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74BEFORE THE GOVERNOR AND CABINET
OF THE STATE OF FLORIDA

In the Matter of:

The application for Power Plant
Site Certification submitted by
Florida Power Corporation with
regard to its proposed Units No. 4
& 5 at Crystal River, Florida (DER
Case No. PA 77-09)

DOAH CASE NO.: 77-2212

The following persons were present and participated in the
disposition of this matter:

Honorable Jesse J. McCrary
Secretary of State

Honorable Robert L. Shevin
Attorney General

Honorable Bill Gunter
Treasurer and Insurance Commissioner

Honorable Gerald A. Lewis
Comptroller

Honorable Doyle Conner
Commissioner of Agriculture

Honorable Ralph D. Turlington
Commissioner of Education

RECORDED
NOV 29 1978

PERMEX

CERTIFICATION ORDERBY THE BOARD:

The Board, having heard presentations by the parties, having reviewed the Recommended Order dated October 18, 1978, (attached and incorporated as Exhibit I), as well as the conditions of certification referred to therein and attached thereto, having considered the exceptions submitted by the State of Florida, Department of Environmental Regulation and by the Southwest Florida Water Management District, and being otherwise fully advised herein, it is

ORDERED:

1. The last two sentences of the 15th paragraph on page 11 of the Hearing Officer's Findings of Fact, Conclusions of Law, and

Recommended Order are deleted. In their place and stead is substituted the following language:

However, the evidence is insufficient to determine the significance of these combined affects. It is possible that there may or may not be significant injury to the environment, vegetation, or life forms in the vicinity of this site if such a system were employed by Florida Power Corporation.

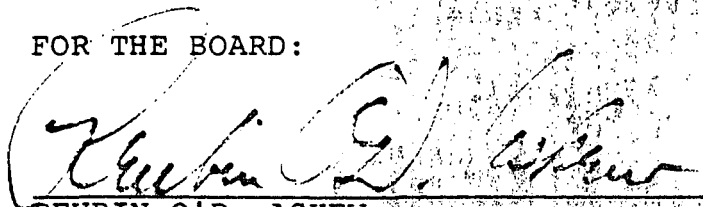
2. Two typographical errors which appear in Condition VIII on page 15 of the Conditions of Certification attached to the Recommended Order are corrected as follows:

17-22.05 should read 17-22.108
17-23 should read 17-16

3. In all other regards, the Findings of Fact, Conclusions of Law, and Recommended Order are approved and adopted. The general and special conditions referenced therein and attached thereto are approved and adopted, and the certification of Crystal River Units 4 & 5 is made specifically subject to those conditions.

DONE AND ENTERED this 21st day of November, 1978, subsequent to a vote of the Board at a duly constituted Cabinet meeting of November 21, 1978.

FOR THE BOARD:


REUBIN O'D. ASKEW
Governor

VOTE: Unanimous in favor

Copies furnished to all parties

*Sheri Smalley*STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

RECEIVED

OCT 20 1978

Dept. of Environmental Regulation
Office of General Counsel

CASE NO. 77-2212

In re: Florida Power Corporation :
Crystal River Units 4 & 5 :
:
:
:FINDINGS OF FACT, CONCLUSIONS OF LAW
AND RECOMMENDED ORDER

This proceeding was held pursuant to the Florida Electrical Power Plant Siting Act, Chapter 403, Part II, Florida Statutes, and Chapter 17-17, Florida Administrative Code, to consider Florida Power Corporation's application for site certification of two electrical generating facilities known as Crystal River Units 4 and 5, proposed for Citrus County, Florida.

The Governor and Cabinet, sitting as the Board under Chapter 403, Part II, Florida Statutes, entered an Order dated April 20, 1978, holding that the proposed site of Units 4 and 5 is consistent and in compliance with existing land use plans and zoning ordinances.

Pursuant to proper notice, (FPC Exhibit 1), a certification hearing as required by Section 403.508(3), Florida Statutes, was held in Crystal River, Florida, September 18, 19, and 20, 1978 for the purpose of receiving testimony and evidence concerning whether the location and operation of the proposed facilities will produce minimal adverse effects on human health, the environment, the ecology of the land and its wildlife, and the ecology of state

ATTACHMENT II

waters and their aquatic life. The hearing included an examination of the following: the necessity for expanded electrical generation; the expected environmental impact from construction and operation of the facilities; operational safeguards of the facilities; the availability of abundant, low-cost electrical energy; and other public interests and issues relevant to certification of the proposed site. In addition, evidence relating to best available control technology (BACT) and the prevention of significant deterioration (PSD) was presented.

The following parties entered appearances at and/or participated in this proceeding through counsel:

1. Applicant, Florida Power Corporation;
2. Florida Department of Environmental Regulation;
3. Florida Public Service Commission;
4. Florida Department of Administration, Division of State Planning;
5. Southwest Florida Water Management District;
6. Florida Lung Association; and
7. Florida Audubon Society.

Only Florida Power Corporation, the Department of Environmental Regulation, the Public Service Commission, and the Southwest Florida Management District appeared at the hearing.

Florida Power Corporation requested that the Florida Department of Transportation be added as a party to this proceeding pursuant to Sections 403.508(4)(e) and 403.509(2), Florida Statutes, and Section 17-17.11(2)(e), Florida Administrative Code. The Department of Transportation had knowledge of Florida Power Corpora-

tion's intention to cross U. S. Highway 19/98 and, by its failure to appear in this proceeding and by written authorization acquiesced in and waived any right to oppose such crossing if approved by this certification.

All issues except the appropriate main steam condenser cooling water systems for the proposed facilities were settled by agreement of the parties at or before the certification hearing. Specifically remaining at issue at the certification hearing was whether the proposed facilities should be certified for the use of saltwater cooling towers or for the use of a saltwater once-through cooling system. Having considered all testimony and evidence properly admitted, having heard argument of counsel, and being otherwise fully apprised herein, the following Findings of Fact, Conclusions of Law, and Recommended Order are entered.

FINDINGS OF FACT

1. The proposed site of Units 4 and 5 is approximately 7 1/2 miles northwest of Crystal River, Florida. The site is situated between the mouths of the Withlacoochee and Crystal Rivers and is bordered on the west by the Gulf of Mexico and on the east by U. S. Highway 19/98. It is primarily composed of marshland in low-lying areas with a variety of scattered vegetation ranging from swampgrass to heavy woods. Pine and palmetto scrub predominate. The site is currently used by Florida Power Corporation to operate three electrical generating facilities designated as Units 1, 2 and 3. Unit 1 is a 440.5 MW oil-fired unit scheduled for conversion to coal in February, 1979. Unit 2 is a 523.9 MW

coal-fired unit. Unit 3 is a 855 MW nuclear unit with shared ownership. The total site for Crystal River Units 1 through 5 consists of 4,738 acres. It includes a 1/4 mile wide corridor running eastward to U. S. Highway 19/98 which is used for access road, railroad spur and transmission lines. A smaller corridor extends eastward of U. S. Highway 19/98 and contains railroad spur and transmission lines. The total cleared area for Units 1, 2 and 3 is approximately 319 acres.

2. Units 4 and 5, as proposed, are each a 640 MW coal-fired steam electric generating unit with related facilities. As envisioned, each unit will have a chimney approximately 600 feet tall. Each unit will have an electrostatic precipitator, for the purpose of controlling the emission of particulates, located in the flue gas duct work between the steam generator housing and the chimney for the unit. Each unit will also have a natural draft saltwater cooling tower approximately 460 feet tall and about 370 feet in diameter at the base. Saltwater for makeup to the cooling towers will be withdrawn from the existing discharge canal and returned to the existing discharge canal as blowdown. The existing coal handling facility for Units 1 and 2 will be expanded and modified to accommodate the requirements of Units 4 and 5. New coal and ash storage areas will be established to serve Units 4 and 5. Directly associated facilities connected with Units 4 and 5 include a railroad spur, access road, sewage treatment plant, administration building, maintenance building, parking lots, freshwater well field, and well field pipeline. The freshwater well field will be located east of U. S. Highway 19/98 on the existing transmission line corridor. Ground water from this freshwater well field will

be used as plant service water only. None of the water from this well field is to be used in the main stream condenser units for power plant cooling purposes. Well water will be conveyed to Units 4 and 5 via a pipeline located on the existing transmission line corridor and crossing U. S. Highway 19/98. Units 4 and 5 will use the existing transmission line system; however, short electrical tie-lines will be necessary to connect Units 4 and 5 to the existing electrical substations located south of Units 4 and 5.

3. Units 4 and 5 will be needed for additional capacity by their projected startup dates of October, 1982, and April, 1984, respectively. Unless the proposed units are available for commercial operation by those dates, there may not be sufficient capacity within Florida Power Corporation's system or available for purchase from other utilities to meet projected demand. The Florida Public Service Commission's reports and testimony show that the construction and operation of Units 4 and 5 as scheduled are badly needed in order to avoid extremely low generating reserve margins and unacceptably high loss of load probabilities. The evidence supports a finding of need for these two units as scheduled. This evidence includes the following: (a) Florida Power Corporation's planned reserve margin for the projected 1982-1983 winter peak pursuant to its revised generation expansion plan would be 14.6 percent with Unit 4. Without Unit 4, the Company's reserve margin would be reduced to 3.3 percent or 185 MW, which is less than its current 208 MW spinning reserve obligation to the peninsular grid. (b) Florida Power Corporation's planned reserve margin for the projected 1984-1985 winter peak would be 13.1 percent with Unit 5. Without Unit 5,

this reserve level would be reduced to 2.6 percent or 155 MW, which is again less than the Company's current spinning reserve obligation to the peninsular grid. (c) Two of the proposed plants of other utilities from which Florida Power Corporation plans to purchase power in order to maintain the reserve levels indicated in (a) and (b) above have either not been constructed or are in various stages of licensing proceedings. They are thus subject to licensing and construction delays that might further reduce Florida Power Corporation's reserve margins and increase the likelihood of blackouts, power outages, and other interruptions of service to customers. (d) Generation planning, because of the long lead time to construct a generating unit, must be flexible. Loss of load probability data indicates that the State of Florida would be substantially reducing its flexibility if construction of Units 4 and 5 is not allowed to proceed at this time.

4. The construction of Units 4 and 5 and their related facilities will involve the loss of about 335 acres of vegetation and wildlife habitat. The proposed plant site has been shifted eastward from the initially proposed site in order to reduce the destruction of coastal salt marsh, coastal hammock, and coastal hydric hammock. The areawide effect of construction and operation on wildlife and vegetation is not expected to be significant because of the commonality of the affected species and the current abundance of available forest habitat in the area. Appropriate steps have been proposed to minimize the environmental impacts of construction and operation.

5. Due to the isolated nature of the proposed site for

Units 4 and 5, there is very little opportunity for public access during construction and operation. Vehicular traffic from U. S. Highway 19/98 to the east will be intercepted and controlled by a guard system, as will boat access via the existing intake and discharge canals from the Gulf of Mexico to the west. Florida Power Corporation has proposed adequate measures to comply with the federal Occupational Safety and Health Act and the Florida Workmen's Compensation Law, and to control fugitive dust during construction, the disposition of combustible materials by open burning, and turbidity and sedimentation from construction. Increased ambient noise levels resulting from construction activities will have no impact on the general public due to the remoteness of the plant site.

6. Units 4 and 5 will generate various process waste waters. None of those waste waters besides cooling tower blowdown will be discharged directly to surface waters except rainfall runoff in excess of the 10 year, 24 hour storm. The plant drains collection pond will receive many of these waste waters and will be designed to retain all inflows resulting from a 10 year, 24 hour storm. There will normally be no discharge from the plant drains collection pond. The pond will retain storm water for roughly 24 hours to remove floating materials prior to discharge into the cooling tower blow-down conduit. The runoff collection and retention system, which will receive surface runoff from the plant site, roof drains and material storage areas, will also be designed to contain all runoff from a 10 year, 24 hour storm. Overflow of the plant drains collection pond and the runoff and retention system which might occur

during storms exceeding the 10 year, 24 hour criterion, would discharge to the existing cooling water canals and thence to the Gulf of Mexico. The potential impacts of overflows upon aquatic ecosystems will be limited greatly by three factors: (1) the low frequency of occurrence, (2) the short duration of overflows, and (3) the large quantities of dilution waters available from existing Units 1, 2 and 3 when overflow occurs.

7. The application seeks certification for a 300,000 gallon per day sewage treatment facility. However the evidence establishes that, in fact, the applicant only needs a 10,000 gallon per day facility at present. Therefore, the request has been reduced to reflect the applicant's present need.

8. The proposed facilities also include various ditches, ponds, storage areas, and landfill sites for the collection and treatment of storm water runoff, chemical wastes, boiler blowdown, coal pile and ash landfill runoff and other wastes. A potential concern exists that rainfall and groundwater flow from such facilities may result in the leaching of polluting substances into groundwaters of the state. The conditions of certification include a leachate testing and monitoring program designed to study and eliminate this potential leachate concern, and to assure compliance with state water quality standards.

9. Cooling tower blowdown released to the discharge canal will be approximately 37,587 gallons per minute during peak conditions and 22,892 gallons per minute during normal operating conditions. This discharge will be diluted in the canal by a flow of 1,380,000 gallons per minute of sea water used in existing Units 1,

2 and 3 for once-through cooling. The ecological and thermal effects of cooling tower blowdown will be less detrimental and more environmentally acceptable than the effects anticipated from other cooling systems.

10. Florida Power Corporation and its consultants have studied various alternative strategies in order to prevent significant deterioration of air quality from the operation of Units 4 and 5. The studies show that the most economical strategy which will comply with state and federal regulations calls for the use of 99.6 percent efficient electrostatic precipitators, boiler design for the oxides of nitrogen, the burning of low sulfur coal in Units 4 and 5, and the reduction of sulfur content of coal to be burned in existing Units 1 and 2. The installation of flue gas scrubbers could cause several undesirable impacts, including reduction in reliability of the generating units, additional plant consumption of electrical energy, additional requirements for freshwater, additional requirements for land for sludge disposal, and the consumption of limestone with its attendant mining and handling environmental impacts. The evidence indicates that a sufficient supply of low sulfur coal will be available to Florida Power Corporation, which is required to further demonstrate such availability pursuant to the attached conditions of certification.

11. Florida Power Corporation and its consultants have modeled and analyzed the projected effect of the air pollution control strategy proposed for Units 4 and 5. The evidence developed from such studies shows that the operation of Units 4 and 5 as

proposed pursuant to the attached conditions of certification will comply with the state and federal standards for the prevention of significant deterioration of air quality. In addition, the evidence demonstrates that the strategy proposed by Florida Power Corporation and its consultants utilizes the best available control technology as required by state and federal regulations.

12. The proposed site for Units 4 and 5 is better than alternative sites which were studied because (a) it is the site of existing electrical generating units, (b) it will not necessitate the building of additional transmission lines, and (c) it is located near the Gulf of Mexico, which will provide a source of abundant low quality water for cooling purposes.

13. Florida Power Corporation proposes to use saltwater cooling towers as the main steam condenser cooling water systems for Units 4 and 5. The Company and its consultants also studied the suitability of cooling towers using freshwater from a variety of sources including a well field to be located on the transmission line corridor east of U. S. Highway 19/98, Lake Rousseau, and the Cross Florida Barge Canal, as well as a once-through saltwater cooling system that would comply with Florida's thermal pollution rule, Section 17-3.05(3)(d)(ii), Florida Administrative Code, and one that would not comply with that rule. All parties and commenting agencies have agreed that saltwater is more acceptable than freshwater for main steam condenser cooling at Units 4 and 5.

14. Physically, the site is compatible with the use of a once-through saltwater cooling system. Economically, a once-through saltwater system, achieving a fourteen degree (14°F) rise

in temperature, is significantly less expensive to construct and less expensive to operate than are saltwater cooling towers. However, the evidence establishes that a fourteen degree (14°F) rise, once-through saltwater system would exceed the thermal limits on discharges imposed by DER Rule 17-3.05, Florida Administrative Code. The federal Environmental Protection Agency has stated that once-through saltwater cooling would not be permitted for Units 4 and 5 at this site. Similarly, the Department of Environmental Regulation concluded in its staff analysis that once-through cooling would not be an acceptable alternative for Crystal River Units 4 and 5. The evidence indicates that once-through saltwater cooling which would comply with the applicable thermal pollution regulations is economically unacceptable at this site and that regulatory approval of once-through cooling could not be obtained in time to permit commercial operation by the scheduled dates.

15. The record indicates that construction and operation of an expanded once-through saltwater system at this site will cause loss or destruction of some forms of marine vegetation and some species of marine organisms in the vicinity, as a combined result of thermal effects, impingement, and entrainment. However, the evidence concerning the significance of these combined affects is conflicting and ambiguous. It is possible that there may be little or no significant injury to the environment, vegetation, or life forms in the vicinity of this site if such a system were employed by Florida Power Corporation.

16. The Southwest Florida Water Management District has stated that any conversion of saltwater cooling towers to the

use of freshwater would be unacceptable as a consumptive use of freshwater. Further, there has been no showing that adequate supplies of fresh water are available or suitable for main steam condenser cooling at this site.

17. In balancing all the variables, saltwater cooling towers are found to be the appropriate main steam condenser cooling water systems for Units 4 and 5.

18. Florida Power Corporation has requested variances from certain regulations of the Department of Environmental Regulation and the Southwest Florida Water Management District. By stipulation of those parties, the requests for variances can be resolved as follows:

a. The requests for variances from Sections 17-3.05(2), 17-7.05(3)(d), and 17-7.04(2)(f), Florida Administrative Code, relating to leachates from the coal and ash storage areas and the location of the ash storage area, can be resolved by implementation of the leachate testing and monitoring program as outlined in the attached conditions of certification.

b. The request for a variance from Section 17-3.05(2)(d), Florida Administrative Code, relating to turbidity, can be resolved by adoption of Special Condition XI attached.

c. The request for a variance from Section 17-4.28(8), Florida Administrative Code, relating to dredging in Class II waters is unnecessary because the proposed units will be located on Class III waters.

d. The request for a variance from Section 17-3.05(3)(d)(ii), Florida Administrative Code, relating to discharges of

heated water, can be disposed of by the provision for a mixing zone contained in the conditions of certification attached.

e. The request for a variance from Section 16J-2.11 (3), Florida Administrative Code, is unnecessary because the Southwest Florida Water Management District has stipulated that its consumptive use water crop rule does not apply to the use of saltwater from the Gulf of Mexico and the variance request has been withdrawn.

f. The request for a variance from Section 16J-2.11(4) (e), Florida Administrative Code, relating to the lowering of the potentiometric surface, can be resolved with respect to the use of freshwater for purposes other than main steam condenser cooling by adoption of Special Conditions IIIA.-G. attached.

19. Unless the site of Crystal River Units 4 and 5 is certified as soon as possible, commencement of construction may be delayed and Florida Power Corporation may be required by applicable federal regulations to install expensive flue gas scrubbers (flue gas desulfurization equipment) at the proposed units. Such a requirement could result in higher cost electric power, reduced ability to deliver electric power to consumers, and potentially adverse environmental effects.

20. During and at the conclusion of the site certification hearing, the public was given the opportunity to comment upon the application for site certification. No public testimony was offered.

21. The Florida Department of Environmental Regulation,

the Public Service Commission, and the Division of State Planning have all recommended certification of Units 4 and 5 subject to conditions. The stipulated conditions are attached.

CONCLUSIONS OF LAW

22. This proceeding was held pursuant to the Florida Electrical Power Plant Siting Act, Chapter 403, Part II, Florida Statutes, and Chapter 17-17, Florida Administrative Code, to consider the subject application for site certification.

23. Notice, in accordance with Chapter 403 and Chapter 120, Florida Statutes, and Chapter 17-17, Florida Administrative Code, has been given to all persons and parties entitled thereto, as well as the general public.

24. The purpose of the site certification hearing was to receive testimony and evidence concerning whether the location and operation of the proposed facilities will produce minimal adverse effects on human health, the environment, the ecology of the land and its wildlife, and the ecology of state waters and their aquatic life and to fully balance the increasing demand for electric power plant location and operation with the broad interests of the public, as provided in Chapter 403, Florida Statutes.

25. The record of this hearing consists of all pleadings and papers filed herein, including the site certification application, as amended, the transcripts of all hearings, all orders entered by the Hearing Officer, and all evidence and exhibits properly admitted to the record.

26. Section 403.507(1)(a), Florida Statutes, provides

that the Division of State Planning shall present a report as to the compatibility of the proposed electrical power plant with any state comprehensive plan. The Division of State Planning has made a report on Units 4 and 5 and its report and recommendations have been submitted and introduced into evidence. The Division recommends the certification of proposed Units 4 and 5 subject to a condition which has been accepted by Florida Power Corporation.

27. Section 403.507(1)(b), Florida Statutes, requires that the Florida Public Service Commission shall prepare a report and recommendation as to the present and future needs for electrical generating capacity in the area to be served by the proposed site and shall submit its findings to the Department of Environmental Regulation. Such a report and recommendations have been submitted and introduced into evidence. The Public Service Commission recommends the certification of proposed Units 4 and 5.

28. Section 17-17.04(5), Florida Administrative Code, requires the water management district in whose jurisdiction Units 4 and 5 are proposed to be located to prepare a report of its position of the impact of the proposed facilities on the water resources of the district. The Southwest Florida Water Management District prepared such a report, which was submitted and introduced into evidence. The report approves the use of saltwater for the main steam condenser cooling systems of Units 4 and 5 and expresses the District's position that any later conversion from saltwater cooling towers to freshwater cooling towers would be an unacceptable use of the District's freshwater resources.

29. Section 403.507(2), Florida Statutes, requires that the Department of Environmental Regulation conduct, or contract for, studies of the proposed electrical power plant and site, including, but not limited to (a) cooling system requirements, (b) construction and operational safeguards, (c) proximity to transportation systems, (d) soil and foundation conditions, (e) impact on suitable present and projected water supplies for this and other competing uses, (f) impact on surrounding land uses, (g) accessibility to transmission corridors and (h) environmental impacts. Such a report and recommendations have been submitted and introduced into evidence. The Department of Environmental Regulation recommends certification of proposed Units 4 and 5, subject to the conditions of certification which are attached and have been accepted by Florida Power Corporation.

30. The location and operation of proposed Units 4 and 5, as described by the evidence admitted to the record, if made subject to the conditions of certification attached, are expected to produce minimal adverse effects on human health, the environment, the ecology of land and its wildlife and the ecology of state waters and their aquatic life.

31. The operational safeguards for proposed Units 4 and 5 are technically sufficient for the welfare and protection of the citizens of Florida.

32. The certification of proposed Units 4 and 5 is consonant with the premise of abundant, low-cost electrical energy.

33. Proposed Units 4 and 5, if certified pursuant to the conditions of certification attached, will comply with the

pertinent state and federal regulations concerning the prevention of significant deterioration of air quality (PSD), Section 17-2.04, Florida Administrative Code, and the application of the best available control technology (BACT), Section 17-2.03, Florida Administrative Code.

34. All requests for variances which have been filed by Florida Power Corporation in this cause are unnecessary or can be resolved by adoption, pursuant to Section 403.511(5)(a), Florida Statutes, of the conditions of certification attached.

35. Certification of proposed Units 4 and 5 will constitute permission for Florida Power Corporation to cross U. S. Highway 19/98 as proposed.

RECOMMENDED ORDER

Having reviewed the record of this proceeding, and based upon the findings of fact and conclusions of law set forth herein, it is hereby recommended that certification, pursuant to Chapter 403, Part II, Florida Statutes, be granted to Florida Power Corporation for the construction and operation of Crystal River Units 4 and 5, the associated facilities and the directly associated transmission lines, as proposed in the amended application and evidence admitted to the record. It is further recommended that the certification be made subject to the conditions of certification attached.

DONE and ORDERED this 18 day of October, 1978, in
Tallahassee, Florida.


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State of Florida Department of Environmental Regulation
Florida Power Corporation
Crystal River Units No. 4 & 5
Case No. PA 77-09
CONDITIONS OF CERTIFICATION

GENERAL

1. Change in Discharge

All discharges or emissions authorized herein shall be consistent with the terms and conditions of this certification. The discharge of any pollutant not identified in the application, or any discharge more frequent than, or at a level in excess of that authorized herein, shall constitute a violation of the certification. Any anticipated facility expansions, production increases, or process modifications which will result in new, different or increased discharges or expansion in steam generating capacity will require a submission of a new or supplemental application pursuant to Chapter 403, Florida Statutes.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with or will be unable to comply with any limitation specified in this certification, the permittee shall notify the Southwest District Manager of the Department by telephone during the working day during which said noncompliance occurs and shall confirm this situation in writing within seventy-two (72) hours of first becoming aware of such conditions, supplying the following information:

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

3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this certification. Such systems are not to be bypassed without prior department approval.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact resulting from noncompliance with any limitation specified in this certification, including but not limited to such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying event.

5. Right of Entry

The permittee shall allow the Secretary of the Florida Department of Environmental Regulation and/or authorized representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises where an effluent source is located or in which records are required to be kept under the terms and conditions of this permit; and
- b. To have access to and copy all records required to be kept under the conditions of this certification; and
- c. To inspect and test any monitoring equipment or monitoring method required in this certification and to sample any discharge or pollutants, and
- d. To assess any damage to the environment or violation of ambient standards.

6. Revocation or Suspension

This certification may be suspended or revoked pursuant to Section 403.512, Florida Statutes, or for violations of any General or Special Condition.

7. Civil and Criminal Liability

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

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

8. Property Rights

The issuance of this certification does not convey any property rights in either real or personal property tangible or intangible, nor any exclusive privileges, nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. The applicant will obtain title, lease or right of use from the State of Florida, to any sovereign submerged lands occupied by plant, transmission line structures, or appurtenant facilities.

9. Severability

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

10. Definitions

The meaning of terms used herein shall be governed by the definitions contained in Chapter 403, Florida Statutes, and any regulation adopted pursuant thereto. In the event of any dispute over the meaning of a term used in these general or special conditions which is not defined in such statutes or regulations, such dispute shall be resolved by reference to the most relevant definitions contained in any other state or federal statute or regulation or, in the alternative by the use of the commonly accepted meaning as determined by the Department.

11. Review of Site Certification

The certification shall be final unless revised, revoked or suspended pursuant to law. At least every five years from the date of issuance of this certification or any National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Water Pollution Control Act Amendments of 1972, for the plant units, the Department shall review all monitoring data that has been submitted to it during the preceding five-year period, for the purposes of determining the extent of the permittee's compliance with the conditions of this certification and the environmental impact of this facility. The Department shall submit the results of its review and recommendations to the permittee. Such review will be repeated at least every five years thereafter.

State of Florida Department of Environmental Regulation
 Florida Power Corporation
 Crystal River Units No. 4 & 5
 Case No. PA 77-09
 CONDITIONS OF CERTIFICATION (Revised 9/18/78)

SPECIAL

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State of Florida Department of Environmental Regulation
Florida Power Corporation
Crystal River Units No. 4 & 5
Case No. PA 77-09
CONDITIONS OF CERTIFICATION

SPECIAL

I. Air

The Construction and operation of Units No. 4 and 5 at the Crystal River steam electric power plant site shall be in accordance with all applicable provisions of Chapters 17-2, 17-5 and 17-7, Florida Administrative Code. In addition to the foregoing, the permittee shall comply with the following specific conditions of certification:

A. Emission Limitations

1. Stack emissions from Units 4 and 5 shall not exceed the following when burning coal:
 - a. SO₂ - 1.2 lb. per million BTU heat input, maximum two hour average.
 - b. No_x - 0.70 lb. per million BTU heat input.
2. Stack SO₂ emissions from Units 1 & 2 shall not exceed the following when coal is burned.
 - a. Starting six months prior to the operation of Unit 4 - 2.9 lb per Million BTU heat input.
 - b. Starting six months prior to the operation of Unit 5 - 2.1 lb per million BTU heat input.
3. The permittee shall not burn a fuel oil containing more than 0.73% sulfur. However, the applicant may petition the Department to revise this condition by (a) demonstrating compliance with Section 17-2.05(6)(e)1, FAC, or (b) installing a flue gas desulfurization unit that will insure compliance with the above emission limitation. The boiler shall not be operated unless this condition is complied with.
4. The height of the boiler exhaust stacks for Units No. 4 & 5 shall not be less than 600 ft. above grade.
5. The permittee shall provide a plot plan of equipment prior to the start of construction, showing the proposed tentative location of flue gas desulfurization (FGD) equipment

that such equipment can be added at a later date, if installation of such equipment should subsequently become necessary. Prior to installation of any FGD equipment, plans and specifications for such equipment shall be submitted to the Department for review and approval.

6. Particulate emissions from the coal handling facilities:

- a. The applicant shall not cause to be discharged into the atmosphere from any coal processing or conveying equipment, coal storage system or coal transfer and loading system processing coal, visible emissions which exceed 20 percent opacity.
- b. The applicant must submit to the Department within five (5) working days after it becomes available, copies of technical data pertaining to the selected particulate emissions control for the coal handling facility. These data should include, but not be limited to, guaranteed efficiency and emission rates, and major design parameters such as air/cloth ratio and flow rate. The Department may, upon review of these data, disapprove the use of such device if the Department determines the selected control device to be inadequate to meet the visible emission limit specified in 6(a) above.

B. Air Monitoring Program

1. The permittee shall install and operate continuously monitoring devices for the units No. 4 & 5 boiler exhaust for sulfur dioxide, nitrogen dioxide and opacity. The monitoring devices shall meet the applicable requirements of Section 17-2.08, FAC.
2. The permittee shall operate the existing ambient monitoring devices for sulfur dioxide as shown on Attachment 1, in accordance with EPA reference methods in 40 CFR, Part 53 and the existing ambient monitoring devices for suspended particulates as shown on Attachment 1. New or existing monitoring devices shall be located as designated by the Department. The frequency of operation shall be every six days as specified by the Department.
3. The permittee shall maintain a daily log of the amounts and types of fuels used and copies of fuel analyses containing information on sulfur content, ash content and heating values to facilitate calculations of emissions.
4. The permittee shall provide sampling ports into the stack and shall provide access to the sampling ports, in accordance

1. DER Publication, Standard Sampling Techniques and Methods of Analysis for the Determination of Air Pollutants from Point Source, July 1975.

5. The ambient monitoring program may be reviewed annually beginning two years after start-up of Unit No. 5 by the Department and the permittee.
6. Prior to operation of the source, the applicant shall submit to the Department a standardized plan or procedure that will allow the applicant to monitor emission control equipment efficiency and enable the applicant to return malfunctioning equipment to proper operation as expeditiously as possible.
7. Salt drift deposition, accumulation, vegetative effects and effects on equipment shall be monitored and reported to the department in a manner and frequency approved by the department prior to the operation of the first cooling tower.

C. Stack Testing:

1. Within 60 calendar days after achieving the maximum capacity at which each unit will be operated, but no later than 180 operating days after initial start-up, the owner or operator shall conduct performance tests for particulates and SO₂ and furnish the Department a written report of the results of such performance tests.
2. Performance tests shall be conducted and data reduced in accordance with methods and procedures in accordance with DER's Standard Sampling Techniques and Methods of Analysis for Determination of Air Pollutants from Point Sources, July 1975.
3. Performance tests shall be conducted under such conditions as the Department shall specify based on representative performance of the facility. The owner or operator shall make available to the Department such records as may be necessary to determine the conditions of the performance tests.
4. The owner or operator shall provide 30 days prior notice of the performance tests to afford Department the opportunity to have an observer present.
5. Stack tests for particulates and SO₂ shall be performed annually in accordance with conditions C. 2, 3, and 4 above.

D. Reporting

1. For each Unit, stack monitoring, fuel usage and fuel analysis data shall be reported to the Department on a quarterly basis commencing with the start of commercial operation in accordance with 40 CFR, Part 60, Section 60.7., and in accordance with Section 17-2.08, FAC.

2. Ambient air monitoring data shall be reported to the Department quarterly commencing on the date of certification by the last day of the month following the quarterly reporting period utilizing the SAROAD or other format approved by the Department in writing.

E. Coal Characteristics and Contracts

Before approval can be granted by the Department for use of control devices, characteristics of the coal to be fired must be known. Therefore, before these approvals are granted, the applicant must submit to the Department copies of coal contracts which should include the expected sulfur content, ash content, and heat content of the coal to be fired. These data will be used by the Department in its evaluation of the adequacy of the control devices. Also, the applicant must demonstrate the ability to acquire a low sulfur coal supply of sufficient length to enable the installation of sulfur removal equipment if the supplies of low sulfur coal should not become available or be discontinued. Therefore, the coal contracts must be for a period of at least five (5) years from the date of start-up of the boiler.

F. Coal Information

As an alternative to the submittal of contracts for purchase of coal under condition E above, the applicant may submit the following information:

1. The name of the coal supplier;
2. The sulfur content, ash content, and heat content of the coal as specified in the purchase contracts;
3. The location of the coal deposits covered by the contract (including mine name and seam);
4. The date by which the first delivery of coal will be made;
5. The duration of the contract; and
6. An opinion of counsel for the applicant that the contracts are legally binding.

G. Reporting:

Beginning one month after certification the applicant shall submit to the Department a quarterly status report briefly outlining progress made on engineering design and purchase of

major pieces of equipment (including control equipment). All reports and information required to be submitted under this condition shall be submitted to the Administrator of Power Plant Siting, Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32301.

II. Water Discharges

Any discharges into any waters of the State during construction and operation of Units No. 4 & 5 shall be in accordance with all applicable provisions of Chapter 17-3, Florida Administrative Code and 40 CFR, 423, Effluent Guidelines and Standards for Steam Electric Power Generating Point Source Category. Also the permittee shall comply with the following conditions of certification:

A. Plant Effluents and Receiving Body of Water

For discharges made from the power plant the following conditions would apply.

1. Receiving Body of Water (RBW)

The receiving body of water will be determined by the Department to be those waters affected which are considered to be waters of the State within the definition of Chapter 403, Florida Statutes.

2. Point of Discharge (P.O.D.)

The point of discharge will be determined by the Department to be where the effluent physically enters the waters of the State.

3. Thermal Mixing Zone

The zone of thermal mixing for cooling tower blowdown shall not extend beyond the western end of the north bank of the existing discharge canal. During Discharge, the blowdown from the cooling tower for Units No. 4 & 5 shall be withdrawn at the point of lowest temperature of the recirculating cooling water prior to the addition of makeup water. The temperature at the point of discharge into the discharge canal shall not be greater than 95 degrees F. The temperature of the water at the end of the discharge canal shall not exceed the limitations of Paragraph 17-3.05(3)(d) when only Units 4 & 5 are operating and one or more of the circulating water pumps from the existing units are operating.

4. Chemical Wastes and Boiler Blowdown

All discharges of low volume wastes (demineralizer regeneration, cooling tower basin cleaning wastes, floor drainage, sample drains and similar wastes), metal cleaning wastes (including

preheater and fireside wash) and boiler blowdown shall comply with Chapter 17-3. If violations of Chapter 17-3 occur, corrective action shall be taken. These wastewaters shall be discharged to an adequately sized and constructed percolation pond.

5. Coal Pile and Ash Landfill Runoff

Coal pile runoff and ash landfill runoff from less than 10-year 24-hour rainfall shall be treated if required by Special Condition III. H. and discharged to an adequately sized and constructed percolation ditch system.

6. Cooling Tower Blowdown

The cooling tower blowdown shall contain no detectable amounts of materials added for corrosion inhibition, including but not limited to zinc and chromium.

7. Chlorine

The quantity of free available chlorine discharged in the blowdown from the cooling tower shall not exceed 0.5 mg/l at any one time and shall not exceed 0.2 mg/l as an average. Neither free available chlorine nor total residual chlorine may be discharged from either unit for more than two hours in any one day and Units 4 or 5 may not discharge chlorine while any other unit is discharging chlorine.

8. pH

The pH of all discharges shall be such that the pH of water in the discharge canal shall be within the range of 6.0 to 8.5, at a distance of 150 meters from the ROU into the canal.

9. Polychlorinated Biphenyl Compounds

There shall be no discharge of polychlorinated biphenyl compounds.

B. Water Monitoring Programs

The permittee shall monitor and report to the Department the listed parameters on the basis specified herein. The methods and procedures utilized shall receive written approval by the Department. The monitoring program may be reviewed annually by the Department, and a determination may be made as to the necessity and extent of continuation, and may be modified in accordance with condition No. 12 of the General Conditions of Certification.

1. Chemical Monitoring

The following parameters shall be monitored as shown during discharge commencing with the start of commercial operation of the first unit and reported quarterly to the Department:

<u>Parameter</u>	<u>Location</u>	<u>Sample Type</u>	<u>Frequency</u>
Flow, Groundwater	Wellfield pipeline	Recorder	Totalizer
Flow, Discharge	C.T. Outfall*	Recorder	Totalizer
Conductivity	C.T. Outfall	Recorder	Continuous
pH	C.T. Outfall	Multiple Grab**	Daily
<u>Temperature</u>	<u>C.T. Outfall</u>	<u>Recorder</u>	<u>Continuous</u>
TDS	C.T. Outfall	Grab	Weekly
Chlorine, Free Residual	C.T. Outfall	Multiple Grab**	During Discharge
Chlorine, Total	C.T. Outfall	Recorder	During Discharge
Oil and Grease	C.T. Outfall	Grab	During Discharge

2. Groundwater Monitoring

- a. The groundwater levels shall be monitored continuously at wells as approved by Southwest Florida Water Management District. Chemical analyses shall be made on samples from all monitored wells identified in Condition III. F. below. The location, frequency and selected chemical analyses shall be as given in Condition III. F.
- b. The groundwater monitoring program shall be implemented at least one year prior to operation of Crystal River No. 4. The chemical analyses shall be in accord with the latest edition of Standard Methods for the Analysis of Water and Wastewater. The data shall be submitted within 30 days of collection/analysis to the Southwest Florida Water Management District and to the DER Southwest District Office.
- c. Conductivity and heavy metals shall be monitored in wells around all ash disposal sites and coal piles.

III. Groundwater

A. General

The use of groundwater from a linear wellfield for plant service water for Units 4 and 5 shall be minimized to the greatest extent practicable, but in no case shall exceed 3 mgd on a maximum daily basis from any new wells or 1.0 mgd on an average annual basis.

B. Well Criteria

The submission of well logs and test results and location, design and construction of wells to provide plant service water shall be in accordance with applicable rules of the Department of Environmental Regulation and the Southwest Florida Water Management District (SWFWMD). Total water use per month shall be reported quarterly to SWFWMD commencing with the start of construction.

- * Cooling Tower Outfall Pipe.
- ** Representative sample.

*C. Well Withdrawal Limits

FPC is authorized to make a combined average annual withdrawal of 1,000,000 gallons of water per day with a maximum combined withdrawal rate not to exceed 3,000,000 gallons during a single day. Withdrawals may be made from a linear wellfield consisting of up to twenty-one (21) wells whose locations are prescribed in the table below.

FPC Well No.	WITHDRAWAL POINT		GALLONS PER DAY	GALLONS PER DAY
	LATITUDE	LONGITUDE	MAXIMUM	AVERAGE
A	28 57 36	82 37 48	144,000	50,000
B	28 57 36	82 37 42	144,000	50,000
C	28 57 36	82 37 36	144,000	50,000
D	28 57 36	82 37 30	144,000	50,000
E	28 57 36	82 37 24	144,000	50,000
F	28 57 36	82 37 18	144,000	50,000
G	28 57 36	82 37 13	144,000	50,000
H	28 57 37	82 37 07	144,000	50,000
I	28 57 37	82 37 01	144,000	50,000
J	28 57 37	82 36 56	144,000	50,000
K	28 57 37	82 36 51	144,000	50,000
L	28 57 37	82 36 46	144,000	50,000
M	28 57 37	82 36 40	144,000	50,000
N	28 57 44	82 36 35	144,000	50,000
O	28 57 44	82 36 29	144,000	50,000
P	28 57 44	82 36 24	144,000	50,000
Q	28 57 44	82 36 18	144,000	50,000
R	28 57 44	82 36 13	144,000	50,000
S	28 57 44	82 36 07	144,000	50,000
T	28 57 45	82 36 01	144,000	50,000
U	28 57 45	82 35 56	144,000	50,000
Combined Maximum:			3,000,000	1,000,000

After wells have been constructed, Southwest Florida Water Management District will evaluate the individual wells and may recommend to the Department authorization of increased withdrawals based upon hydrologic characteristics for the individual wells provided that the provisions of rules of the District relating to drawdown at the boundary of the property shall be observed. The Department pursuant to Section 403.516, F.S. may modify the above withdrawal limitations with the concurrence of SWFWMD.

D. Water Use Restriction

Said water is restricted to uses other than main steam condensing. Any change in the use of said water will require a modification of this condition.

*Revised 9/14/78

E. Emergency Shortages

In the event an emergency water shortage should be declared pursuant to Section 373.175 or 373.246, F.S., by Southwest Florida Water Management District for an area including the location of these withdrawal points, the Department pursuant to Section 403.516, F.S., may alter, modify, or declare to be inactive, all or part of Special Condition III.A.-G. An authorized Water Management District Representative, at any reasonable time, may enter the property to inspect the facilities.

F. Monitoring and Reporting

FPC shall, within the time limits hereinafter set forth, complete the following items, and if it fails to complete them by the specified time, then Special Condition III.A.-G. shall automatically become null and void.

1. FPC shall install propellor driven flow meters in compliance with SWFWMD specifications on all production wells.

Said meter shall be installed prior to commencement of withdrawal.

2. FPC shall submit to SWFWMD, on forms available from the District, a record of pumpage for each meter installed in F.1. above. Said pumpage shall be provided on a monthly basis, and shall be submitted by April 15, July 15, October 15, and January 15 for each preceding calendar quarter. Reports will be sent to:

Chief, Technical Information Service
Southwest Florida Water Management District
5060 U.S. Highway 41, South
Brooksville, Florida 33512

3. FPC shall maintain and operate continuous water level recorders on wells SMW-1, MZ-1, and WT-1 located at Florida Power Corporation pump test site in Citrus County, Florida. Water levels shall be monitored only in the deep zone MZ-1D of well MZ-1. FPC shall construct an additional monitor well similar to MZ-1, with any construction modifications approved by the SWFWMD staff, to be located within its right-of-way near U.S. Highway 19. Such additional monitor well shall be designated as MZ-2 and FPC shall maintain and operate continuous water level recorders to monitor the intermediate zone MZ-2I and the deep zone MZ-2D of well MZ-2. Detailed hydrographs of water level fluctuations shall be constructed with the data collected from the water level recorders and shall be submitted to SWFWMD by April 15, July 15, October 15, and January 15 for each preceding calendar quarter.

4. Water quality analysis shall be performed on water withdrawn from each production well and from the shallow (MZ-1S and MZ-2S), intermediate (MZ-1I and MZ-2I), and deep (MZ-1D and MZ-2D) zones in Monitor Wells MZ-1 and MZ-2. Water withdrawn from MZ-1S and MZ-2S shall be supplied from that portion of the Floridan Aquifer between 60' and 245' below land surface. Water withdrawn from wells MZ-1I and MZ-2I shall be supplied from that portion of the Floridan Aquifer between 360' and 373' below land surface. Water withdrawn from well MZ-1D and MZ-2D shall be from that portion of the Floridan Aquifer between 472' and 488' below land surface. The water samples collected from each of the referenced wells shall be collected immediately after removal by pumping of a quantity of water equal to two casing volumes. As monitor well MZ-2 is being constructed the FPC and staff of SWFWMD may determine and adjust the intervals to be monitored in accordance with hydrologic conditions determined from drilling logs. The water quality analyses shall be performed monthly during the first year of operation, four times (January, May, September and December) during the second year and twice each year (May and September) thereafter. Results shall be submitted to SWFWMD by the fifteenth (15th) day of the month following the month during which such analyses were performed. Testing for the following constituents is required:

Calcium	Magnesium	Sodium
Potassium	Bicarbonate	Sulfate
Chloride	Nitrate	Total Dissolved Solids
Specific Conductance	Gross Alpha	Total Phosphate
Radium 226 (only if gross Alpha is greater than 15 pci/l)	Radiation	

The design and location of wells MZ-1 and MZ-2 shall be as indicated by the attached Figures 1 and 2 respectively or as modified by the staff of SWFWMD.

5. In the event that SWFWMD determines there is a significant change in the water quality, the Department pursuant to Section 403.516, F.S., may require the permittee to reduce or cease withdrawal from these groundwater sources.

G. Minimum Water Level Restrictions

The Department and SWFWMD may, at a future date pursuant to Section 403.516, F.S., establish a minimum water level in the aquifer or aquifers hydrologically associated with these withdrawals, which may require FPC to reduce or cease withdrawal from these groundwater sources at times when water levels fall below these minimums.

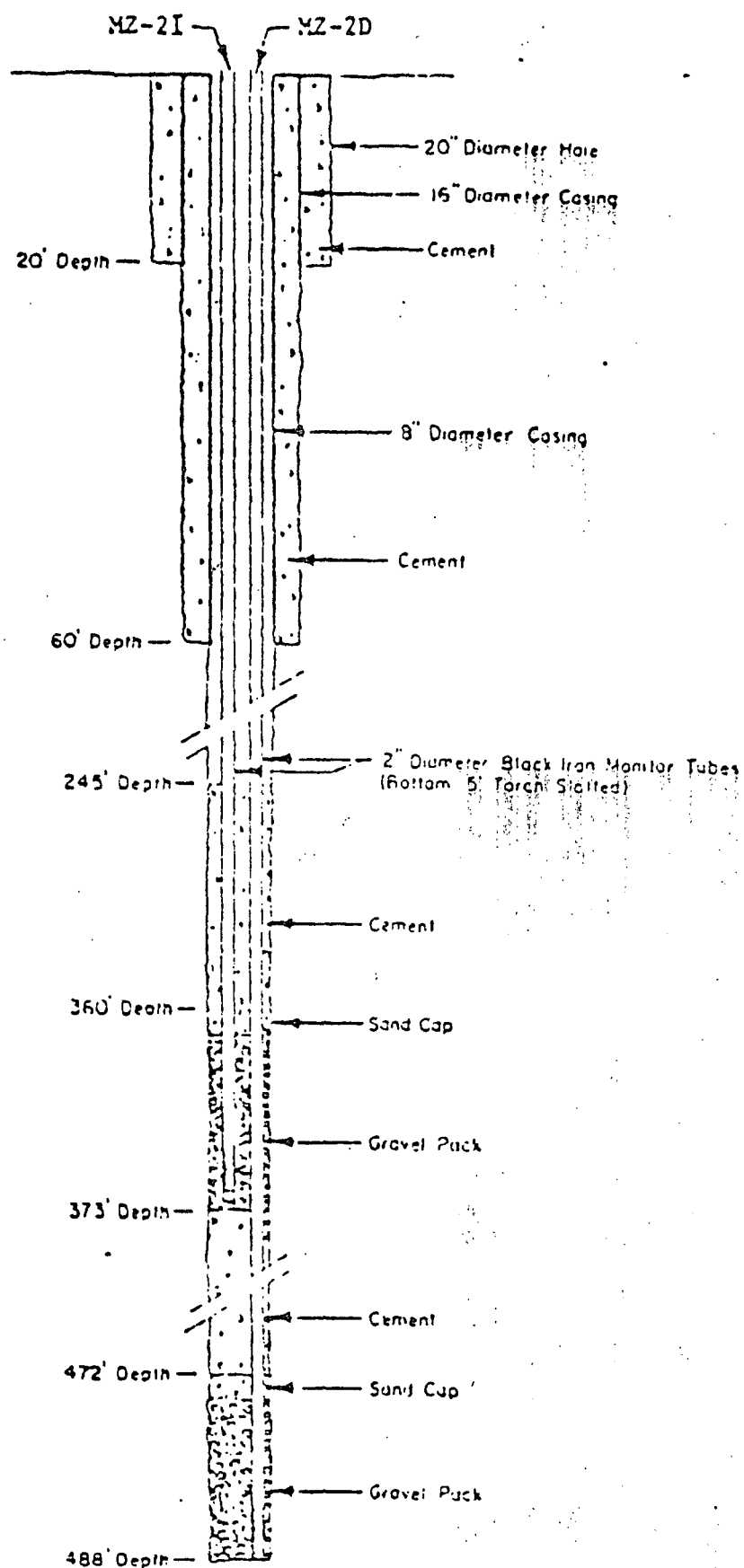


Figure 1. Construction Diagram of Monitor Well MZ-2.

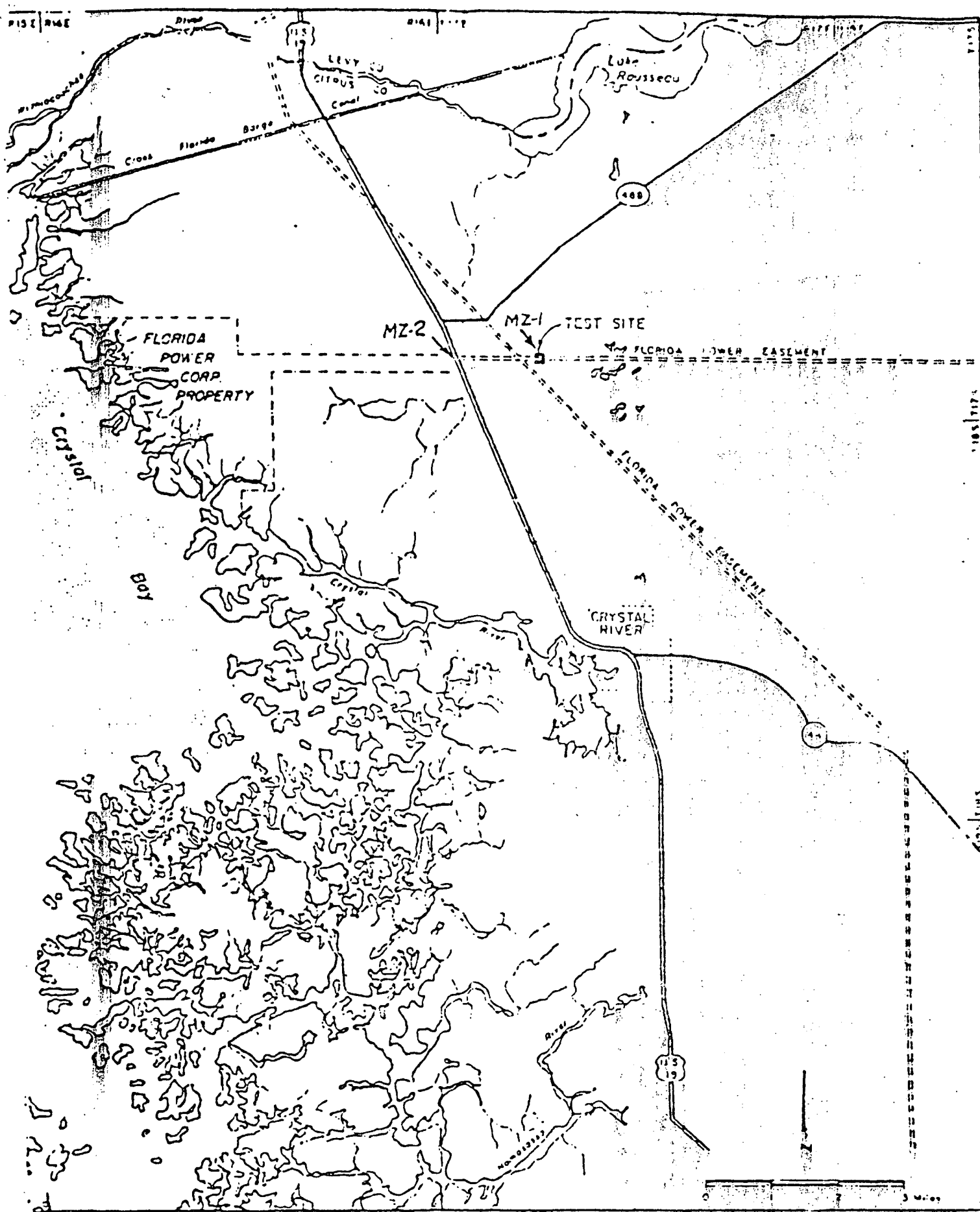


Figure 2. Location of the Test Site.

H. Leach

1. Compliance

Leachate from the ash landfill, coal storage piles, plant drains collection pond, canal retention system and ditches shall not contaminate waters of the State (including both surface and groundwaters) in excess of the limitations of Chapter 17-3, FAC.

2. Monitoring

A monitoring well system shall be used, commencing with operation, to determine whether or not leachate from the plant drains collection pond, canals, ditches, the ash landfill and coal pile is contaminating the groundwater in violation of Chapter 17-3. The permittee shall keep a monthly record of the monitoring results and shall notify the Southwest District Office of the Department and the Southwest Florida Water Management District when said measurements exceed water quality standards. A quarterly summary of the results of monitoring shall be provided to the Southwest District Manager. The proposed monitoring well system shall be submitted to the Department for approval prior to installation.

3. Corrective Action

When the leachate monitoring system indicates to the Department violation of the groundwater water quality standards of Chapter 17-3, FAC., the appropriate ditches, canal, pond, ash landfill, or coal pile shall be sealed, relocated or closed, or the operation of the affected facility shall be altered in such a manner as to assure the Department that no significant contamination of the groundwater will occur.

IV. Control Measures During Construction

A. Stormwater Runoff

During construction and plant operation, necessary measures shall be used to settle, filter, treat or absorb silt containing or pollutant laden stormwater runoff to limit the suspended solids to 50 mg/l or less at the POD during rainfall periods less than the 10-year, 24-hour rainfall, and to prevent an increase in turbidity to more than 50 Jackson Turbidity Units above background in waters of the State.

Control measures shall consist at the minimum, of filters, sediment traps, barriers, berms or vegetative planting. Exposed or disturbed soil shall be protected as soon as possible to

minimize silt and sediment laden runoff. The pH shall be kept within the range of 6.0 to 8.5, after opportunity for reasonable mixing as defined in II.A.8.

B. Sanitary Wastes

Disposal of sanitary wastes from construction toilet facilities shall be in accordance with applicable regulations of the Department and appropriate local health agency. The sewage treatment plant shall be operated in accordance with Chapters 17-3, 17-16, and 17-19, FAC.

C. Environmental Control Program

An environmental control program shall be established under the supervision of a qualified person to assure that all construction activities conform to good environmental practices and the applicable conditions of certification.

The permittee shall notify the Department if unexpected harmful effects or evidence of irreversible environmental damage are detected during construction. shall immediately cease work and shall provide an analysis of the problem and a plan to eliminate or significantly reduce the harmful effects or damage, and to prevent reoccurrence.

V. Solid Wastes

Solid wastes resulting from construction or operation shall be disposed of in accordance with the applicable regulations of Chapter 17-7, FAC.

Open burning in connection with land clearing shall be in accordance with Chapter 17-5, FAC, no additional permits shall be required, but the Division of Forestry shall be notified prior to burning. Open burning shall not occur if the Division of Forestry has issued a ban on burning due to fire hazard conditions.

VI. Operation Safeguards

The overall design, layout, and operation of the facilities shall be such as to minimize hazards to humans and the environment. Security control measures shall be utilized to prevent exposure of the public to hazardous conditions.

VII. Screening

The permittee shall provide screening of the site through the use of aesthetically acceptable structures, vegetated earthen walls and/or existing or planted vegetation.

VIII. Potable Water Supply System

The potable water supply system shall be designed and operated in conformance with Chapter 17-22, FAC. Information as required in 17-22.05 shall be submitted to the Department prior to construction and operation. The operator of the potable water supply system shall be certified in accordance with Chapter 17-23, FAC.

IX. Transformer and Electric Switching Gear

The foundations for transformers, capacitors, and switching gear necessary for Crystal River Units 4 and 5 to the existing distribution system shall be constructed of an impervious material and shall be constructed in such a manner to allow complete collection and recovery of any spills or leakage of oily, toxic, or hazardous substances.

X. Toxic, Deleterious, or Hazardous Materials

The spill of any toxic, deleterious, or hazardous materials shall be reported in the manner specified by General Conditions 2.

XI. Construction in Waters of the State

No construction on sovereignty submerged lands shall commence without obtaining lease or title from the Department of Natural Resources.

Construction of intake and discharge structures should be done in a manner to minimize turbidity. Sheetpiles or turbidity screens should be used if necessary to prevent turbidity in excess of 50 JTU above background beyond 150 meters from the PDD and/or construction site.

XII. Ash Landfill and Coal Piles

*A. Ash Landfill

FPC shall designate a portion of the site as a temporary ash landfill. Associated with the temporary landfill shall be certain sites for the testing and monitoring of leachates and ash pile liners.

Adequate geophysical testing shall be conducted to determine if solution cavities are present under the landfill area. If such cavities are located, such cavities shall be sealed off and stabilized.

The proposed ash landfill area shall be monitored and studied pursuant to a detailed leachate testing and monitoring program to be submitted by FPC to the Department within 30

*Revised (9/14/78)

d of certification for review, and approval, rejection, or modification within 60 days thereafter. The detailed leachate testing and monitoring program shall be consistent with the conceptual leachate monitoring program attached and incorporated herein as Attachment 2.

After approval of the program by the Department, FPC shall conduct the approved testing and monitoring program under the supervision of the Department. Results of the program shall be submitted to the Department for its review and consideration on a monthly basis.

The results of the program will be used by the Department in determining whether FPC has affirmatively demonstrated that Florida Water Quality Standards (17-3 F.A.C.) will not be violated, in determining the zone of discharge, and in determining the need for a liner.

If the Department determines that FPC has failed to affirmatively demonstrate that Florida Water Quality Standards (17-3 F.A.C.) will not be violated, FPC shall present to the Department, within 90 days of such determination, a plan of correction, (which may include, if appropriate, a semi-permeable liner) for review and approval by the Department, and for timely implementation by FPC; or FPC shall place an impermeable liner under the final ash landfill site and shall remove all ash from the temporary landfill site and place it on the lined landfill location.

The final cover shall be in compliance with Chapter 17-7, F.A.C., and at least 12" of clay or sufficient suitable liner material shall be placed on the top and exposed sides of each finished landfill cell. Sufficient topsoil to support vegetation shall be placed over the top and side clay liner. The top and exposed sides of the ash landfill shall be vegetated to control erosion.

B. Coal Pile

At least two feet of compacted clay, with characteristics similar to montmorillonite, shall be placed underneath any coal pile containing more than 0.2% pyritic sulfur.

XIII. Floodproofing

The power generation equipment and other facilities vital to the operation of the plant shall be constructed in such a manner that water elevations at the 100 year flood will not cause damage to the equipment or necessitate plant shutdown.

FLORIDA POWER CORPORATION
CRYSTAL RIVER UNITS 4 AND 5
PROPOSED LEACHATE MONITORING AND TESTING

- I. Computerized and Manual Literature Search with the objective of obtaining an adequate data base from literature.
- II. Pre-operational Water Table Monitoring Program with the objective to acquire 12-month baseline.
 - Install 12 Shallow Piezometer Well Points
 - Install 2 Deep Piezometer Well Points
 - Monitor Water Table Level
 - 1 Well-Recorder to establish degree of tidal influence--one month
 - 13 Wells--Weekly
 - Monitor In Situ (pH, Conductance, Redox, Dissolved Oxygen)--Weekly (all Wells)
 - Monitor Key Water Quality Indicators--Monthly (4 Wells)
 - Monitor Extended Water Quality Indicators--Quarterly (4 Wells)
 - Monitor Rainfall and Evaporation--Weekly
 - Develop Flow Net and Water Budget
- III. Laboratory Screening of Ash from Low Pyritic Sulfur Coal with the objective of evaluation of leachate formation and attenuation reactions. The program will establish the following:
 - Percolation Rates of Compacted Ash (fly and bottom ash)
 - Solute Release Rates
 - Limestone Neutralization Effectiveness
 - Clay Liner Effectiveness
 - Correlate Extended and Key Water Quality Indicators
 - Total Ash Leachate Capacity
 - Active Area vs. Inactive Area Leachate Rates
 - Available Fractions of Solutes

Techniques for Screening:

- Shake Test (fly, bottom ash)
- Column Leaching (6-10 months)
 - (1) Compacted Fly Ash (Lifts and Liners)
 - (2) Alternative Lifts of Ash and Limestone
 - (3) Ash with Clay Liner
 - (4) Ash with Compacted Limerock and Fly Ash Liner

IV. Evaluate Leachate Attenuation in Subsoil and Water Table Aquifer

- Oxidation - Reduction
- Chemical Precipitation/Solubility/pH/Eh
- Adsorption Isotherms
- Ion Exchange Capacity
- Metals Content of Limerock

V. Cost-Effectiveness Evaluation of Alternative Liners

- Water Quality Criteria
- Biological Effects
- Cost of Leachate Control and Treatment
- Cost of Runoff Control and Treatment

VI. Develop Final Design for Field Test Cell Program Defined in Paragraph VII Below

VII. Field Test Cells Program with the Objective of Verifying

Monitor Water Budget

- Direct Infiltration Rates
- Direct Runoff
- Direct Rainfall
- Water Table

Potential Test Cell Configurations

- Ash with Compacted Fly Ash Liner Only
- Ash with Compacted Limestone and Fly Ash Liner
- Alternative Lifts of Ash and Limestone with Compacted Fly Ash Liner
- Ash with Selected Clay Liner
- Alternative Caps and Vegetation

Monitor Leachate Formation and Attenuation

- 4 Well Clusters per Cell at Three Depths
- Weekly Water Table Elevation In Situ Water Quality from All Wells (pH, Conductance, Redox, Dissolved Oxygen)
- Monthly Key Indicators from 2 Clusters per Cell
- Quarterly Extended Indicators from 2 per Cell
- 2 Base Well Points Shall be Maintained Upslope of the Active Area.