#/d Dry Solids	tons/day at85%	13.51 t/d
Total solids production	64342	#/d Dry Solids	Total	37.85 t/d



Rev.	Description	By	Date

Legend: Flow - gpm; TDS - mg/l; TSS - mg/l; SiO2 - mg/l

Notes:

Design Case: **Average Day, ZLD**

Configuration: 4 X 2, HPD Site Altitude: - ft

Dry Bulb Temp.: - deg F Wet Bulb Temp. - deg.F

Thomas M. Laronge, Inc.
Suite 149
10411 NE Fourth Plain Road
Vancouver, WA 98662-5755

TML Project #512-02-017

Calpine - Blue Heron Energy Center

Plant Water Balance

512-02-017-WB-001 1/24/02 Rev. -

Mass Balance: Calpine Blue Heron Energy Facility
Case 02 Peak Day, ZLD
TML Project #512-02-017
Configuration 4 X 2, HPD Site Altitude ft
Dry Bulb Temp. Deg F Wet Bulb Temp Deg F
Fog Yes
Power Aug. Yes

Ratio of Sources Blue Heron 100%
Other 0%

Stream #	Potable Water	Total Make Up		CT MU	Evap	Drift	CTBD	SS Flt Filtrate		Flt Bk Wash	Softener Effluent		RO Feed	Srv Wtr	Drains	RO Perm.	RO-Reject	BC Dist.	BC Conc.	Drier Vent	Drier Conc.
Flow (gpm)	0.8	5225	0	4694	4315	2.0	788	750		37.5	750	0	750	2	2	673	58	79	16.44	16.44	0.00
TDS		783	783	783	0	8197	8197	8197		8197	8197	0	8197	8197	8197	820	40985	10	150000	0	0
TSS		1	1	1	0	20	20	1		500	1	0	1	1	100	0	0	0	0	0	730000
SiO2		10	10	10	0	99	99	99		99	99		99	99	99	5	1204	1			

Stream #	Quench Water	Quench Return	O/W Sep. O'flow	MU Fltr Eff.	MU Flt Backwsh	MU DM Feed	MU RO Perm	MU RO Reject	Soft Regen	MU MB Feed	MB Lo Waste	MB Hv Waste	MB Eff	DM O'flow	DM Feed	Fog	Turb Wash	HRSG Feed	Stm Inj PAG	HRSG Drains	HRSG BD Vent	BD -CT Condensed	HRSG BD
Flow (gpm)	93	141	10	1105	22	1083	867	217	38	946	0	0	946	0	946	76	2	868	800	6	14	48	62
TDS	8197	5406	1639	783	783	783	39	3917	10000	36.7	500	40000	0.01			0.01	0.01	0.01	0.01	0.01	0	0.5	0.5
TSS	20		20	1	500	1	0	0	0.0	0.0	0	0	0			0	0	0	0	0	0	0	0
SiO2	99	65	20	10	10	10	1	50	0.0	0.5	1	100	0.01			0.01	0.01	0.01	0.01	0.01	0	0.5	0.5

Tower Parameter
Equivalent Cycles 7.7

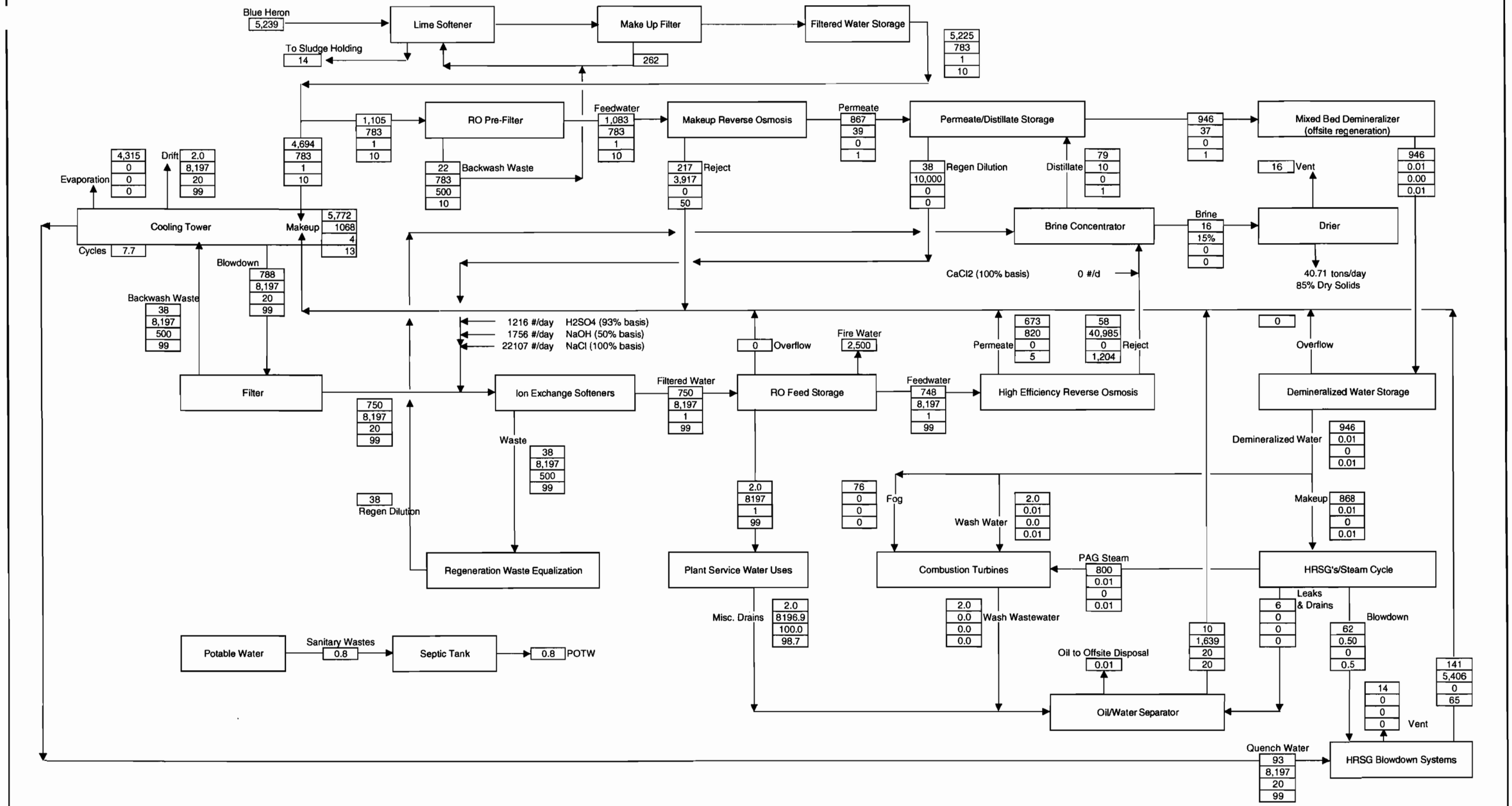
Off Site Regeneration of DM

Average feed to the Cooling Tower:

Stream	Make Up	O/W Sep. O'flow	Quench Return	RO Perm.	MU RO Reject	Flt Bk Wash	MB Lo Waste	Average			
Flow	4694	10	141	673	216.6	38	0	5772	2513	10	
TDS	783	1639	5406	820	3917	8197	500	1068	1	179	
TSS	1	20.0	0	0	0	500	0	4	.47	5	
SiO2	10	19.7	65	5	50	99	1	13	210	71	
									2771	361	2410

Chemicals
NaOH (50% basis) 1756 #/d
H2SO4 (93% basis) 1216 #/d
NaCl (100% basis) 22107 #/d
CaCl2 (100% basis) 0 #/d

Solids from Make Up	44130 #/d Dry Solids	tons/day at85%	25.96 t/d
Solids from Chemicals	25079 #/d Dry Solids	tons/day at85%	14.75 t/d
Total solids production	69209 #/d Dry Solids	Total	40.71 t/d



Rev.	Description	By	Date

Legend: Flow - gpm; TDS - mg/l; TSS - mg/l; SiO2 - mg/l

Notes:

Design Case: **Peak Day, ZLD**

Configuration: 4 X 2, HPD Site Altitude: - ft

Dry Bulb Temp.: - deg F Wet Bulb Temp. - deg.F

Thomas M. Laronge, Inc.
Suite 149
10411 NE Fourth Plain Road
Vancouver, WA 98662-5755

TML Project #512-02-017

Calpine - Blue Heron Energy Center

Plant Water Balance

512-02-017-WB-002 1/24/02 Rev. -